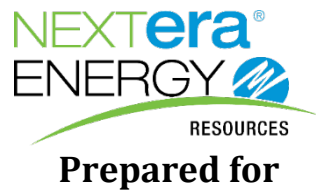


Exhibit K

Compliance with Statewide Planning Goals

**Wheatridge Wind Energy Facility
June 2019**



Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|--------------------|--|
| ASC | Application for Site Certificate |
| AVA | American Viticultural Area |
| BPA | Bonneville Power Administration |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| CRP | Conservation Reserve Program |
| EFU | Exclusive Farm Use |
| Facility | Wheatridge Wind Energy Facility |
| FEMA | Federal Emergency Management Agency |
| LUBA | Land Use Board of Appeals |
| MCCP | Morrow County Comprehensive Plan |
| MCZO | Morrow County Zoning Ordinance |
| MW | megawatts |
| NRCS | Natural Resources Conservation Service |
| O&M | Operations and maintenance |
| OAR | Oregon Administrative Rules |
| ORS | Oregon Revised Statutes |
| OWRD database | Oregon Water Resources Department Water Rights Information Query |
| RFA 4 | Request for Amendment 4 |
| RPS | Renewable Portfolio Standard |
| UEC | Umatilla Electric Cooperative |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 (MW) of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with the Land Use standard OAR 345-022-0030 and related Site Certificate conditions (see Attachment K-1). This exhibit, Exhibit K, demonstrates that the Council may find that the Facility, as proposed, continues to comply with the Land Use Standard and related Site Certificate conditions:

OAR 345-022-0030, Land Use

- (1) To issue a site certificate, the Council must find that the proposed facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission.*

¹ Per OAR 345-001-0010(32) “micrositing corridor” means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

2.0 Land Use Analysis Area – OAR 345-021-0010 (1)(k)(A)

OAR 3450-021-0010 (1)(k) Information about the proposed facility's compliance with the statewide planning goals adopted by the Land Conservation and Development Commission, providing evidence to support a finding by the Council as required by OAR 345-022-0030. The applicant shall state whether the applicant elects to address the Council's land use standard by obtaining local land use approvals under ORS 469.504(1)(a) or by obtaining a Council determination under ORS 469.504(1)(b). An applicant may elect different processes for an energy facility and a related or supporting facility but may not otherwise combine the two processes. Once the applicant has made an election, the applicant may not amend the application to make a different election. In this subsection, "affected local government" means a local government that has land use jurisdiction over any part of the proposed site of the facility. In the application, the applicant shall:

OAR 3450-021-0010 (1)(k)(A) Include a map showing the comprehensive plan designations and land use zones in the analysis area.

The Analysis Area for purposes of this exhibit is "the area within the Site Boundary and one-half mile from the Site Boundary." The Site Boundary consists of the Approved Site Boundary and the Amended Site Boundary, and is defined in detail in Exhibits B and C. Figure K-1 shows the Analysis Area for Exhibit K. As shown on Figure K-2, all of the land within the Analysis Area is zoned Exclusive Farm Use (EFU). The proposed changes in RFA 4 are all within Morrow County. This exhibit addresses changes in land use proposed in RFA 4 that have not been previously approved by the Council for the Facility. Therefore, this exhibit focuses on adding photovoltaic solar energy generation to the Facility within the Amended Site Boundary (solar micrositing corridors).

3.0 Land Use Analysis

Figure K-3 shows the land uses in the Amended Site Boundary in Morrow County. The land use categories were determined based on field surveys and corresponding habitat types, as identified in Exhibit P. Table K-1 provides a summary by acreage of each land use category that makes up the Amended Site Boundary, as well as the estimated permanent disturbance from the proposed changes in RFA 4.

Table K-1. Land Use in Amended Site Boundary and Estimated Permanent Disturbance

| Land Use ¹ | Amended Site Boundary (Acres/%) | | Estimated Permanent Disturbance within Amended Site Boundary (Acres/%) | |
|---|---------------------------------|-------------------------|--|--------------|
| | Total | | Total | |
| Agriculture, non-irrigated ² | 1,757.57 | 77.6 | 812.60 | 91.0 |
| Agriculture, irrigated ³ | 0.00 | 0.0 | 0.00 | 0.0 |
| Habitat Lands ⁴ | 502.36 | 21.9 | 80.31 | 9.0 |
| Developed ⁵ | 34.34 | 1.5 | 0.16 | 0.0 |
| Total | 2,294.27 | /101⁶ | 893.07 | 100.0 |
| 1. See Figure P-3 for delineation of each habitat type. 2. Includes habitat type categories "Developed-Dryland Wheat" and "Developed - Revegetated or other planted grassland." 3. Includes habitat type category "Developed-Irrigation Agriculture." 4. Includes habitat type categories "Grassland-Exotic Annual", "Grassland-Native Perennial", "Riparian-Trees", "Shrub-steppe-Basin Big Sagebrush", "Shrub-steppe-Rabbitbrush/Snakeweed." 5. Includes habitat type category "Developed-Other." 6. Does not add up to 100 due to rounding. | | | | |

Most of the land in the Amended Site Boundary (approximately 78%) and which will be permanently disturbed (91%) is primarily devoted to dryland winter wheat farming (land use category "Agriculture, non-irrigated" in Table K-1). Winter wheat is generally planted in the fall, in October or November, and harvested in summer months, July and August. Winter wheat is commonly grown on a two-year wheat-fallow cycle, in which the field is allowed to lie fallow for one crop season between plantings. Wheat planted the following year can then take advantage of two years of accumulated soil moisture, greatly enhancing the likelihood of a successful harvest. Dryland farming has evolved as a set of techniques and management practices used by farmers to continually adapt to the presence or lack of moisture in a given crop cycle. These practices include the use of a fallow period in a crop rotation, noted above, terracing or contour plowing, eliminating weeds and leaving crop residue to shade the soil, cover cropping, and strip cropping. Some farmers use a no-till method in which the field is sprayed with an herbicide following harvest and crop stubble is left on the field during periods when the field is fallow. Establishment of field crops includes weed control, field preparation, seed bed preparation, fertilization, and seeding or planting of the crop. Herbicides may be applied prior to field cultivation where perennial weeds or a heavy sod are present. Some farmers may use helicopters and/or airplanes to aerially apply chemicals to a crop rather than using traditional ground-based equipment for application. Aerial application can be used to apply chemicals to a field when soils are too wet or crops are too close to maturity to be accessed by heavy equipment, thereby reducing crop and soil damage. Agricultural fields are accessed by a network of public and private roads. Farm machinery is commonly driven on public roads between farms, while private roads and tracks provide access within properties and around fields. Some of these private access ways are fairly well developed roads, paved or graded gravel,

while others are rough two-track dirt paths. Wheat farmers use a variety of ground-based equipment including tractors, plows, discs, fertilizer/pesticide applicators, combine harvesters, and other heavy machinery. Most modern tractors and equipment, including combines, are less than 15 feet tall. However, certain implements, accessories, booms, or antennas may extend to heights greater than 15 feet during normal operation. Additional information regarding farming practices in the Analysis Area, including for dryland winter wheat, was provided in the Facility's Application for Site Certificate (ASC; as part of the ASC's Attachment K-1, see Wheatridge 2015).

Most of the other land uses in the Amended Site Boundary are Conservation Reserve Program (CRP)² and/or grasslands. Under Oregon Revised Statutes (ORS) 215.203, lands devoted to farm use include "wasteland" such as the grasslands and other areas that are not economical to cultivate, because they are interspersed with cultivated lands and are also within the EFU zone. Accordingly, for the purposes of this discussion, a distinction is drawn in Table K-1 between cultivated agricultural lands that are more closely defined as those currently used for dryland wheat, while grasslands are separated out to better describe the impacts to lands actually used for economic agricultural activity.

As shown in Table K-1 and on Figure K-3, there are no areas of the Amended Site Boundary that are lands irrigated for agricultural uses. Portions of Solar Array 1 east of Bombing Range Road have not used irrigation for agricultural practices for 25 years (since 1992). This area is covered by a junior water right as provided to the property owner now adjacent to the east in Water Right Permit G5092 and Certificate 62326, which was permitted effective June 24, 1970. Irrigation was provided from a basalt groundwater reservoir, which since 1986 is an area designated as Butter Creek Critical Ground Water Area. The purpose of the Butter Creek Critical Ground Water Area is to promote optimum use of the limited groundwater supply in reservoir to stabilize water levels. No new applications for appropriation of water from the basalt groundwater reservoir within the Butter Creek Critical Area are permitted. According to Joshua Hackett (personal communication December 6, 2018), hydrologist (Butter Creek Allocations) with the Oregon Water Resources Department: "Certificate 62326 was last allocated water in 1992 (270 acre feet). It is the most junior water right in the Pine City subarea, so it is highly unlikely it would be allocated water if a request were made. Allocation requests by senior water right holders typically exceed the sustainable annual yield by 1,000 acre feet or more." Alternate means of irrigation from the Columbia, Umatilla, and Butter Creek surface water resources are also unlikely for the Amended Site Boundary due to the distance from the Amended Site Boundary to these water resources and the associated cost of pumping water. As shown on aerial imagery, irrigated farmland in Morrow County generally congregates around Columbia, Umatilla, and Butter Creek surface water

² The CRP Grasslands are part of the CRP program, a federally funded voluntary program that contracts with agricultural producers so that environmentally sensitive agricultural land is not farmed or ranched, but instead used for conservation benefits. CRP Grasslands helps landowners and operators protect grassland, including rangeland, and pastureland, and certain other lands. CRP Grasslands is authorized by the 2014 Farm Bill many provisions which expired in September 2018. The U.S. Department of Agriculture Farm Service Agency administers the program on behalf of the U.S. Department of Agriculture Commodity Credit Corporation. The U.S. Department of Agriculture provides participants with rental payments and cost-share assistance contracts by acreage. Contract duration is between 14 and 15 years. <https://www.fsa.usda.gov/programs-and-services/conservation-programs/crp-grasslands/index>

resources. For these reasons, obtaining water for irrigation for areas within the Amended Site Boundary including areas that previously were irrigated (25 years ago), is improbable.

ORS 195.300(10) provides qualifying characteristic definitions of high-value farmlands, three of which apply to land in the Amended Site Boundary. The first applicable characteristic per ORS 195.300(10)(a) is based on soils quality criteria, as classified by Natural Resources Conservation Service (NRCS): soils that are irrigated or not irrigated, and classified as prime, unique, Class I or Class II. The second part of the definition that applies to the Amended Site Boundary is ORS 195.300(10)(c), which includes land that is “Within the place of use for a permit, certificate or decree for the use of water for irrigation issued by the Water Resources Department.” The third part of the definition is based on elevation, slope, and aspect criteria for areas within certain viticultural areas. Per ORS 195.300(10)(f), lands within the Columbia Valley American Viticultural Area (AVA; see 27 CFR Part 9, Subpart C - Approved American Viticultural Areas, Section § 9.74 Columbia Valley)—which encompasses the entirety of the Amended Site Boundary (and Analysis Area)—qualify as high-value farmland if they are below 3,001 feet elevation, with slopes no greater than 15 percent, and with an aspect between 67.5 and 292.5 degrees.

Table K-2 provides a breakdown by acreage of the applicable ORS 195.300(10) classifications, associated definitions, and additional farmland definitions in OAR 660-033-0130(38). Based on the ORS 195.300(10) definitions, approximately 7 percent of land within the Amended Site Boundary would be high-value farmland if the water right associated with a portion of the land was exercised and the land was irrigated. The portion of the high-value farmland definition derived from NRCS soils data captures only those areas that could be irrigated. Approximately 31 percent of the Amended Site Boundary is high-value farmland based on being located in the Columbia Valley AVA. The area of the Amended Site Boundary that is considered high-value farmland based on being located in the Columbia Valley AVA also includes approximately 63 acres that is classified as high-value farmland based on NRCS criteria, for a total of approximately 35 percent of the Amended Site Boundary that is classified as high-value farmland based on one of the criteria or both. As noted in Exhibit K of the ASC, this results in high-value farmland occurring on a patchy basis throughout the Analysis Area and Amended Site Boundary (Wheatridge 2015). The added Columbia Valley AVA slope and aspect criteria capture all flat to moderately sloped areas that face southeast to southwest, whether used or usable for agriculture or not. Because this portion of the definition is not tied to soils, water availability, or actual land use, high-value farmland defined by these criteria occur indiscriminately on lands currently used for agriculture, on native and non-native grasslands and shrublands, and even on developed areas. The pattern of distribution is indicative of the topography that characterizes the area: small undulations are evident even on “flat” terrain and along the broad ridges.

Most of the Amended Site Boundary, 89 percent, is comprised of arable lands that include areas of high-value farmland. Non-arable lands in the Amended Site Boundary are challenging to cultivate, as they generally follow the ravines and areas with slopes. Figure K-4 shows the high-value, arable, and non-arable lands for the Amended Site Boundary.

Table K-2. Farmland Classification in Amended Site Boundary and Estimated Permanent Disturbance

| Amended Site Boundary (Acres/%) | Amended Site Boundary (Acres/%) | | Estimated Permanent Disturbance within Amended Site Boundary (Acres/%) | |
|---|------------------------------------|--------|--|--------|
| | Total | | Total | |
| High-value farmland based on NRCS soil data ¹ | 160.90 | 7.01% | 63.67 | 7.08% |
| High-value farmland based on AVA criteria ² | 718.99 | 31.34% | 164.79 | 18.33% |
| Arable ³ | 2,036.21 | 88.75% | 883.43 | 98.29% |
| Nonarable | 258.06 | 11.25% | 15.40 | 1.71% |
| 1. Based on high-value farmland definition under ORS 195.300(10)(a) and (c). 2. Based on high-value farmland definition under ORS 195.300(10)(f). 3. Arable Lands includes high-value farmland. | | | | |

4.0 Local Land Use Approval – OAR 345-021-0010 (1)(k)(B)

OAR 3450-021-0010 (1)(k)(B) If the applicant elects to obtain local land use approvals:

- (i) Identify the affected local government(s) from which land use approvals will be sought.*
- (ii) Describe the land use approvals required in order to satisfy the Council's land use standard.*
- (iii) Describe the status of the applicant's application for each land use approval.*
- (iv) Provide an estimate of time for issuance of local land use approvals.*

The Certificate Holder has elected to address the Council's land use standard by obtaining a land use determination from the Council pursuant to ORS 469.504(1)(b). Therefore, these standards do not apply.

5.0 Council Determination on Land Use – OAR 345-021-0010 (1)(k)(C)

The Certificate Holder has elected to address the Council's land use standard by obtaining a land use determination from the Council pursuant to ORS 469.504(1)(b). The Council's rules state that an applicant seeking the Council's land use approval must identify the "applicable substantive [land

use] criteria” of the relevant local governments and must describe how the proposed facility complies with those criteria, as well as any Land Conservation and Development Commission rules, goals, or land use statutes that apply directly to the facility under ORS 197.646(3). If an applicant cannot demonstrate compliance with one or more of the applicable substantive criteria, they must describe how the proposed facility complies with the Statewide Planning Goals adopted by the Land Conservation and Development Commission, or alternatively, warrants a goal exception (OAR 345-021-0010(1)(k)). This exhibit demonstrates how the Facility, as proposed, complies with the applicable local substantive criteria from the comprehensive plans and zoning codes for Morrow County, and where it doesn’t, demonstrates the Facility, as proposed, justifies a goal exception.

5.1 Identification of Applicable Substantive Criteria – OAR 345-021-0010 (1)(k)(C)(i)

OAR 345-021-0010 (1)(k)(C) If the applicant elects to obtain a Council determination on land use:

(i) Identify the affected local government(s).

The proposed changes in RFA 4 will be located entirely within the EFU zone of Morrow County. Therefore, as noted in previous sections, only Morrow County criteria are addressed, even though there are portions of the approved Facility in Umatilla County. The following section provides an assessment of compliance with the applicable local substantive criteria for commercial solar energy generation in Morrow County.

5.2 Applicable Substantive Criteria from OAR 345-021-0010 (1)(k)(C)(ii)

(ii) Identify the applicable substantive criteria from the affected local government’s acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and that are in effect on the date the application is submitted and describe how the proposed facility complies with those criteria.

The applicable substantive criteria of the Morrow County Zoning Ordinance (MCZO) and Morrow County Comprehensive Plan (MCCP) are addressed in the following sections. The substantive criteria are:

- **Morrow County Zoning Ordinance (Morrow County 2016a):**
 - MCZO 1.050 Zoning Permit
 - MCZO 3.010 Exclusive Farm Use, EFU
 - MCZO 4.010. Access
 - MCZO 4.020 Sight Distance
 - MCZO 4.035 Permit Requirements
 - MCZO 4.040 Off-Street Vehicle Parking

- MCZO 4.070 Sight Limitations
- MCZO 4.165 Site Plan Review
- MCZO 6.015. Requirements Under a State Energy Facility Site Certificate
- MCZO 6.020. General Criteria
- MCZO 6.025. Resource Zone Standards for Approval
- MCZO 6.030. General Conditions
- MCZO 6.040. Permit Improvements
- MCZO 6.050. Standards Governing Conditional Uses
- MCZO 8.040. Amendment Criteria
- **Morrow County Comprehensive Plan (Morrow County 2016b):**
 - Goal 3 Agricultural Lands Element – Policies 1 and 4
 - Goal 9 Economic Element – Policies 2A, 3A, 4B, 5A and 6C
 - Goal 13 Energy Conservation Element – Policies 3 and 9
 - Chapter 19 – Review and Revisions

5.2.1 Section 1.050 Zoning Permit

Prior to the construction, reconstruction, alteration, or change of use of any structure larger than 100 square feet or use for which a zoning permit is required, a zoning permit for such construction, reconstruction, alteration, or change of use or uses shall be obtained from the Planning Director or authorized agent thereof. A zoning permit shall become void after 1 year unless the development action has commenced. A 12-month extension may be granted when submitted to the Planning department prior to the expiration of the approval period.

Response: The Facility, as proposed, exceeds 100 square feet, and therefore is subject to MCZO Section 1.050. A zoning permit will be sought from Morrow County prior to construction consistent with Site Certificate Condition PRE-LU-01: Obtain all necessary local permits (see Attachment K-1).

5.2.2 Section 3.010. Exclusive Farm Use (EFU) Zone; C. Conditional Uses.

The following uses are permitted subject to county review, any specific standards for the use set forth in Section D, Article 6, the general standards for the zone, and any other applicable standards and review process in the ordinance:

24. Photovoltaic solar power generation facilities as commercial utility facilities for the purpose of generating power for public use by sale subject to Subsection K.3.

Response: The proposed changes in RFA 4 are considered a “photovoltaic solar power generation facility” per the definition provided under MCZO Section 3.010 K.3.e. Photovoltaic solar power

generation facilities include the photovoltaic modules, racking, collection system, inverters, and the substation expansion. Therefore, the proposed changes in RFA 4 are considered a conditionally allowed use within the EFU zone, provided it meets the applicable standards under MCZO Section 3.010 K.3, MCZO Article 6, the applicable general standards for the zone (MCZO Section 3.010 L through N), and any other applicable standards. Note that per MCZO Section 3.010 C.22, “commercial utility facilities for the purpose of generating power for public use by sale” does not include “photovoltaic solar power generation facilities,” and therefore photovoltaic solar power generation facilities are not subject to the standards listed under MCZO Section 3.010 D.10.

5.2.3 K. Commercial Facilities for Generating Power³

3. Photovoltaic Solar Power Generation Facility. A proposal to site a photovoltaic solar power generation facility shall be subject to the following definitions and provisions:

- a. “Arable land” means land in a tract that is predominantly cultivated or, if not currently cultivated, predominantly comprised of arable soils.*
- b. “Arable soils” means soils that are suitable for cultivation as determined by the governing body or its designate based on substantial evidence in the record of a local land use application, but “arable soils” does not include high-value farmland soils described at ORS 195.300(10) unless otherwise stated.*
- c. “Nonarable land” means land in a tract that is predominantly not cultivated and predominantly comprised of nonarable soils.*
- d. “Nonarable soils” means soils that are not suitable for cultivation. Soils with an NRCS agricultural capability class V–VIII and no history of irrigation shall be considered nonarable in all cases. The governing body or its designate may determine other soils, including soils with a past history of irrigation, to be nonarable based on substantial evidence in the record of a local land use application.*
- e. “Photovoltaic solar power generation facility” includes, but is not limited to, an assembly of equipment that converts sunlight into electricity and then stores, transfers, or both, that electricity. This includes photovoltaic modules, mounting and solar tracking equipment, foundations, inverters, wiring, storage devices and other components. Photovoltaic solar power generation facilities also include electrical cable collection systems connecting the photovoltaic solar generation facility to a transmission line, all necessary grid integration equipment, new or expanded private roads constructed to serve the photovoltaic solar*

³ MCZO 3.010.K.3 parallels the requirements under OAR 660-033-0130(38) for siting a photovoltaic solar power generation facility on EFU land. The Land Conservation and Development Commission conducted a hearing on proposed rule amendments for OAR 660-033-0130 at its January 24-25, 2019 meeting and adopted temporary rule amendments changing criteria for approval of solar facilities at the conclusion of that hearing. As of March 23, 2019, the temporary rules are in effect until July 29, 2019. As confirmed by ODOE, the rules applicable at time of submittal of the preliminary amendment application which was prior to adoption of the temporary rules, are applicable to the proposed changes.

power generation facility, office, operation and maintenance buildings, staging areas and all other necessary appurtenances. For purposes of applying the acreage standards of this Section, a photovoltaic solar power generation facility includes all existing and proposed facilities on a single tract, as well as any existing and proposed facilities determined to be under common ownership on lands with fewer than 1320 feet of separation from the tract on which the new facility is proposed to be sited. Projects connected to the same parent company or individuals shall be considered to be in common ownership, regardless of the operating business structure. A photovoltaic solar power generation facility does not include a net metering project established consistent with ORS 757.300 and OAR chapter 860, division 39 or a Feed-in-Tariff project established consistent with ORS 757.365 and OAR chapter 860, division 84.

Response: Figure K-5 shows the tracts that the Amended Site Boundary is in and adjacent tracts. As described in Sections 2 and 3, the area within the Amended Site Boundary is comprised of both high-value and arable lands that are predominantly cultivated with dryland wheat. The proposed changes meet the definition of “photovoltaic solar power generation facility.” The distributed battery storage sites are part of the solar facility. They will be integrated into the solar array electrical collection system to store energy consistent with the definition of photovoltaic solar power generation facility in MCZO 3.010 K.3.e: “*Photovoltaic solar power generation facility*” includes, but is not limited to, an assembly of equipment that converts sunlight into electricity and then **stores⁴**, transfers, or both, that electricity....” In addition, the 34.5-kV collector lines are also part of the solar facility as they will collect the energy from the solar modules and transfer it to the collector substation.

f. For high-value farmland described at ORS 195.300(10), a photovoltaic solar power generation facility shall not preclude more than 12 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4. The governing body or its designate must find that:

Response: As outlined in Table K-2, approximately 64 acres within the Amended Site Boundary meet the definition of high-value farmland under ORS 195.300(10)(a) if a historic water right is exercised, and would be precluded from use as a commercial agricultural enterprise (although this water right has not been exercised in 25 years). In addition, approximately 165 acres meet the definition of high-value farmland per ORS 195.300(10)(f)(C), and would be precluded from use as a commercial agricultural enterprise, although 13 acres of this area also falls under the definition above. As the total area of high-value farmland within the Amended Site Boundary that would be precluded from use as a commercial agricultural enterprise is more than 12 acres, a Goal Exception will be taken. However, because the Facility falls under the Council’s jurisdiction, it is the Council’s statutes and rules that govern the goal exception process, ORS 469.504(2) and OAR 345-022-0030(4), rather than ORS 197.732.

⁴ Text bolded for emphasis.

(1) The proposed photovoltaic solar power generation facility will not create unnecessary negative impacts on agricultural operations conducted on any portion of the subject property not occupied by project components. Negative impacts could include, but are not limited to, the unnecessary construction of roads dividing a field or multiple fields in such a way that creates small or isolated pieces of property that are more difficult to farm, and placing photovoltaic solar power generation facility project components on lands in a manner that could disrupt common and accepted farming practices;

Response: The proposed changes in RFA 4 will not create unnecessary negative impacts on the landowner's current and future agricultural operations conducted on the portions of the subject tracts not occupied by the Facility. The solar arrays are generally oriented adjacent and parallel to existing roads (see Exhibit C, Figure C-2), and have been sited to maximize efficiency while also consolidating the solar arrays to an area that does not constrain the current and future dryland wheat farming activities on the remainder of the tract or on neighboring tracts. Consistent with Site Certificate Condition GEN-LU-04, the Certificate Holder shall design and construct the Facility using the minimum land area necessary for safe construction and operation (Attachment K-1). The proposed changes in RFA 4 will be accessed from existing roads and will not require the construction of access roads. Short driveway extents will be installed outside of the solar array areas, thus avoiding any further division of the tracts. The Facility, as proposed, will not make it more difficult for the existing farms and ranches in the area. Additionally, a Right-to-Farm Disclaimer will be signed and recorded by the Certificate Holder, as required per MCZC Section 3.010 K.3.i. and Site Certificate Condition PRE-LU-04 (Attachment K-1). Interviews with the landowners of the tracts that comprise the Amended Site Boundary, who also own adjacent and other tracts in the vicinity of the Amended Site Boundary, did not identify or anticipate any adverse impact, nor increase in the cost of farming practices, in the vicinity of the solar arrays.

(2) The presence of a photovoltaic solar power generation facility will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property. This provision may be satisfied by the submittal and county approval of a soil and erosion control plan prepared by an adequately qualified individual, showing how unnecessary soil erosion will be avoided or remedied and how topsoil will be stripped, stockpiled and clearly marked. The approved plan shall be attached to the decision as a condition of approval;

Response: Exhibit I addresses soil erosion. Construction would be performed under a National Pollutant Discharge Elimination System 1200-C permit, including an Oregon Department of Environmental Quality Erosion and Sediment Control Plan consistent with Site Certificate Condition CON-SP-01, which will also include erosion and sediment control best management practices. After completing construction in an area, the Certificate Holder will monitor the area to evaluate whether construction-related impacts to soils are being adequately addressed by the mitigation procedures described in the Erosion and Sediment Control Plan and the revegetation consistent with Site Certificate Condition OPR-SP-01. Once the Facility's commercial operations end, compacted soils

within the Amended Site Boundary will be restored during decommissioning. Soil compaction reduction plan measures will be developed and incorporated into the Decommissioning Plan required as part of Site Certificate Condition RET-RF-01. In addition, compliance with Site Certificate Condition PRE-SP-02 ensures that the final Revegetation Plan (Site Certificate Condition PRE-FW-05) includes a program to protect and restore agricultural soils temporarily disturbed during Facility construction (see Attachment K-1).

(3) Construction or maintenance activities will not result in unnecessary soil compaction that reduces the productivity of soil for crop production. This provision may be satisfied by the submittal and county approval of a plan prepared by an adequately qualified individual, showing how unnecessary soil compaction will be avoided or remedied in a timely manner through deep soil decompaction or other appropriate practices. The approved plan shall be attached to the decision as a condition of approval;

Response: Construction of the proposed changes in RFA 4 will limit the extent of grading to specific areas within the Amended Site Boundary, and therefore will not result in unnecessary soil compaction that reduces the productivity of soil for crop production. Construction of the proposed changes in RFA 4 will not require mass grading. Within the solar array areas, grading will be limited to the roads, inverter and energy storage footprints. No soil compaction will occur outside of the Amended Site Boundary. By limiting the extent of grading to specific areas within the Amended Site Boundary, construction activities will not result in unnecessary soil compaction that reduces the productivity of soils for crop production. Once the Facility's commercial operations end, compacted soils will be restored during decommissioning. Soil compaction reduction plan measures will be developed and incorporated into the Decommissioning Plan required as part of Site Certificate Condition RET-RF-01. In addition, compliance with Site Certificate Condition PRE-SP-02 ensures that the final Revegetation Plan (Site Certificate Condition PRE-FW-05) includes a program to protect and restore agricultural soils temporarily disturbed during facility construction (see Attachment K-1). The Certificate Holder will obtain Council and county approval of these plans prior to start of construction.

(4) Construction or maintenance activities will not result in the unabated introduction or spread of noxious weeds and other undesirable weed species. This provision may be satisfied by the submittal and county approval of a weed control plan prepared by an adequately qualified individual that includes a long-term maintenance agreement. The approved plan shall be attached to the decision as a condition of approval;

Response: Consistent with Site Certificate Condition PRE-LU-03, before beginning construction, the Certificate Holder shall prepare a Weed Control Plan that is consistent with Morrow County weed control requirements and that is prepared in coordination with the Morrow County and the Oregon Department of Fish and Wildlife, and which will be approved by the Oregon Department of Energy.

(5) The project is not located on high-value farmland soils unless it can be demonstrated that:

- (a) Non high-value farmland soils are not available on the subject tract;*
- (b) Siting the project on non high-value farmland soils present on the subject tract would significantly reduce the project's ability to operate successfully; or*
- (c) The proposed site is better suited to allow continuation of an existing commercial farm or ranching operation on the subject tract than other possible sites also located on the subject tract, including those comprised of non high-value farmland soils; and*

Response: As described in Section 3, the area within the Amended Site Boundary is primarily comprised of arable land and is predominantly cultivated with dryland wheat. As the proposed changes in RFA 4 will preclude more than 12 acres of high-value farmland from use as a commercial agricultural enterprise, an exception is being requested pursuant to ORS 469.504(2) and OAR 345-022-0030(4) (see Section 5.7).

OAR 660-033-0010 defines tract to mean “one or more contiguous lots or parcels under the same ownership,” therefore the “subject tract” includes those identified on Figure K-4. As noted above, these include areas of high-value soils solely because of an inactive water right that could classify a portion of the land east of Bombing Range Road as irrigated (see Figure K-4) and because of the AVA designation, specifically the slope and aspect criteria, that is not related to soil attributes. It is not possible to site the solar arrays completely avoiding the high-value farmland due to the patchy and irregular nature of high-value farmland on the tracts (see Figure K-4). Since the majority of the Amended Site Boundary consists of cultivated areas of dryland wheat, it is therefore arable (See Figure K-3) and also unavoidable. As shown on Figure K-4, the available non-arable land generally consists of narrow extents of land that follow drainages or steep slopes. Not only is there not enough land area on non-arable soils on the subject tracts to accommodate a 150 MW project, siting the solar arrays on the non-arable soils would significantly reduce the Facility’s ability to operate successfully because the location and dimension of those soils (and similar to the high-value farmland) is patchy, making siting solely on non-arable soils not feasible. Solar arrays for a 150 MW project on non-arable land would have to be broken up into many more smaller solar arrays with substantially more supporting infrastructure such as access roads and would have additional resource impacts.

In addition, the Amended Site Boundary has the following characteristics: :

- Approximately 22 percent of the Amended Site Boundary is habitat land (designated CRP), and therefore is not used for commercial agricultural purposes.
- Based on interviews with landowners of the farms within the Amended Site Boundary, the subject tracts have the same or less yield than other fields in the tract or on neighboring tracts; therefore they are not better suited for commercial farming than other possible sites in the tracts.

- The solar micrositing corridors (Amended Site Boundary) overlaps with the wind micrositing corridors (Approved Site Boundary). Therefore, there are portions of the land that have already been evaluated and approved for renewable energy use.

(6) A study area consisting of lands zoned for exclusive farm use located within one mile measured from the center of the proposed project shall be established and:

(a) If fewer than 48 acres of photovoltaic solar power generation facilities have been constructed or received land use approvals and obtained building permits within the study area, no further action is necessary.

(b) When at least 48 acres of photovoltaic solar power generation have been constructed or received land use approvals and obtained building permits, either as a single project or as multiple facilities within the study area, the local government or its designate must find that the photovoltaic solar energy generation facility will not materially alter the stability of the overall land use pattern of the area. The stability of the land use pattern will be materially altered if the overall effect of existing and potential photovoltaic solar energy generation facilities will make it more difficult for the existing farms and ranches in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland or acquire water rights, or will reduce the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area.

Response: The area within 1 mile of the center of the proposed solar generation facility consists primarily of dryland wheat farming. Carla McLane, Morrow County Planning Director confirmed in her letter dated February 21, 2019 that Morrow County approved the HARP solar facility, which is approximately 3 miles from the proposed Facility. The Certificate Holder does not know of any other solar PV power generation facilities that have been constructed or are approved for construction within the required study area. Therefore, no further action is necessary.

g. For arable lands, a photovoltaic solar power generation facility shall not preclude more than 20 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4. The governing body or its designate must find that:

_(1) The project is not located on high-value farmland soils or arable soils unless it can be demonstrated that:

(a) Nonarable soils are not available on the subject tract;

(b) Siting the project on nonarable soils present on the subject tract would significantly reduce the project's ability to operate successfully; or

(c) The proposed site is better suited to allow continuation of an existing commercial farm or ranching operation on the subject tract than other possible sites also located on the subject tract, including those comprised of nonarable soils;

Response: As discussed above, the Amended Site Boundary is primarily comprised of arable lands. The Certificate Holder demonstrates above that the proposed changes may be located on arable soils within the Amended Site Boundary in response to MCZC Section 3.010 K.3.f. However, because the proposed changes in RFA 4 will preclude more than 20 acres of arable land, a goal exception will be needed. Also, because the Facility is under the jurisdiction of the Council, it is Council's statutes and rules that govern the goal exception process (ORS 469.504(2) and OAR 345-022-0030(4)), rather than ORS 197.732. The Certificate Holder demonstrates that a Goal 3 exception for arable lands is warranted under Section 5.7.

(2) No more than 12 acres of the project will be sited on high-value farmland soils described at ORS 195.300(10) unless an exception is taken pursuant to 197.732 and OAR chapter 660, division 4;

Response: Because the Facility is under Council jurisdiction, it is Council's statutes and rules that govern the goal exception process (ORS 469.504(2) and OAR 345-022-0030(4)), rather than ORS 197.732. The Certificate Holder demonstrates that a Goal 3 exception for high-value farmland is warranted under Section 5.7.

(3) A study area consisting of lands zoned for exclusive farm use located within one mile measured from the center of the proposed project shall be established and:

(a) If fewer than 80 acres of photovoltaic solar power generation facilities have been constructed or received land use approvals and obtained building permits within the study area no further action is necessary.

(b) When at least 80 acres of photovoltaic solar power generation have been constructed or received land use approvals and obtained building permits, either as a single project or as multiple facilities, within the study area the local government or its designate must find that the photovoltaic solar energy generation facility will not materially alter the stability of the overall land use pattern of the area. The stability of the land use pattern will be materially altered if the overall effect of existing and potential photovoltaic solar energy generation facilities will make it more difficult for the existing farms and ranches in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area; and

Response: No other solar photovoltaic power generation facilities have been constructed or are approved for construction within the required 1-mile study area from the center of the solar array. Therefore, no further action is necessary.

(4) The requirements of Subsections K.3.f(1), (2), (3), and (4) are satisfied.

Response: The requirements of Subsections K.3.f(1), (2), (3), and (4) are discussed above. Therefore, this criterion is satisfied.

h. For nonarable lands, a photovoltaic solar power generation facility shall not preclude more than 320 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4.

Response: The proposed changes in RFA 4 do not preclude more than 320 acres of non-arable land from use as a commercial agricultural enterprise, and is therefore compliant with MCZO Section 3.010 K.3.h.

i. The project owner shall sign and record in the deed records for the county a document binding the project owner and the project owner's successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices as defined in ORS 30.930(2) and (4).

Response: In accordance with ORS 30.930(2) and (4) and Site Certificate Condition PRE-LU-04, the Certificate Holder will sign and record with the subject tract's deed a Right-to-Farm Disclaimer in accordance with this provision.

j. Nothing in this Section shall prevent the county from requiring a bond or other security from a developer or otherwise imposing on a developer the responsibility for retiring the photovoltaic solar power generation facility.

Response: Retirement of the Facility will be the responsibility of the Site Certificate holder pursuant to Council rules and the conditions of the Site Certificate, per the Council's Retirement and Financial Assurance standard, OAR 345-022-0050 (see Exhibit W).

5.2.4 L. Land Divisions

Response: The proposed changes will be located on leased land, will not require new lots or parcels, and will not include new dwellings. Therefore, none of the subsections of MCZO 3.010(L) apply to RFA 4.

5.2.5 M. Yards

In an EFU Zone, the minimum yard setback requirements shall be as follows:

- 1. The front yard setback from the property line shall be 20 feet for property fronting on a local minor collector or marginal access street ROW, 30 feet from a property line fronting on a major collector ROW, and 80 feet from an arterial ROW unless other provisions for combining accesses are provided and approved by the County.*
- 2. Each side yard shall be a minimum of 20 feet except that on corner lots or parcels the side yard on the street side shall be a minimum of 30 feet.*
- 3. Rear yards shall be a minimum of 25 feet.*

Response: Juniper Canyon Road is classified as a minor collector, Bombing Range Road a major collector, and Highway 207 as an arterial road. Therefore, the required front yard setback is between 20-80 feet from roads. The solar arrays will meet the minimum setbacks for front yard, side yard, and rear yard distances. The Certificate Holder will document consistency with the applicable setback based on final design, as confirmed and submitted to Morrow County as part of the zoning permit consistent with Site Certificate Condition PRE-LU-07.

4. Stream Setback. All sewage disposal installations such as outhouses, septic tank and drainfield systems shall be set back from the high-water line or mark along all streams and lakes a minimum of 100 feet, measured at right angles to the high-water line or mark. All structures, buildings, or similar permanent fixtures shall be set back from the high-water line or mark along all streams or lakes a minimum of 100 feet measured at right angles to the high-water line or mark.

Response: The Certificate Holder will document consistency with the applicable setback based on final design, as confirmed and submitted to Morrow County as part of the zoning permit consistent with Site Certificate Condition PRE-LU-07.

5.2.6 N. Transportation Impacts

1. Traffic Impact Analysis (TIA). In addition to the other standards and conditions set forth in this section, a TIA will be required for all projects generating more than 400 passenger car equivalent trips per day. Heavy vehicles – trucks, recreational vehicles and buses – will be defined as 2.2 passenger car equivalents. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and, mitigation of the impacts. If the corridor is a State Highway, use ODOT standards. (MC-C-8-98)

Response: The Facility, as proposed, will require increased automobile trips during construction, but it is not expected the proposed use will exceed 400 trips per day because the timing of construction of the wind and solar facilities will be staggered. As noted in Exhibit U, the volume of truck traffic for the delivery of solar array components will be considerably less than previously approved by the Council for Facility. Traffic is not expected to be impacted during the long-term operation of the Facility because there will be only up to two additional operations employees compared to the number previously approved for the Facility. Prior to construction, the Certificate Holder will implement Site Certificate condition PRE-PS-02 (see Attachment K-1).

5.3 Article 4. Supplementary Provisions

5.3.1 Section 4.010. Access

SECTION 4.010. ACCESS. Intent and Purpose: The intent of this ordinance is to manage access to land development while preserving the flow of traffic in terms of safety, capacity, functional

classification, and level of service. Major roadways, including highways, arterials, and collectors serve as the primary network for moving people and goods. These transportation corridors also provide access to businesses and homes and have served as the focus for commercial and residential development. If access points are not properly designed, these roadways will be unable to accommodate the needs of development and retain their primary transportation function. This ordinance balances the right of reasonable access to private property with the right of the citizens of Morrow County and the State of Oregon to safe and efficient travel. This ordinance shall apply to all public roadways under the jurisdiction of Morrow County and to application for development for any property that abuts these roadways. This ordinance is adopted to implement the land access and access management policies of Morrow County as set forth in the Transportation System Plan. Access shall be provided based upon the requirements below:

A. Minimum Lot Frontage Requirement. Every lot shall abut a street, other than an alley, for at least 50 feet, except on cul-de-sacs where the frontage may be reduced to 30 feet.

Response: There will be no changes to any lots as part of the proposed changes. The lots that the proposed changes will be located on abut a street for at least 50 feet.

B. Access Permit Requirement. Where access to or construction on a county road is needed, an access permit or right-of-way permit from Morrow County Public Works department is required subject to the requirements in this Ordinance. Where access to a state highway is needed, an access permit from ODOT is required as part of the land use application. Where access is needed to a road managed by the Forest Service or other entity, an access permit or other authorization from the appropriate entity shall be required as part of the land use application.

Response: Access (Approach) permits, per the requirements stated under MCZO Section 4.010 B, will be obtained for the Facility consistent with Site Certificate Condition GEN-LU-02 (see Attachment K-1).

C. Emergency Vehicle Access. It is the responsibility of the landowner to provide appropriate access for emergency vehicles at the time of development. A dead-end private street exceeding one hundred-fifty (150) feet in length shall have an adequate turn around facility approved by the appropriate Fire Marshal or, if the Fire Marshal fails to review the private street, approval by the Building Official or his designee.

Response: Emergency vehicle access will be provided from accesses off of County and ODOT roads (see response above) and designed to applicable standards to internal site Facility roads. Facility roads will be sufficiently sized for emergency vehicle access in accordance with the most updated Oregon Fire Code (Section 503 and Appendix D Fire Apparatus Access Roads), last updated in 2014 (or the most updated Fire Code at time of construction). Specifically, internal roads at the solar array sites will be all-weather, compacted gravel and approximately 20 feet wide, with an internal turning radius of 28 feet. These roads will also have less than a 10 percent grade, or a similar profile, depending on exact siting.

D. Easements and Legal Access: All lots must have access onto a public right of way. This may be provided via direct frontage onto an existing public road, a private roadway, or an easement. Minimum easement requirements to provide legal access shall be as follows:

- 1. 1000' or less, a minimum easement width of 20'*
- 2. More than 1000', a minimum easement width of 40'*
- 3. Parcels where 3 or more lots share an access (current or potential), a minimum easement of 60'.*

Response: As shown on Figure C-2 in Exhibit C, the lots that the proposed changes will be located on will have access to public right-of-way which will be documented through with Site Certificate Condition GEN-LU-02 (see Attachment K-1).

E. Access Spacing Requirements for Development Accessing State Highways. Applications for development with access onto state highways shall be provided to ODOT for review, to ensure consistency with adopted ODOT Access Management Standards shown in Table 4.010-1. These standards apply only to unsignalized access points. Where a right of access exists, a property shall be allowed to have access onto a state highway at less than adopted access spacing requirements only if all the following conditions are met:

- 1. The property does not have reasonable access via an alternative to the state highway;*
- 2. There are no other possible access options along the parcel's highway frontage; and*
- 3. The access spacing standards cannot be accomplished.*

When a proposed access onto a state highway does not meet the access spacing standards in Table 4.010-1, a deviation from standard will be considered by the ODOT Region Manager, subject to requirements in OAR 734-051-0135.

**TABLE 4.010-1
ACCESS MANAGEMENT STANDARDS FOR MORROW COUNTY
NON-INTERSTATE HIGHWAYS**

| Highway | Classification | Access Spacing Standards for Public or Private Unsignalized Access (ft) for Posted Speed Indicated (mph) | | | | |
|----------------|----------------|--|-----|---------|---------|-----|
| | | >55 | 50 | 40 & 45 | 30 & 35 | <25 |
| US 730, OR 74 | Regional | 990 | 830 | 750 | 600 | 450 |
| OR 206, OR 207 | District | 700 | 550 | 500 | 400 | 400 |

REFERENCE: OREGON ADMINISTRATIVE RULES SECTION 734-051 (2004)

Response: As shown on Figure C-2 in Exhibit C, access to ODOT right-of-way will meet the access spacing standards in Table 4.010-1 which will be verified through Site Certificate Condition GEN-LU-02 (see Attachment K-1).

F. Access within the Influence Area of an Interchange Access within the influence area of existing or proposed state highway interchanges is regulated by standards in OAR 734-051, which are included as Appendix F of the 2005 Morrow County Transportation System Plan Update. These standards do not retroactively apply to interchanges existing prior to adoption of the 1999 Oregon Highway Plan, except or until any redevelopment, change of use, or highway construction, reconstruction or modernization project affecting these existing interchanges occurs. It is the goal at that time to meet the appropriate spacing standards, if possible, but, at the very least, to improve the current conditions by moving in the direction of the spacing standard.

Response: There are no interchanges nor an Influence Area of an Interchange Access in the analysis area. Therefore, this standard does not apply.

G. Signalized Intersection Spacing on State Facilities. New traffic signals proposed for state facilities, whether the intersecting facility is a public or private road, shall meet the requirements for installation of a traffic signal on a state highway in OAR 734-020-0400. New traffic signals on state facilities must be approved by the State Traffic Engineer. For approval of a new traffic signal on a County facility as part of a condition of development approval, the applicant shall be required to show, through analysis prepared by a qualified professional engineer registered in the State of Oregon, that the signal is warranted to improve traffic operations, address safety deficiencies, or a combination, based upon traffic signal warrants in the current version of the Manual on Uniform Traffic Control Devices.

Response: No new traffic signals are proposed for state facilities. Therefore, this standard does not apply.

H. Access Spacing Requirements for Development Accessing County Facilities. All developments shall have legal access to a County or public road. Except for interim access as provided in Section 4.010 H [Interim Access], access onto any County road in the unincorporated or incorporated urban area shall be permitted only upon issuance of an access permit upon demonstration of compliance with the provisions of the County road standards and the standards of Section 4.010. For County roadways designated as major collector or arterial in the Transportation System Plan, the standards in Table 4.010-2 apply for intersections created by a new public roadway, new private roadway or new private driveway. For County roadways designated as minor collectors or local access roads, intersections created by a new public roadway, new private roadway or new private driveway shall meet minimum County traffic safety and operational requirements, including sight distance, as determined by the County Engineer.

TABLE 4.010-2
ACCESS MANAGEMENT STANDARDS FOR MORROW COUNTY ROADWAYS

| Classification | Access Spacing Standards for Public or Private Access (ft) | | |
|----------------|--|-----------------|-------------------------------|
| | Public Roadway | Private Roadway | Private Driveway ^a |
| Arterial | 600 | 600 | 300 |
| Collector | 300 | 300 | 100 |
| Local | 200 | 200 | Access to each lot |

a. For most roadways, at-grade crossings are appropriate. Also, allowed moves and spacing requirements may be more restrictive than those shown to optimize capacity and safety. Any access to a state highway requires a permit from the district office of ODOT and is subject to the access spacing standards in Table 4.010-1 in this section.

No use will be permitted to have direct access to a street or road except as specified below, or as provided in Section 4.010.H (Interim Access). Access spacing shall be measured from existing or approved accesses on either side of a street or road. Measurements shall be made from easement or right-of-way line to easement or right-of-way line. (See following access diagram where R/W = Right-of-Way; P.I. = Point-of-Intersection where P.I. shall be located based upon a 90 degree angle of intersection between ultimate right-of-way lines, and 'C' and 'D' = each side of adjacent accesses to private property.

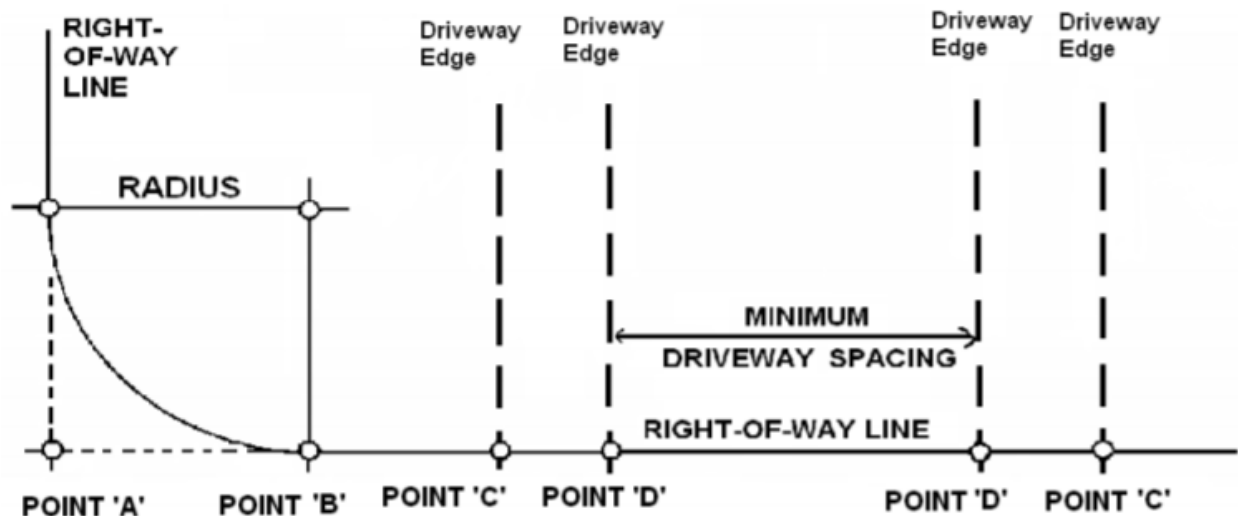
- 1. All minimum distances stated in the following sections shall be governed by sight distance requirements according to this Ordinance and applicable County Road Standards.*
- 2. All minimum distances stated in the following sections shall be measured to the nearest easement line of the access or edge of travel lane of the access on both sides of the road.*
- 3. The minimum curb radius shown in the diagram below (i.e., distance from Point "A" to Point "B") shall be 15 feet. In areas zoned for industrial uses, the minimum curb radius shall be 30 feet. At intersections between facilities classified as major collector, arterial or highway, any new or modified intersection shall be designed to accommodate a WB-50 Semitrailer Design Vehicle. If either route is designated by the County as a truck route, the intersection shall be designed to accommodate a WB-65 Interstate Semitrailer Design Vehicle. The curb alignment shall be designed so that the design vehicle can complete a right turn without entering a lane used by opposing traffic.*
- 4. All minimum distances between accesses shall be measured from existing or approved accesses on both sides of the road.*
- 5. Minimum spacing between driveways shall be measured from Point "D" to Point "D" as shown below (i.e., the edges of adjacent driveways closest to each other).*

6. In all instances, access points near an intersection with a Collector or Arterial shall be located beyond the influence of standing queues of the intersection in accordance with AASHTO standards. Additionally, access shall be located beyond the back of any left turn refuge either existing on the affected road or required to accommodate the proposed development. This requirement may result in an access spacing greater than one hundred (100) feet in the case of a collector, or 300 feet in the case of an arterial.

7. Access onto local roads will not be permitted within ten (10) feet of Point "B" as shown below. If no radius exists, access will not be permitted within twenty-five (25) feet of Point "A".

8. Access onto collector roads will not be permitted within fifty (50) feet of Point "B" as shown below. If no radius exists, access will not be permitted within sixty-five (65) feet of Point "A". Where a common or shared access is available it shall be used, provided that such use will not result in operational or safety problems. Minimum spacing between driveways shall be one-hundred (100) feet.

9. Direct access to an arterial will be permitted provided that Point 'C' of such access is more than three hundred (300) feet from any intersection Point 'A' or other access to that minor arterial.



Response: As shown on Figure C-2 in Exhibit C, the lots that the proposed changes will be located on will have access to public right-of-way that meet access management standards which will be documented through with Site Certificate Condition GEN-LU-02 (see Attachment K-1).

1. Interim Access onto County Facilities. No development with sole access onto a County arterial or major collector shall be denied based only on an inability to provide an access that meets applicable access spacing standards. In such an event, the use may be issued an interim access permit which shall expire when access as required under this Ordinance becomes available. An interim access permit may be granted based upon the following:

- 1. The site is situated such that adequate access cannot otherwise be provided in accord with the access spacing requirements of this Code.*
- 2. The interim access shall meet minimum County traffic safety and operational requirements, including sight distance.*
- 3. Alternate access shall not be deemed adequate and connections to alternate access shall not be required if the resulting route of access would require a trip in excess of one (1) block or five-hundred (500) feet out of direction (whichever is less).*
- 4. The property owner signs a consent to participate agreement for the formation of a Local Improvement District or similar financing mechanism for the primary purpose of constructing a public road or right-of-way providing access to the arterial or collector road; such access shall meet the minimum applicable County standard.*
- 5. The property owner records an agreement to participate in any project that would consolidate access points where such project would not result in new or more severe traffic operation or safety problems.*
- 6. The property owner records an agreement to abandon use of the existing private access way when an adequate alternative access becomes available.*

Response: It is not anticipated that the proposed changes will require interim access onto County facilities. However, consistent with Site Certificate Condition GEN-LU-02, the Facility, as proposed will meet Morrow County access standards (see Attachment K-1).

5.3.2 Section 4.020. Sight Distance

Response: Adequate sight distance, per the requirements stated under MCZO Section 4.020 A, will be maintained at facility approaches as part of the zoning permit consistent with Site Certificate Condition PRE-LU-07 and Site Certificate Condition GEN-LU-02 (see Attachment K-1).

5.3.3 Section 4.035. Permit Requirements For Land Use Development

Response: The Facility, as proposed, will require increased automobile trips during construction; but the expected proposed use will not exceed 400 trips per day. Traffic is not expected to be impacted during the long-term operation of the Facility. Prior to construction, the Certificate Holder will implement Site Certificate conditions PRE-PS-01 and PRE-PS-02 (see Attachment K-1).

5.3.4 Section 4.040. Off-Street Vehicle Parking Requirements and Section 4.060. Design and Improvement Standards – Parking Lots

Response: There will be very little ongoing maintenance required for the solar generation facilities. The majority of the solar generation facilities are operated and maintained remotely. However, periodic visits from operations and maintenance (O&M) personnel are required for vegetation control, equipment inspections, and potential panel washing. O&M staff would utilize pickups for

these visits. As there will be only periodic visits from O&M personnel within the fenced solar arrays, parking will be accommodated within the solar array areas site access areas.

5.3.5 Section 4.070. Sign Limitations and Regulations

Response: Signage may be included at the site access road, and will comply with Morrow County requirements under MCZO Section 4.070, as documented through the zoning and building permit process.

5.3.6 Section 4.165 Site Plan Review

Site Plan Review is a nondiscretionary or “ministerial” review conducted without a public hearing by the County Planning Director or designee. Site Plan Review is for less complex developments and land uses that do not require site development or conditional use review and approval through a public hearing.

A. Purpose. The purpose of Site Plan Review (ministerial review) is based on clear and objective standards and ensures compliance with the basic development standards of the land use district, such as building setbacks, lot coverage, maximum building height, and similar provisions. Site Plan review also addresses conformity to floodplain regulations, consistency with the Transportation System Plan, and other standards identified below.

B. Pre-application review. Prior to filing its application for site plan review, the applicant shall confer with the County Planning Director or designee, who shall identify and explain the relevant review procedures and standards.

C. Applicability. Site Plan Review shall be required for all land use actions requiring a Zoning Permit as defined in Section 1.050 of this Ordinance. The approval shall lapse, and a new application shall be required, if a building permit has not been issued within one year of Site Review approval, or if development of the site is in violation of the approved plan or other applicable codes.

D. Review Criteria.

1. The lot area shall be adequate to meet the needs of the establishment.

Response: The proposed changes in RFA 4 will be located on leased land and will not require new lots or parcels. The Certificate Holder has leased an adequate area of land to meet the needs of the Facility, as proposed.

2. The proposed land use is permitted by the underlying land use district.

Response: The area within the Amended Site Boundary is entirely within Morrow County’s designated EFU zone. As described in response to MCZO 3.010.C(24) above, the proposed changes meet the definition of a photovoltaic solar power generation facility, and is therefore permitted as a conditional use in Morrow County’s EFU zone.

3. The land use, building/yard setback, lot area, lot dimension, density, lot coverage, building height and other applicable standards of the underlying land use district and any sub-district(s) are met.

Response: The Certificate Holder identified and demonstrated compliance with the applicable standards of the Morrow County EFU zone, as described above in responses to MCZO 3.010 (K), (M), and (N). Therefore, the Facility, as proposed, complies with this provision.

4. Development in flood plains shall comply with Section 3.100 Flood Hazard Overlay Zone of the Ordinance.

Response: Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps show that the almost all of the Amended Site Boundary is located in Zone X). The Morrow County Flood Hazard Overlay Zone does not regulate FEMA flood Zone X. FEMA maps show there is an area within FEMA Zone A in the southeast corner of the Amended Site Boundary, but no activities associated with the solar generation facilities will occur in this area. The solar generation facilities are being sited to avoid floodplains. No portion of the area that will be developed is located within Morrow County's Flood Hazard Overlay Zone; therefore, this criterion does not apply to the Facility.

5. Development in hazard areas identified in the Morrow County Comprehensive Plan shall safely accommodate and not exacerbate the hazard and shall not create new hazards.

Response: The only hazard areas identified in the applicable substantive policies of the MCCP are those areas within Morrow County's Flood Hazard Overlay Zone. As described above in the response to MCZO 4.165(D)(4), the Amended Site Boundary is almost entirely within a moderate to low-risk flood area, as defined by FEMA Flood Insurance Rate Maps, and no portion of the area within the solar array areas will be located within Morrow County's Flood Hazard Overlay Zone. As such, the Facility, as proposed, will not exacerbate or create new flood hazards. This criterion is met.

6. Off-street parking and loading-unloading facilities shall be provided as required in Section 4.040 and 4.050 of the Morrow County Zoning Ordinance. Safe and convenient pedestrian access to off-street parking areas also shall be provided as applicable.

Response: Minimum vehicle parking requirements for various types of land uses are listed under MCZO 4.040, and criteria for off-street parking and loading areas for uses that receive and distribute materials and merchandise by trucks are provided in MCZO 4.050. A photovoltaic solar power generation facility is not a use listed or described in these Morrow County ordinances, nor will it receive and distribute materials and merchandise by trucks during operation.

7. County transportation facilities shall be located, designed and constructed in accordance with the design and access standards in the Morrow County Transportation System Plan.

Response: The Certificate Holder will follow the Morrow County transportation standards to ensure that road improvements are consistent with Site Certificate Condition PRE-PS-02.

8. Site planning, including the siting of structures, roadways and utility easements, shall provide, wherever practicable, for the protection of trees eight inch caliper or greater measured four feet from ground level, with the exception of noxious or invasive species, such as Russian olive trees.

Response: The area within the Amended Site Boundary consists mostly of cultivated winter wheat, with patches of mixed grassland with scattered shrubs, and is almost entirely devoid of trees (see Exhibit P).

9. Development shall comply with Section 3.200 Significant Resources Overlay Zone or 3.300 Historic Buildings and Sites protecting inventoried significant natural and historic resources.

Response: The area within the Amended Site Boundary is not located within the Significant Resources Overlay Zone, and no significant resource sites, as designated on the MCCP Goal 5 resource map, are located within the Amended Site Boundary. Therefore, the provisions of MCZO 3.200 do not apply to the construction and operation of the solar generation facilities. In addition, 3.300 applies to the alteration or demolition of any structure listed in the MCCP inventory of significant historic resources. No structures listed in the MCCP inventory of significant historic resources are located within the Amended Site Boundary (see Exhibit S). Therefore, this provision is met.

10. The applicant shall determine if compliance is required with Oregon Water Resources Department water quantity and/or Oregon Department of Environmental Quality water quality designations.

Response: See Exhibit O for Facility compliance with Oregon Water Resources Department water quantity and/or Oregon Department of Environmental Quality water quality designations. As identified in Exhibit E, the Certificate Holder may obtain a General Water Pollution Control Facilities 1700-B Permit (if necessary) for releasing water that is used to wash the solar panels to the ground, but does not anticipate requiring any other quality-related permits from the Oregon Department of Environmental Quality, as it does not propose to install any onsite sewage disposal system.

11. The applicant shall determine if previous Code Enforcement violations have been cleared as applicable.

Response: The Certificate Holder does not know of any Code Enforcement violations associated with the tracts. Therefore, this provision does not apply.

12. The applicant shall determine the method of disposal for solid waste, with staff providing information to the applicant about recycling opportunities.

Response: Solid waste, disposal, and recycling is addressed in Exhibits G, U, and V.

13. The applicant shall obtain the necessary access permit through the Public Works Department as required by Morrow County Resolution R-29-2000.

Response: Per the Site Certificate conditions in Attachment K-1, the Certificate Holder will obtain necessary local permits, including access permits through the Morrow County Public Works Department, prior to construction.

5.4 Article 6. Conditional Uses

5.4.1 Section 6.020. General Criteria

In judging whether or not a conditional use proposal shall be approved or denied, the Commission shall weigh the proposal's appropriateness and desirability, or the public convenience or necessity to be served against any adverse conditions that would result from authorizing the particular development at the location proposed and, to approve such use, shall find that the following criteria are either met or can be met by observance of conditions.

A. The proposal will be consistent with the Comprehensive Plan and the objectives of the Zoning Ordinance and other applicable policies and regulations of the County.

Response: The Certificate Holder demonstrates in the responses to the applicable substantive criteria of the MCCP and MCZO that the Facility is consistent with the MCCP, MCZO, and other applicable policies and regulations of Morrow County. Therefore, this provision is met.

B. If located within the Urban Growth Boundary of a city, that said city has had an opportunity to review and comment on the subject proposal.

Response: The Facility is not located within the urban growth boundary (UGB) of a city; therefore, this criterion is not applicable.

C. The proposal will not exceed carrying capacities of natural resources or public facilities.

Response: Exhibits I, J, P, Q, S, and U of this RFA demonstrate that the carrying capacities of natural resources or public facilities would not be exceeded.

5.4.2 Section 6.025. Resource Zone Standards for Approval

A. In the Exclusive Farm Use zone a conditional use may be approved only when the County finds that the use will not:

- 1. Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or*
- 2. Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.*

Response: The proposed changes in RFA 4 will not make it more difficult for the existing farms in the area (including the tract's landowner) to continue operation, as further described under the response to MCZO Section 3.010 K.3.f. In addition, the Facility, as proposed, will comply with the Site Certificate conditions included in Attachment K-1. The impact of the Facility would not force a

significant change in accepted farm practices, nor significantly increase the cost of farm practices, for the following reasons:

- Facility components and temporary construction laydown and staging areas would be within the solar array permanent disturbance area or those previously approved for the Facility to minimize disturbance to farming operations (Condition GEN-LU-04).
- Land lost to farm use due to siting of permanent Facility improvements is a de minimis percentage of the total farm use land in Morrow County; therefore, the inability to use the land for farm purposes is not significant.
- The Certificate Holder will implement a weed control plan consistent with the Morrow County Weed Control Ordinance, which will reduce the risk of weed infestation in cultivated land and the associated cost to the landowner for weed control (Condition PRE-LU-03).
- The Certificate Holder will record a covenant not to sue against its leasehold interests with regard to generally accepted farming practices on adjacent farmland (Condition PRE-LU-04).
- Construction and operation of the Facility could cause changes in routes of access to fields, and changes in the pattern of cultivation, seeding, fertilizing and harvesting near the solar array areas. To minimize this, the Certificate Holder, in consultation with the landowners, will design Facility components to minimize obstacles to farming in cultivated fields (components around which the farmer would have to plow, plant and harvest).
- The Certificate Holder will consult with area landowners during construction and operation of the Facility to determine further measures to reduce or avoid any adverse impacts to farm practices on surrounding land, and to avoid any increase in farming costs.
- Construction of the Facility could adversely affect soil quality by erosion or compaction. Some farmland would be temporarily disturbed and unavailable for farming during construction. To avoid or reduce adverse impacts to soil quality, the Certificate Holder will implement dust control and erosion-control measures during construction and operation of the Facility (see Exhibit I). To the extent practicable, the Certificate Holder proposes to reduce impacts to soils by using areas already impacted by existing roads and previous development activities, thereby limiting the area of new disturbance.

There are no lands in the Analysis Area in forest use; therefore, construction and maintenance of the Facility will not force a change to, or increase the cost of, forest practices on surrounding lands.

5.4.3 Section 6.030. General Conditions

In addition to the standards and conditions set forth in a specific zone, this article, and other applicable regulations; in permitting a new conditional use or the alteration of an existing conditional use, the Commission may impose conditions which it finds necessary to avoid a detrimental impact and to otherwise protect the best interests of the surrounding area or the County as a whole. These conditions may include the following:

- A. Limiting the manner in which the use is conducted including restricting the time an activity may take place and restraints to minimize such environmental effects as noise, vibration, air pollution, glare and odor.*
- B. Establishing a special yard or other open space or lot area or dimension.*
- C. Limiting the height, size or location of a building or other structure.*
- D. Designating the size, number, location and nature of vehicle access points.*
 - 1. Where access to a county road is needed, a permit from Morrow County Public Works department is required. Where access to a state highway is needed, a permit from ODOT is required. 2. In addition to the other standards and conditions set forth in this section, a Traffic Impact Analysis (TIA) will be required for all projects generating more than 400 passenger car equivalent trips per day. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and mitigation of the impacts. If the corridor is a State Highway, use ODOT standards. (MC-C-8-98)*
- E. Increasing the amount of street dedication, roadway width or improvements within the street right-of-way.*
 - 1. It is the responsibility of the landowner to provide appropriate access for emergency vehicles at the time of development. (MC-C-8-98)*
- F. Designating the size, location, screening, drainage, surfacing or other improvement of a parking area or loading area.*
- G. Limiting or otherwise designating the number, size, location, height, and lighting of signs.*
- H. Limiting the location and intensity of outdoor lighting and requiring its shielding.*
- I. Requiring diking, screening, landscaping or another facility to protect adjacent or nearby property and designating standards for its installation and maintenance.*
- J. Designating the size, height, location and materials for a fence*
- K. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or other significant natural resources.*

L. Other conditions necessary to permit the development of the County in conformity with the intent and purpose of this Ordinance and the policies of the Comprehensive Plan.

Response: The provisions under MCZO 6.030 describe conditions that may be imposed “to avoid a detrimental impact and to otherwise protect the best interests of the surrounding area or the County as a whole.” The section is a list of discretionary conditions, and does not contain substantive standards. The Facility, as proposed, has been designed to avoid detrimental impacts. In addition, the Site Certificate, to which the Certificate Holder must comply, provides adequate conditions for the best interests and protection of the surrounding area and Morrow County as a whole.

5.4.4 Section 6.040. Permit and Improvements Assurance

The Commission may require an applicant to furnish the County with a performance bond or such other form of assurance that the Commission deems necessary to guarantee development in accordance with the standards established and the conditions attached in granting a conditional use permit.

Response: This provision does not establish approval standards. Financial assurance for facilities constructed and operated through RFA 4 will be in accordance with the Council’s Retirement and Financial Assurance standard, OAR 345-022-0050 (see Exhibit W).

5.4.5 Section 6.050. Standards Governing Conditional Uses

A conditional use shall comply with the standards of the zone in which it is located and with the standards set forth in this subsection.

O. Radio, television tower, utility station or substation:

1. In a residential zone, all equipment storage on the site may be required to be within an enclosed building.

Response: This provision, MCZO 6.050. O. 1, does not apply because the Facility is not located in a residential zone.

2. The use may be required to be fenced and provided with landscaping.

Response: This provision provides for a discretionary condition. Although the ordinance does not contain a substantive standard for imposing the fencing or landscaping requirement, RFA 4 proposes to include a fence around the perimeter of the solar array facilities.

3. The minimum lot size for a public utility facility may be waived on finding that the waiver will not result in noise or other detrimental effects to adjacent property.

Response: The lot size is not applicable to RFA 4, as a new lot will not be required.

5.5 Article 8 Amendments

5.5.1 Section 8.040. Criteria

The proponent of the application or permit has the burden of proving justification for its approval. The more drastic the request or the greater the impact of the application or permit on the neighborhood, area, or county, the greater is the burden on the applicant. The following criteria shall be considered by the Planning Commission in preparing a recommendation and by the County Court in reaching their decision.

SECTION 8.040. A. The local conditions have changed and would warrant a change in the zoning of the subject property(ies).

Response: No zone change is being requested. The proposed changes are conditionally allowed in the EFU zone per MCZO Section 3.010 C.24; however, it is subject to the standards under MCZO Section 3.010 K.3, which limits photovoltaic solar power generation facility from precluding more than 12 acres of high-value farmland or 20 acres of arable soil from use as a commercial agricultural enterprise unless an exception is taken. The Analysis Area is primarily comprised of arable soils (see Section 3.1.1, Land Use) and is predominantly cultivated with dryland wheat with areas of CRP. As the proposed changes will preclude more than 12 acres of high-value farmland and more than 20 acres of arable land from use as a commercial agricultural enterprise, an exception is being requested. However, because the Facility falls under the Council's jurisdiction, it is the Council's statutes and rules that govern the goal exception process, ORS 469.504(2) and OAR 345-022-0030(4), rather than ORS 197.732 that apply.

SECTION 8.040. B. The public services and facilities are sufficient to support a change in designation including, but not limited to, water availability relevant to both quantity and quality, waste and storm water management, other public services, and streets and roads.

- 1. Amendments to the zoning ordinance or zone changes which significantly affect a transportation facility shall assure that land uses are consistent with the function, capacity, and level of service of the facility identified in the Transportation System Plan. This shall be accomplished by one of the following:*
 - a. Limiting allowed land uses to be consistent with the planned function of the transportation facility or roadway;*
 - b. Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirement of the Transportation Planning Rule; or,*
 - c. Altering land use designations, densities, or design requirements to reduce demand for automobile travel to meet needs through other modes.*
- 2. A plan or land use regulation amendment significantly affects a transportation facility if it:*

- a. Changes the functional classification of an existing or planned transportation facility;*
- b. Changes standards implementing a functional classification;*
- c. Allows types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or*
- d. Would reduce the level of service of the facility below the minimal acceptable level identified in the Transportation System Plan. (MC-C-8-98)*

Response: The proposed changes will require increased automobile trips during construction (see Exhibit U). However, the following Site Certificate Conditions are in place so that the Facility, as proposed, will not significantly affect a transportation facility:

- GEN-LU-02: County road permits and standards
- PRE-PS-01: Preparation of Traffic Management Plan
- PRE-PS-02: Road Use Agreements with counties
- PRE-PS-03: Access road and private road modification approvals

SECTION 8.040. C. That the proposed amendment is consistent with unamended portions of the Comprehensive Plan and supports goals and policies of the Comprehensive Plan, that there is a public need for the proposal, and that the need will be best served by allowing the request. If other areas in the county are designated for a use as requested in the application, then a showing of the necessity for introducing that use into an area not now so zoned and why the owners there should bear the burden, if any, of introducing that zone into their area.

Response: The proposed amendment is consistent with unamended portions of the Comprehensive Plan and supports its goals and policies. As discussed above, the MCZO allows photovoltaic solar power generation facilities on agricultural land, as a conditional use under MCZO 3.010(C)(24). The proposed changes are also consistent with MCCP Goal 3: Agricultural Lands Element, Goal 9: Economic Element, and Goal 13: Energy Conservation Element. Further explanation of this consistency is provided below. In particular, MCCP Goal 13 specifically calls for the use of renewable energy resources and development of wind and solar resources in Morrow County. The proposed changes respond to these policies directly by converting solar energy into electricity for public use.

Moreover, County and State policies demonstrate that there is a public need for the proposed changes. There are a number of State policies and statutory programs that together reflect a consistent state policy of supporting renewable energy development. In 2005, the State of Oregon published a Renewable Energy Action Plan (ODOE, 2005). This plan calls for significant, additional development of renewable resources, including solar energy. In 2007, the Oregon Legislature passed Senate Bill 838 establishing Oregon's Renewable Portfolio Standard (RPS) for electricity, requiring that 25 percent of Oregon's electric load come from new renewable energy by 2025. On March 11, 2016, Governor Kate Brown signed Senate Bill 1547, which doubles the RPS from 25

percent to a requirement that 50 percent of Oregon’s electric load must come from new renewable energy by 2040. Further, Statewide Land Use Planning Goal 13 calls for the development of renewable energy resources. Also, the Oregon Legislature has enacted numerous tax credits and economic development incentives favoring renewable energy development. Finally, the public need for renewable facilities will be best served by allowing this request because as discussed in Section 5.4.2, the proposed changes will have minimal impacts to agricultural operations in the County.

4. Transmission towers, hoses, overhead wires, plumbing stations, and similar gear shall be so located, designed and installed as to minimize their conflict with scenic values.

Response: The maximum height of the collector line poles would be approximately 65 feet, and the maximum height of the panels (at full tilt) would be about 16 feet. Exhibit R reviews scenic and aesthetic values in consideration of RFA 4.

5.6 Morrow County Comprehensive Plan

In 1986, Morrow County adopted a comprehensive plan to address the sustainable management of resources within the county that might be threatened by population growth and development. The MCCP (Morrow County 2016b) has several “Goals” or “Elements” relating to different resources within the county. This section demonstrates compliance with the MCCP Elements applicable to the Facility.

5.6.1 Goal 3: Agricultural Lands Element

Policy 1: It shall be the policy of Morrow County, Oregon, to preserve agricultural lands, to protect agriculture as its main economic enterprise, to balance economic and environmental conditions, to limit noncompatible nonagricultural development, and to maintain a high level of livability in the County.

Response: The proposed changes are located on agricultural lands as defined in the MCCP. The proposed use—solar energy generation—is consistent with MCCP Goal 3, Policy 1, as it will not permanently convert agricultural lands to non-agricultural lands. The proposed changes will occupy the land under a long-term lease, but will not permanently damage the soils within the Amended Site Boundary, allowing the land to convert back to agricultural use after the Facility is decommissioned. According to the Morrow County 2012 Census of Agriculture (USDA 2012), approximately 1,165,126 acres of land is considered to be “farms.” The Amended Site Boundary includes an area of only 2,294 acres, or approximately 0.2 percent of land on farms in Morrow County, and therefore a de minimis removal of land from agricultural use. The proposed changes in RFA 4 will also be compatible with adjacent agricultural uses, as it will not limit or impact current or future farm activities on the surrounding land.

MCZC Section 3.010.C.(24) conditionally permits photovoltaic solar power generation facilities on agricultural land subject to Section 3.010.K.3. As the proposed changes in RFA 4 exceed the threshold allowed for photovoltaic solar energy facilities on high value and arable farmland, an exception is being requested (see Section 5.7). An exception is warranted to allow a locationally

dependent facility that will fulfill important state and county goals by providing renewable energy while minimizing impacts on local farming practices.

The carrying capacities of natural resources or public facilities would not be exceeded by the changes proposed in RFA 4; therefore, RFA 4 will not have a significant adverse impact on “livability” in Morrow County (see Exhibits I, J, P, Q, S, and U).

Policy 4: It shall be the policy of the County to develop and implement comprehensive and definitive criteria for the evaluation of all non-farm developments to ensure that all objectives and policies set forth herein are compiled with to the maximum level possible.

Response: Morrow County has established comprehensive and definitive criteria in the MCZO for the evaluation of all non-farm developments within agricultural lands. As provided in previous sections of this application, the proposed changes in RFA 4 will comply with these criteria to the maximum level possible.

5.6.2 Goal 9: Economic Element

Policy 2A: To maximize the utilization of the local work force as job opportunities increase.

Response: RFA 4 will provide temporary employment opportunities during construction and will contribute to the local tax base during operation, as described in Exhibit U. Further, per the Umatilla Electric Cooperative (UEC) website:

In September 2017, the Oregon Business Development Commission estimated that the \$795 million Wheatridge project would add 20 to 25 new full-time jobs with average wages of \$60,000, generate 250 to 300 construction jobs and create substantial economic benefits to lease holders and surrounding communities.

Over 16 years, the project would generate tens of millions of dollars in property taxes and community service fees to Morrow and Umatilla counties (UEC 2018).

Adding the changes proposed in RFA 4 to the approved Facility will create additional benefits in the form of up to two additional full-time jobs, construction jobs, taxes, compensation to landowners via commercial contracts including leases as noted below and community service fees. Because most of Morrow County is EFU zoned, these benefits will largely support EFU zoning uses and the stability of the lease payments allow farmers to continue their agricultural operations on other areas of their land.

Policy 3A: To encourage local producers to new markets for local products and to seek out new products that are in demand in the market place and that can be produced locally.

Response: The proposed changes in RFA 4 will support Morrow County’s Goal to diversify its existing industries and to promote economic growth and stability of the County by adding a new sources of tax revenue while ensuring the existing agricultural industries in the surrounding area are not impacted. In addition, the proposed changes in RFA 4 will supplement the landowners’ farm

income through the lease payments, stabilizing their farm uses by diversifying their income sources while not restricting the landowner's ability to farm the remaining portions of the parcel.

Policy: 5A: To utilize appropriate mechanisms in implementing regulations to reduce undesirable impacts from industrial and commercial developments, including the establishment of buffer zones or other mitigation measures if determined to be necessary.

Response: MCZC Section 3.010.C.(24) conditionally permits photovoltaic solar power generation facilities on agricultural land subject to Subsection K.3. As provided in previous section of this exhibit, the Facility will comply with these criteria to the maximum level possible. Additionally, a Right-to-Farm Disclaimer will be signed and recorded by the landowner, as required per MCZC Section 3.010 K.3.i.

Policy: 6C: To require that development plans be based on the best economic information available, comply with applicable environmental standards, and take into account the effects of the development on the existing economy and available resources, including transportation and work force.

Response: The proposed changes in RFA 4 will monetize the available solar energy resources in Morrow County while minimizing its impacts to the environment (see Exhibits P and Q) and public services (see Exhibit U).

Policy: 7B: To ensure implementing regulations require the use of best management practices to protect surface and groundwater supplies.

Response: Water required during construction will be for dust control and soil compaction. Water required during operations may be required for panel washing, but will be as minimal as possible. The use of water during construction and operations will be as efficient as practicable (see Exhibit O).

5.6.3 Goal 13: Energy Conservation Element

Policy 2: To conserve energy and develop and use renewable energy resources.

Response: Renewable energy sources include sunshine per Policy 15, under MCCP Goal 13. Therefore, solar energy is considered a renewable energy resource under the MCCP, and the proposed changes in RFA 4 will utilize solar resources in Morrow County to generate electric power for public use. The Facility is consistent with this policy.

Policy 3: Encourage development of solar and wind resources.

Response: The proposed changes in RFA 4 will utilize solar resources in Morrow County to generate electric power for public use. Therefore, the Facility as proposed is consistent with this policy.

Policy 9: The County will encourage the development of alternative energy sources in County industries and businesses.

Response: Solar energy is considered an alternative energy source because it is not fossil-based. The proposed changes in RFA 4 will generate electric power from a solar energy source for public use, and therefore is developing an alternative energy source in Morrow County.

5.6.4 Chapter 19 – Review and Revision

CRITERIA. The following criteria must be considered before approval of an amendment to the Comprehensive Plan is given:

1. *Address the Criteria found in the Morrow County Zoning Ordinance Article 8 Amendments (Section 8.040); and*

Response: See responses under Section 5.5, MCZO Article 8 Amendments.

2. *Show how the request complies with the relevant statewide land use planning Goals. Include evidence of coordination and compliance with State agencies regarding the statewide planning Goals. (MC OR-1-2013)*

Response: See responses under Section 5.7.4 and 5.7.5, for compliance with relevant statewide planning goals.

5.7 Directly Applicable Rules, Statutes, and Goals – OAR 345-021-0010 (1)(k)(C)(iii)

(iii) Identify all Land Conservation and Development Commission administrative rules, statewide planning goals and land use statutes directly applicable to the facility under ORS 197.646(3) and describe how the proposed facility complies with those rules, goals and statutes.

5.7.1 ORS 215.274 Associated Transmission Lines Necessary for Public Service

ODOE requested supplemental analysis of whether the 34.5-kV collector lines are “associated transmission lines”⁵. *ORS 469.300 Definitions* defines associated transmission lines as:

(3) “Associated transmission lines” means new transmission lines constructed to connect an energy facility to the first point of junction of such transmission line or lines with either a power distribution system or an interconnected primary transmission system or both or to the Northwest Power Grid.

The 34.5-kV lines are part of the electrical collection system for the solar facility. The 34.5-kV lines will connect the electrical output from the solar modules to the facility collector substation. The 34.5-kV lines will be installed primarily underground, buried at a minimum of three feet below ground. It is possible that some sections of the collector line will need to be run overhead in situations where a buried cable would be infeasible, such as at stream or steep slope crossing.

⁵ ODOE Comment letter dated February 21, 2019.

Ultimately, the 34.5-kV collector lines will have the same design profile, and serve the same purpose (collect the energy from the facility and transmit to collector substation), as the 34.5-kV collector lines approved as part of the ASC (see Exhibit AA) for the wind facility and for the Council approved Boardman Solar Energy Facility.

The proposed changes (specifically including the 34.5-kV collector lines) are a "commercial facility for the purpose of generating power for public use by sale," ((MCZO 3.010(C)(22)) and therefore MCZO 3.010(B)(25)⁶ does not apply. Specifically, OAR 660-033-0130(38)(e)⁷ states that what is included as part of a solar power generation facility: "*Photovoltaic solar power generation facility*" includes, **but is not limited**⁸ to, an assembly of equipment that converts sunlight into electricity and then stores, **transfers**⁹, or both, that electricity....The 34.5-kV collector lines are transferring the energy from the solar modules to the collector substation.

Additionally, OAR 660-033-0130(38)(e)¹⁰ which mirrors MCZO 3.010(K)(3)(e) states:
....*Photovoltaic solar power generation facilities also include **electrical cable collection systems connecting the photovoltaic solar generation facility to a transmission line, all necessary grid integration equipment***¹¹, new or expanded private roads constructed to serve the photovoltaic solar power generation facility, office, operation and maintenance buildings, staging areas and all other necessary appurtenances..... Although it is possible that a short section of the 34.5-kV lines connecting the solar array site to the north to the collector substation may be aboveground, it is anticipated that most if not all of the 34.5-kV lines would be below ground cables.

Moreover an "associated transmission line" is defined as a "new transmission line constructed to connect an energy facility to the first point of junction of such transmission line ... with either a power distribution system or an interconnected primary transmission system or both or to the

⁶ Note, in Carla McLane's comment letter on RFA4, she did not request review of the 34.5kv lines as associated transmission lines.

⁷ The Land Conservation and Development Commission conducted a hearing on proposed rule amendments for OAR 660-033-0130 at its January 24-25, 2019 meeting and adopted temporary rule amendments changing criteria for approval of solar facilities at the conclusion of that hearing. As of March 23, 2019, the temporary rules are in effect until July 29, 2019. As directed by ODOE, the rules applicable at time of submittal of the preliminary amendment application which was prior to adoption of the temporary rules, are applicable to the proposed changes.

⁸ Text bolded for emphasis.

⁹ Text bolded for emphasis.

¹⁰ The Land Conservation and Development Commission conducted a hearing on proposed rule amendments for OAR 660-033-0130 at its January 24-25, 2019 meeting and adopted temporary rule amendments changing criteria for approval of solar facilities at the conclusion of that hearing. As of March 23, 2019, the temporary rules are in effect until July 29, 2019. As directed by ODOE, the rules applicable at time of submittal of the preliminary amendment application which was prior to adoption of the temporary rules, are applicable to the proposed changes.

¹¹ Text bolded for emphasis.

Northwest Power Grid." The 34.5-kV lines are constructed to connect to the collector substation not the power distribution system, an interconnected primary transmission system or the Northwest Power Grid. The 34.5-kV lines are not carrying voltages where they could connect to any of these systems, they must first connect to the collector substation which is not a "Utility facilities necessary for public service" before a first point of juncture with the public transmission and distribution system and Northwest Power Grid. For these reasons, including that state law and local zoning code define them as part of a Photovoltaic solar power generation facilities and that Council appears not to have reviewed them as such before, ORS 215.274, OAR 660-033-0130(16)(b) and ORS 215.276 do not apply to the proposed 34.5-kV collector lines.

5.7.2 ORS 215.296 Standards for Approval of Certain Uses in Exclusive Farm Use Zones

(1) A use allowed under ORS 215.213 (Uses permitted in exclusive farm use zones in counties that adopted marginal lands system prior to 1993) (2) or (11) or 215.283 (Uses permitted in exclusive farm use zones in nonmarginal lands counties) (2) or (4) may be approved only where the local governing body or its designee finds that the use will not:

There is no forest use within the Analysis Area. The lands devoted to farm use in north-central Morrow County and surrounding the proposed solar facility are used primarily for cultivation of Winter wheat, and related accessory uses or grassland or CRP areas due to slope or other topographical features that make them unsuitable for farming. Consistent with ORS 215.203, lands devoted to farm use include "wasteland" such as the grasslands and other areas that are not economical to cultivate, because they are interspersed with cultivated lands and are also within the EFU zone.

Winter wheat is commonly grown on a 2-year wheat-fallow cycle, in which the field is allowed to lie fallow for one crop season between plantings. Wheat planted the following year can then take advantage of two years of accumulated soil moisture, greatly enhancing the likelihood of a successful harvest. Dryland farming has evolved as a set of techniques and management practices used by farmers to continually adapt to the presence or lack of moisture in a given crop cycle. These practices include the use of a fallow period in a crop rotation, noted above, terracing or contour plowing, eliminating weeds and leaving crop residue to shade the soil, cover cropping, and strip cropping. Some farmers use a no-till method in which the field is sprayed with an herbicide following harvest and crop stubble is left on the field during periods when the field is fallow. Establishment of field crops includes weed control, field preparation, seed bed preparation, fertilization, and seeding or planting of the crop. Herbicides may be applied prior to field cultivation where perennial weeds or a heavy sod are present. Additional information regarding farming practices in the Analysis Area, including for dryland winter wheat, is provided in Section 3.0 and was provided in the Facility's Application for Site Certificate (ASC; as part of the ASC's Attachment K-1, see Wheatridge 2015).

Most of the other land uses in the Amended Site Boundary are Conservation Reserve Program (CRP) and/or grasslands. Under Oregon Revised Statutes (ORS) 215.203, lands devoted to farm use include “wasteland” such as the grasslands and other areas that are not economical to cultivate, because they are interspersed with cultivated lands and are also within the EFU zone. Accordingly, for the purposes of this discussion, a distinction is drawn in Table K-1 between cultivated agricultural lands that are more closely defined as those currently used for dryland wheat, while grasslands are separated out to better describe the impacts to lands actually used for economic agricultural activity.

As shown in Table K-1 and on Figure K-3, there are no areas of the Amended Site Boundary that are lands irrigated for agricultural uses. The closest areas of irrigated cropland are over half a mile from the Amended Site Boundary. Portions of Solar Array 1 east of Bombing Range Road have not used irrigation for agricultural practices for 25 years (since 1992). This area is covered by a junior water right as provided to the property owner now adjacent to the east in Water Right Permit G5092 and Certificate 62326, which was permitted effective June 24, 1970. Irrigation was provided from a basalt groundwater reservoir, which since 1986 is an area designated as Butter Creek Critical Ground Water Area. The purpose of the Butter Creek Critical Ground Water Area is to promote optimum use of the limited groundwater supply in reservoir to stabilize water levels. No new applications for appropriation of water from the basalt groundwater reservoir within the Butter Creek Critical Area are permitted. According to Joshua Hackett (personal communication December 6, 2018), hydrologist (Butter Creek Allocations) with the Oregon Water Resources Department: “Certificate 62326 was last allocated water in 1992 (270 acre feet). It is the most junior water right in the Pine City subarea, so it is highly unlikely it would be allocated water if a request were made. Allocation requests by senior water right holders typically exceed the sustainable annual yield by 1,000 acre feet or more.” Alternate means of irrigation from the Columbia, Umatilla, and Butter Creek surface water resources are also unlikely for the Amended Site Boundary due to the distance from the Amended Site Boundary to these water resources and the associated cost of pumping water. As shown on aerial imagery, irrigated farmland in Morrow County generally congregates around Columbia, Umatilla, and Butter Creek surface water resources. For these reasons, obtaining water for irrigation for areas within the Amended Site Boundary including areas that previously were irrigated (25 years ago), is improbable.

Farm and other uses on lands within the Amended Site Boundary and adjacent areas are shown on Figure K-3 which provides land use based on habitat surveys and Figure K-4 which shows high-value and arable farmland.

- (a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or*
- (b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.*

Potential construction impacts will largely be limited to traffic (see Exhibit U), dust control (see Exhibit I), and weed impacts (see Exhibit P). Existing site certificate conditions will be complied with to minimize these temporary impacts including:

- OPR-SP-01: Prevention of erosion, soil disturbance
- CON-SP-01: Erosion and Sediment Control Plan
- CON-SP-02: Best management practices to be included in Erosion and Sediment Control Plan
- PRE-PS-01: Preparation of Traffic Management Plan
- PRE-PS-02: Road Use Agreements with counties

Once the construction phase of the solar facility is completed, the solar facility is considered a passive use. The solar facility will not emit smells, sounds, or other emissions that will impact surrounding lands. The operations and maintenance (O&M) of the solar arrays will require only up to two additional staff, so additional traffic in the area will be negligible and will not force any changes to existing farming practices on surrounding lands. The solar facility will not necessitate relocating any existing farm to market roads or infrastructure that support farming operations. Ultimately, the solar arrays will be in fenced areas. Besides the removal of farm practices from those areas, the solar arrays will not result in changes to farming practices on surrounding lands such as planting, irrigating, fertilizing, harvesting, or transporting goods. The proposed changes will not make it more difficult for the existing farms in the area (including the tract's landowner that the solar arrays are on) to continue typical farming operations. The Certificate Holder will comply with Condition PRE-LU-04 which states that the certificate holder shall record in the real property records of Morrow County a Covenant Not to Sue with regard to generally accepted farming practices on adjacent farmland and PRE-LU-05 which states that prior to beginning construction, the certificate holder shall consult with surrounding landowners and lessees and shall consider proposed measures to reduce or avoid any adverse impacts to farm practices on surrounding lands and to avoid any increase in farming costs during construction and operation of the facility. Finally, the solar facility will not permanently convert agricultural lands to non-agricultural lands as the use will occupy the land under a long-term lease but will not permanently damage the soils within the facility site boundary, and the landowner will have the option to return the land to agricultural use after the facility is decommissioned. Therefore, the proposed changes will not force a significant change in accepted farm practices on surrounding lands devoted to farm use nor significantly increase the cost of farming practices on surrounding land (please also see Sections 5.2.3 and 5.4.2).

5.7.3 OAR 660-033-0130(5)

(5) Approval requires review by the governing body or its designate under ORS 215.296. Uses may be approved only where such uses:

(a) Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and

(b) Will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

As stated in the preceding section and Sections 5.2.3 and 5.4.2 the proposed changes in RFA 4 will not force a significant change in accepted farm practices on surrounding lands devoted to farm use nor significantly increase the cost of farming practices on surrounding land.

5.7.4 Goal 3 Agricultural Lands

In the case of Goal 3, Oregon has adopted land use policies under ORS 215.243 to preserve and maintain agricultural lands, regulate allowed uses in the EFU zone under ORS 215.283, and implement the regulations of OAR Chapter 660, Division 33. An analysis of the Facility's compliance with Statewide Planning Goal 3 and its implementing regulations follows.

ORS 215.283 Uses permitted in exclusive farm use zones in nonmarginal lands counties

(2) The following nonfarm uses may be established, subject to the approval of the governing body or its designee in any area zoned for exclusive farm use subject to ORS 215.296

(Standards for approval of certain uses in exclusive farm use zones):

(g) Commercial utility facilities for the purpose of generating power for public use by sale.

Response: MCZO Section 3.010 C.24 lists "photovoltaic solar power generation facilities as commercial utility facilities for the purpose of generating power for public use by sale" as a conditional use in the EFU zone. Per the definition provided under MCZO Section 3.010 K.3.e., a "photovoltaic solar power generation facility includes the photovoltaic modules, racking, collection system, inverters, and substation as well as the associated gen-tie line, substation, O&M container, access roads and staging areas." The standards for a conditional use in the EFU zone are set forth in MCZO 6.025(A), and are identical to ORS 215.296(1) and OAR 660-033-0130(5), which is addressed in Section 5.4.2.

OAR 660-033-0120 Uses Authorized on Agricultural Lands

Response: Per the table in OAR 660-033-0120, "Photovoltaic solar power generation facilities [are] commercial utility facilities for the purpose of generating power for public use by sale" and are permitted in high-value farmland and other agricultural land after the required review and approval by the relevant governing body. This use is subject to requirements of OAR 660-033-0130 (5) and OAR 660-033-0130 (38), which are addressed in Section 5.4.2 and 5.2.3.

5.7.5 Goal 13 Energy Conservation

Response:

Statewide Land Use Planning Goal 13 calls for land and uses developed on land to be managed and controlled so as to maximize the conservation of all forms of energy, based on sound economic principles. Furthermore, Goal 13's Planning Guideline No. 5 encourages local land use plans to consider "as a major determinant the existing and potential capacity of the renewable energy

sources to yield useful energy output” and calls for land conservation and development actions to “whenever possible.... utilize renewable energy sources.”¹²

In accordance with Goal 13, there are a number of state policies and statutory programs that together reflect a consistent state policy of supporting renewable energy development. In 2005, the State of Oregon published a Renewable Energy Action Plan (ODOE 2005). This plan calls for significant, additional development of renewable resources, including solar energy. In 2007, the Oregon legislature passed Senate Bill 838 establishing Oregon’s Renewable Portfolio Standard (RPS) for electricity, requiring that 25 percent of Oregon’s electric load come from new renewable energy by 2025. On March 11, 2016, Governor Kate Brown signed Senate Bill 1547, which doubles the RPS from 25 percent to a requirement that 50 percent of Oregon’s electric load must come from renewable energy by 2040. Also, the Oregon Legislature has enacted numerous tax credits and economic development incentives favoring renewable energy development. The Facility will assist the state with its mandate to meet the RPS.

According to the UEC website, the Oregon Governor’s Office, the U.S. Navy, the Bonneville Power Administration (BPA), the U.S. Bureau of Land Management, Morrow County, Idaho Power Company, and a number of other state and local agencies have engaged in efforts that ultimately would support a green energy corridor (UEC 2018). Such a corridor has the potential to deliver enough clean energy to power a city the size of Eugene and Salem combined. UEC has permitted a new overhead electric transmission line, a green energy corridor, through Morrow County, generally following Bombing Range Road. This transmission line is part of the community’s collaborative development of a sustainable utility corridor that minimizes impacts to current and future agriculture usage in the area and consolidate the footprint of facilities that provide the public with utility services. The Facility, as proposed, will directly connect to this transmission line, which terminates adjacent to the Facility substation, thereby providing renewable energy while minimizing farmland impacts.

The MCCP’s Goal 13 policies 11 through 16 mirror the planning and implementation guidelines stated under Statewide Planning Goal 13. However, MCCP’s Goal 13 policies 1 through 11 go a step further by specifically calling for development of renewable energy in Morrow County. MCCP Goal 13 directs Morrow County to “develop and use renewable energy resources” under Policy 2, to “encourage development of solar and wind resources” under Policy 3, and states that the “County will encourage the development of alternative energy sources in County industries and businesses” under Policy 9. The Facility, as proposed, will utilize both wind and solar resources to generate

¹² The Certificate Holder is aware of the recent holding in *Jackson County v. 1,000 Friends of Oregon* where the Oregon Court of Appeals held that Goal 13 does not *require* counties to develop or facilitate the development of require energy facilities. Because that case is presently under appeal to the Oregon Supreme Court, the Certificate Holder has opted to address the Facility’s consistency with Goal 13 along with other statewide and county programs and policies that relate to the development of renewable energy. As discussed below, even if the Oregon Supreme Court concludes that Goal 13 cannot be used to justify a Goal 3 exception, the record demonstrates that there are numerous reasons why the statewide policies embodied in Goal 3 should not apply.

renewable energy. Therefore, the Facility, as proposed, supports all three of these policies and is thus compliant with the M CCP's Goal 13 and well as Statewide Planning Goal 13.

5.8 Statewide Planning Goal Exceptions

5.8.1 Identification of Exceptions – OAR 345-021-0010 (1)(k)(C)(iv)

(iv) If the proposed facility might not comply with all applicable substantive criteria, identify the applicable statewide planning goals and describe how the proposed facility complies with those goals.

The Facility, as proposed, does not meet MCZO 3.010(K)(3)(f), as it will preclude more than 12 acres of high-value farmland or 20 acres of arable land from commercial farm use for commercial solar energy generation. OAR 660-033-0130(38) places 12-acre (high-value farmland) and 20-acre (arable lands) limits on the use of farmland for a nonfarm-related use without an exception to Goal 3. Therefore, the Facility cannot otherwise comply with Goal 3. The Certificate Holder demonstrates that an exception to Statewide Planning Goal 3 is justified for the Facility, as proposed.

(v) If the proposed facility might not comply with all applicable substantive criteria or applicable statewide planning goals, describe why an exception to any applicable statewide planning goal is justified, providing evidence to support all findings by the Council required under ORS 469.504(2).

As discussed above, the Facility's solar generation facilities would permanently occupy more than 12 acres of high-value farmland. Pursuant to OAR 660-033-0130(38)(f), siting of the Facility's solar generation facilities requires an exception to Statewide Planning Goal 3. This exception is justified under ORS 469.504(2), which provides the controlling criteria for exceptions that are proposed for energy facilities under the jurisdiction of the Council.

Per ORS 469.504, an exception may be taken on any of three grounds:

- That the land is “physically developed to the extent that the land is no longer available for uses allowed by the applicable goal”;
- That the land “is irrevocably committed ... to uses not allowed by the applicable goal”; or
- That “because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or what is referred to as a “reasons” exception.

The Amended Site Boundary is not “physically developed” or “irrevocably committed” within the meaning of the rule. Therefore, the Facility's justification for an exception to Statewide Planning Goal 3 is demonstrated under ORS 469.504(2)(c) and OAR 345-022-0030(4)(c). An exception is warranted to allow a locationally dependent facility that will fulfill important state and county goals, by providing renewable energy while minimizing impacts on local farming practices.

For purposes of the Goal 3 exception analysis, the Certificate Holder analyzes the acreage footprint within the Amended Site Boundary (2,294 acres). Within the Amended Site Boundary, the solar arrays will permanently occupy approximately 813 acres.

ORS 469.504(2)(c)(A); OAR 345-022-0030(4)(c)(A) Reasons justify why the state policy embodied in the applicable goal should not apply;

Oregon's Statewide Planning Goals express the state's policies on land use, which are implemented through the adopted comprehensive plan and the zoning ordinances of the local cities and counties. Statewide Planning Goal 13 encourages local land use plans to consider "as a major determinant the existing and potential capacity of the renewable energy sources to yield useful energy output" and calls for land conservation and development actions to "whenever possible [...] utilize renewable energy sources" (see Goal 13, planning guideline No.5). The MCCP is consistent with the Statewide Planning Goals, and MCCP Goal 13: Energy Conservation Element, has several policies that mirror the planning and implementation guidelines stated under Statewide Planning Goal 13. However, MCCP's Goal 13 policies 2, 3, and 9 go a step further than the State Planning Goal by specifically requiring and encouraging the development of renewable energy in the County. These policies are stated in the MCCP, Chapter 13 as follows:

- Policy 2: To conserve energy and develop and use renewable energy resources.
- Policy 3: Encourage development of solar and wind resources.
- Policy 9: The County will encourage the development of alternative energy sources in County industries and businesses.

Policy 2 is not framed as a suggestion, but rather states plainly that it is Morrow County's policy to develop and use renewable energy resources. This Facility, as proposed, responds to all three of these policies by developing Morrow County's renewable solar energy resource and thus meeting the County's need for renewable energy development.

In addition to responding to the County's need for development of renewable energy, the Facility's solar energy generation facilities respond to the RPS, which requires 50 percent of Oregon's electric load to be sourced from new renewable energy by 2040. The Facility will provide 150 MW of renewable solar generated energy, and thus assist the State of Oregon with its mandate to meet the RPS.

As discussed in Section 5.0, OAR 660-033-0120 allows photovoltaic solar power generation facilities on agricultural land, subject to certain conditions. These conditions limit a photovoltaic solar power generation facility from precluding more than 12 acres of high value farmland or more than 20 acres of arable soil from use as a commercial agricultural enterprise unless an exception is taken. Therefore, it is the size of the solar generation facility and not the proposed use that requires an exception be taken. In addition to the goals and policies outlined above, the following additional reasons justify removing approximately 813 acres from commercial agricultural use within the Amended Site Boundary, temporarily (long-term lease), to promote other policies of importance within the county and across the state and region:

- **The Facility is locationally dependent**, as described in more detail below, requiring: proximity to the regional grid for interconnection, sufficient solar access devoid of dense trees and buildings, flat terrain devoid of sensitive environmental features, access to the regional transportation network, avoidance of irrigated land and avoidance of the limited areas of land within UGBs in Morrow County.

UEC, the Oregon Governor's Office, the Navy, BPA, the U.S. Bureau of Land Management, Morrow County, Idaho Power Company, and a number of other state and local agencies have engaged in efforts that ultimately support a green energy corridor (UEC 2018). Such a corridor has the potential to deliver enough clean energy to power a city the size of Eugene and Salem combined. UEC has permitted a new overhead electric transmission line through Morrow County, generally following Bombing Range Road. The UEC transmission line, running approximately 22 miles south from the existing Morrow Flat Substation owned by BPA, is part of the community's collaborative development of a sustainable utility corridor (green energy corridor) that minimizes impacts to current and future agriculture usage in the area and consolidates the footprint of facilities that provide the public with utility services. The Facility, as proposed, will directly connect to the UEC transmission line, which terminates adjacent to the Facility substation, thereby providing renewable energy while minimizing farmland impacts.

The proposed changes in RFA 4 were sited to avoid any sensitive environmental features, including Washington ground squirrel habitat, FEMA 100-year floodplains, U.S. Fish and Wildlife Service-designated critical habitat, Oregon Department of Fish and Wildlife-designated big game winter ranges, and any National Hydrography Dataset or National Wetland Inventory-mapped wetlands or waters. Besides siting to avoid the noted sensitive environmental features, to make photovoltaic solar energy generation viable for the Facility, the solar arrays need to be sited on a grade of 10 percent or less, and in a location located where there is a solar resource available without obstruction (e.g., not blocked for large periods of the day by adjacent buildings or dense trees). Generally, the southern portion of Morrow County has more steep slopes and/or more dense tree coverage, and the northern section of Morrow County is devoted to larger degree to irrigated agriculture and urbanized uses making those areas of the County less viable for solar energy generation.

The land within the Amended Site Boundary that has a junior water right has not used this right in approximately 25 years and, as noted in Section 3.0, it is highly unlikely it would be allocated water if a request for water were made. Therefore, temporary loss of land used for agricultural uses (approximately 813 acres) from the proposed changes in RFA 4 is insignificant when considering the other available agricultural land in Morrow County, especially the irrigated land in the north end of the county that is irrigated by the Columbia and Umatilla rivers. Additionally, the Amended Site Boundary is sited adjacent to Highway 207 and Bombing Range Road providing easy access for construction and ongoing maintenance and operations and thus no new roads need to be created that would further impact agricultural operations.

Further, any alternative site in Morrow County would involve the leasing of EFU land. Morrow County is predominantly composed of agricultural land with only 2.2% of the total County land area zoned for industrial uses. In addition, the Morrow County General Industrial Zone (MG) does not allow (conditionally or otherwise) power generating facilities as it doesn't list Utility Structure or Utility Facility or Power Generating Facility in MCZO Section 3.070. There are also no parcels within an UGB in Morrow County that are 80 acres or larger within 0.5 miles of an existing 69 kV or larger transmission line. Moreover, Morrow County has indicated through the ASC process for Boardman Solar that "Morrow County would not want to see some 600 acres of industrial land consumed with a use that is allowed conditionally on farmland" (see Attachment K-2). Rural areas can have a surplus of renewable energy resources and an abundance of space, while urban areas may lack the sufficient space. New energy sources create more and varied power supply which can mean lower power prices and increased energy reliability. Therefore, the introduction of an additional energy source to a rural area can initiate a chain reaction that leads to economic activity that potentially makes neighboring urban areas attractive for industrial investments that can boost employment and progress in the surrounding area. For these reasons, the siting the solar arrays in the Amended Site Boundary is locationally dependent.

- **Lease payments will supplement the landowners' farm income** with predictable payments. This stabilizes their farm use by diversifying their income sources while not restricting their ability to farm the remaining portions of the parcel and adjacent parcels. Ultimately, wheat prices fluctuate, but the lease payments will remain the same, providing a committed income source so that farmers may continue to farm the rest of their land. Farmers often look for supplement revenue or to subsidize their income, such as by enrolling portions of their land in CRP. However, CRP programs only typically apply to a parcel for 10-15 years. In addition, the CRP program is currently in legislation, is legislatively reviewed and changes every 5 years, and therefore is susceptible to receive cuts, making it less of a reliable source for farmers. Although the renewable energy leases are temporary, and thus are only a temporary change to the land use, they provide for a longer lease time of approximately 30-50 years, potentially triple times longer than CRP programs. Additionally, as the population of farmers ages (per the Morrow County Census data, the average age of the principal operator of farms was 60.6 years; USDA 2012), renewable energy lease payments provides the opportunity for farms to stay in families' hands longer because less land has to be actively farmed to support the farmers. This relieves some of the financial burden on the farmer, providing them with the opportunity to identify land transferring options besides the trend of sales of farmland to corporations (OregonLive 2016).
- **The Goal 3 exception would be temporary**, approximately 50 years. The land would not be permanently removed from agricultural use. The Certificate Holder does not anticipate using concrete foundations for the solar modules. However, there may be some areas of concrete foundations needed for the inverter skids and distributed battery storage sites. As shown on Figure C-2, in Exhibit C, the inverter skids and distributed battery storage sites

cover a very small area of the solar array sites. The Certificate Holder has experience removing wind turbine foundations, which are much more substantial in size, and restoring the land to active agricultural use such as at the Golden Hills Wind Farm in California which was repowered to largely reduce the number of turbines allowing for farmland reclamation. In addition, in the Final Order of the ASC (page 163-164), the Council found that the facility site could be restored from a renewable energy site to farmland. To ensure adequate restoration, Site Certificate Condition PRE-SP-02 requires the certificate holder to restore all areas disturbed by construction, including farmland, according to the requirements of a final Revegetation Plan. For these reasons, the solar facility will be only be a temporary removal of farmland. To conclude, per the terms of the lease and the proposed Site Certificate conditions, the land would be returned to agricultural use following retirement and restoration of the Facility (see Attachment K-1 and Exhibit W). The Goal 3 exception would be removed after the lease is over (see Attachment 1 to the Request for Amendment).

- **Solar energy generation promotes rural economic development** by creating jobs and adding to the tax base. As noted above:

In September 2017, the Oregon Business Development Commission estimated that the \$795 million Wheatridge project would add 20 to 25 new full-time jobs with average wages of \$60,000, generate 250 to 300 construction jobs and create substantial economic benefits to lease holders and surrounding communities.

Over 16 years, the project would generate tens of millions of dollars in property taxes and community service fees to Morrow and Umatilla counties (UEC 2018).

Adding the proposed changes from RFA 4 to the approved Facility provides additional benefits in the form of full-time jobs, construction jobs, compensation to landowners via commercial contracts including leases, taxes, and community service fees. Because most of Morrow County is EFU-zoned, these benefits will largely support EFU zoning uses, agricultural uses, such as community service fees potentially being used to improve public infrastructure such as roads used by large farming equipment. In addition, the stability of the lease payments allow farmers to continue their agricultural operations on other areas of their land.

- **The farmland used for the proposed changes is a de minimis percentage of the total farm use land in Morrow County.** Because irrigation is largely not available for the Amended Site Boundary, if the land in the Amended Site Boundary is cultivated, it is cultivated as winter wheat (see Section 2). The solar array areas would temporarily remove potentially approximately 813 acres of dryland winter wheat. According to the USDA 2012 Census of Agriculture, this is only approximately 0.07 percent of winter wheat in Morrow County (USDA 2012).
- **The impact of the proposed changes would not force a significant change in accepted farm practices, nor significantly increase the cost of farm practices in the vicinity of the Facility,** as outlined in Section 5.4.2. Additionally, interviews with the landowners of

the tracts that comprise the Amended Site Boundary, who also own adjacent and other tracts in the vicinity of the Amended Site Boundary, did not identify or anticipate any adverse impact, nor increase in the cost of farming practices, in the vicinity of the solar arrays.

ORS 469.504(2)(c)(B); OAR 345-022-0030(4)(c)(B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the Council applicable to the siting of the proposed facility;

RFA 4 addresses the environmental, economic, social, and energy-related consequences anticipated as a result of the construction and operation of the Facility's solar energy generation facilities.

- **Environmental.** The Facility's environmental consequences are discussed primarily in Exhibit I (Soils), Exhibit J (Wetlands), Exhibit L (Protected Areas), Exhibit P (Fish and Wildlife), Exhibit Q (Threatened and Endangered Species), Exhibit R (Scenic Resources), and Exhibit S (Cultural Resources). These exhibits demonstrate that the proposed changes in RFA 4 will not cause significant adverse environmental consequences. Indeed, by and large, the proposed changes will avoid impacts to such resources altogether. The Certificate Holder will mitigate for any unforeseen impacts to wildlife habitat based on habitat categorization, as is required under Oregon Department of Fish and Wildlife policy (see Exhibit P). The Facility, as proposed, does not anticipate any significant adverse impacts to soils, wetlands, protected areas, water resources, threatened and endangered species, scenic and aesthetic resources, and historic, cultural, and archaeological resources. The Facility, as proposed, will comply with all Site Certificate conditions for these resources.
- **Socioeconomic.** The Facility's socioeconomic consequences will not be adverse. The Facility will not have significant adverse impacts on scenic, cultural, historical, archeological, or recreational resources. Exhibit U (Public Services) demonstrates that the Facility will not have significant adverse impacts on community services such as housing, sewer, water supply, waste disposal, health care, education, and transportation. As discussed above, the Facility will create jobs and contribute income to Morrow County. These benefits should be measured against the relatively small amount of agricultural activity that will be displaced by the Facility. The Facility will supplement farmers' income with lease payments and without significantly reducing the land base available for farming practices. Similarly, although some farming will be displaced where certain portions of the Facility will be located, the Facility will be compatible with area farming through implementation of the Site Certificate conditions identified in Attachment K-1.
- **Energy Consequences.** The Facility, as proposed, would provide a reliable source of electricity with no fuel cost and no associated emissions for at least 30 years. As discussed under MCZO 6.025 and throughout this exhibit, the proposed changes in RFA 4 would not adversely affect any farming operations in the general area. There are no significant adverse economic consequences of constructing and operating the Facility, as proposed.

OAR 345-022-0030(4)(c)(C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

The proposed use will be compatible with adjacent agricultural uses, as it will not limit or impact current or future farm activities on the surrounding land, and will not diminish the opportunity for neighboring parcels to expand, purchase, or lease any vacant land available for farming. Attachment K-1 provides the Site Certificate conditions that the Facility will comply to make sure it is compatible with adjacent land uses.

6.0 Federal Land Management Plans

6.1 Identification of Applicable Land Management Plans – OAR 345-021-0010 (1)(k)(D)(i)

There are no applicable federal management plans. Therefore, these standards do not apply.

7.0 Summary

The information provided in this exhibit demonstrates the Facility's compliance with all applicable, substantive criteria. Therefore, the Council may find that the Facility, as proposed, meets the land use standard set forth in OAR 345-022-0030.

8.0 References

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Harbarger, Molly. "Oregon Farms Face Land Crisis: Report." OregonLive. October 13, 2016.

UEC (Umatilla Electric Cooperative). 2018. UEC Moving Forward on Wheatridge Transmission Project. <https://www.umatillaelectric.com/uec-moving-forward-on-wheatridge-transmission-project/>

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Figures

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**Wheatridge
Wind Energy Facility
Request for Amendment 4**

**Figure K-1
Land Use
Analysis Area**

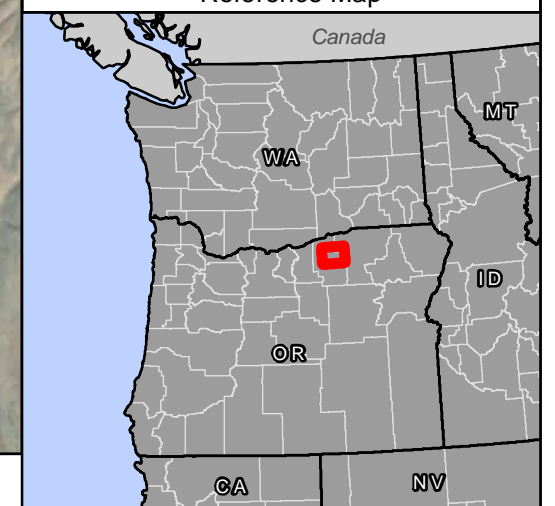
MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (0.5-mile Buffer)
- State Highway
- County Boundary

Umatilla
County
Morrow
County



Reference Map



P:\GIS_PROJECTS\NextEra\Wheatridge_Solar\Figures\Exhibit_K\NextEra_Wheatridge_RFA4_FigureK1_11171_20181128.mxd



1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

**Wheatridge
Wind Energy Facility
Request for Amendment 4**

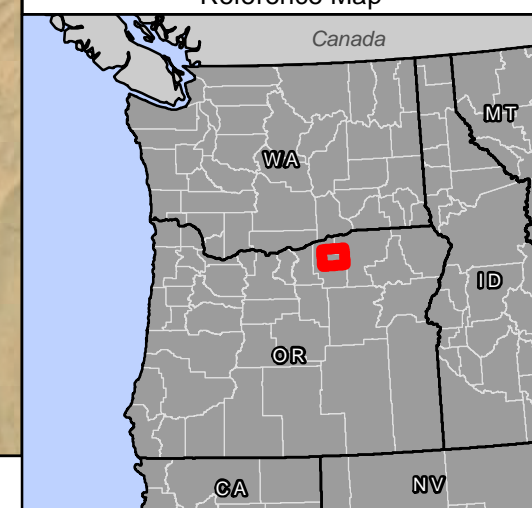
**Figure K-2
Zoning**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
 - Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 - Analysis Area (0.5-mile Buffer)
 - State Highway
 - County Boundary
- Zoning**
- Exclusive Farm Use
 - Farm Residential Zone
 - Commercial
 - Industrial Light
 - Residential
 - Public



Reference Map



P:\GIS_PROJECTS\NextEra\Wheatridge_Solar\Figures\Exhibit_K\NextEra_Wheatridge_RFA4_FigureK2_11171_20181128.mxd












1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

**Wheatridge
Wind Energy Facility
Request for Amendment 4**

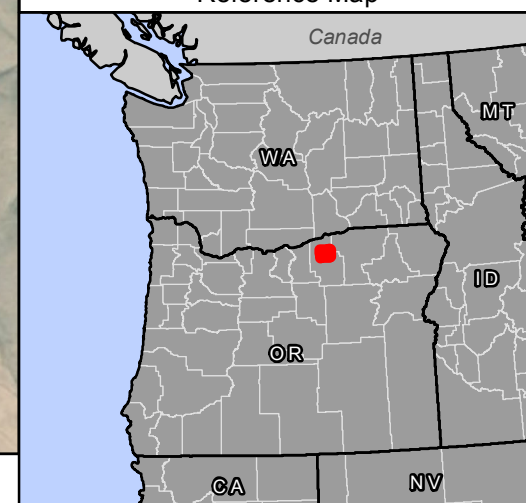
**Figure K-3
Land Use**

MORROW AND UMATILLA COUNTIES, OR

-  Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 -  Solar Micrositing Corridor (Proposed)
 -  Analysis Area (0.5-mile Buffer)
 -  Tax Lot Boundary for Tax Lots in Tracts
Intersecting Amended Site Boundary
 -  Tax Lot Boundary for Tax Lots in Tracts
Adjacent to Amended Site Boundary
- Land Use**
-  Agriculture, not irrigated
 -  Developed, irrigated
 -  Developed
 -  Habitat Lands



Reference Map



1:60,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2
Miles

**Wheatridge
Wind Energy Facility
Request for Amendment 4**

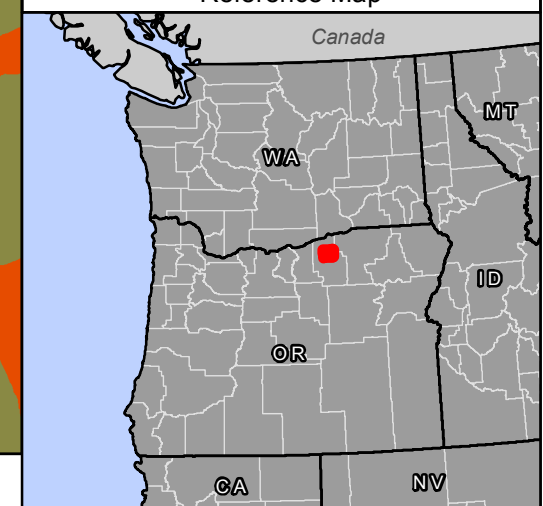
**Figure K-4
High Value Farmland
and Arable Lands**

MORROW AND UMATILLA COUNTIES, OR

- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 - Analysis Area (0.5-mile Buffer)
 - Permanent Impact Area
 - Tax Lot Boundary for Tax Lots in Tracts
Intersecting Amended Site Boundary
 - Tax Lot Boundary for Tax Lots in Tracts
Adjacent to Amended Site Boundary
- High Value Farmland**
- High Value Farmland (AVA)
 - High Value Farmland (NRCS)
 - Arable Soil
 - Non-Arable Soil



Reference Map



1:60,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

Wheatridge
Wind Energy Facility
Request for Amendment 4

Figure K-5
Tract Boundaries and
Landowner Information

MORROW AND UMATILLA COUNTIES, OR

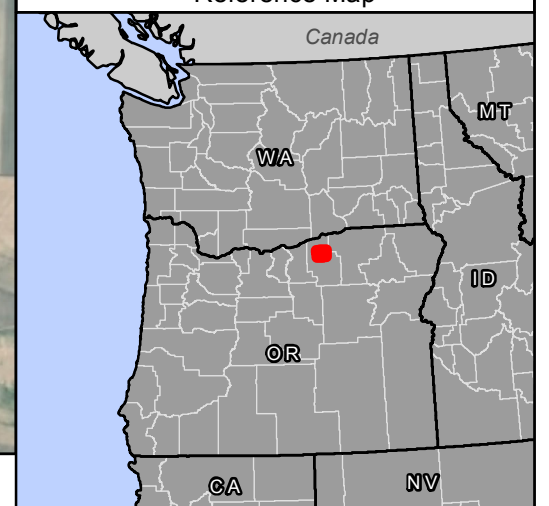
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- State Highway
- Tax Lot Boundary for Tax Lots in
Tracts Intersecting Amended Site
Boundary
- Tax Lot Boundary for Tax Lots in
Tracts Adjacent to Amended Site
Boundary

Tax Lot Landowners

- CARMICHAEL, MIRIAM S & WOOD, WALT, TR
- DARRELL D. COPPOCK CREDIT SHELTER TRUST
- DOHERTY, WILLIAM J
- DUNCAN, SUEZANNE & ROBERT
- GRIEB FARMS, INC
- HEIDEMAN TRUST
- HEIDEMAN, AARON
- HILL, STEPHEN & HILL, TANA JO
- HUGHES, RANDY WILLIAM
- KARYL SMITH, INC
- KILKENNY LAND CO
- KILKENNY TRUST
- LINDSAY, LAWRENCE & CORRINE
- MARTIN, GABRIEL E
- MILLER, COREY M & MILLER, M JILL
- MILLER, MARK T & MILLER, SHANNON
- MORROW COUNTY GRAIN GROWERS
- MOYER RANCH ETAL
- MUNKERS, SHEILA H ETAL
- NORTH LEX POWER AND LAND,
- OREM, ERIC M & OREM, BRANDI L
- RAUCH, CHRISTIAN & RAUCH, KATHERINE A
- RAUCH, STANLEY M & RAUCH, JAMIE
- STATE OF OREGON



Reference Map



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Attachment K-1. Site Certificate Conditions

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STANDARD: LAND USE (LU) [OAR 345-022-0030]

| | |
|-----------|--|
| GEN-LU-01 | <p>The certificate holder shall design the facility to comply with the following wind turbine setback distances in Morrow County:</p> <ul style="list-style-type: none">• Wind turbines shall be setback from the property line of any abutting property of any non- participant property owners a minimum of 110 percent of maximum blade tip height of the wind turbine tower.• Wind turbines shall be setback 100 feet from all property boundaries, including participant property boundaries within the site boundary, if practicable.• Wind turbine foundations shall not be located on any property boundary, including participant property boundaries within the site boundary.• Wind turbines shall be setback 110% of the overall tower-to-blade tip height from the boundary right-of-way of county roads, state and interstate highways. <p>[Final Order on ASC,, AMD3 Land Use Condition 1]</p> |
| GEN-LU-02 | <p>During design and construction of the facility, the certificate holder shall:</p> <p>Obtain an access permit for changes in access on Morrow County roads; and</p> <p>Improve or develop private access roads impacting intersections with Morrow County roads in compliance with Morrow County access standards.</p> <p>[Final Order on ASC, Land Use Condition 4]</p> |
| GEN-LU-03 | <p>During design and construction, the certificate holder shall implement the following actions on all meteorological towers approved through the site certificate:</p> <p>Paint the towers in alternating bands of white and red or aviation orange; and</p> <p>Install aviation lighting as recommended by the Federal Aviation Administration.</p> <p>[Final Order on ASC, Land Use Condition 9]</p> |
| GEN-LU-04 | <p>The certificate holder shall design and construct the facility using the minimum land area necessary for safe construction and operation. The certificate holder shall locate access roads and temporary construction laydown and staging areas to minimize disturbance of farming practices and, wherever feasible, shall place turbines and transmission interconnection lines along the margins of cultivated areas to reduce the potential for conflict with farm operations. Where possible, underground communication and electrical lines shall be buried within the area disturbed by temporary road widening.</p> <p>[Final Order on ASC, Land Use Condition 11]</p> |
| GEN-LU-05 | <p>During design and construction of the facility, the certificate holder shall ensure that fencing and landscaping selected and used for the O&M building and similar facility components sited within Morrow County blend with the nature of the surrounding area.</p> <p>[Final Order on ASC, Land Use Condition 14]</p> |
| GEN-LU-06 | <p>During micro siting of the facility, the certificate holder shall ensure that wind turbines are sited based on a minimum setback of:</p> <ul style="list-style-type: none">• 110% of the overall tower-to-blade tip height from the boundary right-of-way of county roads and state and interstate highways in Umatilla and Morrow counties.• 2 miles from turbine tower to City of Umatilla's urban growth boundary.• 1 mile from turbine towers to land within Umatilla County lands zoned Unincorporated Community.• 2 miles from turbine towers to rural residences within Umatilla County.• 164 feet (50 meters) from tower and facility components to known archeological, historical and cultural sites or CTUIR cultural site. <p>[Final Order on ASC,,AMD3 Land Use Condition 16;]</p> |

STANDARD: LAND USE (LU) [OAR 345-022-0030]

| | |
|-----------|--|
| GEN-LU-07 | <p>During design and construction, the certificate holder must ensure that the O&M building in Umatilla County is consistent with the character of similar agricultural buildings used by commercial farmers or ranchers in Umatilla County.</p> <p>[Final Order on ASC, Land Use Condition 20]</p> |
| GEN-LU-08 | <p>During facility design and construction of new access roads and road improvements, the certificate holder shall implement best management practices after consultation with the Umatilla County Soil Water Conservation district. The new and improved road designs must be reviewed and certified by a civil engineer.</p> <p>[Final Order on ASC, Land Use Condition 22]</p> |
| GEN-LU-09 | <p>Before beginning electrical production, the certificate holder shall provide the location of each turbine tower, electrical collecting lines, the O&M building, the substation, project access roads, and portion of the intraconnection transmission line located in Umatilla County to the department and Umatilla County in a format suitable for GPS mapping.</p> <p>[Final Order on ASC, Land Use Condition 24]</p> |
| GEN-LU-10 | <p>During construction and operation of the facility, the certificate holder shall deliver a copy of the annual report required under OAR 345-026-0080 to the Umatilla County Planning Commission on an annual basis.</p> <p>[Final Order on ASC, Land Use Condition 28]</p> |
| PRE-LU-01 | <p>Before beginning construction, the certificate holder shall complete the following:</p> <ul style="list-style-type: none">• Pay the requisite fee and obtain a Zoning Permit from Morrow County for all facility components sited in Morrow County; and• Obtain all other necessary local permits, including building permits. <p>Provide the county with a building permit application, a third party technical report which includes:</p> <ul style="list-style-type: none">• Evaluates fire hazards and;• Presented mitigation and recommendations for a fire suppression system designed for the battery storage systems. <p>The certificate holder shall provide copies of the third-party technical report and issued permits to the Department.</p> <p>[Final Order on ASC, Land Use Condition 3; Amended in Final Order on AMD22]</p> |
| PRE-LU-02 | <p>Before beginning construction, the certificate holder shall pay the requisite fee and obtain a Conditional Use Permit as required under Morrow County Zoning Ordinance Article 6 Section 6.015.</p> <p>[Final Order on ASC, Land Use Condition 5]</p> |
| PRE-LU-03 | <p>Before beginning construction, the certificate holder shall prepare a Weed Control Plan that is consistent with Morrow and Umatilla County weed control requirements to be approved by the department. The department shall consult with Morrow and Umatilla counties and ODFW. The final plan must be submitted to the department no less than 30 days prior to the beginning of construction. The certificate holder shall implement the requirements of the approved plan during all phases of construction and operation of the facility.</p> <p>[Final Order on ASC, Land Use Condition 6]</p> |
| PRE-LU-04 | <p>Before beginning construction, the certificate holder shall record in the real property records of Morrow County a Covenant Not to Sue with regard to generally accepted farming practices on adjacent farmland.</p> <p>[Final Order on ASC, Land Use Condition 7]</p> |
| PRE-LU-05 | <p>Prior to beginning construction, the certificate holder shall consult with surrounding landowners and lessees and shall consider proposed measures to reduce or avoid any adverse impacts to farm practices on surrounding lands and to avoid any increase in farming costs during construction and operation of the facility. Prior to beginning construction, the certificate holder shall provide evidence of this consultation to the department, Morrow County, and Umatilla County.</p> |

| STANDARD: LAND USE (LU) [OAR 345-022-0030] | |
|---|---|
| | [Final Order on ASC, Land Use Condition 12] |
| PRE-LU-06 | <p>Before beginning construction, the certificate holder shall work with the Morrow County Road Department to identify specific construction traffic related concerns, and develop a traffic management plan that specifies necessary traffic control measures to mitigate the effects of the temporary increase in traffic. The certificate holder must provide a copy of the traffic management plan to the department and Morrow County, and must implement the traffic management plan during construction.</p> <p>[Final Order on ASC, Land Use Condition 13]</p> |
| PRE-LU-07 | <p>Before beginning construction, the certificate holder must:</p> <p>Pay the requisite fee(s) and obtain a Zoning Permit(s) from Umatilla County for facility components sited within Umatilla County, including, but not limited to, turbines, substation, O&M building, and the intraconnection line.</p> <p>Provide the Department and county with a building permit application that includes a third-party technical report which:</p> <ul style="list-style-type: none"> • Evaluates fire hazards, and • Presents mitigation and recommendations for a fire suppression system designed for the battery storage systems. <p>The certificate holder shall provide copies of the third-party technical report and issued permits to the Department.</p> <p>[Final Order on ASC, Land Use Condition 15; AMD2]</p> |
| PRE-LU-08 | <p>Prior to facility construction, the certificate holder shall install gates and no trespassing signs at all private access roads established or improved for the purpose of facility construction and operation.</p> <p>[Final Order on ASC, Land Use Condition 18]</p> |
| PRE-LU-09 | <p>Before beginning construction, the certificate holder shall record in the real property records of Umatilla County a Covenant Not to Sue with regard to generally accepted farming practices on adjacent farmland.</p> <p>[Final Order on ASC, Land Use Condition 21]</p> |
| CON-LU-01 | <p>During construction, the certificate holder shall comply with the following requirements:</p> <ul style="list-style-type: none"> • Construction vehicles shall use previously disturbed areas including existing roadways and tracks. • Temporary construction yards and laydown areas shall be located within the future footprint of permanent structures to the extent practicable. • New, permanent roadways will be the minimum width allowed while still being consistent with safe use and satisfying county road and safety standards. • Underground communication and electrical lines will be buried within the area disturbed by temporary road widening to the extent practicable. <p>[Final Order on ASC, Land Use Condition 8]</p> |
| CON-LU-02 | <p>During construction, the certificate holder shall install smooth turbine tower structures and turbine nacelles that lack perching or nesting opportunities for birds.</p> <p>[Final Order on ASC, Land Use Condition 17]</p> |
| CON-LU-03 | <p>During construction, the certificate holder shall install the electrical cable collector system underground, where practicable. In agricultural areas, the collector system lines must be installed at a depth of 3 feet or deeper as necessary to prevent adverse impacts on agriculture operations. In all other areas, the collector system lines must be installed a minimum of 3 feet where practicable.</p> <p>[Final Order on ASC, Land Use Condition 19]</p> |
| OPR-LU-01 | <p>Within one month of commencement of commercial operation, the certificate holder shall submit an as-built survey for each construction phase that demonstrates compliance with the setback requirements in Land Use Condition 1 to the department and Morrow County.</p> |

| STANDARD: LAND USE (LU) [OAR 345-022-0030] | |
|---|--|
| | [Final Order on ASC, Land Use Condition 2] |
| OPR-LU-02 | <p>During operation of the facility, the certificate holder shall restore areas that are temporarily disturbed during facility maintenance or repair activities using the same methods and monitoring procedures described in the final Revegetation Plan referenced in Fish and Wildlife Habitat Condition 11.</p> <p>[Final Order on ASC, Land Use Condition 10]</p> |
| OPR-LU-03 | <p>Before beginning decommissioning activities, the certificate holder must provide a copy of the final retirement plan to Morrow County and Umatilla County.</p> <p>[Final Order on ASC, Land Use Condition 23]</p> |
| OPR-LU-04 | <p>Before beginning electrical production, the certificate holder shall prepare an Operating and Facility Maintenance Plan (Plan) and submit the Plan to the department for approval in consultation with Umatilla and Morrow Counties.</p> <p>[Final Order on ASC, Land Use Condition 25]</p> |
| OPR-LU-05 | <p>Within 90 days of the commencement of electrical service from Wheatridge East, the certificate holder shall provide a summary of as-built changes to the department and Umatilla County.</p> <p>[Final Order on ASC, Land Use Condition 26]</p> |
| OPR-LU-06 | <p>Prior to facility retirement, the certificate holder must include the following minimum restoration activities in the proposed final retirement plan it submits to the Council pursuant to OAR 345-027-0110 or its equivalent:</p> <ul style="list-style-type: none"> • Dismantle turbines, towers, pad mounted transformers, meteorological towers and related aboveground equipment, and remove concrete pads to a depth of at least three feet below the surface grade. • Remove underground collection and communication cables that are buried less than three feet in depth and are deemed by Council to be a hazard or a source of interference with surface resource uses. • Remove gravel from areas surrounding turbine pads. • Remove and restore private access roads unless the landowners directs otherwise. • Following removal of facility components, grade disturbed areas as close as reasonably possible to the original contours and restore soils to a condition compatible with farm uses or other resources uses. • Revegetate disturbed areas in consultation with the land owner and in a manner consistent with the final Revegetation Plan referenced in Fish and Wildlife Habitat Condition 11. • If the landowner wishes to retain certain facilities, provide a letter from the land owner that identifies the roads, cleared pads, fences, gates and other improvements to be retained and a commitment from the land owner to maintain the identified facilities for farm or other purposes permitted under the applicable zone. <p>[Final Order on ASC, Land Use Condition 27]</p> |

Attachment K-2. Morrow County Planning Department Boardman Solar Letter

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PLANNING DEPARTMENT

P. O. Box 40 • Irrigon, Oregon 97844
(541) 922-4624 or (541) 676-9061 x 5503
FAX: (541) 922-3472

December 14, 2017

Katie Clifford, Siting Officer
Oregon Department of Energy
550 Capitol Street NE 1st Floor
Salem, Oregon 97301

RE: Boardman Solar Energy Draft Proposed Order Comment Letter

Dear Ms. Clifford:

Morrow County would like to be clear that the Board of Commissioners support the development of solar energy in Morrow County. The construction of the Boardman Solar Farm will continue to grow and enhance energy production in Morrow County, bringing jobs to Eastern Oregon and reasonably priced electricity to the region. The specific purpose of this Board supported letter is to provide comments on the Draft Proposed Order.

After review of the Draft Proposed Order Morrow County finds that the various Conditions are adequate and meet the needs of the County with a couple of minor exceptions. As required by Oregon Revised Statute and the Morrow County Zoning Ordinance, once the Site Certificate is issued, Morrow County will work with the developer to approve and issue their necessary Morrow County permits. We understand, and our Zoning Ordinance states, that any local land use permit can only include the Conditions found in the Site Certificate. Because of this limitation we would ask for minor changes, as shown in *italics*, to the following Conditions:

- Mandatory Condition 1: The certificate holder shall submit a legal description of the site to the Oregon Department of Energy *and the Morrow County Planning Department* within 90 days...
- Mandatory Condition 5: ...and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility *in accordance with both the applicable Department of Energy provisions and the Morrow County Solid Waste Management Plan.*
- General Standard Condition 2: ...the certificate holder shall submit to the Department *and the Morrow County Planning Department* a compliance plan documenting...
- Fish and Wildlife Habitat Condition 10: ...the certificate holder shall submit to the Department *and the Morrow County Planning Department and Weed Supervisor* a final Revegetation and Noxious Weed Plan... The plan must be approved by the Department *with input from the Morrow County Planning Department and Weed Supervisor* prior to construction.
- Fish and Wildlife Habitat Condition 10(f): [Incorporate the following sentence] *Suggested changes to the plan shall be coordinated with the Morrow County Planning Department and Weed Supervisor.*

Oregon Department of Energy
Boardman Solar Energy Facility
Draft Proposed Order

Page 1

Morrow County Planning staff have also reviewed the letter dated November 24, 2017, submitted by 1000 Friends of Oregon concerning the necessary Goal 3 Exception. At one point in the letter 1000 Friends suggests that "solar development should be sited at or near the point of use or within the built environment, such as on existing industrial sites and otherwise unusable space." Morrow County would not want to see some 600 acres of industrial land consumed with a use that is allowed conditionally on farm land. Other industrial uses currently sited within industrial use zones in Morrow County have a stronger beneficial economic impact than a solar energy development would. The 1000 Friends letter does discuss installation on roof tops in both residential and industrial areas, which Morrow County would support, but those types of installations do not generally reach a size to be commercially beneficial. Morrow County supports the granting of a Goal 3 Exception in support of the Boardman Solar Energy Facility.

It should also be noted that in the Draft Proposed Order at page 172 under the discussion concerning Health Care that there are health clinics in both Boardman and Irrigon that should be included. My apologies for not catching that in early project documents. Should Department staff need additional information I can work with them to accurately reflect the available services.

Thank you for the opportunity to comment on the Boardman Solar Generating Facility Draft Proposed Order. Should you have any questions about these comments please contact me at 541-922-4624 or by email at cmclane@co.morrow.or.us.

Cordially,



Carla McLane
Planning Director

cc: Morrow County Board of Commissioners
Matt Scrivner, Sandra Pointer and Dave Pranger, Morrow County Public Works
Michelle Colby, Gilliam County Planning Director
Laura Minor, Invenergy

Exhibit L

Protected Areas

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Figure L-2. Viewshed Analysis

Acronyms and Abbreviations

| | |
|--------------------|--|
| ACEC | Area of Critical Environmental Concern |
| ASC | Application for Site Certificate |
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| dBA | A-weighted decibels |
| Facility | Wheatridge Wind Energy Facility |
| GIS | Geographic Information System |
| MW | Megawatt |
| OAR | Oregon Administrative Rule |
| ODEQ | Oregon Department of Environmental Quality |
| RFA 4 | Request for Amendment 4 |
| RNA | Research Natural Area |
| ZVI | zone of visual influence |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit L provides an analysis of the Facility impacts to protected areas, as required to meet the submittal requirements of Oregon Administrative Rule (OAR) 345-021-0010 (1)(I) paragraphs (A) through (C). Exhibit L demonstrates that the Facility, as modified by RFA 4, can continue to comply with the approval standard in OAR 345-022-0040:

OAR 345-022-0040 Protected Areas

(1) Except as provided in sections (2) and (3), the Council shall not issue a site certificate for a proposed facility located in the areas listed below. To issue a site certificate for a proposed facility located outside the areas listed below, the Council must find that, taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed below. References in this rule to protected areas designated under federal or state statutes or regulations are to the designations in effect as of May 11, 2007:

- (a) National parks, including but not limited to Crater Lake National Park and Fort Clatsop National Memorial;*
- (b) National monuments, including but not limited to John Day Fossil Bed National Monument, Newberry National Volcanic Monument and Oregon Caves National Monument;*
- (c) Wilderness areas established pursuant to The Wilderness Act, 16 U.S.C. 1131 et seq. and areas recommended for designation as wilderness areas pursuant to 43 U.S.C. 1782;*
- (d) National and state wildlife refuges, including but not limited to Ankeny, Bandon Marsh, Baskett Slough, Bear Valley, Cape Meares, Cold Springs, Deer Flat, Hart Mountain, Julia Butler Hansen, Klamath Forest, Lewis and Clark, Lower Klamath, Malheur, McKay Creek, Oregon Islands, Sheldon, Three Arch Rocks, Umatilla, Upper Klamath, and William L. Finley;*
- (e) National coordination areas, including but not limited to Government Island, Ochoco and Summer Lake;*
- (f) National and state fish hatcheries, including but not limited to Eagle Creek and Warm Springs;*
- (g) National recreation and scenic areas, including but not limited to Oregon Dunes National Recreation Area, Hell's Canyon National Recreation Area, and the Oregon Cascades Recreation Area, and Columbia River Gorge National Scenic Area;*
- (h) State parks and waysides as listed by the Oregon Department of Parks and Recreation and the Willamette River Greenway;*
- (i) State natural heritage areas listed in the Oregon Register of Natural Heritage Areas pursuant to ORS 273.581;*
- (j) State estuarine sanctuaries, including but not limited to South Slough Estuarine Sanctuary, OAR chapter 142;*
- (k) Scenic waterways designated pursuant to ORS 390.826, wild or scenic rivers designated pursuant to 16 U.S.C. 1271 et seq., and those waterways and rivers listed as potentials for designation;*
- (l) Experimental areas established by the Rangeland Resources Program, College of Agriculture, Oregon State University: the Prineville site, the Burns (Squaw Butte) site, the Starkey site and the Union site;*
- (m) Agricultural experimental stations established by the College of Agriculture, Oregon State University, including but not limited to:*

...
Agriculture Research and Extension Center, Hermiston...;
- (n) Research forests established by the College of Forestry, Oregon State University, including but not limited to McDonald Forest, Paul M. Dunn Forest, the Blodgett Tract in Columbia County, the Spaulding Tract in the Mary's Peak area and the Marchel Tract;*

(o) Bureau of Land Management areas of critical environmental concern, outstanding natural areas and research natural areas;

(p) State wildlife areas and management areas identified in OAR chapter 635, division 8.

2.0 Protected Areas Inventory – OAR 345-021-0010(1)(I)(A)(B)

OAR 345-021-0010(1)(I) Information about the proposed facility's impact on protected areas, providing evidence to support a finding by the Council as required by OAR 345-022-0040, including:

OAR 345-021-0010(1)(I)(A) A list of the protected areas within the analysis area showing the distance and direction from the proposed facility and the basis for protection by reference to a specific subsection under OAR 345-022-0040(1).

OAR 345-021-0010(1)(I)(B) A map showing the location of the proposed facility in relation to the protected areas listed in OAR 345-022-0040 located within the analysis area.

The Analysis Area for protected areas is defined in the Project Order as “the area within the Site Boundary and 20 miles from the Site Boundary.” The Site Boundary is defined in detail in Exhibits B and C and includes the Approved and Amended Site Boundary. The Analysis Area is shown on Figure L-1. The areas of Amended Site Boundary, because of their proximity to the Approved Site Boundary, do not change the extent of the Analysis Area for Exhibit L. No new protected areas are located within the Analysis Area since the Application for Site Certificate (ASC; Wheatridge 2015). Table L-1 provides an inventory of the 16 protected areas within the Analysis Area and indicates the proximity and direction of each protected area relative to the Site Boundary. The inventory of protected areas was based on review of best available Geographic Information System (GIS) data, maps, and the most current information for the categories of protected areas listed in OAR 345-022-0040(1). These protected areas are identified by name on Figure L-1.

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Table L-1. Protected Areas Inventory, Visual and Noise Assessment Results

| Protected Areas within 20 Miles of Site Boundary | | Distance to Site Boundary | Direction from Facility | Facility Potentially Visible? ¹ | Visual Analysis Results | Operational Noise Potentially Audible? | Worst-case Modeled Operational Noise Level (dBA L ₅₀) |
|---|---------------------------------------|---------------------------|-------------------------|--|---|--|---|
| Type | Area Name | | | | | | |
| National Parks OAR 345-022-0040(1)(a) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| National Monuments OAR 345-022-0040(1)(b) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| Wilderness Areas OAR 345-022-0040(1)(c) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| National & State Wildlife Refuges OAR 345-022-0040(1)(d) | Umatilla National Wildlife Refuge | 14/17.3 | NNW | Yes (wind turbines and solar arrays) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. Viewshed analysis indicates potential visibility of solar panels from some refuge locations on the Washington side of the Columbia River. At a far background viewing distance of over 17 miles, it is highly unlikely that solar arrays with a maximum height of 16 feet could be detected or identified by viewers. If any solar facilities were visible, the additional visual contrast within an existing modified landscape would be negligible. No management direction applicable to preservation of scenic qualities outside of Refuge. Addition of the solar arrays would not change the previous conclusion that views of the Facility, if any, would not compromise the purpose of the Refuge. | No | Background (no increase from approved wind facility) |
| | Cold Springs National Wildlife Refuge | 12.5/26.1 | NE | Yes (wind turbines and solar arrays) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. Viewshed analysis indicates no visibility of solar facilities within the NWR. Addition of the solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of the Refuge. | No | Background (no increase from approved wind facility) |
| | McNary National Wildlife Refuge | 18/31.5 | NE | Yes (wind turbines and solar arrays) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. Viewshed analysis indicates potential visibility of solar panels from a small area along the southern edge of the refuge. At a far background viewing distance of over 31 miles, it is inconceivable that solar arrays with a maximum height of 16 feet could be detected or identified by viewers. No management direction applicable to preservation of scenic qualities outside of Refuge. Addition of the solar arrays would not change the previous conclusion that views of the Facility, if any, would not compromise the purpose of the Refuge. | No | Background (no increase from approved wind facility) |
| National Coordination Areas OAR 345-022-0040(1)(e) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| Fish Hatcheries OAR 345-022-0040(1)(f) | Umatilla Hatchery | 20.1/22.7 | N | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. Viewshed analysis indicates no visibility of solar facilities at the hatchery location. No management direction applicable to scenic quality. Addition of the solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of facility. | No | Background (no increase from approved wind facility) |

| Protected Areas within 20 Miles of Site Boundary | | Distance to Site Boundary | Direction from Facility | Facility Potentially Visible? ¹ | Visual Analysis Results | Operational Noise Potentially Audible? | Worst-case Modeled Operational Noise Level (dBA L ₅₀) |
|--|-------------------------------------|---------------------------|-------------------------|--|---|--|---|
| Type | Area Name | | | | | | |
| | Irrigon Hatchery | 18.1/21.9 | N | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. Viewshed analysis indicates no visibility of solar facilities at the hatchery location. No management direction applicable to scenic quality. Addition of the solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of facility. | No | Background (no increase from approved wind facility) |
| | Three Mile Adult Hold Fish Hatchery | 13.9/23.6 | N | Yes (wind turbines only) | No new impact. Viewshed analysis indicates no visibility of solar facilities at the holding facility location. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. No management direction applicable to scenic quality. Addition of the solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of facility. | No | Background (no increase from approved wind facility) |
| National Recreation and Scenic Areas OAR 345-022-0040(1)(g) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| State Parks & Waysides OAR 345-022-0040(1)(h) | Hat Rock State Park | 16.5/29.4 | NE | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible at a far background distance from high ground in the park. Viewshed analysis indicates no visibility of solar facilities at the park location. Addition of the solar arrays would not change the previous conclusion that visual impact from the Facility on Hat Rock State Park would be negligible. | No | Background (no increase from approved wind facility) |
| State Natural Heritage Areas OAR 345-022-0040(1)(i) | Lindsay Prairie Preserve | 0.1/1.4 | W | Yes (wind turbines and solar arrays) | Negligible new impact. Wind turbines from the approved facility were previously identified as visible in the foreground from this area. Viewshed analysis indicates potential visibility of solar panels in a small area in the northeastern part of the preserve. At a middleground viewing distance of 1.4 mile, it is unlikely that solar arrays with a maximum height of 16 feet would be noticed by viewers. If any solar facilities were visible, the additional visual contrast within an existing modified landscape would be negligible. The Preserve is fenced, gated and locked and has no developed facilities; although it is publicly accessible, it receives very little public use. ² The site is protected for preservation of native vegetation and wildlife, and there is no management direction related to scenic quality except as related to vegetation within the site. The addition of solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of the Preserve. | Yes | 54 (no increase from approved wind facility) |
| State Estuarine Sanctuaries OAR 345-022-0040(1)(j) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| Scenic Waterways/ Wild & Scenic Rivers OAR 345-022-0040(1)(k) | None | N/A | N/A | N/A | N/A | N/A | N/A |

| Protected Areas within 20 Miles of Site Boundary | | Distance to Site Boundary | Direction from Facility | Facility Potentially Visible? ¹ | Visual Analysis Results | Operational Noise Potentially Audible? | Worst-case Modeled Operational Noise Level (dBA L ₅₀) |
|---|--|---------------------------|-------------------------|--|--|--|---|
| Type | Area Name | | | | | | |
| Experimental Areas (Rangeland Resources Program) OAR 345-022-0040(1)(l) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| Agricultural Experimental Stations OAR 345-022-0040(1)(m) | Oregon State University Agriculture Research and Extension Center, Hermiston | 9.2/20.9 | N | Yes (wind turbines and solar arrays) | No new Impact. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. Viewshed analysis indicates no visibility of solar facilities at the extension center location. No management direction applicable to scenic quality. Addition of the solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of facility. | No | Background (no increase from approved wind facility) |
| Research Forests OAR 345-022-0040(1)(n) | None | N/A | N/A | N/A | N/A | N/A | N/A |
| Bureau of Land Management (BLM) Areas of Critical Environmental Concern OAR 345-022-0040(1)(o) | Oregon Trail ACEC, Echo Meadows | 2.5/15.4 | N | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the middleground to background from this area. Viewshed analysis indicates no visibility of solar facilities at the ACEC location. The Echo Meadows site receives low levels of public use, up to a maximum of about 850 visitors per year. ³ No management direction applicable to preservation of scenic qualities outside of ACEC. Addition of the solar arrays would not change the previous conclusion that views of the Facility would not compromise the integrity of the remaining evidence of the Oregon Trail at this site. | No | Background (no increase from approved wind facility) |
| | Horn Butte Curlew ACEC | 15.5/18.9 | NW | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the far background from this area. No management direction applicable to preservation of scenic qualities outside of ACEC. Viewshed analysis indicates no visibility of solar facilities at the ACEC locations. Addition of solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of the ACEC. | No | Background (no increase from approved wind facility) |
| BLM Research Natural Areas and Outstanding Natural Areas OAR 345-022-0040(1)(o) | Boardman RNA | 2.2/5.9 | NNW | Yes (wind turbines and solar arrays) | Negligible new impact. Wind turbines from the approved facility were previously identified as potentially visible in the middleground to background from this area. Viewshed analysis indicates potential visibility of solar facilities in certain portions of the RNA. At a background viewing distance of 5.9 miles, it is unlikely that solar arrays with a maximum height of 16 feet could be detected or identified by viewers. If any solar facilities were visible, the additional visual contrast within an existing modified landscape would be minimal. The RNA is located within the Boardman Bombing Range and not accessible to the public, with occasional visits by TNC staff for monitoring and maintenance. ² The site is not managed for its scenic qualities. The addition of solar arrays would not change the previous conclusion that views of the Facility would not compromise the purpose of the RNA. | No | Background (no increase from approved wind facility) |

| Protected Areas within 20 Miles of Site Boundary | | Distance to Site Boundary | Direction from Facility | Facility Potentially Visible? ¹ | Visual Analysis Results | Operational Noise Potentially Audible? | Worst-case Modeled Operational Noise Level (dBA L ₅₀) |
|--|------------------------------|---------------------------|-------------------------|--|---|--|---|
| Type | Area Name | | | | | | |
| State Wildlife Areas and Management Areas OAR 345-022-0040(1)(p) | Irrigon Wildlife Area | 16.5/21.9 | N | Yes (wind turbines and solar arrays) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the far background from this area. Viewshed analysis indicates no visibility of solar facilities from this area. No management direction applicable to scenic quality. The addition of solar arrays would not alter the previous conclusion that views of the Facility would not interfere with wildlife viewing or compromise the purpose of the WMA. | No | Background (no increase from approved wind facility) |
| | Power City Wildlife Area | 14.6/24.9 | N | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the far background from this area. Viewshed analysis indicates no visibility of solar facilities from this area. No management direction applicable to scenic quality. The addition of solar arrays would not alter the previous conclusion that views of the Facility would not interfere with wildlife viewing or compromise the purpose of the WMA. | No | Background (no increase from approved wind facility) |
| | Coyote Springs Wildlife Area | 14/16.8 | N | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the far background from this area. Viewshed analysis indicates no visibility of solar facilities from this area. No management direction applicable to scenic quality. The addition of solar arrays would not alter the previous conclusion that views of the Facility would not interfere with wildlife viewing or compromise the purpose of the WMA. | No | Background (no increase from approved wind facility) |
| | Willow Creek Wildlife Area | 18.1/22.1 | NW | Yes (wind turbines only) | No new impact. Wind turbines from the approved facility were previously identified as potentially visible in the far background from this area. Viewshed analysis indicates no visibility of solar facilities from this area. No management direction applicable to scenic quality. The addition of solar arrays would not alter the previous conclusion that views of the Facility would not interfere with wildlife viewing or compromise the purpose of the WMA | No | Background (no increase from approved wind facility) |
| <div>1. Indicates potential visibility of any part of solar panels, Intraconnection Lines, or other Facility components as determined through viewshed analysis.</div> <div>2. Information on access and use obtained through a personal communication between Thomas Kruger, Tetra Tech and Jeff Rosier, The Nature Conservancy, March 9, 2015.</div> <div>3. Use data for the Oregon Trail Echo Meadows ACEC obtained through a personal communication between Rachael Katz, Tetra Tech, and Brian Woolf, BLM Vale District, Baker Office, August 6, 2018.</div> | | | | | | | |

3.0 Potential Impacts – OAR 345-021-0010(1)(I)(C)

OAR 3450-021-0010(1)(I)(C) A description of significant potential impacts of the proposed facility, if any, on the protected areas including, but not limited to, potential impacts such as:

3.1 Noise Impacts – OAR 345-021-0010(1)(I)(C)(i)

(i) Noise resulting from facility construction or operation;

Table L-1 provides a summary of operational noise levels from the solar facilities at protected areas within the Analysis Area. As previously found by the Council, noise generated by the construction and operation phases of the Facility is unlikely to cause significant adverse noise impacts to protected areas (ODOE 2017). Exhibit X provides an assessment of the existing acoustical environment and anticipated Facility sound levels, the methodology for noise modeling is discussed in detail in that exhibit. There would be no significant operational noise from the solar panels themselves. However, cooling equipment associated with the distributed energy storage modules described in Exhibit B, along with associated electrical equipment, would have some limited operational noise. Construction activities associated with construction of the solar arrays and related or supporting facilities would be similar to or less than construction noise already reviewed by Council for the Facility.

Based on the results of modeling, as described in detail in Exhibit X, operation of the solar arrays and related or supporting facilities would not create new noise impacts to protected areas beyond those that were previously identified for the Facility. Operational noise would attenuate to be indistinguishable from the background noise level within a distance of approximately 2 miles from the Site Boundary. All protected areas except for one, the Lindsay Prairie Preserve, are located more than 2 miles from the Site Boundary, where noise from the Facility would be effectively inaudible.

At Lindsay Prairie Preserve, the worst-case modeled noise level would be approximately 36 to 54 A-weighted decibels (dBA); at the loudest, this is approximately equivalent to the sound level of a normal conversation. Operational Facility noise at Lindsay Prairie Preserve would be only marginally lower (1 dBA). This is the same noise level as previously modeled for the approved wind facility.

Exhibit X describes sound level thresholds derived from the Oregon Department of Environmental Quality (ODEQ) noise regulations (OAR 340-035-0035), which are used to assess the significance of impacts to noise sensitive properties. As defined in the ODEQ regulations, “Noise sensitive property” is defined as “real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries. Property used in industrial or agricultural activities is not Noise Sensitive Property unless it meets the above criteria in more than an incidental manner.” As previously described for the approved wind facility, the closest protected area, the Lindsay Prairie Preserve, is not an area normally used for sleeping (which is also true of all of the other protected

areas) and has minimal daytime use, so is not considered noise sensitive property. Therefore, the ODEQ noise regulations do not apply.

The Council previously found in the Final Order on the ASC (ODOE 2017) that the Lindsay Prairie Preserve is a site protected for restoration and preservation of native vegetation and wildlife, and receives no known public use. The protected area is fenced, and the access road is gated and locked. The Council found that noise levels resulting from turbine operations, although audible, would not be expected to interfere with the primary purpose (native grassland and wildlife habitat preservation) of the Lindsay Prairie Preserve and therefore the protected area would not experience significant adverse noise impacts from facility operation. Because of the low elevation of noise-emitting components of the solar arrays and because of their distance from the Lindsay Prairie Preserve, operation of the solar arrays would not have a significant increase on noise levels at the Preserve beyond what was previously evaluated for the approved Facility.

3.2 Traffic Impacts – OAR 345-021-0010(1)(I)(C)(ii)

(ii) Increased traffic resulting from facility construction or operation;

Traffic impacts are addressed in greater detail in Exhibit U, which provides additional information on anticipated traffic volumes, peak construction traffic times, potential delays and temporary road closures; mitigation measures that would be implemented by the Certificate Holder and the construction contractor to avoid significant traffic impacts; and required coordination with Oregon Department of Transportation and county road officials for necessary road improvements, road closures, and permits for construction and oversized load movements.

A previously found by the Council, no significant traffic impacts to protected areas are anticipated from construction or operation of the Facility (ODOE 2017). Eleven of the protected areas are located north of I-84 and would be virtually unaffected by Facility traffic, which would be concentrated on a small number of roads south of I-84. No truck traffic associated with the Facility would occur north of I-84, and construction worker traffic would be dispersed on many roads in the area, rather than concentrated on any one road such that access to any protected area north of the interstate could be adversely affected. Of the five protected areas located south of I-84, only the Boardman Research Natural Area (RNA) and Lindsay Prairie Preserve are likely to experience impacts from Facility traffic; the Horn Butte Area of Critical Environmental Concern (ACEC), Willow Creek Wildlife Area and the Oregon Trail ACEC are accessed by routes that would not carry Facility-related truck traffic. Construction worker traffic may occur on roads providing access to these areas; however, construction worker traffic would be dispersed on many roads in the area, and the level of worker traffic anticipated would not adversely affect Level of Service on those roads (see Exhibit U).

Construction of the solar arrays would occur after construction of the wind turbines. As described in Exhibit U, construction traffic associated with the solar arrays would be less than that previously reviewed and approved for construction of the wind turbines. Therefore, traffic impacts would be of a longer duration due to the addition of solar arrays to the approved facility, but there would be fewer daily truck trips during construction of the solar arrays and therefore a lower level of impact.

The Council previously found in the Final Order on the ASC (ODOE 2017) that of the five protected areas south of I-84, only the Boardman Research Natural Area and Lindsay Prairie Preserve are likely to experience impacts from facility construction traffic. The Certificate Holder will continue to employ BMPs as described in Exhibit U to ensure that access restrictions to any protected area will be temporary and timed to avoid peak traffic flow. Following construction, traffic levels will return to normal. The addition of solar arrays will result in up to two additional permanent staff which will not materially affect traffic during facility operations.

3.3 Water Use and Wastewater – OAR 345-021-0010(1)(I)(C)(iii)(iv)

(iii) Water use during facility construction or operation;

(iv) Wastewater disposal resulting from facility construction or operation;

As previously found by the Council, no significant water or wastewater impacts to protected areas are anticipated from the Facility (ODOE 2017). As described in Exhibit O, no ground or surface water withdrawals will take place for construction of the Facility beyond those already permitted for existing water suppliers. During operation, the Facility would have minimal water needs that would be fulfilled through the use of exempt wells at the O&M Buildings. Water used during Facility construction or operation will continue to not impact water availability or use at protected areas.

Stormwater runoff will continue to be managed on site according to the Best Management Practices (BMPs) as described in the NPDES 1200-C/Erosion and Sediment Control Plan (Attachment I-2), such that no stormwater will leave the Site Boundary. No protected area would be affected by stormwater runoff from the Facility Area. Sanitation wastewater during construction will continue to be contained in portable toilets, to be provided and maintained by a licensed contractor. Wastewater generated at the O&M Buildings during Facility operation will be handled by an on-site septic system, to be permitted prior to construction. No protected area would be impacted by sanitation wastewater related to the Facility. Exhibit O provides additional information on water use and Exhibit V provides information on wastewater.

As previously found by the Council in the Final Order on the ASC, the addition of solar arrays and related or supporting facilities will not alter the conclusion that there will be no significant impacts to protected areas due to water use at the Facility (ODOE 2017).

3.4 Visual Impacts – OAR 345-021-0010(1)(I)(C)(v)(vi)

(v) Visual impacts of facility structures or plumes.

(vi) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 Areas as described in OAR 340-204-0050.

The Council previously found that while the Facility components would result in a change to the existing viewshed of the protected areas, due to the low impact to users, no specified management of scenic or visual qualities (or designated views or viewsheds), and presence of similar structures within the existing viewshed, the visual impacts of construction and operation of the Facility would not likely result in a significant adverse impact to any protected area (ODOE 2017). The inclusion of

solar arrays in the Facility, as described in RFA 4, will result in potential new visual impacts to include views of the solar panels as well as potentially two new overhead collector lines within the solar micrositing area. Inverters, transformers, and distributed energy storage containers will generally be subordinate to the view of the panels themselves. Class I areas, as defined in OAR 340-204-0050, consist of the 12 federally-designated Wilderness Areas in Oregon; none of which are located within the Analysis Area.

The Facility would not generate any emissions plumes, so would not cause any visual impacts from air emissions. Potential visual impacts due to dust created during construction of the Facility will be largely prevented by following BMPs for dust control as detailed in Exhibit O.

The Council previously made findings about views of wind turbines and related or supporting facilities in the Final Order on the ASC (ODOE 2017). Information about visibility of these features generally is not repeated here, except where it is needed to provide context for information about the proposed solar arrays.

3.4.1 Solar Arrays

The solar array components are described in further detail in Exhibit B. The solar panels will be the most visible component of the solar arrays and will consist of solar module strings mounted on single-axis tracker systems.

The visibility of the solar arrays will depend on topographic or other obstructions and distance from the viewer to the solar arrays. With a maximum height of 16 feet, the arrays won't be visible from sites lower in elevation than the area on which the arrays are constructed. From sites that are similar elevation to the arrays, viewers will see only a line on the horizon, and not individual solar panels. Depending on the viewing distance, viewers at sites higher in elevation sites may have views of the panels, especially if the view direction is toward the angle at which the panel is tilted toward the sun.

To the extent possible, reflectivity of the solar arrays will be minimized. Antireflective coating will be used to reduce glare and the surface of the panels will have high transmittance to increase the amount of light reaching the photovoltaic cells. With these methods, the panels will be less reflective than a natural water body or a coated glass surface that is not antireflective. Additional information on glare from can be found in Exhibit R.

3.4.2 ZVI Analysis

Visual impacts of the Facility are primarily related to potential views of the solar panels. In evaluating the visual impacts, the Certificate Holder first determined whether the solar arrays would be visible from each protected area using digital bare earth modeling. The analysis began with a zone of visual influence (ZVI) analysis (also known as a viewshed or visibility analysis), using Environmental Systems Research Institute ArcGIS software to identify the areas from which the proposed solar panels might be visible. To assess the potential visibility of the structures, the ZVI analysis was performed for both solar arrays.

It should be noted that this “bare-earth” modeling approach, based only on the effects of terrain on visibility, results in a conservative assessment of potential visibility for several reasons. First, in some areas where the analysis indicates Facility structures would potentially be visible, the only visible components might be the solar panels, which would likely be noticeable only at relatively close viewing distances because of their low profile. In addition, the model does not account for distance, lighting, weather, and atmospheric attenuation factors that diminish visibility under actual field conditions. A bare-earth analysis also does not account for the effects of vegetation or buildings, which will in practice block or screen views in some places. Figure L-2 shows the areas from which the solar arrays would potentially be visible based on the ZVI analysis.

The ZVI analysis indicated proposed solar facilities would not be visible from 12 of the 16 protected areas within the Analysis Area. Therefore, the solar facilities would clearly have no impact on these 12 protected areas. The results of the ZVI analysis indicate there would be potential visibility of some portions of the Facility from 4 of the 16 protected areas within the Analysis Area (see Table L-1), based on the existence of a direct line of sight from some portion of the solar facilities to one or more locations within a protected area. The nearest protected area to the solar arrays is the Lindsay Prairie Preserve, located 1.4 mile away by Juniper Canyon Road (see Table L-1), and the Boardman RNA is approximately 5.9 miles from the solar arrays. The ZVI analysis indicated that solar facilities would potentially be visible from small portions of both protected areas. The analysis also indicated potential visibility of solar facilities from portions of the Umatilla National Wildlife Refuge and the McNary National Wildlife Refuge, for which the respective viewing distances are 17.3 miles and 31.5 miles. The impact analysis also concluded there would be no visual impact from the Umatilla National Wildlife Refuge or the McNary National Wildlife Refuge; although the ZVI analysis indicated potential visibility from these protected areas (i.e., a direct line of sight), viewers would not be able to detect the low-profile solar facilities at such long distances.

Potential visibility is but one of several factors that comprise an assessment of visual impact to a protected area. Other factors to consider include the viewing distance; other natural and manmade features visible within the view; the likely number and nature of visitors to a protected area; and whether there is any management direction related to preservation of scenic quality, either within the protected area or outside of it. Table L-1 provides a summary of the visual impact assessment for each of the 16 protected areas.

The two protected areas closest to the Facility, the Boardman RNA and the Lindsay Prairie Preserve, would respectively have background and middle ground views of the Facility. The following paragraphs provide a visual impact assessment specific to these two protected areas.

3.4.3 Boardman RNA

The ZVI analysis indicates potential visibility of the Facility from several locations within the RNA, primarily in the northeastern and southeastern corners of the area, at a background viewing distance of 5.9 miles to about 7 miles. Because the solar arrays will have a maximum height of 16 feet, it is highly unlikely that they could be detected or identified by viewers at this distance. If any

of the solar facilities were visible, the incremental visual contrast they would create within an existing modified landscape that includes transmission lines and wind turbines would be minimal.

Wind turbines associated with the approved Facility were previously noted to be visible from the Boardman RNA. The RNA is located entirely within the Boardman Bombing Range, and thus is not accessible to the public. The site is protected for preservation of native vegetation and wildlife and is visited only occasionally by The Nature Conservancy (TNC) staff doing monitoring or maintenance activities (personal communication between Thomas Kruger, Tetra Tech, and Jeff Rosier, TNC, March 9 2015). Any views of the Facility would not compromise the purpose of the RNA and would affect few users for a short duration. Additionally, the site is not managed for its scenic qualities, except as related to vegetation within the site; views of the Facility would not interfere with this purpose. Moreover, the existing viewshed includes transmission lines, wind turbines, and agricultural irrigation equipment. Therefore, the addition of the solar arrays to the Facility does not alter the Council's prior conclusion that potential visual impact of the Facility on the Boardman RNA is considered to be negligible.

3.4.4 Lindsay Prairie Preserve

The ZVI analysis indicates potential visibility of the Facility solar panels from a small area in the northeastern corners of the Preserve at a middleground viewing distance of approximately 1.5 mile. Because the solar arrays will have a maximum height of 16 feet, it is unlikely that they would be noticed by viewers at this distance. If they were visible, the arrays would appear as a thin dark line on the horizon and would create minimal visual contrast.

The Preserve is fenced, the access is gated and locked, and there are no visitor facilities of any kind. Although the site is open to the public, TNC reports that it receives no known public use and is only occasionally visited by TNC staff (personal communication between Thomas Kruger, Tetra Tech, and Jeff Rosier, TNC, March 9, 2015). Any views of the Facility would not compromise the purpose of the Preserve and would affect at most a few users for a short duration. The site is not managed for its scenic qualities, except as related to vegetation within the site, and views of the Facility would not interfere with this purpose. Wind turbines from the approved Facility previously were noted to be visible at close viewing distances from this area. Based on the potential for minimal visual contrast that might be visible to very few viewers in a small portion of the Preserve, the addition of the solar arrays and related or supporting facilities does not alter the Council's prior conclusion that the potential visual impact of the Facility on the Lindsay Prairie Preserve would be negligible.

3.4.5 Visual Impact Summary

Based on this analysis, the Certificate Holder concludes that there would be no significant visual impacts to any protected areas within the Analysis Area. The results of the ZVI analysis indicate there would be potential visibility of some portions of the Facility from at most 4 of the 16 protected areas within the Analysis Area. Because of the low profile and minimal reflectivity of the

arrays and long distances between the protected areas and the arrays, expected that the arrays will have minimal or no visibility and no visual impact from two of the protected areas (the Umatilla and McNary wildlife refuges). Based on similar visibility conditions and extremely limited viewership, the Facility is expected to have negligible visual impact on the Boardman RNA and the Lindsay Prairie Preserve. Therefore, the addition of the solar arrays to the Facility will not result in a significant adverse visual impact to protected areas. As modified by RFA 4, views of the Facility will continue to be dominated by wind turbines and other infrastructure.

4.0 Conclusions

The Analysis Area contains all or part of 16 protected areas. The Certificate Holder analyzed potential impacts to these areas and concluded as follows:

- Noise. Based on the results of the noise modeling presented in Exhibit X, the addition of solar arrays to the approved Facility would result in no significant difference in operational or construction noise at the 16 protected areas within the Analysis Area.
- Traffic. The addition of solar arrays to the approved Facility would not alter the previous analysis demonstrating that Facility-related traffic would not be sufficiently high, nor located so as to significantly impact any protected areas. Some short-term, intermittent and temporary delays may be experienced during Facility construction by visitors attempting to reach two of the protected areas; however, these would be temporary and traffic conditions would return to typical low levels following construction. Therefore, there would be no significant impact to traffic resulting from the operation of the Facility.
- Water. The Facility would not use water in sufficient quantities or from sources that would significantly impact any protected areas. Therefore, consistent with previous conclusions for the approved wind turbines and related or supporting facilities, there would be no significant impacts to protected areas by water use at the Facility.
- Wastewater. The addition of solar arrays to the approved Facility would not change the fact that the Facility would manage its very limited quantities of wastewater on-site and would thus not significantly impact any protected areas. Therefore, there would be no significant impacts to protected areas due to wastewater generated at the Facility.
- Visual. The Facility would potentially be visible from 4 of the 16 protected areas in the Analysis Area. However, due to distance from the Facility, topographic obstructions, other features within view (i.e. wind turbines and other infrastructure), low user numbers at the nearest sites, and an overall lack of management direction applicable to scenic quality beyond the boundaries of each protected area, the addition of solar arrays to the approved Facility would not alter that the Council's previous finding that the Facility would not have a significant visual impact on any protected area.

5.0 References

ODOE (Oregon Department of Energy). 2017. Final Order in the Matter of the Application for a Site Certificate for the Wheatridge Wind Energy Facility. April 2017.

Wheatridge (Wheatridge Wind Energy, LLC). 2015. Wheatridge Wind Energy Facility Application for Site Certificate. Prepared by Tetra Tech, Inc. July 2015.

Figures

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Wheatridge
Wind Energy Facility
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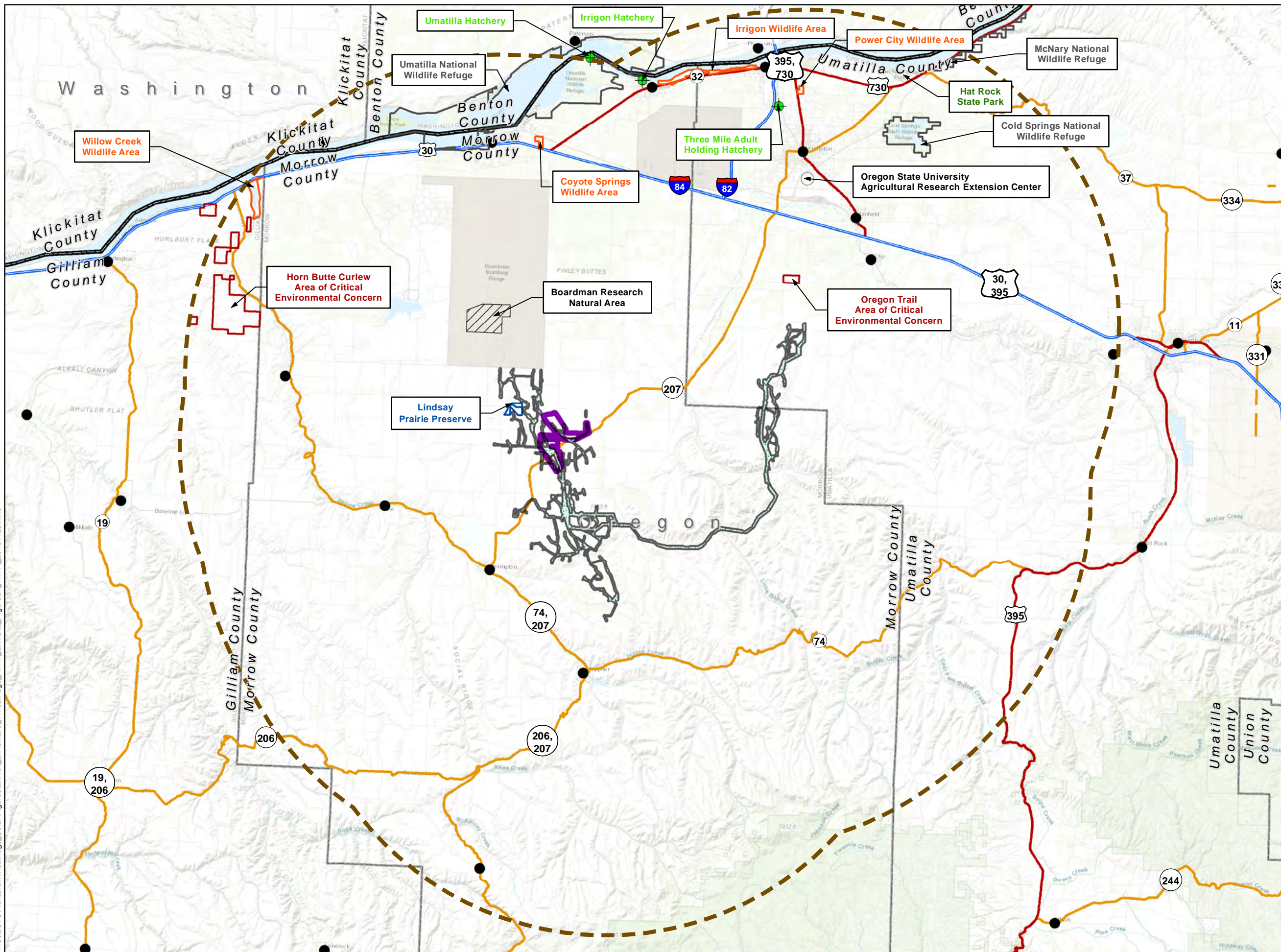
Figure L-1
Protected Areas within
the Analysis Area

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (20-mile Buffer)
- Interstate Highway
- US Highway
- State Highway
- City/Town
- State Boundary
- County Boundary
- Protected Areas
 - Oregon State University
 - Fish Hatchery
 - National Wildlife Refuge
 - BLM Area of Critical Environmental Concern
 - BLM Research Natural Area
 - State Natural Heritage Area
 - State Wildlife Area

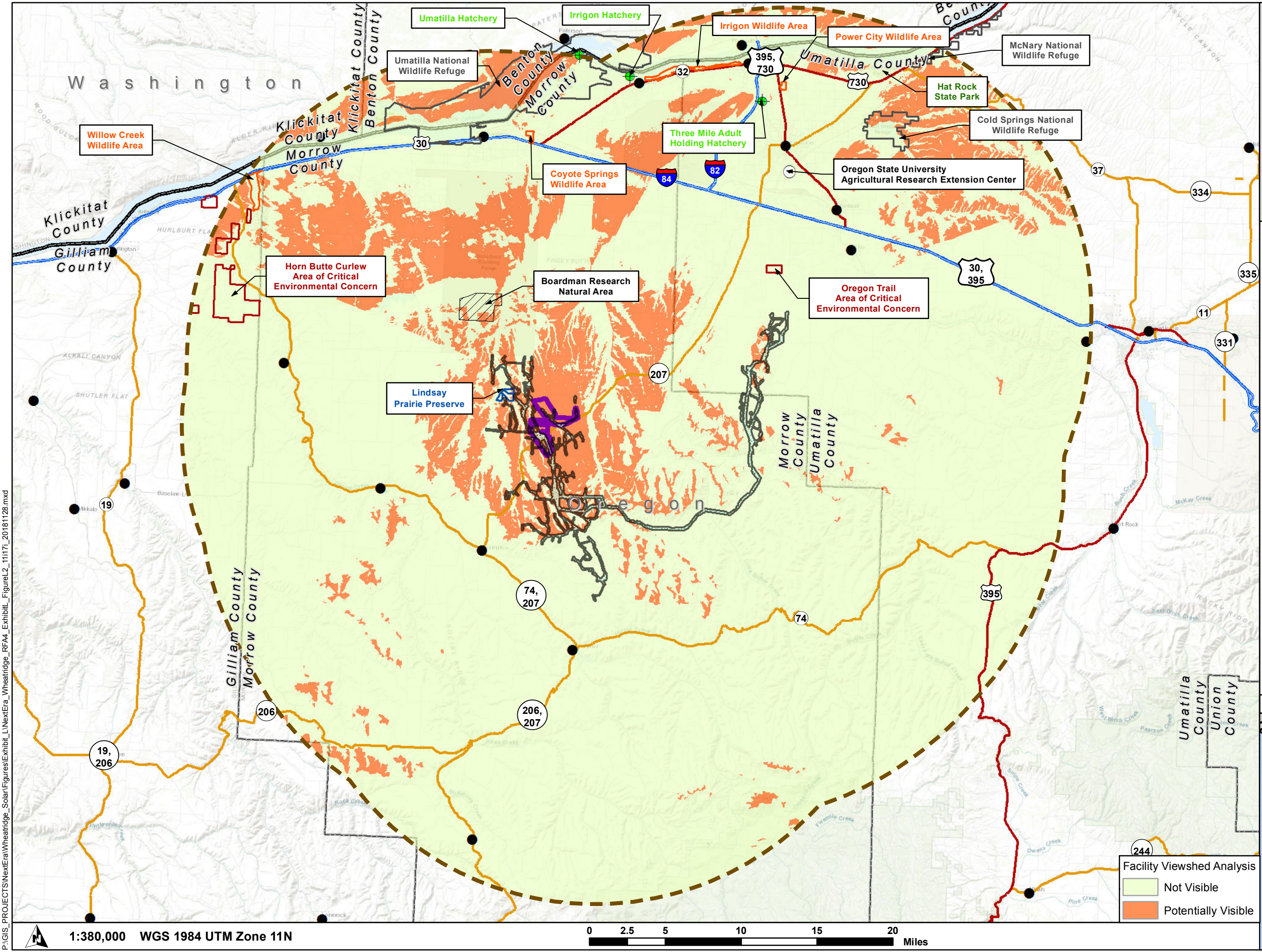


Reference Map



1:380,000 WGS 1984 UTM Zone 11N

0 2.5 5 10 15 20 Miles



Wheatridge Wind Energy Facility Request for Amendment 4

Figure L-2 Viewshed Analysis

MORROW AND UMATILLA COUNTIES, OR

Approved Site Boundary (Approved Wind Micrositing Corridors)

Amended Site Boundary (Proposed Solar Micrositing Corridors)

Analysis Area (20-mile Buffer)

Interstate Highway

US Highway

State Highway

City/Town

State Boundary

County Boundary

Protected Areas

- Oregon State University
- Fish Hatchery
- National Wildlife Refuge
- BLM Area of Critical Environmental Concern
- BLM Research Natural Area
- State Natural Heritage Area
- State Wildlife Area

Facility Viewshed Analysis

- Not Visible
- Potentially Visible

Reference Map

TETRA TECH

NEXTERA ENERGY RESOURCES

P:\GIS\PROJECTS\NextEra\Wheatridge_Solar\Figures\Exhibit_L\NextEra_Wheatridge_RFA4_Exhibit_L_Figure2_111171_20181128.mxd

Exhibit M

Applicant's Financial Capability

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|--------------------|---------------------------------|
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| OAR | Oregon Administrative Rules |
| RFA 4 | Request for Amendment 4 |

1.0 Introduction

As part of Request for Amendment 4 (RFA 4) to the Wheatridge Wind Energy Facility (Facility) Site Certificate, Wheatridge Wind Energy, LLC (the Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide an integrated, renewable energy facility with both wind and solar energy generation and energy storage (see Exhibit B for a detailed description). The Energy Facility Siting Council (Council) previously approved construction of a 500-megawatt wind energy facility to include up to 292 wind turbines and related or supporting facilities and found that the Facility complies with the Retirement and Financial Assurance standard required in Oregon Administrative Rules (OAR) 345-022-0050.

Exhibit M provides the information required by OAR 345-021-0010(1)(m) in support of RFA 4. Analysis in this exhibit incorporates and/or relies on reference information, analysis, and findings found in the ASC, previous RFAs¹, and Oregon Department of Energy (ODOE) Final Orders to demonstrate that the Facility, as modified by RFA 4, continues to comply with applicable Site Certificate conditions and the approval standard in OAR 345-022-0050 (EFSC 2017a, EFSC 2017b, ODOE 2017a, ODOE 2017b, Wheatridge 2015, Wheatridge 2017, Wheatridge 2018a, Wheatridge 2018b).

2.0 Opinion of Legal Counsel – OAR 345-021-0010(1)(m)(A)

OAR 345-021-0010(1)(m) Information about the applicant's financial capability, providing evidence to support a finding by the Council as required by OAR 345-022-0050(2). Nothing in this subsection shall require the disclosure of information or records protected from public disclosure by any provision of state or federal law. The applicant shall include:

OAR 345-021-0010(1)(m)(A) An opinion or opinions from legal counsel stating that, to counsel's best knowledge, the applicant has the legal authority to construct and operate the facility without violating its bond indenture provisions, articles of incorporation, common stock covenants, or similar agreements.

¹ In May 2018, the Certificate Holder submitted RFA 2 and RFA 3 for the Facility. RFA 2 proposed adding two battery storage locations (one in Wheatridge East and one in Wheatridge West). RFA 3 proposed increasing the maximum turbine height allowed. Both of these requests are pending before the Council. The Certificate Holder assumes that by the time RFA 4 appears before the Council that RFA 2 and RFA 3 will have been approved; therefore, RFA 4 incorporates by reference the record from RFAs 2 and 3 to support approval of RFA 4. However, references to the Site Certificate are for the Amended Site Certificate for RFA 1, which is the authorized Site Certificate at the time of submittal of RFA 4.

The Certificate Holder provided an opinion from the Certificate Holder's legal counsel indicating that the Certificate Holder has the legal authority to construct and operate the Facility without violating its articles of incorporation or similar agreements in Request for Amendment 1.

3.0 Proposed Bond or Letter of Credit – OAR 345-021-0010(1)(m)(B)(C)

OAR 345-021-0010(1)(m)(B) The type and amount of the applicant's proposed bond or letter of credit to meet the requirements of OAR 345-022-0050.

OAR 345-021-0010(1)(m)(C) Evidence that the applicant has a reasonable likelihood of obtaining the proposed bond or letter of credit in the amount proposed in paragraph (B), before beginning construction of the facility.

In accordance with Site Certificate Condition PRE-RF-01, prior to beginning construction on the Facility, the Certificate Holder will submit a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition to the State of Oregon in an amount equal to the net costs of Facility retirement. The bond or letter of credit will be provided in a form approved by the Council, and will ensure that adequate funds exist for the retirement of the Facility and for restoration of the Facility site to a useful, non-hazardous condition. The bond(s) or letter(s) of credit will be adjusted annually for inflation according to the Gross Domestic Product Implicit Price Deflator Index.

The Council previously found that the Certificate Holder has a reasonable likelihood of obtaining a bond or letter of credit in an amount necessary to retire and restore the site, originally calculated at \$18.1 million (third-quarter 2015 dollars; ODOE 2017a)². To reflect the modified and updated retirement cost estimate detailed in Exhibit W of \$27.224 million (fourth-quarter 2018 dollars) for the Facility, the Certificate Holder has obtained a letter from one of the company's relationship banks (Attachment M-1) demonstrating the reasonable likelihood that they will be able to obtain a bond(s) in an amount equal to or greater than the cost of Facility retirement.

4.0 References

EFSC (Energy Facility Siting Council). 2017a. Site Certificate for the Wheatridge Wind Energy Facility. April 2017.

EFSC. 2017b. Site Certificate on Amendment 1 for the Wheatridge Wind Energy Facility. August 2017.

² p. 168

ODOE (Oregon Department of Energy). 2017a. Final Order in the Matter of the Application for a Site Certificate for the Wheatridge Wind Energy Facility. April 2017.

ODOE. 2017b. Final Order in the Matter of the Request for Transfer (Amendment #1) for the Wheatridge Wind Energy Facility. July 2017.

Wheatridge (Wheatridge Wind Energy, LLC). 2015. Wheatridge Wind Energy Facility Application for Site Certificate. Prepared by Tetra Tech, Inc. July 2015.

Wheatridge. 2017. Wheatridge Wind Energy Facility Request for Amendment 1. Prepared by Tetra Tech, Inc. July 2017.

Wheatridge. 2018a. Wheatridge Wind Energy Facility Request for Amendment 2. Prepared by Tetra Tech, Inc. September 2018.

Wheatridge. 2018b. Wheatridge Wind Energy Facility Request for Amendment 3. Prepared by Tetra Tech, Inc. September 2018.

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Attachment M-1. Letter from Bank

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LETTER OF CREDIT COMMITMENT LETTER

Portland General Electric Company
121 SW Salmon Street
3 World Trade Center - 0306
Portland, Oregon 97204
Attn: Credit Dept.

August 23, 2018

Dear Sirs or Madams:

NextEra Capital Holdings Inc. ("Bidder"), acting on behalf of Wheatridge Wind Energy, LLC, plans to submit a bid in response to the Portland General Electric Company's 2018 Renewable Resources Request For Proposals ("RFP"). The Bank of Nova Scotia (the "Bank") promises that, should any bid submitted by Bidder in the RFP be selected for negotiations, the Bank will issue an irrevocable standby letter of credit (the "Letter of Credit") in a form reasonably acceptable to you up to a maximum amount of \$60,000,000.

The Bank's commitment hereunder is subject to (i) documentation having terms and conditions taken as a whole no less favorable than those set forth in the Amended & Restated Corporate Revolving Credit Agreement dated as of February 8, 2013, as amended and (ii) non-occurrence of a material adverse change affecting general market conditions or the Bidder's financial condition.

The Bank shall not be under any obligation to issue any Letter of Credit if: (A) any order, judgment or decree of any governmental authority or arbitrator shall by its terms purport to enjoin or restrain the Bank from issuing the Letter of Credit, or any law or regulation applicable to the Bank or any request or directive (whether or not having the force of law) from any governmental authority with jurisdiction over the Bank shall prohibit, or request that the Bank refrain from, the issuance of letters of credit generally or the Letter of Credit in particular or shall impose upon the Bank with respect to the Letter of Credit any restriction, reserve or capital requirement (for which the Bank is not otherwise compensated) not in effect on the closing date, or shall impose upon the Bank any unreimbursed loss, cost or expense which was not applicable on the closing date and which the Bank in good faith deems material to it; and (B) the issuance of the Letter of Credit would violate one or more policies of the L/C Issuer applicable to letters of credit generally.

The Bank's commitment hereunder will terminate on December 31, 2020.

We understand that said letter of credit is a required element in evaluating the Bidder's bid and that the execution and delivery of the letter of credit is a condition precedent to you entering into an agreement with Bidder. We also understand that you are under no obligation to enter into any agreement with Bidder, under the RFP or otherwise.

[Remainder of page intentionally left blank]

Yours truly,
The Bank of Nova Scotia

By: 

Print: David Dewar

Title: Director

Exhibit O

Water Requirements

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|--------------------|---|
| ASC | Application for Site Certificate |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| Mgal | million gallons |
| MW | megawatts |
| NPDES | National Pollutant Discharge Elimination System |
| OAR | Oregon Administrative Rule |
| ODOE | Oregon Department of Energy |
| ORS | Oregon Revised Statutes |
| RFA | Request for Amendment |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment (RFA) 4 to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit O provides information on anticipated water use during construction and operation of the Facility, to meet the submittal requirements in Oregon Administrative Rule (OAR) 345-021-0010(1)(o) paragraphs (A) through (G). Paragraphs (D) and (F) are not applicable because the Facility is not a thermal power plant or in need of a groundwater permit. OAR 345 Division 22 does not provide an approval standard specific to Exhibit O.

As detailed in the following sections, although the proposed changes create additional water needs for the Facility and a larger Site Boundary, the Certificate Holder can still comply with all Site

¹ Per OAR 345-001-0010(32) "micrositing corridor" means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

Certificate conditions previously adopted by the Council for compliance with respect to OAR 345-022-0010(1)(o). Conditions applicable to water include:

- Condition CON-SP-01: Operate under an Erosion and Sediment Control Plan required under the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge General permit 1200-C.
- PRE-WM-02: Confirmation of no surface/ground/drinking water impacts from concrete washout water.

2.0 Description of Water Use – OAR 345-021-0010(1)(o)(A)

OAR 345-021-0010(1)(o) Information about anticipated water use during construction and operation of the proposed facility. The applicant shall include:

OAR 345-021-0010(1)(o)(A) A description of the use of water during construction and operation of the proposed facility.

2.1 Construction

2.1.1 Uses

The primary water uses during construction of the Facility as modified under RFA 4 will be to mix water into concrete for foundations and to water roads for dust control. Concrete foundations will be poured for solar modules, transformer pads, and the catchment and for road construction (grading and compaction). Water trucks will be used to control dust generation in all disturbed areas during road construction, as required by the Erosion and Sediment Control Plan (Condition CON-SP-01). Fire prevention represents a minor water use; this would involve stationing a water truck at the job site to keep the ground and vegetation moist during extreme fire risk conditions.

For the construction of foundations, water will be transported to concrete batch plant sites (located at laydown areas) where it will be used to mix wet concrete. From the batch plant, the wet concrete will be transported to the construction sites in concrete trucks for use in foundation installation. The Certificate Holder may choose to buy concrete directly from licensed suppliers in the area. In that case, the on-site concrete batch plants would not be needed and the water required for concrete mixing would be provided by the concrete suppliers under their existing permits.

2.1.2 Amounts

During construction, the proposed changes will require an anticipated maximum of 36.3 million gallons (Mgal) of water. This water will be used in activities described above. Water use totals are estimated based on construction of the solar array taking place during a single 12-month construction period. The construction period for the solar arrays may overlap with construction of

the wind turbines. If this occurs, less water may be needed for road watering. Therefore, the totals presented here represent the worst case anticipated water needs.

Concrete mixing for foundations uses a standard assumption of 30 gallons of water per cubic yard of concrete. Exhibit G identifies 112,462 cubic yards of concrete needed for foundations and the catchment. Water for road construction assumes 25 gallons per lineal foot of road. Exhibit B identifies 72,804 feet/13.8 miles of roads. Water use for dust control assumes 100,000 gallons per day, 6 days per week, over a 12-month construction period. Actual dust control water use will vary, depending on the timing of construction and the season, precipitation, soil conditions, temperature, and frequency of repeat disturbance. None of these factors can be controlled or easily estimated by the contractor.

Estimated total water usage for concrete mixing, road construction, and dust control for the proposed changes in RFA 4 is 36.3 Mgal, broken up as follows:

- Total water for concrete mixing – 3,373,860 gallons
- Total water for road construction – 1,820,100 gallons
- Total water for dust control – 31,200,000 gallons

Based on a 12-month construction period under typical environmental conditions, the average monthly water demand would be approximately 3 Mgal; the average daily water demand would be approximately 116,647 gallons.

A worst-case water use figure would result from construction in particularly dry weather conditions with high temperatures, which is estimated to require approximately 50 percent greater water use for dust control than in average conditions. Based on this assumption, a 'worst case' water estimate could increase to an estimated 54.5 Mgal. The worst-case total average monthly water demand for all construction and dust control would become approximately 4.5 Mgal, and the average daily water demand would increase to approximately 174,971 gallons.

The total amount of water identified in the Application for Site Certificate (ASC), as needed for construction during average conditions, would total approximately 56.5 Mgal over an 18-month construction window, amounting to approximately 3.14 Mgal per month. The worst-case water usage identified in the ASC would be approximately 78 Mgal, amounting to approximately 4.3 Mgal per month. Modifications proposed under RFAs 1, 2, and 3 do not alter the amount of water or procurement sources than what was identified in Exhibit O of the ASC.

Adding the amounts proposed in RFA 4 with the amounts of water usage from the ASC would put the average conditions water use at 92.8 Mgal (7.7 Mgal per month) and worst-case total water usage for the Project at 132 Mgal (11 Mgal per month) over a 12-month construction period.

As was noted in the ASC, the primary consumer of water during Facility construction is dust control on access roads. The total water use under average conditions assumes that all Facility roads will be watered multiple times each day, even in portions of the Facility where no construction is underway. In reality, Facility construction will be a focused effort on specific portions of the Facility to maximize efficiency, and will not require dust control where no construction is taking place.

2.1.3 Disposal

The Certificate Holder does not anticipate any discharge of water from the Facility. During construction, water used for dust control will infiltrate into the ground or evaporate into the atmosphere. Because of the relatively low rates of water use and application, it is assumed that no run-off will occur outside of the expanded Site Boundary. Construction related stormwater runoff will be managed according to an NPDES 1200-C permit (Condition CON-SP-01). Water used for foundations will remain in the concrete mix. Management and handling of concrete truck washout is discussed in Exhibit V and Condition PRE-WM-02. No water used for the Facility will be discharged into wetlands, lakes, rivers, or streams. During construction, sanitary facilities will consist of portable toilets that will not require water and will be maintained by a licensed service provider.

2.2 Operation

Operation of the solar arrays may require up to 650,250 gallons of water per year for solar panel washing. The distributed battery storage system will not require any water during operations. For the purpose of this analysis, it is conservatively assumed that the array panels will be washed twice a year. At an estimated 0.5 gallon per module for a total of 650,250 modules, each wash will require approximately 325,125 gallons, for a total of 650,250 gallons per year. The use of 650,250 gallons per year for this purpose will result in an average daily consumption during operations of approximately 1,800 gallons.

Advancements in robotic panel cleaning has the potential to dramatically reduce the water needs for solar panel washing. Therefore, the estimate of 325,125 gallons per wash likely overestimates the amount of water that will actually be used. Water will be applied via tanker truck for cleaning and will not have added solvents or chemicals. Water from this activity will not be discharged into wetlands, streams, or waterways. Washwater will be discharged by evaporation and seepage into the ground and, if a permit is deemed necessary, will be covered under an Oregon general water pollution control facilities permit, WPCF-1700-B, Washwater Discharge from Equipment Cleaning (see Exhibit E). Stormwater will also infiltrate into the ground.

As described in the ASC, each Facility operations and maintenance building would require less than 5,000 gallons of water per day. This is considered an exempt use, which would not require a new water right to be obtained under Oregon Revised Statutes (ORS) 537.545. The changes proposed under RFA 4 do not affect the water use for each operations and maintenance building.

3.0 Water Sources – OAR 345-021-0010(1)(o)(B)(C)

OAR 345-021-0010(1)(o)(B) A description of each source of water and the applicant's estimate of the amount of water the facility will need during construction and during operation from each source under annual average and worst-case conditions.

OAR 345-021-0010(1)(o)(C) A description of each avenue of water loss or output from the facility site for the uses described in (A), the applicant's estimate of the amount of water in each avenue under annual average and worst-case conditions and the final disposition of all wastewater.

The Certificate Holder intends to use water trucks for the delivery of water from nearby locations with existing water rights as identified in Table O-1. If these are not sufficient sources of water, the Certificate Holder will seek to obtain water from other licensed providers in nearby cities.

No groundwater permit, surface water permit, or water right transfer is anticipated for this Facility because water will be procured from municipal sources, as near to the construction sites as reasonably possible. The Certificate Holder has re-contacted the suppliers identified in the ASC and listed in Table O-1, who have tentatively indicated willingness and ability to supply water for the Facility. Attachments O-1, O-2, O-3, and O-4 are records of communication with these water suppliers. Suppliers will most likely contract for water with the Facility construction contractor, though the Certificate Holder may choose to contract directly with the suppliers. Letters documenting formal commitments from each water supplier will be provided to the Council prior to construction.

The quantities available shown in Table O-1 are based on written correspondence from the water suppliers contacted and demonstrate that an adequate supply of water for Facility construction is available. The non-binding commitments indicate a supply of up to 10.8 Mgal per month. Although this is 0.2 Mgal more than "worst-case" water use, actual Facility construction will be a focused effort on specific portions of the Facility in order to maximize efficiency and limit water use.

Table O-1. Potential Water Suppliers

| Supplier Name | Contact | Quantity Available (gallons) | Water Right Certificate Number |
|------------------------|----------------|-------------------------------------|---|
| Hermiston Public Works | Roy Bicknell | 2.2 Mgal per month | G6831 |
| Stanfield Public Works | Scott Morris | 1.8 Mgal per month | 12224 and 66058 |
| Boardman Public Works | Dave Winters | 150,000 – 300,000 gallons per month | 40336 and 2624 |
| Port of Morrow | Gary Neal | 6.5 Mgal per month | G7158, G8263, G5332, G10976, G12729, G13283, G10312, G4626, G10312, G4626, G12370 |

4.0 Explanation of Lack of Need for Groundwater/Surface Water Permit or Water Right Transfer – OAR 345-021-0010(1)(o)(E)

OAR 345-021-0010(1)(o)(E) If the proposed facility would not need a groundwater permit, a surface water permit or a water right transfer, an explanation of why no such permit or transfer is required for the construction and operation of the proposed facility.

The Council previously found that the Facility, as approved and as amended, will comply with the Groundwater Act of 1955 and the rules of Oregon Water Resources Department (ODOE 2017). Consistent with the approved Site Certificate, the Facility as modified by RFA 4 does not require any groundwater permits, water rights, or surface water permits. As discussed above, water for construction will either be obtained from the City under an existing municipal water right or provided from an existing or newly constructed well or wells permitted under a limited water use license, which Oregon Water Resources Department would issue to the landowner or to the Certificate Holder's contractor. At the completion of construction activities, this well may be used by the landowner for pre-existing uses; may be abandoned; or may be used for exempt groundwater purposes pursuant to ORS 537.545.

5.0 Mitigation Measures – OAR 345-021-0010(1)(o)(G)

OAR 345-021-0010(1)(o)(G) A description of proposed actions to mitigate the adverse impacts of water use on affected resources.

No adverse impacts are expected to result from Facility water use during construction or operation as modified by RFA 4; therefore, no new mitigation measures are proposed. Impacts of water use on resources will be minimized through the requirements identified in Site Certificate Conditions CON-SP-01 and PRE-WM-02.

6.0 Conclusions

Based on the information presented in this exhibit, the Facility as modified by RFA 4 continues to satisfy the requirements of OAR 345-021-0010(1)(o).

7.0 References

ODOE (Oregon Department of Energy). 2017. Final Order in the Matter of the Application for a Site Certificate for the Wheatridge Wind Energy Facility. April 2017.

**Attachment O-1: Record of
Correspondence with Boardman Public
Works Department**

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From: [Kevin Kennedy](#)
To: [Gulick, Kristen](#)
Subject: RE: RESPONSE NEEDED ASAP - Boardman Public Work Agreement with Wheatridge Wind/Solar Project
Date: Wednesday, October 17, 2018 1:33:38 PM

Hello, Yes the agreement in place that was reached with Dave Winters can still apply. Any questions, feel free to contact me. Thank you

Kevin Kennedy
Public Works Director
City of Boardman
kennedyk@cityofboardman.com
PH-541-481-9252
Fax-541-481-3244

From: Gulick, Kristen [<mailto:Kristen.Gulick@tetrattech.com>]
Sent: Wednesday, October 17, 2018 10:51 AM
To: Dave Winters <Public.Works@cityofboardman.com>; Kevin Kennedy <KennedyK@cityofboardman.com>
Subject: RESPONSE NEEDED ASAP - Boardman Public Work Agreement with Wheatridge Wind/Solar Project

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2014 confirming that Boardman Public Works will be able to supply water (approximately 300,000gals. per month during non-seasonal usage, drop down to 150,000 gals. Per month from June-Sept., same as before) as needed for the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email.

Thanks so much,

Kristen Gulick | Environmental Planner
Kristen.Gulick@tetrattech.com

Tetra Tech | Portland
1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com
Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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Attachment O-2: Record of Correspondence with Hermiston Public Works Department

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From: [Roy Bicknell](#)
To: [Gulick, Kristen](#); [Alex Mccann](#)
Subject: RE: RESPONSE NEEDED ASAP - Hermiston Public Works Agreement with Wheatridge Wind/Solar Project
Date: Monday, October 22, 2018 8:52:04 AM

Kristen,

At this time, it appears we could still provide the water as the letter states.

Thank you~Roy

From: Gulick, Kristen [mailto:Kristen.Gulick@tetrattech.com]
Sent: Monday, October 22, 2018 8:11 AM
To: Alex Mccann <amccann@hermiston.or.us>; Roy Bicknell <rbicknell@hermiston.or.us>; Roy Bicknell <rbicknell@hermiston.or.us>
Subject: RESPONSE NEEDED ASAP - Hermiston Public Works Agreement with Wheatridge Wind/Solar Project

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2014 confirming that Hermiston Public Works will be able to supply water (approximately 2.2 million gallons of water per month, same as before) as needed for the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email.

Thanks so much,

Kristen Gulick | Environmental Planner
Kristen.Gulick@tetrattech.com

Tetra Tech | Portland
1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com
Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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**Attachment O-3: Record of
Correspondence with Stanfield Public
Works Department**

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From: [Scott Morris](#)
To: [Gulick, Kristen](#)
Subject: RE: RESPONSE NEEDED ASAP - Stanfield Public Works Agreement with Wheatridge/Solar Project
Date: Wednesday, October 17, 2018 11:44:27 AM

Kristen

Yes the city would still be able to supply that same amount of water. If you need anything else you can give me a call. My number is below.

Thanks.

Scott Morris
Public Works Director
City of Stanfield
541-561-8292

From: Gulick, Kristen [mailto:Kristen.Gulick@tetrattech.com]
Sent: Wednesday, October 17, 2018 10:42 AM
To: smorris@cityofstanfield.com
Subject: RESPONSE NEEDED ASAP - Stanfield Public Works Agreement with Wheatridge/Solar Project

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2014 confirming that Stanfield Public Works will be able to supply water (approximately 60,000 gallons of water per day, same as before) as needed for the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email.

Thanks so much,

Kristen Gulick | Environmental Planner
Kristen.Gulick@tetrattech.com

Tetra Tech | Portland
1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com
Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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Think Green - Not every email needs to be printed.

Attachment O-4: Record of Correspondence with Port of Morrow

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From: [Gary Neal](#)
To: [Gulick, Kristen](#)
Cc: [Mark Patton](#); [Ryan Neal](#); [Miff Devin](#)
Subject: RE: RESPONSE NEEDED ASAP - Port of Morrow Public Works Agreement with Wheatridge/Solar Project
Date: Wednesday, October 17, 2018 12:01:17 PM

Kristen: The Port of Morrow is committed to being able to supply the needed construction water for the Wheatridge Wind/Solar Project as previously represented. Please contact us when you are ready to start the project and have the need for an access point with meter for the construction water.

Sincerely
Gary Neal

From: Gulick, Kristen <Kristen.Gulick@tetrattech.com>
Sent: Wednesday, October 17, 2018 10:23 AM
To: Gary Neal <GaryN@portofmorrow.com>
Cc: Mark Patton <MarkP@portofmorrow.com>
Subject: RESPONSE NEEDED ASAP - Port of Morrow Public Works Agreement with Wheatridge/Solar Project

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2014 confirming that the Port of Morrow Public Works will be able to supply water (approximately 6.5 millions gallons per month, same as before) as needed for the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email.

Thanks so much,

Kristen Gulick | Environmental Planner
Kristen.Gulick@tetrattech.com

Tetra Tech | Portland
1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com
Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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Exhibit P

Fish and Wildlife Habitats and Species

**Wheatridge Wind Energy Facility
June 2019**

**Prepared for
Wheatridge Wind Energy, LLC**

Prepared by



Tetra Tech, Inc.

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Attachment P-1. Wheatridge Solar Biological Reconnaissance Report

Attachment P-2. Wheatridge 2019 Washington Ground Squirrel Surveys Memo

Attachment P-3. Draft Wildlife Monitoring and Mitigation Plan

Attachment P-4. Draft Revegetation Plan

Attachment P-5. Draft Habitat Mitigation Plan

Acronyms and Abbreviations

| | |
|--------------------|--|
| ASC | Application for Site Certificate |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| MW | megawatts |
| OAR | Oregon Administrative Rule |
| ODFW | Oregon Department of Fish and Wildlife |
| ODOE | Oregon Department of Energy |
| RFA 4 | Request for Amendment 4 |
| Tetra Tech | Tetra Tech, Inc. |
| USFWS | U.S. Fish and Wildlife Service |
| WAGS | Washington ground squirrels |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ and associated collection line corridors for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar micrositing corridors, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found that the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. This exhibit, Exhibit P, describes the sources and organizational, managerial and technical expertise extent of the Certificate Holder to meet the submittal requirements of Oregon Administrative Rule (OAR) 345-021-0010 (1)(p), paragraphs (A) through (G) in consideration of the proposed changes. As detailed in the following sections, although the proposed changes provide for a new source of energy generation for the Facility and a larger Site Boundary, the Certificate Holder can still comply with all Site Certificate conditions previously adopted by the Council for compliance with the respect to the Fish and Wildlife Habitat standard in OAR 345-022-0060.

Exhibit P provides information about the fish and wildlife habitats and species that could be affected by the Facility; threatened and endangered species are addressed in Exhibit Q.

¹ Per OAR 345-001-0010(32) "micrositing corridor" means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

1.1 Analysis Area

In accordance with OAR 345-001-0010(59)(c), the Analysis Area for fish and wildlife habitat and associated species consists of the Site Boundary and the area 0.5 miles from the Site Boundary (Figure P-1). The Site Boundary consists of the Approved Site Boundary and the Amended Site Boundary, and is defined in detail in Exhibits B and C.

The original review of information for the Application for Site Certificate (ASC) covered the area of the Approved Site Boundary plus an area buffered to 5 miles, and out to 10 miles for eagle nests (Wheatridge 2015). For RFA 4, the analysis and survey results focus primarily on an updated desktop analysis and supplemental field survey results within the Amended Site Boundary (solar microsites corridors), and a 0.5-mile buffer around this area.

1.2 Agency Consultation

Consultation and communication with personnel from the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service (USFWS) prior to the ASC regarding the presence on and use of the Facility by sensitive species can be found in the ASC's Exhibit P (Wheatridge 2015). Consultation and coordination with ODFW and the Oregon Department of Energy (ODOE) with respect to modifications to the Facility proposed in RFA 4 included a conference call on November 13, 2018, as summarized below:

- Tetra Tech, Inc. (Tetra Tech) provided a summary of the anticipated RFA 4 to Steve Cherry (ODFW), Sarah Esterson (ODOE), and Sara Reif (ODFW), and described the extent and results of biological surveys performed in 2018 associated with the solar microsites corridors.
- ODFW indicated that they did not have any additional concerns regarding impacts resulting from solar energy development compared to wind development, and advised the Certificate Holder to assess with the standard approach of describing (and minimizing) impacts, and mitigating appropriately.
- ODFW commented that they would like to see the Certificate Holder address weed sources along the solar array fence lines and recommended that the revegetation plan include noxious weed control of these areas specifically. Tetra Tech noted that the Certificate Holder will address noxious weed control in the final Revegetation Plan, which will be finalized in consultation with ODFW and ODOE (ODOE 2017). This plan will be crafted in conjunction with fire and weed control measures described in Exhibits B and U.
- ODFW indicated they are recommending post-construction fatality monitoring at solar facilities. The Certificate Holder will address this recommendation in the final Wildlife Monitoring and Mitigation Plan, which will be written in consultation with ODOE and ODFW (ODOE 2017).
- ODFW concurred with Tetra Tech's approach of limiting the sensitive species discussed in Exhibit P to only those listed as sensitive by ODFW in the Columbia Plateau Ecoregion.

- Additional areas were added to the Amended Site Boundary after 2018 field surveys; therefore, they were not surveyed in 2018. These areas will be surveyed during pre-construction surveys in 2019 in compliance with Condition PRE-FW-01 (ODOE 2017). ODFW indicated that they did not see any survey gaps based on the effort described in spring 2018 and the planned surveys for 2019.

2.0 Description of Biological and Botanical Surveys Performed – OAR 345-021-0010(1)(p)(A)

OAR 345-021-0010(1)(p) Information about the fish and wildlife habitat and the fish and wildlife species, other than the species addressed in subsection (q) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0060. The applicant shall include:

OAR 345-021-0010(1)(p)(A) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey.

2.1 Information Review

Prior to conducting 2018 surveys, Tetra Tech conducted a desktop review to verify and update the status and occurrence of sensitive wildlife and plant species that have the potential to occur in the Analysis Area. Information reviewed included federal and state endangered, threatened, proposed, and candidate species; species of concern; birds of conservation concern; and sensitive and sensitive-critical species (OCS 2016, ODFW 2016, ODFW 2018, ORBIC 2016, USFWS 2008, USFWS 2018a, USFWS 2018b, Wheatridge 2015). Tetra Tech reviewed aerial photographs, National Wetlands Inventory data, and the National Hydrography Dataset, and big game winter range spatial data to identify any potential changes to ODFW habitats within the Analysis Area since the ASC was submitted (ODFW 2013, USFWS 2018c, USFWS 2018d, USGS 2018).

2.2 Field Surveys

Tetra Tech conducted a biological survey within the Amended Site Boundary from May 1-4, 2018. The purpose of this survey was to update and to supplement surveys completed by Northwest Wildlife Consultants, Inc. for the ASC (Table P-1). Survey methods for the 2018 surveys are described in detail in Attachment P-1. Methods for the original surveys can be found in the ASC's Exhibit P (Wheatridge 2015). Areas were added to the Amended Site Boundary after 2018 field surveys were completed. These areas will be surveyed in spring 2019. As of the date of preparation of this Exhibit, Washington ground squirrel (WAGS) surveys have been completed in the Amended Site Boundary for 2019, and a technical memorandum documenting this effort has been prepared (Attachment P-2). Exhibit Q, Figure Q-2 shows the extent of surveys during 2011-2013, and those conducted in 2018.

Table P-1. Summary of Field Surveys Conducted within the Analysis Area between 2011–2018

| Year | Survey | Extent |
|--|---|--|
| 2019 | Washington ground squirrel survey | Amended Site Boundary including additional areas added after 2018 surveys. |
| 2018 | Wildlife habitat mapping and categorization surveys | Amended Site Boundary, minus additional areas added after surveys |
| 2018 | Special status wildlife species surveys | Amended Site Boundary, minus additional areas added after surveys |
| 2018 | Special status plant surveys | Amended Site Boundary, minus additional areas added after surveys |
| 2012, 2013, 2014 | Golden eagle nest surveys/monitoring | Approved Site Boundary + 10-mile buffer |
| 2012, 2013 | Special status wildlife species surveys, supplemental | Approved Site Boundary |
| 2012, 2013 | Special status plant surveys, supplemental | Approved Site Boundary |
| 2012, 2013 | Raptor nest surveys, supplemental | Approved Site Boundary + 2-mile buffer |
| 2011 | Wildlife habitat mapping and categorization surveys | Approved Site Boundary + 1,000-foot buffer, limited to Project lease boundary ¹ |
| 2011 | Special status wildlife species surveys | Approved Site Boundary + 1,000-foot boundary, limited to Project lease boundary ¹ |
| 2011 | Special status plant surveys | Approved Site Boundary + 1,000-foot buffer |
| 2011 | Avian use surveys | Approved Site Boundary ² |
| 2011 | Raptor nest surveys | Approved Site Boundary + 2-mile buffer |
| 2011 | Bat species investigations | Approved Site Boundary ³ |
| Sources: Attachment P-1; Wheatridge 2015. 1. Project lease boundary: ASC habitat and wildlife field survey extents were limited to the “Project boundary” per ASC Exhibit P, which is the area leased by the Certificate Holder. 2. Twenty-four, 800-meter plot circles surveyed, distributed throughout Wheatridge East and Wheatridge West. 3. Twelve acoustic monitoring sites distributed throughout Wheatridge East and Wheatridge West. | | |

2.2.1 Wildlife Habitat Mapping and Categorization Surveys

Tetra Tech conducted a wildlife habitat survey within the Amended Site Boundary from May 1-4, 2018, concurrent with special status wildlife and plant species surveys, as described in Attachment P-1. Biologists either confirmed or modified the habitat categorization types, quality, and boundaries previously described in the ASC (Wheatridge 2015). If a biologist determined that a habitat type designation or categorization did not correspond to the previous report, or that the extent of a previously described area had changed, that area was surveyed to assess habitat type

and category in a manner consistent with previous survey definitions. Additional areas were added to the site layout following 2018 field surveys; these areas were not surveyed in 2018. These areas, as well as habitat beyond the Amended Site Boundary but within the 0.5-mile Analysis Area, are categorized in this RFA as described in the ASC, based on 2011-2013 desktop review and field investigations (Wheatridge 2015).

The extent of surveys conducted from 2011-2013 are summarized in Table P-1. For complete survey methods employed, see the ASC (Wheatridge 2015). Results of combined desktop analysis and field surveys from 2011-2018 are detailed in Section 3.0.

2.2.2 Special Status Wildlife Species Surveys

Concurrent with habitat mapping and categorization surveys in May 2018, Tetra Tech recorded all wildlife and wildlife sign observed during the surveys, as well as those observed incidentally during the survey period. Additional areas were added to the site layout following 2018 field surveys; these areas were not surveyed in 2018. Wildlife surveys targeted special status species that had the potential to occur in the survey areas, including federal and state endangered, threatened, proposed, and candidate species; species of concern; birds of conservation concern; sensitive; and sensitive-critical species (Attachment P-1). Surveyors recorded the location of special status wildlife species (or recognizable sign), and recorded information on the number of individuals and their behavior.

Special status species survey methods were designed specifically to verify the presence or absence WAGS, a state endangered species. The surveys generally followed methodology developed in the *Status and Habitat Use of the Washington ground squirrel on State of Oregon Lands, South Boeving, Oregon* (Morgan and Nugent 1999), as addressed in Exhibit Q. Areas previously identified as Category 6 habitat were visually verified for both habitat type and boundary, as these areas are considered unsuitable habitat for WAGS. All areas of Category 2-4 habitat were surveyed per the WAGS protocol, limited to the Amended Site Boundary. If an area of previously identified Category 6 habitat had become potentially suitable habitat, biologists surveyed these areas as necessary for WAGS and special status wildlife species.

The WAGS protocol requires two phases of surveys to increase the likelihood of detecting their presence. Tetra Tech completed the first survey phase on May 1-4, 2018, and the second on May 30-31, 2018. The timing of these surveys also coincided with the period of highest biological activity of neotropical migrant and breeding birds, foraging and breeding animal species, and other taxa. In 2019, WAGS surveys occurred on April 10-12 and May 3-5.

The extent of surveys conducted from 2011-2013 are summarized in Table P-1. For complete survey methods employed, see the ASC (Wheatridge 2015). Documented occurrences of each species reported from 2011-2018 are summarized in Section 5.1.1.

2.2.3 Special Status Plant Species Surveys

In May 2018, special status plant species field surveys were conducted within the Amended Site Boundary by a botanist using the Intuitive Controlled survey method, a standard and commonly accepted protocol (USFS and BLM 1999, California Native Plant Society 2001, CDFG 2000, Nelson 1987, Nelson 1994). This method incorporates survey lines that traverse the survey area, and target the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. While en route, the surveyors searched for target species, and when the surveyors arrived at an area of high potential habitat (that was defined in the desktop review or encountered during the field visit), they conducted a complete survey for the target species. Surveys included an examination of all potential habitat in the Amended Site Boundary, excluding the additional areas added after 2018 surveys were completed.

During surveys, the botanist maintained a list of common vascular plant species encountered (Attachment P-1) and made informal collections of unknown species for later identification. Identification was verified by the use of appropriate plant keys; in particular, *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973).

The extent of surveys conducted from 2011-2013 are summarized in Table P-1. For complete survey methods employed, see the ASC (Wheatridge 2015). All survey findings within the Amended Site Boundary from 2011-2018 are summarized in Section 5.1.2.

2.2.4 Avian Use Surveys

No additional avian use surveys have been conducted since the ASC (Wheatridge 2015). Avian use surveys were conducted from January 2011-October 2011. Surveys were conducted during diurnal hours using a variable circular-plot method to obtain information on species composition and the relative abundance of birds (Reynolds et al. 1980) and flight altitudes. Each plot was surveyed for an entire year, and results were analyzed by season.

The survey included 800-meter radius study plots in such a distribution as to provide good coverage of the habitat types and variation in topography at the Facility, inclusive of the proposed turbine strings. During these surveys, 24 plots were surveyed. Plots E, F, G and O overlap with a 0.5-mile buffer of the Amended Site Boundary, and are addressed in Section 5.1.3.

Survey dates for each season were as follows:

- Winter: January 30–March 12, 2011 and October 30–February 11, 2012;
- Spring: March 13–May 28, 2011;
- Summer: May 29–August 13, 2011; and
- Fall: August 14–October 29, 2011.

For complete survey methods, see the ASC (Wheatridge 2015).

2.2.5 Raptor Nest Surveys

No additional aerial raptor nest surveys have been performed since the ASC. For complete survey methods employed in 2011, see the ASC (Wheatridge 2015).

Aerial surveys are not an effective method to detect the nests of ground-nesting raptors (northern harrier and burrowing and short-eared owls) and some cavity-nesting raptors (American kestrel and small owl species). Surveyors recorded the nests of ground-nesting and cavity-nesting raptors detected while conducting onsite ground-based surveys in 2011, 2012, 2013, and 2018, as described in Section 2.2.2. Raptor nests identified within 0.5 miles of the Amended Site Boundary are addressed in Section 5.1.4.

2.2.6 Eagle Nest Surveys

No additional eagle surveys have been performed since the ASC, which contains a summary of survey methods (Wheatridge 2015). The nearest known nests to the Amended Site Boundary are highlighted in Section 5.1.5.

2.2.7 Golden Eagle Nest Monitoring

No additional golden eagle nest monitoring has been performed since the ASC (Wheatridge 2015).

2.2.8 Bat Species Investigations

No additional bat studies have been conducted since the ASC (Wheatridge 2015). Field investigations were conducted between the first week of July and the last week of October 2011. Results within 5 miles of the Amended Site Boundary are highlighted in Section 5.1.7.

3.0 Identification and Description of Habitat – OAR 345-021-0010(1)(p)(B)(C)

OAR 345-021-0010(1)(p)(B) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype.

OAR 345-021-0010(1)(p)(C) A map showing the locations of the habitat identified in (B).

3.1 ODFW Habitat Categorization

The ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0015) provides a framework for assigning one of six categories to habitats based on the relative importance of these habitats to fish and wildlife species. The definition of each habitat category is shown in Table P-2.

Table P-2. ODFW Habitat Categorization

| ODFW Habitat Category | Definition |
|---------------------------|--|
| 1 | Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage. |
| 2 | Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage. |
| 3 | Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population. |
| 4 | Important habitat for fish and wildlife species. |
| 5 | Habitat for fish and wildlife having high potential to become either essential or important habitat. |
| 6 | Habitat that has low potential to become essential or important habitat for fish and wildlife. |
| Source: OAR 635-415-0025. | |

ASC-delineated habitat types and categories are shown in the ASC (Wheatridge 2015). Updated assessments, including the Amended Site Boundary from 2018 are shown in Figures P-3 and P-4. Section 3.2 contains descriptions of all habitat types delineated at the Facility by habitat category, and includes brief discussions of wildlife species typically associated with each. No Category 5 habitat was found within the assessed areas. Acreage calculations for habitat types and categories are shown in Table P-3.

Table P-3. ODFW Habitat Categories and Types within the Amended, Approved, and Combined Site Boundaries

| ODFW Habitat Category | Habitat Type | Acres within Amended Site Boundary | Acres within Approved Site Boundary | Acres within Site Boundary ¹ |
|-------------------------|--|------------------------------------|-------------------------------------|---|
| 1 | Grassland-Exotic Annual | 0 | 3.1 | 3.1 |
| | Grassland-Native Perennial | 20.8 | 30.6 | 51.4 |
| | Shrub-steppe-Rabbitbrush/Snakeweed | 0 | 44.2 | 44.2 |
| Category 1 Total | | 20.8 | 77.9 | 98.7 |
| 2 | Developed-Revegetated or Other Planted Grassland | 26.6 | 0.5 | 26.6 |

| ODFW Habitat Category | Habitat Type | Acres within Amended Site Boundary | Acres within Approved Site Boundary | Acres within Site Boundary ¹ |
|--|---|--|---|--|
| | Grassland-Exotic Annual | 28.6 | 1.6 | 28.6 |
| | Grassland-Native Perennial | 72.7 | 13.9 | 72.7 |
| | Shrub-steppe-Basin Big Sagebrush | 0 | 52.4 | 52.4 |
| Category 2 Total | | 127.9 | 68.3 | 180.3 |
| 3 | Developed-Revegetated or Other Planted Grassland | 132.9 | 1,905.9 | 1,975.2 |
| | Grassland-Exotic Annual | 0 | 0.1 | 0.1 |
| | Grassland-Native Perennial | 24.7 | 2,130.2 | 2,147.6 |
| | Riparian-Trees | 0 | 5.2 | 5.2 |
| | Shrub-steppe-Basin Big Sagebrush | 0 | 23.8 | 23.8 |
| | Shrub-steppe- Rabbitbrush/Snakeweed | 0 | 404.0 | 404.0 |
| Category 3 Total | | 157.6 | 4,469.1 | 4,555.9 |
| 4 | Developed-Revegetated or Other Planted Grassland | 0 | 0.7 | 0.7 |
| | Grassland-Exotic Annual | 355.6 | 918.9 | 1105.9 |
| | Grassland-Native Perennial | 0 | 3.7 | 3.7 |
| | Shrub-steppe- Rabbitbrush/Snakeweed | 0 | 7.8 | 7.8 |
| Category 4 Total | | 355.6 | 931.1 | 1,118.1 |
| 6 | Developed-Dryland Wheat | 1,598.0 | 7,442.8 | 8,537.9 |
| | Developed-Irrigated Agriculture | 0 | 54.7 | 54.7 |
| | Developed-Other | 34.3 | 53.5 | 78.7 |
| Category 6 Total | | 1,632.4 | 7,550.9 | 8,671.4 |
| Grand Total | | 2,294.3 | 13,097.3 | 14,624.3 |
| Note: Totals in this table may not be precise due to rounding. | | | | |
| 1. Columns do not sum due to overlap between the Approved Site Boundary and the Amended Site Boundary. | | | | |

3.2 Description of Fish and Wildlife Habitat in the Analysis Area

Habitat types and categories of all leased parcels falling within the Approved Site Boundary are described in the ASC and are summarized in the Final Order of the Application (Wheatridge 2015, ODOE 2017). Results from the 2018 habitat categorization survey within the Amended Site Boundary are included in the descriptions below, and are shown in Figures P-2 and P-3. No additional habitat types or categories were identified within the Amended Site Boundary. Some habitat types described in the ASC are not present in the Amended Site Boundary, but all types

found within the Site Boundary are summarized in Table P-3. All habitat within the Amended Site Boundary is described below.

3.2.1 Category 1 Habitat

WAGS colonies and suitable WAGS habitat within a 785-foot buffer of an identified colony are considered Category 1 habitat. Habitat breaks can cause the 785-foot buffer to be truncated, such as tilled field edges or unvegetated, continuous vertical drop rim rock, which have no burrowing or food value to WAGS.

The single WAGS colony delineated within the Amended Site Boundary was found in Native Perennial Grassland (20.81 acres of Category 1 habitat; Table P-3). The process of survey, detection, and delineation was used to ensure that all Facility components were subsequently sited to avoid Category 1 habitat. This habitat is described below, but none will be permanently or temporarily impacted by the Facility.

Native Perennial Grassland

- Category 1 Native Perennial Grasslands identified within the Amended Site Boundary are similar in vegetative cover and ecological condition to the Category 3 Native Perennial Grassland present elsewhere within the Amended Site Boundary (see below).

3.2.2 Category 2 Habitat

An additional buffer of 4,921 feet (1,500 meters) was used for Category 2 habitat in suitable WAGS habitat. This buffer was extended from the 785-foot Category 1 area surrounding a delineated colony. Category 2 habitats identified within the Amended Site Boundary were strictly categorized as such based on their location surrounding the WAGS colony (127.94 acres; Table P-3). Apart from the WAGS colony, these habitats met the standards for Category 3 Revegetated or Other Planted Grassland, Category 4 Exotic Annual Grassland, and Category 3 Native Perennial Grassland, respectively (Attachment P-1, Figure 3).

Grassland

- Category 2 Revegetated or Other Planted Grasslands identified within the Amended Site Boundary are similar in vegetative cover and ecological condition to the Category 3 Revegetated or Other Planted Grassland present elsewhere within the Amended Site Boundary (see below).
- Category 2 Exotic Annual Grasslands identified within the Amended Site Boundary are similar in vegetative cover and ecological condition to the Category 4 Exotic Annual Grassland present elsewhere within the Amended Site Boundary (see below).

- Category 2 Native Perennial Grasslands identified within the Amended Site Boundary are similar in vegetative cover and ecological condition to the Category 3 Native Perennial Grassland present elsewhere within the Amended Site Boundary (see below).

3.2.3 Category 3 Habitat

Two types of habitats were identified as Category 3 within the Amended Site Boundary: Developed-Revegetated or Other Planted Grassland and Grassland-Native Perennial Grassland. These are addressed below.

Developed

Category 3 Developed habitats are areas where former disturbances have ceased and the disturbed areas have attained sufficient ecological condition to become important or essential for wildlife. Revegetated or Other Planted Grassland is the only developed Category 3 subtype within the Amended Site Boundary.

- Category 3 Revegetated or Other Planted Grasslands are planted grasslands on previously farmed or other disturbed lands that may be enrolled in the Conservation Reserve Program. This habitat subtype is comprised mainly of native or native-like grasses. Native vegetation in Category 3 Revegetated or Other Planted Grasslands may be sparse and not well-developed and may have a significant component of annual grasses and weeds. State sensitive species with the potential to occur in this habitat include long-billed curlew, burrowing owl, and grasshopper sparrow. During 2018 surveys, the most frequently recorded species in this habitat was grasshopper sparrow.

Grassland

Category 3 Grasslands provide essential or important foraging and nesting habitat for special status birds and mammals as well as for common native and non-native avian species. A single Category 3 grassland habitat subtype, Native Perennial Grassland, was found within the Amended Site Boundary during 2018 surveys.

- Category 3 Native Perennial Grasslands are dominated by native perennial grasses such as Sandberg bluegrass, bluebunch wheatgrass, Idaho fescue, western needlegrass, and needle-and-thread grass. Various native forbs and low shrubs such as gray rabbitbrush and, to a lesser extent, green rabbitbrush are present but are an inconspicuous component. Native vascular plants are diverse and a variety of invertebrates can be found utilizing the plants throughout the growing season. These habitats have been altered through land use or wildfires, and generally contain a significant component of non-native vegetation (broad-leaf weeds and annual grasses). Category 3 Native Perennial Grasslands generally occur on sites with shallow soils and harsh exposures, or in areas that have experienced livestock grazing or frequent fires. Native Perennial Grasslands provide essential foraging habitat to a variety of common resident and migratory birds and common mammals. State sensitive

species with the potential to occur in this habitat include long-billed curlew, burrowing owl, and grasshopper sparrow. During 2018 surveys, the most frequently recorded species in this habitat was grasshopper sparrow. Native grasses and forbs provide forage for mule deer. Native Perennial Grassland is an ODFW conservation strategy habitat (OCS 2016).

3.2.4 Category 4 Habitat

One subtype of Category 4 habitat has been identified within Amended Site Boundary: Exotic Annual Grassland.

Grassland

Category 4 Grasslands provide important but non-essential, not-limited foraging and nesting habitat for special status birds and mammals as well as for common native and non-native avian species. A single Category 4 grassland habitat subtype, Exotic Annual Grassland, was found within the Amended Site Boundary during 2018 surveys.

- Category 4 Exotic Annual Grasslands found within the Amended Site Boundary are non-native grasslands with a very high weed component and disturbed or less nutrient-rich soils. The forb component is composed primarily of non-native weeds, such as cheatgrass, bulbous bluegrass, cereal rye, tumbled mustard, and Russian thistle, with occasional patches of native bunchgrass, primarily Sandberg bluegrass. Category 4 Exotic Annual Grassland provides important habitat to common species like savannah sparrow and horned lark, but the dense weed cover and lack of native grasses limit the ability of most wildlife species to use these areas for forage or cover. In addition, the weed cover, often dominated by annuals such as cheatgrass, makes the slopes in this area more susceptible to erosion and soil damage from grazing, because of a lack of the robust root structure found in perennial species, such as the native bunchgrasses. With sufficient time and appropriate livestock grazing practices, however, these areas could become suitable habitat for some native wildlife species. This habitat is commonly found throughout the Columbia Plateau Ecoregion. The largest area of Category 4 Exotic Annual Grassland in the Amended Site Boundary is a fallow field south of OR-207, identified in the ASC as Dryland Wheat (Wheatridge 2015). The most frequently identified noxious weed in this particular area was yellow starthistle (Attachment P-1). State sensitive species with the potential to occur in this habitat include long-billed curlews, burrowing owls, and grasshopper sparrows. The most frequently-recorded special status species in this area was the grasshopper sparrow.

3.2.5 Category 6 Habitat

Category 6 habitat is nonessential wildlife habitat with limited potential to become important or essential in the foreseeable future. There is one type of Category 6 habitat—Developed—within the Amended Site Boundary.

Developed

During 2018 surveys of the Amended Site Boundary, only additional areas of Dryland Wheat and Other were identified.

- Category 6 Dryland Wheat habitat is the largest habitat subtype within Amended Site Boundary. It is extensive throughout the region. It consists of agricultural fields that are currently in small grain production or fallow. Swainson's hawks hunt for prey in wheat stubble fields.
- Category 6 Other habitat includes farming/ranching home and shop sites, corrals, structures, feedlots, active and inactive gravel quarries, non-irrigated pastures, graveled and paved roads, rights-of-way, and waste areas associated with on-going human activities. Although some areas have deciduous tree landscaping that attracts some native and non-native passerines, these Other Developed areas are not considered to have significant value to wildlife species. Because of the high level of disturbance, no special status/sensitive species are known or expected to occur with regularity in the Category 6 habitats, and these areas have low potential to become essential or important wildlife habitat in the foreseeable future.

4.0 Identification of State Sensitive Species and Site-Specific ODFW Issues – OAR 345-021-0010(1)(p)(D)

OAR 345-021-0010(1)(p)(D) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW.

The literature reviews (described in Section 2.1) led to the development of a list that contained all of the federal endangered, threatened, or candidate species; federal species of concern; state endangered, threatened, or candidate species; and state sensitive species with the potential to occur within the Analysis Area, whether they were fish, terrestrial vertebrate wildlife, or plants (Wheatridge 2015). State endangered, threatened, and candidate species are addressed in Exhibit Q. State sensitive species and eagles deemed to have potential for occurrence within 0.5 miles of the Amended Site Boundary are detailed in Table P-4.

While adverse impacts to eagles are not expected due to the modifications specified in RFA 4, they are addressed briefly in this document as a species of concern at the approved Facility, even though they are not state sensitive species (ODOE 2017). Eighteen species identified in the ASC are not considered in this analysis due to status updates or a lack of suitable habitat, including nine birds, six mammals, and three fish. Two bird species have been added to this analysis based on updates to the ODFW sensitive species list in 2016, as described below.

Table P-4. State Sensitive Species with Known and Potential Occurrence within the Analysis Area

| Common name | Scientific name | Columbia Plateau Ecoregion ODFW Status ¹ | Occurrence within Amended Site Boundary ² | Occurrence within Analysis Area |
|--------------------------|------------------------------------|--|---|---|
| Mammals | | | | |
| Hoary bat | <i>Lasiurus cinereus</i> | S | None | Documented: ASC Bat Species Investigation |
| Pallid bat | <i>Antrozous pallidis</i> | S | None | None |
| Silver-haired bat | <i>Lasionycteris noctivagans</i> | S | None | Documented: ASC Bat Species Investigation |
| Spotted bat | <i>Euderma maculatum</i> | S | None | None |
| Townsend's big-eared bat | <i>Corynorhinus townsendii</i> | S, SC | None | None |
| Birds | | | | |
| Bald eagle | <i>Haliaeetus leucocephalus</i> | None ³ | Documented: ASC Avian Point Counts | Documented: ASC Avian Point Counts |
| Brewer's sparrow | <i>Spizella breweri</i> | S | None | None |
| Burrowing owl (Western) | <i>Athene cunicularia hypugaea</i> | SC | None | Documented: ASC Special Status Wildlife Surveys |
| Common nighthawk | <i>Chordeiles minor</i> | S | None | Documented: ASC Avian Point Counts (location unknown) |
| Ferruginous hawk | <i>Buteo regalis</i> | SC | Documented: 2018 Special Status Wildlife Surveys | Documented: ASC Raptor Nest Surveys, ASC Avian Point Counts |
| Golden eagle | <i>Aquila chrysaetos</i> | None ³ | None | Documented: ASC Avian Point Counts, ASC Eagle Nest Survey, Monitoring |
| Grasshopper sparrow | <i>Ammodramus savannarum</i> | S | Documented: ASC Special Status Wildlife Surveys, 2018 Special Status Wildlife Surveys | Documented: ASC Avian Point Counts, ASC Special Status Wildlife Surveys, 2018 Special Status Wildlife Surveys |
| Lewis' woodpecker | <i>Melanerpes lewis</i> | SC | None | None |

| Common name | Scientific name | Columbia Plateau Ecoregion ODFW Status ¹ | Occurrence within Amended Site Boundary ² | Occurrence within Analysis Area |
|--|----------------------------------|--|---|---|
| Loggerhead shrike | <i>Lanius ludovicianus</i> | S | Documented: ASC Special Status Wildlife Surveys, 2018 Special Status Wildlife Surveys | Documented: ASC Avian Point Counts, ASC Special Status Wildlife Surveys |
| Long-billed curlew | <i>Numenius americanus</i> | SC | Documented: ASC Avian Point Counts, ASC Special Status Wildlife Surveys, 2018 Special Status Wildlife Surveys | Documented: ASC Avian Point Counts, ASC Special Status Wildlife Surveys, 2018 Special Status Wildlife Surveys |
| Sagebrush sparrow | <i>Artemisiospiza nevadensis</i> | SC | None | None |
| Swainson's hawk | <i>Buteo swainsoni</i> | S | Documented: ASC Avian Point Counts, 2018 Special Status Wildlife Surveys | Documented: ASC Avian Point Counts, ASC Raptor Nest Surveys |
| Reptiles | | | | |
| Sagebrush lizard | <i>Sceloporus graciosus</i> | S, SC | None | None |
| Western painted turtle | <i>Chrysemys picta</i> | SC | None | None |
| <p>Species and status: OCS 2016, ODFW 2016, ODFW 2018, ORBIC 2016, Wheatridge 2015.</p> <p>1. ODFW Status: S = State Sensitive; SC = State Sensitive—Critical</p> <p>2. Documented occurrence:</p> <ul style="list-style-type: none"> • ASC Avian Point Counts— Wheatridge 2015, Exhibit P, Section 4.2.1 • ASC Bat Species Investigation— Wheatridge 2015, Exhibit P, Section 4.2.6 • ASC Eagle Nest Survey, Monitoring— Wheatridge 2015, Exhibit P, Sections 4.2.3, 4.2.4 • ASC Raptor Nest Surveys— Wheatridge 2015, Exhibit P, Section 4.2.2 • ASC Special Status Wildlife Surveys— Wheatridge 2015, Exhibit P, Section 4.2.5 • 2018 Special Status Wildlife Surveys— Attachment P-1 <p>3. Protected by the Bald and Golden Eagle Protection Act (BGEPA)</p> | | | | |

Four federal species are not special status species in Oregon: Yuma myotis, small-footed myotis, long-eared myotis, and margined sculpin. Fourteen species are ODFW sensitive species in other ecoregions in Oregon, but not in the Columbia Plateau Ecoregion where the Project is located: white-tailed jackrabbit, California myotis, fringed myotis, long-legged myotis, northern goshawk, peregrine falcon, greater sandhill crane, willow flycatcher, olive-sided flycatcher, northern goshawk, tricolored blackbird, white-headed woodpecker, willow flycatcher, yellow-breasted chat, and mountain quail. Of these species, seven have been detected during previous surveys: white-tailed jackrabbit, California myotis, small-footed myotis, long-eared myotis, long-legged myotis, peregrine falcon, and greater sandhill crane (Wheatridge 2015).

Brewer's sparrow is now sensitive in the Columbia Plateau Ecoregion. It has not been recorded on site in previous surveys, but appropriate sage shrubland habitat (as described in Section 3.2) is present within the Approved Site Boundary. Common nighthawk is now sensitive in the Columbia Plateau Ecoregion, and it has been recorded in previous surveys (Wheatridge 2015).

While the Oregon Biodiversity Information Center results described in the ASC (Wheatridge 2015) did include one fish species (Steelhead; Middle Columbia River summer run; federally threatened, state sensitive) within the Analysis Area, fish are not included in Table P-4, as there are no perennial streams within the Amended Site Boundary (as described in Exhibit J).

5.0 Baseline Survey of Habitat Use by State Sensitive Species – OAR 345-021-0010(1)(p)(E)

OAR 345-021-0010(1)(p)(E) A baseline survey of the use of habitat in the analysis area by species identified in (D) performed according to a protocol approved by the Department and ODFW.

5.1 Results of Field Surveys

5.1.1 Special Status Wildlife Species Surveys

During 2018 surveys within the Amended Site Boundary, biologists observed six special status wildlife species: WAGS (addressed in Exhibit Q), ferruginous hawk (sensitive-critical), Swainson's hawk (sensitive), loggerhead shrike (sensitive), long-billed curlew (sensitive-critical), and grasshopper sparrow (sensitive) (Attachment P-1). Four of these species were observed during 2011-2013 special status species surveys (Wheatridge 2015). Figure P-4 shows the location of all observations of state sensitive species within 0.5 miles of the Amended Site Boundary during special status wildlife surveys from 2011-2018. Documented occurrences of each species reported from 2011-2018 are summarized below.

5.1.1.1 Ferruginous hawk (state sensitive-critical)

During 2018 special status species surveys, an adult ferruginous hawk was observed interacting with a Swainson's hawk near OR-207. This is an area of intersection between Dryland Wheat, Native Perennial Grassland, Revegetated Grassland, and Exotic Annual Grassland. This species was not reported during 2011-2013 special status wildlife surveys. Ferruginous hawks breed in the Columbia Plateau Ecoregion, and generally do not overwinter in the state of Oregon. Like Swainson's hawks, these birds tend to choose lone trees or other isolated structures in open country for nest sites. Larger than a Swainson's hawk, they hunt larger prey, mainly jackrabbits, cottontails, ground squirrels, and prairie dogs where they occur. Ferruginous hawks utilize a variety of hunting strategies from perch-hunting to low-flight to ground-hunting.

5.1.1.2 Swainson's hawk (state sensitive)

During 2018 special status species surveys, a Swainson's hawk nest was found approximately 250 feet outside of the Amended Site Boundary, near the corner of OR-207 and Strawberry Lane. An unused nest was also found on Kilkenny Road with a Swainson's hawk nearby (Figure P-4.1). Five sightings of Swainson's hawks were recorded (including one on-nest). Detections occurred in Dryland Wheat, Native Perennial Grassland, Revegetated Grassland, and Exotic Annual Grassland. This species was not reported during 2011-2013 special status wildlife surveys. Swainson's hawks nest in the Columbia Plateau Ecoregion and migrate to South America for the winter. They are open-country specialists that hunt and forage in grassland, shrub-steppe, and agricultural areas, and often focus on row-crop agriculture, in particular. Its diet consists of prey items as varied as small mammals, small birds, bats, and flying insects. They hunt both from the ground and air. Nests are frequently in lone trees in open country, like the two nests described during the surveys. In the non-breeding season, particularly during the fall migration in North America, they are often observed hunting in groups behind agricultural equipment, opportunistically preying on rodents.

5.1.1.3 Long-billed curlew (state sensitive-critical)

One detection of the long-billed curlew was recorded during 2018 special status species surveys. This individual was observed in flight in an area with both Revegetated Grassland and Dryland Wheat present. 2011-2013 special status wildlife surveys documented 34 detections of long-billed curlew throughout the Facility (Wheatridge 2015). These were of pairs or of individuals exhibiting territorial behaviors. Detections occurred in five habitat types, Revegetated Grassland, Exotic Annual Grassland, Native Perennial Grassland, Basin Big Sagebrush Shrub-steppe, and Rabbitbrush/ Snakeweed Shrub-steppe. Most detections of this species were in relatively gentle terrain.

5.1.1.4 Loggerhead shrike (state sensitive)

During 2018 special status species surveys, a loggerhead shrike nest was located inside the survey area immediately south of Juniper Road, with two birds nearby. Another pair of loggerhead shrikes were noted near the corner of OR-207 and Grieb Lane. Prior to 2018 surveys, five detections of

loggerhead shrike were recorded, all of them associated with surveys of the Wheatridge West turbine group (Wheatridge 2015). Although this species is normally associated with Basin Big Sagebrush Shrub-steppe, these detections occurred instead in Rabbitbrush/Snakeweed Shrub-steppe, Native Perennial Grassland, and Exotic Annual Grassland.

Grasshopper sparrow (state sensitive): During 2018 special status species surveys, grasshopper sparrows were recorded in 28 locations. All were recorded in Native Perennial Grassland, Revegetated Grassland, and Exotic Annual Grassland. Detections of grasshopper sparrow numbered 615 throughout the Approved Site Boundary during 2011-2013 surveys (Wheatridge 2015). Most detections were of singing territorial males, but some were of likely females, of pairs together, or of nests. Grasshopper sparrows were detected most numerous in Native Perennial Grassland, Revegetated Grassland, and Exotic Annual Grassland, but detections also occurred in Basin Big Sagebrush Shrub-steppe and Rabbitbrush/Snakeweed Shrub-steppe. Though designated a state sensitive species due to conversion of native grassland habitat to agriculture and other development, the grasshopper sparrow is one of the most common avian species in the vicinity of the Facility, and within the Columbia Plateau Ecoregion overall, during the seasons it is present.

5.1.2 Special Status Plant Species Surveys

No special status plant species were found in 2018 field surveys (Attachment P-1). In 2011, a single special status vascular plant species—Laurent’s milkvetch (*Astragalus collinus* var. *laurentii*)—was found during special status plant surveys, and is addressed in the ASC (Wheatridge 2015). Five noxious weeds were identified within the Amended Site Boundary during 2018 surveys, and were considered when determining habitat categories (Attachment P-1).

5.1.3 Avian Use Surveys

Complete results of surveys conducted in 2011 are available in the ASC (Wheatridge 2015). Four plots were located within 0.5 miles of the Amended Site Boundary: E, F, G, and O. Five sensitive bird species were detected. The sensitive species that were detected were the same species identified during special status wildlife surveys: ferruginous hawk (sensitive-critical), Swainson’s hawk (sensitive), long-billed curlew (sensitive-critical), loggerhead shrike (sensitive), and grasshopper sparrow (sensitive). Common nighthawk was detected during these surveys, but was not a state sensitive species at the time. As of 2018, this bird is a sensitive species in the Columbia Plateau Ecoregion. A bald eagle (protected by the Bald and Golden Eagle Protection Act [BGEPA], not state sensitive) was also detected at plot G. Golden eagles (BGEPA-protected, not state sensitive) were detected during these surveys, but not at E, F, G or O.

Seasonal information regarding each species can best be understood by the timing of these sightings across all 12 survey points. Long-billed curlew detections were limited to spring and summer seasons. After the breeding season, long-billed curlews migrate away from their inland breeding sites to spend most of the year in other (primarily coastal) areas. Grasshopper sparrows were likewise detected only during spring and summer seasons. This species winters far south of

the Columbia Plateau Ecoregion. The Swainson's hawk was detected during the spring, summer, and fall seasons. Ferruginous hawks were detected during all seasons, but most observations were during the spring and summer seasons, when this species is breeding in the Columbia Plateau Ecoregion.

One common nighthawk (state sensitive) was detected during the summer season only. This species nests on bare ground from May to August, and winters in South America. It is most abundant in sagebrush and rocky scablands and rimrock habitats of eastern Oregon (OCS 2016, Brigham et al. 2011). An insectivore, this bird feeds in low light conditions at dusk and dawn, often near water, but also on insects attracted to artificial lights. These birds often roost on gravel roads at night.

Golden eagles were detected during all survey seasons at Wheatridge West plots, but the majority of detections were in winter and fall (13 and 12, respectively), with two detections in spring and three detections during summer. All detections were of single individuals. The bald eagle was detected in the winter.

5.1.4 Raptor Nest Surveys

The 2011 aerial raptor nest survey covered an area of approximately 237.5 square miles (Wheatridge 2015). In all, 41 active raptor nests (and 16 common raven nests) were found during this survey, including nests of the following species:

- Swainson's hawk – 26
- Ferruginous hawk – 4
- Red-tailed hawk – 7
- Prairie falcon – 1
- Great horned owl – 2
- Barn owl – 1

Among these, state sensitive species nests included those of Swainson's hawk (sensitive) and ferruginous hawk (sensitive-critical). The only sensitive raptor found nesting within 0.5 miles of the Amended Site Boundary was the Swainson's hawk. One nest, shown in Figure P-4.1 nearest OR 207, was occupied in 2018 as well. Ferruginous hawk nests were found more sparsely distributed than Swainson's hawks nests during aerial surveys, as shown in Figure P-4. The closest ferruginous hawk nest to the Amended Site Boundary, at approximately 0.7 miles distance, is shown in Figure P-4.1. This nest location is within the Analysis Area for the Site Boundary.

Overall raptor nest density within the 237.5-mile² survey area was 0.17 active nests per square mile (Swainson's hawks 0.11/mile², ferruginous hawks 0.02/mile²). Raptor nest survey results are described in the ASC (Wheatridge 2015).

5.1.5 Eagle Nest Surveys

The 2011 eagle nest survey of the Approved Site Boundary and an area within 10 miles of the Approved Site Boundary yielded one unoccupied and seven occupied golden eagle territories, including five active nests, four successful breeding attempts, and seven fledged young. The nearest occupied golden eagle nest found during these surveys was approximately 16 miles away from the Amended Site Boundary. The nearest unoccupied golden eagle nest was approximately 8 miles away from the Amended Site Boundary. The single historical bald eagle nest located in Umatilla County in the Oregon Biodiversity Information Center records was found to be no longer present.

5.1.6 Golden Eagle Nest Monitoring

The 2012 eagle nest monitoring of the Approved Site Boundary and an area within 10 miles of the Approved Site Boundary yielded six occupied golden eagle territories, four active nests, two successful breeding attempts, and three fledged young. The 2013 eagle nest monitoring yielded four occupied golden eagle territories, two active nests, one successful breeding attempt, and one fledged young. The 2014 eagle nest monitoring yielded five occupied golden eagle territories, three active nests, three successful breeding attempts, and three fledged young. None of these nests occurred within the Amended Site Boundary or within 0.5 miles of the Amended Site Boundary.

5.1.7 Bat Species Investigations

In 2011, eight bat species were detected at one or more of the 12 acoustic monitoring sites. Four survey stations were located within 5 miles of the Amended Site Boundary (stations 1A, 1B, 2A, 2B), and are considered here conservatively (Wheatridge 2015). Three state sensitive species were detected: hoary bat and silver-haired bat are sensitive in the Columbia Plateau Ecoregion; long-legged myotis is a state sensitive species, but not in the Columbia Plateau Ecoregion.

6.0 Description of Potential Adverse Impacts – OAR 345-021-0010(1)(p)(F)

OAR 345-021-0010(1)(p)(F) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (B) and species identified in (D) that could result from construction, operation and retirement of the proposed facility.

6.1 Potential Impacts to Fish and Wildlife Habitat

As described in the Final Order, construction and operation of the Facility will result in permanent and temporary loss of wildlife habitat (ODOE 2017). Impact calculations in this document were executed using the Maximum Layouts for Wheatridge West and East, and the Longer Option for the Wind Intraconnection Corridor as described in the ASC and Final Order (Wheatridge 2015, ODOE 2017) (Table P-5).

Table P-5. Impacts by Habitat Category and Type

| ODFW Habitat Category | Habitat Subtype | Amended Site Boundary | | Approved Site Boundary | | Site Boundary | |
|---|--|-----------------------|------------|------------------------|---------------|---------------|---------------|
| | | Permanent | Temporary | Permanent | Temporary | Permanent | Temporary |
| 2 | Developed-Revegetated or Other Planted Grassland | 0.0 | 0.7 | 17.1 | 118.4 | 17.1 | 119.1 |
| | Grassland-Exotic Annual | 3.0 | 0.6 | 5.0 | 33.6 | 8.0 | 34.2 |
| | Grassland-Native Perennial | 1.3 | 0.4 | 8.3 | 88.6 | 9.6 | 89.0 |
| | Shrub-steppe-Basin Big Sagebrush | 0.0 | 0.0 | 0.8 | 3.2 | 0.8 | 3.2 |
| | Shrub-steppe-Rabbitbrush/Snakeweed | 0.0 | 0.0 | 0.1 | 15.1 | 0.1 | 15.1 |
| Total | | 4.3 | 1.7 | 31.2 | 259.0 | 35.5 | 260.7 |
| 3 | Developed-Revegetated or Other Planted Grassland | 0.0 | 0.0 | 8.1 | 67.9 | 8.1 | 67.9 |
| | Grassland-Native Perennial | 0.0 | 0.7 | 7.4 | 49.8 | 7.4 | 50.4 |
| | Shrub-steppe-Basin Big Sagebrush | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 |
| | Shrub-steppe-Rabbitbrush/Snakeweed | 0.0 | 0.0 | 2.0 | 16.7 | 2.0 | 16.7 |
| Total | | 0.0 | 0.7 | 17.4 | 134.7 | 17.5 | 135.4 |
| 4 | Grassland-Exotic Annual | 76.0 | 0.3 | 3.2 | 22.0 | 79.2 | 22.2 |
| | Grassland-Native Perennial | 0.0 | 0.0 | 0.2 | 1.2 | 0.2 | 1.2 |
| | Shrub-steppe-Rabbitbrush/Snakeweed | 0.0 | 0.0 | 0.3 | 2.7 | 0.3 | 2.7 |
| Total | | 76.0 | 0.3 | 3.7 | 25.8 | 79.7 | 26.1 |
| 6 | Developed-Dryland Wheat | 812.6 | 4.6 | 118.6 | 775.4 | 931.2 | 780.0 |
| | Developed-Irrigated Agriculture | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 |
| | Developed-Other | 0.2 | 1.4 | 0.3 | 1.6 | 0.5 | 3.0 |
| Total | | 812.7 | 6.0 | 118.9 | 778.0 | 931.6 | 784.0 |
| Grand Total | | 893.1 | 8.7 | 171.2 | 1197.5 | 1064.3 | 1206.1 |
| Note: Totals in this table may not be precise due to rounding, and for the Amended Site Boundary, the numbers include minor overlap of Facility features (see Exhibit C). | | | | | | | |

Total impacts within the Approved Site Boundary are up to 1,368.7 acres, including 1,197.5 acres of temporary and 171.2 acres of permanent impact. Total impacts within the Site Boundary are up to 2,270.4 acres, including 1,206.1 acres of temporary and 1,064.3 acres of permanent impact.

This reflects the addition of 8.7 acres of temporary and 893.1 acres of permanent impacts within the Amended Site Boundary, for a total of 901.8 acres of additional impact. Over 90 percent of the additional permanent impacts are to Category 6 habitat (812.7 out of 893.1 acres). There are 80.3 acres of additional permanent impacts to non-developed habitat attributable to the changes proposed in this RFA, as follows:

- Category 2: 4.3 acres
 - Grassland-Exotic Annual = 3.0 acres
 - Grassland-Native Perennial = 1.3 acres
- Category 4: 76.0 acres
 - Grassland-Exotic Annual = 76.0 acres

The Amended Site Boundary does not overlap with mule deer winter range, and therefore will not have any impact on this habitat. (ODFW 2013, Wheatridge 2015).

6.2 Potential Impacts to State Sensitive Species

As described in the ASC, potential construction-related impacts include permanent and temporary loss of habitat, direct fatalities due to construction equipment and vehicles, loss of nesting structures, and disturbance during critical life stages (e.g., breeding season for birds) (Wheatridge 2015). Most of these potential impacts have been or will be avoided or minimized through micro-siting, timing of construction, and other conditions described in the ASC or in the sections below (Wheatridge 2015).

The primary potential impact of the operation of the Facility as approved is expected to be direct fatality of birds and bats through collision with rotating turbine blades, which is addressed in the ASC, and not applicable to the solar energy generation that is the basis of RFA 4 (Wheatridge 2015). The sections below focus on potential impacts to state sensitive species from the construction and operation of the solar arrays. Secondary potential impacts from the operation of the Facility include collision with vehicles and displacement from otherwise suitable habitat.

6.2.1 Reptiles

No state sensitive reptiles have been documented within the Site Boundary. No suitable habitat exists for western painted turtle or for the northern sagebrush lizard within the Amended Site Boundary. As such, no adverse impacts to state sensitive reptiles or their habitats are expected from construction and operation of the modifications to the Facility as proposed in this RFA.

6.2.2 Birds

Direct fatality impacts to those state sensitive avian species susceptible to collisions with turbines (Swainson's hawk, ferruginous hawk, and golden eagle) are addressed in the ASC (Wheatridge 2015). A universal potential impact to all raptors discussed below is electrocution and powerline collision, which is addressed in Site Certification Condition GEN-FW-02, specifying the construction of all collector and transmission lines in accordance with the latest Avian Power Line Interaction Committee design standards (ODOE 2017, APLIC 2006).

Due to the scarcity of available data, robust studies on avian mortality at utility scale solar energy sites are few; however, some impacts have been described. A study examining avian fatalities at three California utility scale solar energy sites compared these rates to other human-caused mortality sources (wind energy, fossil fuel power plants, communication towers, roadway vehicles, buildings and vehicles; Walston et al. 2016). The study examines fatalities at two power tower solar sites and one photovoltaic facility. Avian mortality at the three sites collectively fell within a similar range as avian fatalities at wind energy facilities. Wind energy developments were found to cause fewer fatalities than any of the other human-caused mortality sources. The mortality rate at the photovoltaic facility was significantly lower than at the two power tower facilities in the study.

Causes of death at the same photovoltaic facility were described in WEST (2014) as unknown (86 percent), line collision (three percent), panel collision (four percent), predation (less than one percent), and electrocution (less than one percent). An additional six percent of mortalities were categorized as unknown/preening site, due to observed flocks of mourning doves roosting and preening under the arrays. Caution should be taken in the application of this limited data set to other projects; however, the data seem to indicate that mortality rates at these three solar facilities are low compared to other anthropogenic avian mortality sources. Studies featuring larger facility sample sizes or with a more granular understanding of cause have not yet emerged.

An avian use-focused study was conducted using data from photovoltaic installations at or near five airports in the United States (DeVault et al 2014). This study found that passerine species including red-winged blackbirds sometimes use shade provided by panels on summer days, and sometimes perch on panels to sing in the early part of the breeding season, echoing the anecdotal mourning dove use of the facility examined in Walston et. al. (2016) and WEST (2014). DeVault et. al. (2014) also shows that while insectivorous avian species were observed foraging near the arrays, the abundance of foraging birds was similar to abundance in nearby grasslands, and that no mortalities were clearly attributable to collision with panels.

Given the limited availability of avian mortality and usage data at utility scale solar energy sites, potential impact to all sensitive avian species documented within the Amended Site Boundary—long-billed curlew, loggerhead shrike, common nighthawk, and grasshopper sparrow—are addressed in terms of potential habitat disturbance and potential nest disturbance during construction, operation, and retirement.

- **Swainson's hawk:** The Swainson's hawk (a sensitive species) was broadly distributed and quite common during spring and summer at the Facility. There were 26 active nests located

within the aerial raptor nest survey area (Wheatridge 2015) in 2011, and Swainson's hawks continue to nest directly adjacent to the Amended Site Boundary, as described in Sections 5.1.1 and 5.1.4. Construction may disturb active breeding attempts if it occurs during the Swainson's hawk breeding season. Avoidance of this impact is discussed in Section 7.1.2. The addition of a solar array to the Facility as approved will result in 812.6 acres of permanent impact to Dryland Wheat and 80.3 acres of other potential foraging habitat (Grassland-Native Perennial, Grassland-Exotic Annual). Swainson's hawks are more likely to hunt in Dryland Wheat than are most other raptor species (Bechard et. al. 2010). Thus, the modifications to the Facility as proposed may also decrease foraging opportunities for these raptors during spring and summer, when they are present on the Columbia Plateau.

- **Ferruginous hawk:** Breeding territories of ferruginous hawk (a sensitive-critical species) were broadly distributed across the aerial raptor nest survey area (Wheatridge 2015). None of these were within 0.5 miles of the Amended Site Boundary, but one occurred approximately 0.7 miles from the Amended Site Boundary. This species was detected during avian use surveys in all seasons, and once during 2018 special status wildlife surveys, with the majority of observations occurring in spring and summer, when the species breeds on the Columbia Plateau (Ng et. al. 2017). Most suitable breeding and foraging habitat (for medium-sized prey, including jackrabbits, ground squirrels, and cottontails, is located outside the Amended Site Boundary; however, construction may disturb active breeding attempts during the ferruginous hawk breeding season.
- **Bald eagle (no state status, BGEPA-protected):** No suitable nesting habitat for bald eagles exists within the Approved Site Boundary, and none was found to occur in the Amended Site Boundary during 2018 surveys (Attachment P-1; Wheatridge 2015). As noted in the ASC use of the area is expected to be limited to winter, when the species sometimes feeds on carrion (Buehler 2000, Wheatridge 2015). Construction, operation, and retirement of modifications proposed in this RFA are not expected to adversely impact bald eagles.
- **Golden eagle (no state status, BGEPA-protected):** As reported in the ASC, use of the Approved Site Boundary by the golden eagle was primarily in winter and fall, and was confined to native habitats on the outer edges of all leased parcels (Wheatridge 2015). No suitable nesting habitat was found during 2018 surveys of the Amended Site Boundary. The Amended Site Boundary has been sited as much as possible in developed habitat (e.g., Dryland Wheat), where neither golden eagles nor their prey are expected to spend much time (Kochert et. al. 2002). Although eagles occasionally fly through such habitat; no adverse impacts to this species are anticipated due to the modifications proposed in this RFA.
- **Long-billed curlew:** Long-billed curlews (a sensitive-critical species) is patchily distributed, but relatively common at the Facility. Impacts to habitat related to the solar array will be limited primarily to Dryland Wheat, which is sometimes used as nesting and foraging habitat for this species. Construction and operation of the Facility as modified by RFA 4 may entail a loss of suitable breeding and foraging habitat for this species; however,

studies of potential use of solar facilities by long-billed curlew during operation have not been conducted. Long-billed curlews are susceptible to human disturbance during the breeding season, which can result in nest abandonment or disruption of brood-rearing (Dugger and Dugger 2002); the construction of facilities may adversely impact active breeding attempts if construction occurs in proximity to them during the breeding season.

- **Loggerhead shrike:** The loggerhead shrike (a sensitive species) is narrowly distributed and relatively uncommon within the Amended Site Boundary (Wheatridge 2015). During 2011-2013 surveys, the species was found to be confined primarily to Basin Big Sagebrush Shrub-steppe in the northern portion of the Wheatridge West turbine group. During 2018 surveys, a nest was found in the Amended Site Boundary in a small (less than 1 acre) patch of sagebrush along the south side of Little Juniper Lane. The primary potential adverse effect to loggerhead shrike is habitat loss. No impact to Basin Big Sagebrush Shrub-steppe, the habitat type with which this species is most closely associated, have been defined based on the layout proposed in this RFA (Yosef 1996). As a result, adverse impacts to loggerhead shrikes are expected to be limited.
- **Grasshopper sparrow:** Construction and operation of the solar infrastructure as proposed in this RFA may entail a loss of suitable breeding and foraging habitat for grasshopper sparrows (a sensitive species). The grasshopper sparrow is widely distributed across the Facility throughout most habitat types, and is among the most abundant avian species during spring and early summer (for approximately 4 to 5 months out of the year (Vickery 1996, Wheatridge 2015). Because of this species' local and regional abundance and its ability to utilize a variety of habitat types, adverse effects to grasshopper sparrows as a result of construction and operation of the modifications proposed in this RFA are expected to be limited, consisting of a small amount of loss of suitable habitat and a slight potential for displacement.
- **Common nighthawk:** The common nighthawk, a sensitive species, was observed once during avian point count surveys in the summer of 2011. This is the only known record of the bird within the Site Boundary during the ASC surveys (from 2011-2013); however, this was not a sensitive status species at the time, so it is possible that this species occurs more commonly on site than recorded during that time frame. The species is only present in Oregon during the breeding season. Construction and operation of the Facility could pose a fatality risk to these birds, which tend to roost and nest on bare ground, especially on gravel roads (Brigham et al. 2011). The primary potential impact to common nighthawks during construction and operation is collision with vehicles.

6.2.3 Fish

No adverse impacts to state sensitive fish or their habitats are expected from construction and operation of the Facility.

6.2.4 Mammals

No adverse effects to bat species are anticipated due to the construction and operation of the modifications proposed in this RFA. Mitigation for turbine-specific impact to these species is addressed in Site Certificate Condition PRE-FW-02 (ODOE 2017), and in the Draft Wheatridge Wildlife Monitoring and Mitigation Plan (Attachment P-3).

The Facility does not provide suitable breeding habitat (forests) or roosting habitat (trees) for any of the sensitive bat species expected to occur within the Analysis Area (Table P-4). Two state sensitive species (hoary bat and silver-haired bat) were detected at the Facility during surveys, as described below.

- **Hoary bat:** The detection of hoary bat (a sensitive species) at six of the 12 acoustic monitoring sites within the Approved Site Boundary, including two of the four closest detectors to the Amended Site Boundary, suggests that this species is relatively common and flies through much of the Facility during the late summer and fall months, concurrent with its migration period (Wheatridge 2015).
- **Silver-haired bat:** The detection of silver-haired bat (a sensitive species) at 11 of the 12 acoustic monitoring sites within the Approved Site Boundary, including all four detectors closest to the Amended Site Boundary, suggests that this species is also relatively common and flies through much of the Facility during the late summer and fall months, concurrent with its migration period (Wheatridge 2015).

Three additional state-sensitive bat species have the potential to occur in the Analysis Area – spotted bat (sensitive), pallid bat (sensitive), and Townsend’s big-eared bat (sensitive, sensitive-critical) – but were not detected during acoustic surveys (Wheatridge 2015). The Amended Site Boundary is not sited near typical breeding or roosting habitat for these species. Construction and operation of the modifications proposed in RFA 4 are not anticipated to have an adverse impact on these bat species.

7.0 Measures to Avoid, Reduce, or Mitigate Impacts – OAR 345-021-0010(1)(p)(G)

OAR 345-021-0010(1)(p) (G) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (F) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (F) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025, and a discussion of how the proposed measures would achieve those goals and requirements.

This section describes measures to avoid, minimize, and mitigate for impacts to state sensitive and other wildlife species and their habitats, and describes how those measures are expected to achieve the habitat mitigation goals of OAR 635-415-0025. The planning, construction, and operation of the Facility as proposed will comply with the Site Certificate Conditions (ODOE 2017).

7.1 Avoidance and Minimization

7.1.1 During Project Design and Micrositing

Project design and micrositing was done to maximize the placement of facilities in Developed–Dryland Wheat habitat, thereby minimizing impacts to other habitats more suitable for sensitive and other wildlife species, including the ODFW conservation strategy habitats, Basin Big Sagebrush Shrub-steppe and Native Perennial Grassland. This siting effort is expected to minimize impacts to wildlife generally and to ferruginous hawk, long-billed curlew, loggerhead shrike, grasshopper sparrow, and common nighthawk in particular. Project design ensured the avoidance of any identified nests of Swainson’s hawk, ferruginous hawk, or other raptor species.

Other design aspects undertaken to minimize impacts to sensitive and other wildlife species and their habitats include:

- Access to solar arrays and associated infrastructure will primarily involve the use and improvement of existing roads.
- Collector lines will be buried to the extent feasible in the temporarily disturbed road shoulders.
- The Certificate Holder designed overhead collector lines in compliance with APLIC standards, as required by condition GEN-FW-01 (APLIC 2006, ODOE 2017). This is expected to minimize the risk of electrocution to eagles and other raptors generally, and to Swainson’s hawk and ferruginous hawk in particular.

7.1.2 Prior to Construction

In compliance with condition PRE-FW-01, the Certificate Holder will conduct a final habitat survey to confirm the habitat categories of all areas that will be affected by Facility components, as well as the locations of sensitive resources such as active raptor nests. This mapping will inform final site design and facility layout and ensure habitat impacts and disturbance to nesting raptors and other sensitive resources are avoided, minimized, and mitigated as appropriate (ODOE 2017). Per ODFW consultation prior to this RFA, the extent of field surveys associated with the Facility will encompass a 1,000-foot buffer around proposed ground disturbance (pers. comm. Steve Cherry ODFW, in meeting November 13, 2018; see also Figure Q-3). These surveys will include the unsurveyed area added after surveys were completed, as shown in Figure Q-2.

7.1.3 During Construction

Measures for avoiding and minimizing impacts to wildlife and plants—including state sensitive species—will be implemented during construction in compliance with the Final Order (ODOE 2017).

7.1.3.1 Environmental Training

In compliance with condition CON-FW-03, the Certificate Holder will employ a qualified environmental professional to provide environmental sensitivity training to all personnel prior to working onsite (ODOE 2017). Training will include information on sensitive species potentially present onsite, precautions to avoid injuring or destroying wildlife or sensitive wildlife habitat, exclusion areas, permit requirements and other environmental issues.

7.1.3.2 Construction Monitoring

An environmental inspector will also be on site daily in compliance with condition CON-FW-04 to perform the required monitoring and reporting (ODOE 2017).

7.1.3.3 Seasonal Avoidance

During construction within the time periods listed in condition CON-FW-02, the Certificate Holder will implement buffer zones around nest sites of Swainson's hawks, ferruginous hawks and any other sensitive raptor species nest identified during surveys required by condition PRE-FW-01 (ODOE 2017).

7.1.3.4 Speed Limits

Construction impacts to sensitive species such as common nighthawk, and to all wildlife in general, will be further avoided by the implementation of a 20 mph speed limit as stipulated in condition GEN-FW-01 (ODOE 2017).

7.1.3.5 Flagging Sensitive Resources

Disturbance to sensitive or protected plant and wildlife species will be flagged as restricted work zones prior to construction in compliance with condition PRE-FW-03 (ODOE 2017).

7.1.4 During Operation

Following construction, measures for avoiding and reducing impacts to wildlife and plants—including state sensitive species—will be implemented in compliance with the Final Orders, as follows:

- After Project construction, areas where habitat was temporarily disturbed as a result of construction activities will be restored and monitored as necessary according to provisions in the Draft Revegetation Plan (Attachment P-4). The final Revegetation Plan will

specifically address noxious weeds along solar fence lines as requested by ODFW during the November 2018 consultation. Measures to minimize the spread of noxious weeds will be developed taking into consideration the fire code requirements and other weed control measures described in Exhibits B and U. The final Revegetation Plan will be approved by ODOE in consultation with Umatilla and Morrow counties and ODFW, in compliance with condition PRE-FW-05.

- The Certificate Holder shall maintain a 20-mile-per-hour speed limit on new and improved private access roads as stipulated in condition GEN-FW-01 (ODOE 2017).
- In compliance with condition PRE-FW-03, a final Wildlife Monitoring and Mitigation Plan will be submitted to and approved by ODOE and ODFW before site construction (ODOE 2017). The Certificate Holder will consult with ODOE and ODFW regarding any solar-specific modifications necessary, as provided in the section of the final Wildlife Monitoring and Mitigation Plan detailing amendments to the plan. Components of this will include ongoing environmental training for Facility personnel and reporting requirements governing incidental wildlife injuries and deaths on Facility roads. The Draft Wildlife Monitoring and Mitigation Plan (Attachment P-3) has been updated to include the solar facilities proposed in this RFA; but does not yet contain the information necessary to comply with condition PRE-FW-03.

7.2 Mitigation

After avoidance and mitigation measures have been implemented, there will remain some impacts to wildlife habitat and some potential impacts to wildlife. Temporary and permanent habitat loss will be mitigated for according to ODFW standards, and will be described in a final Habitat Mitigation Plan (ODOE 2017), which will be approved by ODOE in consultation with ODFW before construction as a condition of the Site Certificate (PRE-FW-04). Included in this plan will be measures for conserving and enhancing sufficient acreages of wildlife habitat to compensate for those acreages temporarily or permanently impacted by the Facility, as proposed. It will entail protection and enhancement of one or more mitigation sites. This protection will be—at a minimum—for the duration of the Facility’s lifespan. This plan will include success criteria and provisions for monitoring whether mitigation goals are achieved. Both temporary habitat disturbance associated with construction activities and permanent habitat loss will be mitigated for according to provisions of the final Habitat Mitigation Plan. The Draft Habitat Mitigation Plan (Attachment P-5) has been updated to include the solar facilities proposed in RFA 4; but does not yet contain the information necessary to comply with condition PRE-FW-04.

7.3 Compliance with ODFW Mitigation Goals – OAR 635-415-0025

Desktop analysis and field studies conducted within the Approved Site Boundary of the Facility from 2011-2013 led to the identification of one listed wildlife species (Washington ground squirrel; see Exhibit Q), and several state sensitive bird species (Table P-5) with some use of the Amended Site Boundary. Surveys in 2018 identified no new special status species within the Amended Site

Boundary. Some of the identified species—notably Washington ground squirrels (addressed in Exhibit Q) and Swainson’s hawk (nest)—affected siting and micro-siting of proposed facilities. Areas of use and nest sites of these and other sensitive species were avoided during Facility design, and impacts to these species and their habitats were minimized by siting and micro-siting of Facility components. Further minimization will be accomplished during the construction and operation of the Facility through a variety of practices and constraints, described above, and in the Revegetation Plan and Habitat Mitigation Plan (ODOE 2017). Remaining potential impacts will be mitigated for, as described above and in the Wildlife Monitoring and Mitigation Plan (ODOE 2017). The efforts that have been and will be used at the Facility, as proposed in RFA 4, to avoid, minimize, and mitigate for adverse impacts to sensitive plants, fish, wildlife, and their habitats are expected to provide full compliance with the ODFW mitigation goals of OAR 635-415-0025.

8.0 Monitoring Program – OAR 345-021-0010(1)(p)(H)

OAR 345-021-0010(1)(p)(H) A description of the applicant’s proposed monitoring plans to evaluate the success of the measures described in (G).

Monitoring of the success of proposed measures to avoid, minimize, and mitigate impacts to sensitive wildlife and their habitat will be accomplished as part of the Revegetation Plan, the Habitat Mitigation Plan, and the Wildlife Monitoring and Mitigation Plan (ODOE 2017). As part of the Revegetation Plan, an independent expert (botanist or habitat biologist) will monitor the success of efforts to restore portions of the Project where temporary impacts occur during construction. As part of the Habitat Mitigation Plan, there will be regular monitoring of the habitat mitigation area to assess whether criteria for conservation and enhancement have been achieved. The Wildlife Monitoring and Mitigation Plan will identify methods—designed in cooperation with ODFW and USFWS—for assessing the impacts to sensitive species of the construction and operation of the Facility. Monitoring associated with this plan will include periodic raptor nest monitoring and a post-construction fatality monitoring study designed to assess bird and bat fatalities at the wind facility. Amendments to the plan will be made in coordination with ODFW and USFWS before construction of the Facility. Observations of listed and sensitive wildlife and plant species will be documented during monitoring activities, and will be submitted with monitoring reports. Also included will be training of Facility personnel in procedures for discovering, tracking, and reporting injured and dead wildlife found at the Facility.

9.0 Conclusion

As part of the siting process, the Certificate Holder identified and categorized the fish and wildlife habitats within the Analysis Area pursuant to OAR 635-415-0025. Based on survey results, Facility infrastructure was adjusted to avoid all impacts to Category 1 habitat, and where feasible, to Category 2 habitats. For other habitat categories, the Certificate Holder will mitigate for habitat impacts consistent with OAR 635-415-0025. Therefore, based on the information provided in this

exhibit, there is sufficient evidence upon which the Council may find that the design, construction, and operation of the Facility as modified by this RFA, taking into account the proposed mitigation measures, are consistent with the fish and wildlife mitigation goals and standards of OAR 635-415-0025. Accordingly, the Certificate Holder demonstrates compliance with OAR 345-022-0060.

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Figures

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**Wheatridge
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**Figure P-1
Analysis Area for Fish
and Wildlife Habitat**

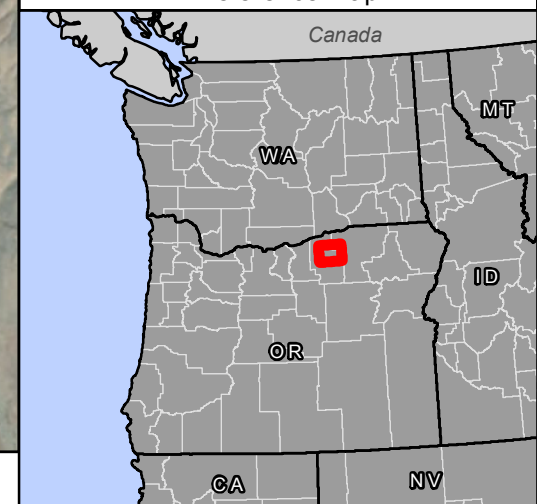
MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (0.5-mile Buffer)
- State Highway
- County Boundary

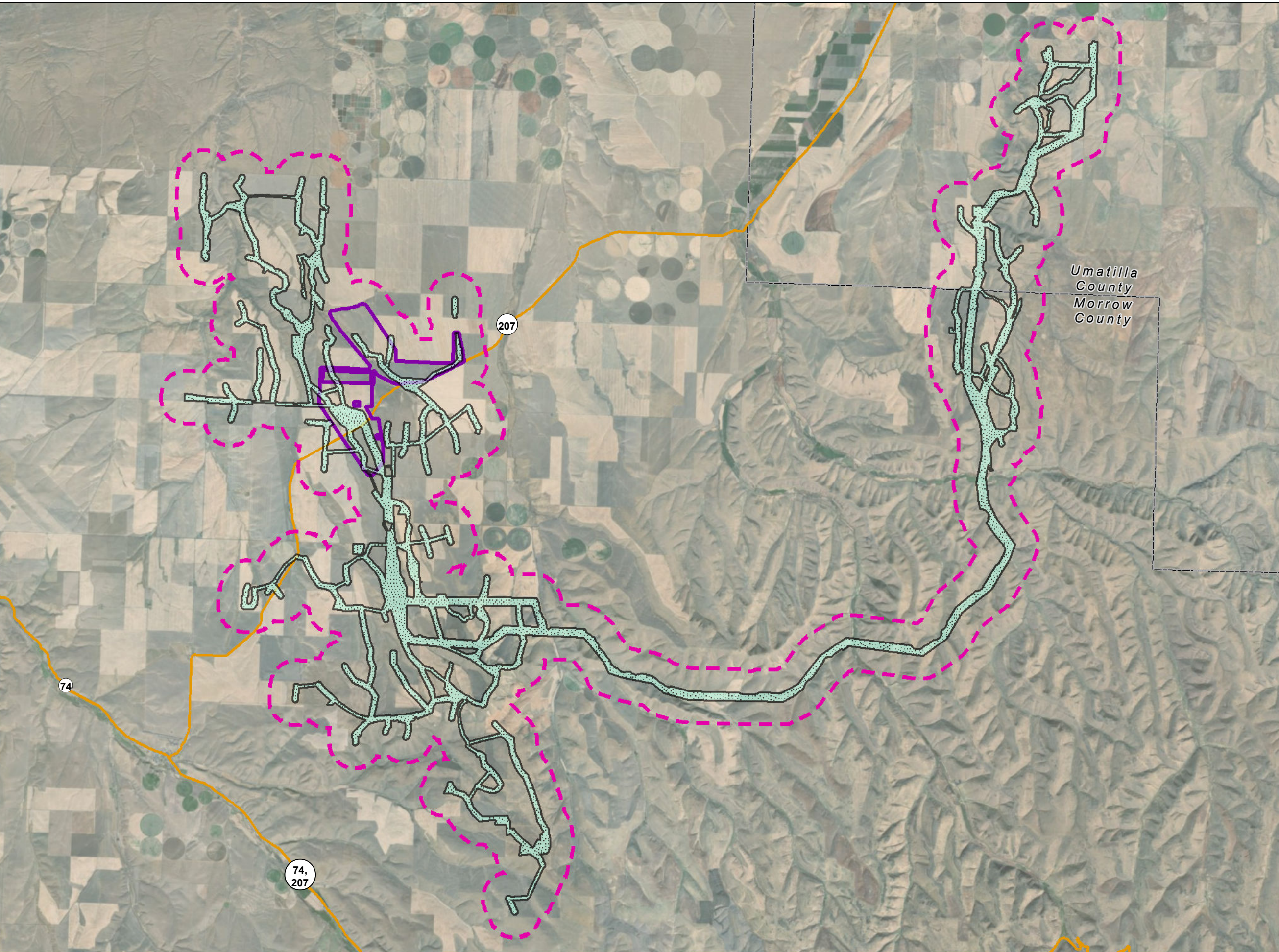
Umatilla
County
Morrow
County



Reference Map



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**Wheatridge
Wind Energy Facility
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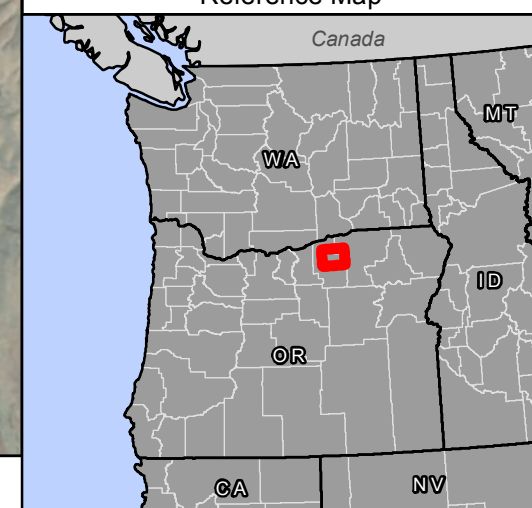
**Figure P-2
Habitat Types**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
 - Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 - Analysis Area (0.5-mile Buffer)
 - State Highway
 - County Boundary
 - Map Grid
- Habitat Type**
- Developed-Dryland Wheat
 - Developed-Irrigated Agriculture
 - Developed-Other
 - Developed-Revegetated or
Other Planted Grassland
 - Grassland-Exotic Annual
 - Grassland-Native Perennial
 - Riparian-Trees
 - Shrub-steppe-Basin Big Sagebrush
 - Shrub-steppe-Rabbitbrush/Snakeweed



Reference Map



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1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

**Wheatridge
Wind Energy Facility
Request for Amendment 4**

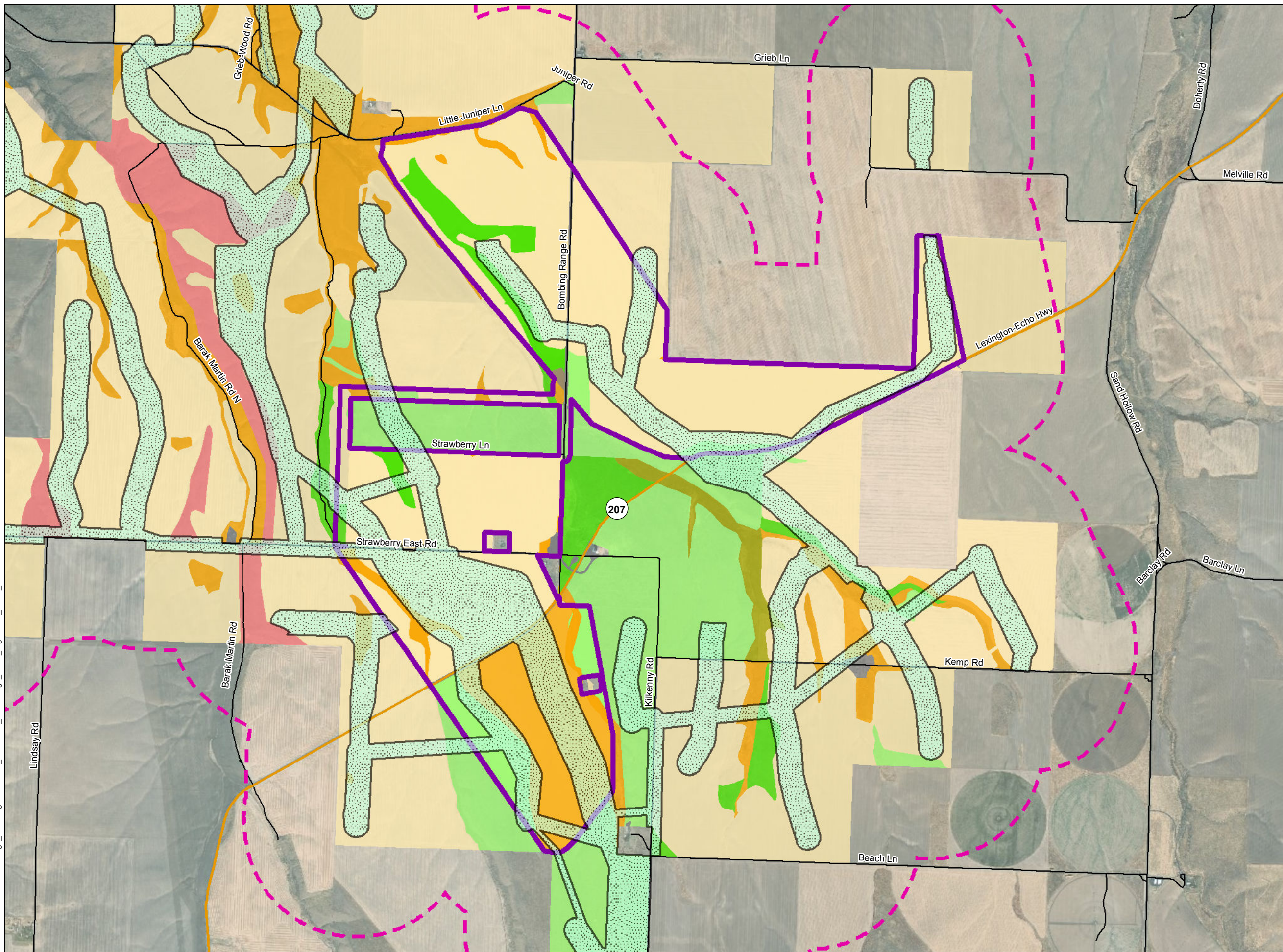
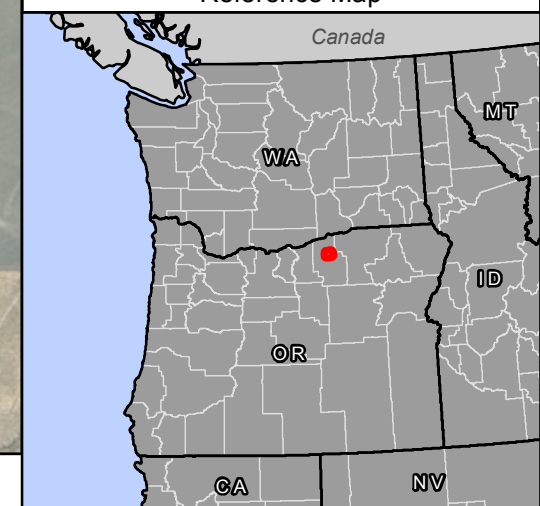
**Figure P-2.1
Habitat Types**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
 - Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 - Analysis Area (0.5-mile Buffer)
 - State Highway
 - Local Road
 - County Boundary
- Habitat Type**
- Developed-Dryland Wheat
 - Developed-Other
 - Developed-Revegetated or
Other Planted Grassland
 - Grassland-Exotic Annual
 - Grassland-Native Perennial
 - Shrub-steppe-Basin Big Sagebrush
 - Shrub-steppe-Rabbitbrush/Snakeweed



Reference Map



Wheatridge
Wind Energy Facility
Request for Amendment 4

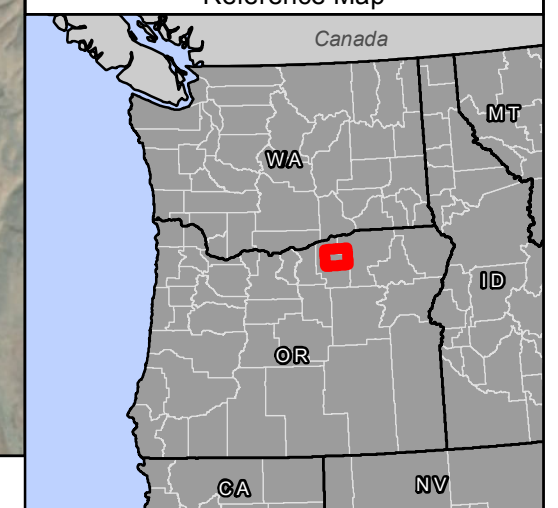
Figure P-3
Habitat Categories

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
 - Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 - Analysis Area (0.5-mile Buffer)
 - State Highway
 - County Boundary
 - Map Grid
- Habitat Category**
- 1
 - 2
 - 3
 - 4
 - 6



Reference Map



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1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

Wheatridge
Wind Energy Facility
Request for Amendment 4

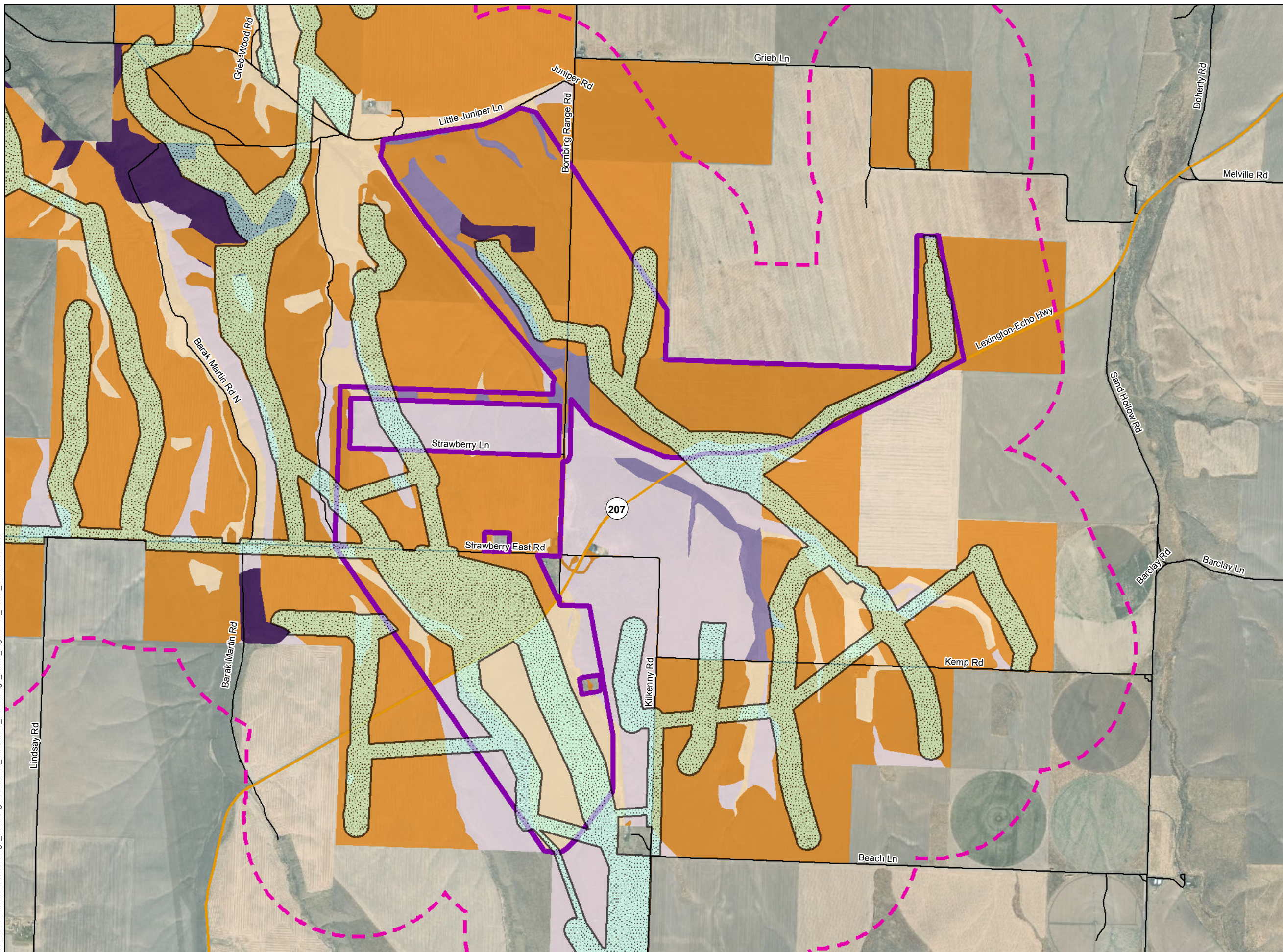
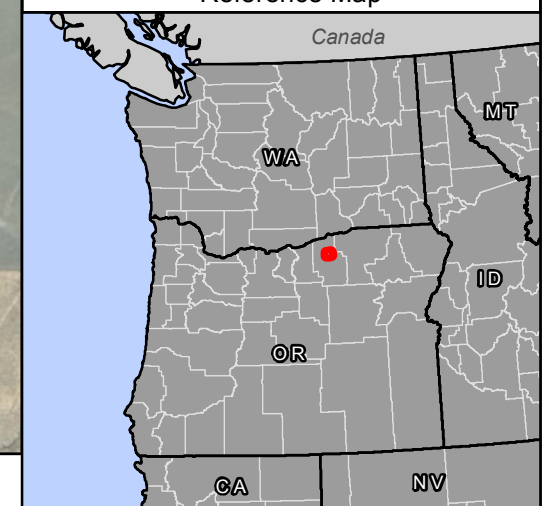
Figure P-3.1
Habitat Categories

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (0.5-mile Buffer)
- State Highway
- Local Road
- County Boundary
- Habitat Category**
- 1
- 2
- 3
- 4
- 6



Reference Map



**Wheatridge
Wind Energy Facility
Request for Amendment 4**

**Figure P-4
Detections of Special
Status Wildlife Species**

MORROW AND UMATILLA COUNTIES, OR

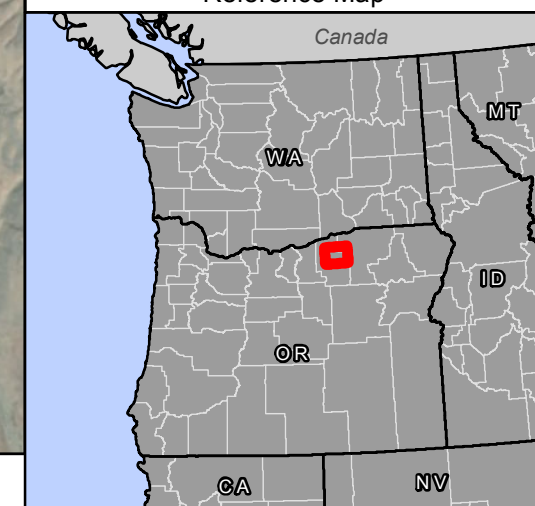
- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (0.5-mile Buffer)
- State Highway
- County Boundary
- Map Grid

Special Status Species Observations

- Ferruginous hawk nest
- Ferruginous hawk
- Swainson's hawk nest
- Swainson's hawk
- Grasshopper sparrow
- Long-billed curlew
- Loggerhead shrike
- Potential burrowing owl burrow



Reference Map



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1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

Wheatridge
Wind Energy Facility
Request for Amendment 4

Figure P-4.1
Detections of Special
Status Wildlife Species

MORROW AND UMATILLA COUNTIES, OR

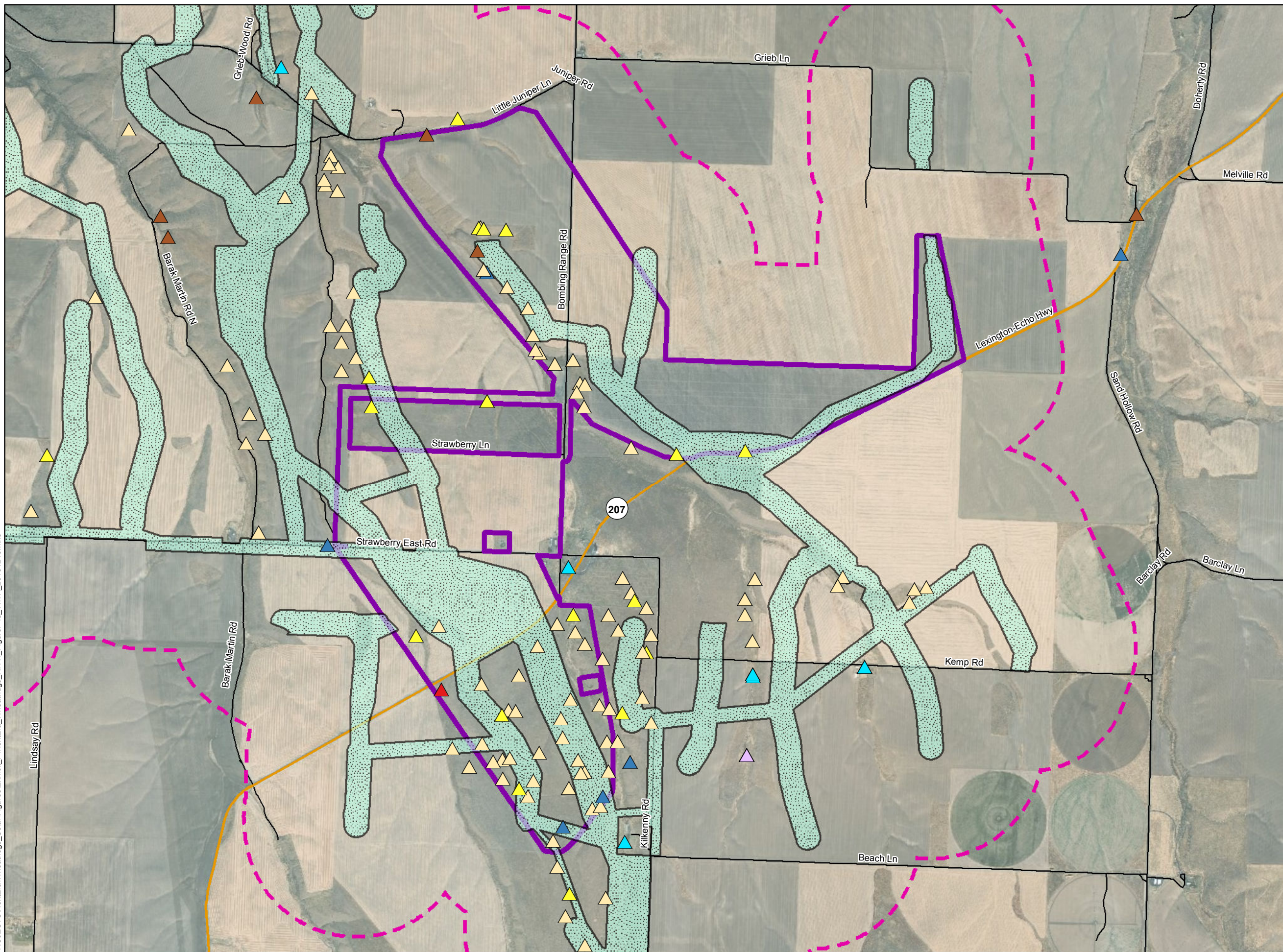
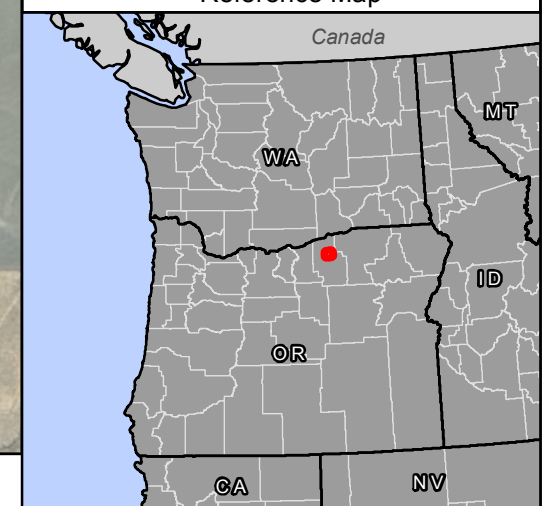
- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (0.5-mile Buffer)
- State Highway
- Local Road
- County Boundary

Special Status Species Observations

- Ferruginous hawk nest
- Ferruginous hawk
- Swainson's hawk nest
- Swainson's hawk
- Grasshopper sparrow
- Long-billed curlew
- Loggerhead shrike



Reference Map



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Attachment P-1. Wheatridge Solar Biological Reconnaissance Report

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Wheatridge Solar Biological Reconnaissance Report

**Wheatridge Wind Energy Facility
Morrow and Umatilla Counties, Oregon**

Prepared for



Prepared by



June 2018

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Attachment 2. Habitat Categorization Field Datasheet

Attachment 3. Common Vascular Plant Species Observed During 2018 Field Surveys

Attachment 4. Survey Photolog

1.0 Introduction

Wheatridge Wind Energy, LLC contracted Tetra Tech, Inc. (Tetra Tech) to provide siting and permitting support for an up to 310 megawatt (MW) Solar Project (Project) within the existing Wheatridge Wind Energy Facility Lease Boundary. The Project is located in Morrow and Umatilla counties, Oregon (Figure 1).

Tetra Tech completed a biological reconnaissance survey May 1-4, 2018. The purpose of this survey was to confirm habitat categorizations as characterized in the original Wheatridge Energy Facility Project's permit materials (Wheatridge Wind Energy, LLC 2015), and to record all wildlife and wildlife sign observed while completing Washington ground squirrel (WAGS) surveys of the potential Project areas. The biologists documented any sensitive species or habitat features observed, including active or inactive raptor nests, nesting structures, threatened and endangered species, state sensitive species, noxious weeds, and potential wetlands or other jurisdictional waters.

2.0 Survey Areas

Wheatridge West is located entirely within Morrow County, approximately 5 miles northeast of Lexington, and approximately 7 miles northwest of Heppner. Wheatridge West is bisected by Oregon Highway 207 (OR-207), with sections extending north and south of OR-207 along Strawberry Lane and Bombing Range Road. Wheatridge East is located in Umatilla County approximately 16 miles northeast of Heppner, in a remote area accessible by gravel roads and two-tracks. The surveys covered approximately 2,320 acres in Wheatridge West and 550 acres in Wheatridge East.

3.0 Methods

3.1 Desktop Review

Prior to conducting field surveys, Tetra Tech conducted a desktop review to identify special status species with the potential to occur at the Project, including federal and state endangered, threatened, proposed, and candidate species; species of concern; birds of conservation concern; sensitive and sensitive-critical species; and Oregon Conservation Strategy species (Table 1, Attachment 1). Tetra Tech reviewed original Energy Project permit materials (Wheatridge Wind Energy, LLC 2015), aerial photographs of the Project (Wheatridge Wind Energy, LLC 2015), National Wetlands Inventory (NWI) data, and the National Hydrography Dataset (NHD) to identify preliminary Oregon Department of Fish and Wildlife (ODFW) habitats within the Project (USFWS 2018a, USGS 2018). Habitat types for the areas surveyed were previously identified in the original Application for Site Certificate documentation (Wheatridge Wind Energy, LLC 2015), Exhibit P.

Additional sources consulted to confirm the results of a desktop screening assessment included big game winter range spatial data (ODFW 2013).

Table 1. Federal and State Threatened, Endangered, and Candidate Vascular Plant Species with Potential to Occur at the Project

| Scientific Name (synonym) | Common Name | Federal Status ¹ | State Status ² | Survey Period |
|---|---------------------------|-----------------------------|---------------------------|----------------------|
| <i>Astragalus collinus</i> var. <i>laurentii</i> | Laurence's milkvetch | SOC | T | May - June |
| <i>Eremothera</i> (<i>Camissonia</i>) <i>pygmaea</i> | Dwarf evening-primrose | SOC | C | Late April - June |
| <i>Erythranthe</i> (<i>Mimulus</i>) <i>inflatula</i> (<i>evanescens</i>) | Disappearing monkeyflower | SOC | C | Late April - mid-May |
| <i>Erythranthe</i> (<i>Mimulus</i>) <i>jungermannioides</i> | Liverwort monkeyflower | – | C | May - late August |
| <i>Myosurus sessilis</i> | Sessile mousetail | SOC | C | May - July |
| Sources: Burke Museum of Natural History and Culture 2017; ODA 2017; ORBIC 2016; ORBIC 2017; Oregon Flora Project 2017a; Oregon Flora Project 2017b; USFWS 2017; WDNR 2017. | | | | |
| 1. SOC = Species of Concern. | | | | |
| 2. T = Threatened; C = Candidate for listing. | | | | |

3.2 Washington Ground Squirrels

WAGS occur only in the Columbia Basin of eastern Washington and north-central Oregon. WAGS are a small ground squirrel associated with shrub-steppe habitats of the Columbia Basin ecoregion (Verts and Carraway 1998). In Oregon, the WAGS range extends from Umatilla County, west through Gilliam and Morrow counties, to the John Day River. Concern for the long-term viability of WAGS populations led to their listing by the ODFW as endangered in January 2000. On September 21, 2016, the US Fish and Wildlife Service (USFWS) announced that listing the WAGS as endangered under the federal Endangered Species Act of 1973 was not warranted (USFWS 2016). The objective of these surveys was to identify WAGS colonies within the areas surveyed, so that impacts to WAGS may be avoided and/or minimized.

The surveys generally followed methodology developed in the *Status and Habitat Use of the WAGS on State of Oregon Lands, South Boeing, Oregon* (Morgan and Nugent 1999). In this protocol, linear transect surveys are conducted on a grid by walking parallel transects roughly 60 meters apart. Areas previously identified as Category 6 habitat were visually verified for both habitat type and boundary, as these areas are considered unsuitable habitat for WAGS. If an area of previously identified Category 6 habitat had become potentially suitable habitat, biologists surveyed these areas as necessary for WAGS.

The WAGS protocol requires two phases of surveys to increase the likelihood of detecting their presence. The first phase of surveys begins around April 1, with the next phase spaced at least 2 weeks later and needs to be completed by the end of May or early June, prior to WAGS going into

aestivation. This period corresponds to the time when juvenile squirrels emerge from the burrows and are most active, and when alarm calls are most frequent (Morgan and Nugent 1999). Tetra Tech completed first phase surveys at Wheatridge East and West from May 1 to May 4. Second phase surveys were completed at Wheatridge West from May 30 to May 31.

3.3 Wildlife and Habitat

Surveys for wildlife and habitat were conducted concurrently with targeted surveys for the state endangered WAGS.

3.3.1 Habitat Categorization

In the field, biologists confirmed previous habitat categorizations types, quality, and habitat boundaries within the Project. If a biologist determined that a habitat categorization did not correspond to the previous categorization, a point indicating the change was recorded for the area on digital field maps. If an area of habitat had changed, biologists surveyed the area to assign a new category and verify the boundary. Information stored on digital field maps included both the previous and newly defined habitat categorization, per the previous survey definitions (Wheatridge Wind Energy, LLC 2015). Biologists also characterized changes in composition and structure on a field datasheet (Attachment 2).

Following field surveys, habitat changes were incorporated into spatial data using a Geographic Information System. Data were reviewed for quality control and assurance.

3.3.2 Special Status Wildlife Species

Wildlife surveys targeted special status species with the potential to occur in the survey areas, including federal and state endangered, threatened, proposed, and candidate species, species of concern, birds of conservation concern, sensitive, and sensitive-critical species (Attachment 1). Surveyors recorded the location of special status wildlife species (or recognizable sign), and recorded information on the number of individuals and their behavior. Surveyors also documented special habitats and unique features if encountered. These included raptor nests, big game, cliffs, rimrock, rock outcrops, and talus slopes.

3.4 Rare Plants

Rare plant field surveys were conducted by a botanist using the Intuitive Controlled survey method, a standard and commonly accepted protocol (USFS and BLM 1999, California Native Plant Society 2001, California Department of Fish and Game 2000, Nelson 1987, Nelson 1994). This method incorporates survey lines that traverse the survey area and target the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. While en route, the surveyors searched for target species, and when the surveyors arrived at an area of high potential habitat (that was defined in the desktop review or encountered during the field visit), they conducted a

complete survey for the target species. Complete surveys included an examination of 100 percent of the habitat.

Prior to conducting surveys, Tetra Tech conducted a desktop review to produce a list of target species that included all federal and state-listed and candidate plant species with the potential to occur within or near the Project based on known occurrences recorded by herbaria and other sources (Table 1).

During surveys, the botanist maintained a list of common vascular plant species encountered, and made informal collections of unknown species for later identification. Identification was verified by the use of appropriate plant keys; in particular, *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973). Attachment 3 contains the list of common vascular plant species observed.

3.5 Noxious Weeds

All biologists surveying for WAGS, wildlife, habitat, and rare plants recorded Oregon Department of Agriculture-listed noxious weeds, which included A, B, and T-listed species (ODA 2017). The biologists and botanist mapped new species for the area, as well as easily treatable patches and larger infestations.

3.6 Wetlands and Other Jurisdictional Waters

A wetland delineation was not completed, but biologists noted any potential wetlands or waters observed as encountered while surveying for WAGS, wildlife and habitat, and rare plants. NWI and NHD spatial data were included on digital field maps to inform this effort.

4.0 Results

4.1 West

4.1.1 Washington Ground Squirrels

Biologists recorded one active WAGS colony (Colony 1; Figure 2, Photos 1-3) within Wheatridge West. The initial observation was an audio detection at the west side of the colony. Nineteen burrows were identified, with scat occurring at three burrows. Calling was continuous throughout the delineation process. Burrows were scattered across the area, with no more than five in a single location. The habitat where the colony is located was the highest quality subsection of the area surveyed, with high native and non-native bunch grass components. No other areas of WAGS activity were noted in the Wheatridge West.

4.1.2 Wildlife and Habitat

4.1.2.1 Habitat Categorization

A large area south of OR-207 was recategorized from Category 6 dryland wheat to Category 4 revegetated (Figure 3, Photo 4). This area is characterized by a high cheatgrass (*Bromus tectorum*) and annual fescue (*Vulpia sp.*) component. Non-native crested wheatgrass (*Agropyron cristatum*) was the only bunchgrass present. Rabbitbrush (*Chrysothamnus viscidiflorus*, *Ericameria nauseosa*), common yarrow (*Achillea millefolium*) and blue flax (*Linum perenne*) were scattered throughout the area.

A small area west of Bombing Range Road was recategorized from Category 4 annual grassland to Category 6 other (Figure 3, Photo 5). The area was a gravel yard with a thin cover of cheatgrass. Rabbitbrush was scattered along the edges.

Following field surveys, the active WAGS colony mapped in Wheatridge West was buffered by a 785-foot Category 1 buffer in suitable WAGS habitat (i.e., excluding Category 6 habitat), which was additionally buffered by a 4,921-foot buffer of Category 2 habitat in suitable WAGS habitat (Figure 3, Photo 3). ODFW Big Game Winter Range (ODFW 2013) was determined to not intersect the Project.

4.1.2.2 Special Status Wildlife Species

In addition to WAGS, the biologists observed five special status wildlife species during surveys (Table 2). One Swainson's hawk nest was found approximately 250 feet outside of the Project, near the corner of OR-207 and Strawberry Lane. An unused nest was found on Kilkenny Road, east of the Project, with a Swainson's hawk nearby.

One Swainson's hawk was observed near the corner of OR-207 and Grieb Lane (Figure 2). An adult ferruginous hawk was observed interacting with a Swainson's hawk approximately 1 mile west of the nests noted above, near OR-207, within a quarter-mile of a previous Swainson's hawk observation. A Loggerhead shrike nest was located inside the survey area just south of Juniper Road (Photo 6), with two birds nearby. Another pair of loggerhead shrikes were noted outside the Project near the corner of OR-207 and Grieb Lane. Grasshopper sparrows were noted throughout the Project.

Table 2. Special Status Wildlife Species Observed at Wheatridge West

| Scientific Name | Common Name | Taxa | Federal ¹ | Oregon ² |
|------------------------------|---------------------|------|----------------------|---------------------|
| <i>Ammodramus savannarum</i> | Grasshopper sparrow | Bird | - | S |
| <i>Buteo regalis</i> | Ferruginous hawk | Bird | BCC | SC |
| <i>Buteo swainsoni</i> | Swainson's hawk | Bird | - | S |
| <i>Lanius ludovicianus</i> | Loggerhead shrike | Bird | BCC | S |

| Scientific Name | Common Name | Taxa | Federal ¹ | Oregon ² |
|---|----------------------------|--------|----------------------|---------------------|
| <i>Uroditellus washingtoni</i> | Washington ground squirrel | Mammal | SOC | E |
| 1. Federally Status: SOC = Species of Concern, BCC = Bird of Conservation Concern. 2. Oregon Department of Fish and Wildlife Status in the Columbia Plateau: E = Endangered, SC = Critical Sensitive Species, S = Sensitive Species. | | | | |

4.1.3 Rare Plants

Rare plant surveys were completed within the Project on May 2 and May 3. The rare plant surveys were conducted by a single botanist working independently of the biologists conducting WAGS, wildlife, and habitat surveys, to enable targeted searches for rare plants to be conducted in the locations most likely to support target species. Overall, the survey areas contained an abundance of non-native species, and showed evidence of disturbance from agricultural activities. As a result, there was limited habitat likely to support target species.

No federal or state endangered, threatened, or candidate plant species were observed within the Project.

4.1.4 Noxious Weeds

Tetra Tech recorded two ODA-listed (ODA 2017) noxious weed species within Wheatridge West, yellow starthistle and diffuse knapweed (Table 3). These noxious weeds were most abundant in disturbed, open areas.

Table 3. Noxious Weed Species Observed at Wheatridge West

| Scientific Name | Common Name | Status ¹ | Frequency |
|---|--------------------|---------------------|---|
| <i>Centaurea diffusa</i> | diffuse knapweed | B | Scattered medium sized patches in disturbed open areas. |
| <i>Centaurea solstitialis</i> | yellow starthistle | B | Scattered, large patches in disturbed open areas. |
| 1. "B" designated weeds: Weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties. "(ODA 2013). | | | |

4.1.5 Wetlands and Other Jurisdictional Waters

Biologists confirmed three potential ephemeral streams that were dry at the time of survey (Figure 3); the first along Juniper Road (Photo 7), another along Little Juniper Canyon (Photo 8), and a third cutting under OR-207 through a culvert on the west side of the survey area. Other streams mapped by NHD were not confirmed and are assumed to be present.

4.2 East

4.2.1 *Washington Ground Squirrels*

Biologists recorded one active WAGS colony (Colony 2, Figure 4, Photos 9–11). The surveyors heard calls as they approached burrows in this habitat, previously categorized as Category 4 native perennial grassland. The biologists found a total of fifty-seven WAGS burrows. Most are located along an ephemeral creek bank, but they continue to the east above the bank. The density of burrows decreases across the fence line but a few burrows were found on both sides of the two-track (Figure 4). The biologists found scat at a single burrow. They heard calls throughout the colony delineation particularly along the ephemeral stream bank.

Biologists recorded potential WAGS activity in two additional locations; but determined that these did not constitute confirmed active colonies. Area 3 (Figure 4, Photo 12) was identified while confirming two areas of Category 4 annual grassland habitat, and was surrounded by Category 6 dryland wheat fields. The biologists heard two faint calls in the larger tract of Category 4 annual grassland habitat and searched the area for burrows. The biologists observed three small burrows that were overgrown with vegetation, and determined these burrows were likely inactive. The biologists continued searching the area where the two initial faint calls were heard, and re-searched the smaller patch of habitat to the south, but no more potential burrows were found, no more calls were heard, and no scat was found. The median dispersal distance for a male WAGS is approximately 1.5 kilometers (Klein 2005), so it is possible that the surveyors encountered WAGS dispersing from nearby, active WAGS colonies. The weather conditions were conducive to hearing sounds at long distances, with winds averaging 2 miles per hour throughout the survey period on May 3. As a result, the biologists determined that the calls at Area 3 likely originated from an individual located beyond the survey areas, or dispersing from a nearby colony.

Area 4 (Figure 4, Photos 13–15) was identified while traversing a Category 6 dryland wheat field, and approaching Category 3 native perennial grassland habitat. The biologists heard a faint call two times, and subsequently encountered five burrows. The burrows were located in a narrow strip of Category 6 dryland wheat field that was fallow, mainly consisting of wheat stubble. The burrows were located approximately 110 feet from the edge of the Category 3 habitat, along the south edge of Wheatridge East. The biologists completed searching the Category 3 areas proximate to where they were when they heard these calls and observed the burrows. Two possible burrows were found (Photos 16, 17). One had webs across the opening, and hence was considered inactive. The other seemed small for WAGS, but appeared active. No scat was observed, and no calls were heard again. Similar to the previous area, the biologists determined that the calls possibly originated from an individual located beyond the Project, or dispersing from another colony.

4.2.2 Wildlife and Habitat

4.2.2.1 Habitat Categorization

In the Wheatridge East, a small area east of the WAGS colony was recategorized from Category 3 native perennial grassland to Category 4 exotic annual grassland (Figure 5, Photo 18) due to the dominant presence of cheatgrass, but much of this area was recategorized to Category 1 due to the proximity of Colony 2. Only one active WAGS colony was located and confirmed. A 785-foot buffer, clipped to Category 6 habitat is shown in Figure 5.

4.2.2.2 Special Status Wildlife Species

Surveyors observed four special-status species within the Wheatridge East (Table 4). While traversing the Category 6 (dryland wheat stubble field in the center of the Project, the biologists encountered a large burrow consistent with potential burrowing owl activity (Figure 4; Photos 19, 20). The biologists noted whitewash on the mound outside the burrow, but found no pellets, bone fragments, or feathers. Coyote scat was also observed on this mound.

Four long-billed curlews were observed near the two-track, and grasshopper sparrows were also noted throughout the area. A sign characteristic of loggerhead shrike food-caching behavior (a grasshopper impaled on a stick) was observed inside the WAGS colony.

Table 4. Special Status Wildlife Species Observed at Wheatridge East

| Scientific Name | Common Name | Taxa | Federal Status | State Status |
|-------------------------------|----------------------------|--------|----------------|--------------|
| <i>Ammodramus savannarum</i> | Grasshopper sparrow | Bird | – | S |
| <i>Athene cunicularia</i> | Burrowing owl | Bird | SOC | SC, CS |
| <i>Numenius americanus</i> | Long-billed curlew | Bird | BCC | SC |
| <i>Urocyon v. washingtoni</i> | Washington ground squirrel | Mammal | SOC | E |

1. Federally Status: SOC = Species of Concern, BCC = Bird of Conservation Concern.

2. Oregon Department of Fish and Wildlife Status in the Columbia Plateau: E = Endangered, SC = Critical Sensitive Species, S = Sensitive Species.

4.2.3 Rare Plants

Rare plant surveys were completed within Wheatridge East on May 2 and May 3. The rare plant surveys were conducted by a single botanist working independent of the biologists conducting WAGS, wildlife and habitat surveys, to enable targeted searches for rare plants to be conducted in the locations most likely to support target species. Overall, the survey areas contained an abundance of non-native species, and showed evidence of disturbance from agricultural activities. As a result, there was limited habitat likely to support target species.

No federal or state endangered, threatened, or candidate plant species were observed within the survey areas.

4.2.4 Noxious Weeds

Tetra Tech recorded three ODA-listed (ODA 2017) noxious weed species within the survey areas (Table 5). Two noxious weed species were abundant throughout the survey areas: yellow starthistle and diffuse knapweed. These noxious weeds were most abundant in disturbed open areas. One small infestation of a *Carduus* sp. was found.

Table 5. Noxious Weed Species Observed at Wheatridge East

| Scientific Name | Common Name | Status ¹ | Frequency |
|--|-----------------------------------|---------------------|---|
| <i>Carduus</i> sp. | musk thistle or plumeless thistle | A or B | Small infestation in disturbed open area at base of small rise, on the east side of a road. |
| <i>Centaurea diffusa</i> | diffuse knapweed | B | Scattered medium sized patches in disturbed open areas. |
| <i>Centaurea solstitialis</i> | yellow starthistle | B | Scattered, large patches in disturbed open areas. |
| 1. "A" designated weeds: Weeds of known economic importance which occur in the state in small enough infestations to make eradication/containment possible; or which are not known to occur, but their presence in neighboring states makes future occurrence in Oregon seem imminent. "B" designated weeds: Weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties" (ODA 2013). | | | |

4.2.5 Wetlands and Other Jurisdictional Waters

Biologists confirmed one potential ephemeral stream in the WAGS colony area (Figure 5, Photo 21), that was dry at the time of survey. Other streams mapped by NHD were not confirmed, and are assumed to be present.

5.0 Summary and Recommendations

Significant findings included two WAGS colonies; one in Wheatridge West, and one in Wheatridge East. These areas will be classified as Category 1 habitat, with surrounding buffers in contiguous habitat being classified as Category 2. Two additional areas of possible WAGS activity were found in Wheatridge East, but biologists determined that these did not constitute confirmed active colonies. Tetra Tech conducted complete protocol-level WAGS surveys at Wheatridge West.

One large area of previously defined Category 6 dryland wheat habitat south of OR-207 was found to have been revegetated, and was recategorized as Category 4 annual grassland. Smaller areas of habitat were also recategorized, including buffers around the newly located WAGS colonies.

Surveyors observed wildlife species of special concern, including Swainson's hawks (*Buteo swainsoni*), ferruginous hawks (*Buteo regalis*), loggerhead shrikes (*Lanius ludovicianus*), grasshopper sparrows (*Ammodramus savannarum*), and long-billed curlews (*Numenius americanus*). One possible burrowing owl (*Athene cunicularia*) burrow was found. Surveyors also found one active Swainson's hawk nest, and a Swainson's hawk was observed near an unused nest. One loggerhead shrike nest was found.

No rare plants were found. Tetra Tech recorded three ODA-listed (ODA 2017) noxious weed species within the two survey areas. Two noxious weed species were abundant throughout the survey areas: yellow starthistle (*Centaurea solstitialis*) and diffuse knapweed (*Centaurea diffusa*). These noxious weeds were most abundant in disturbed, open areas. One small infestation of *Carduus* sp. was identified in Wheatridge East.

Tetra Tech recommends that protocol-level WAGS surveys be conducted on Wheatridge East, and that a formal wetland delineation survey be conducted in order to quantify impacts to wetlands/waters or avoid them entirely.

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Figures

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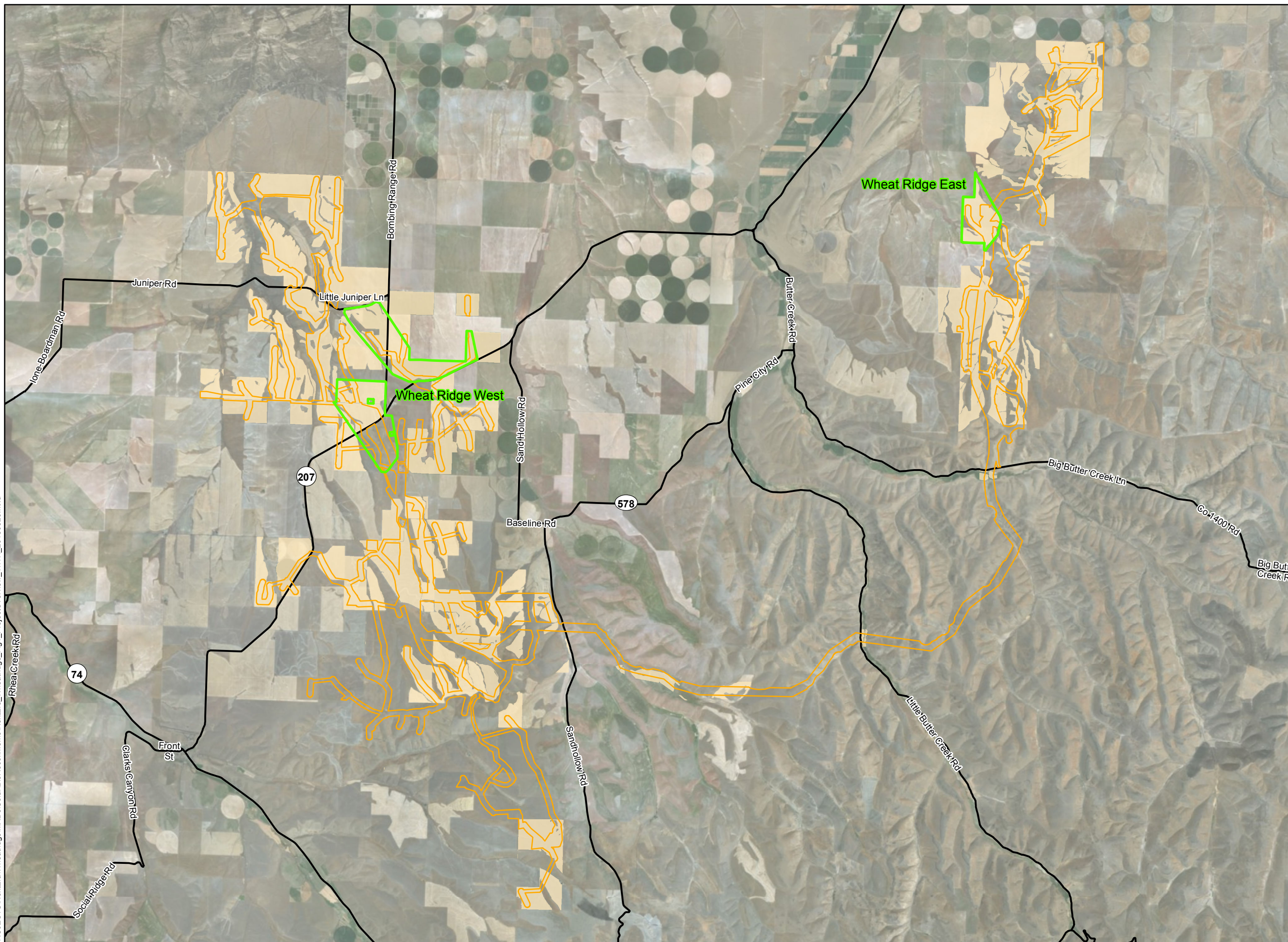
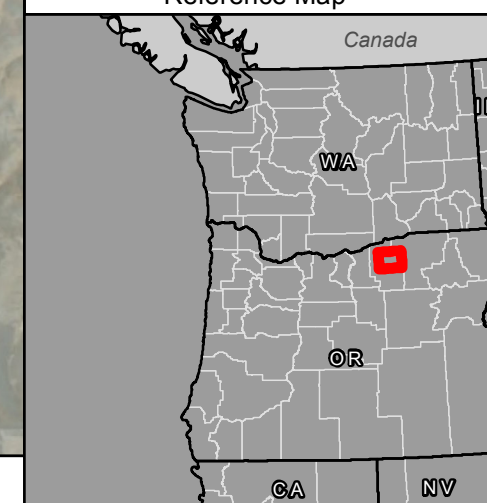
Project Overview

MORROW AND UMATILLA COUNTIES, OR

-  Survey Areas
-  Wheatridge Wind Energy Facility Site Boundary
-  Ag Land
-  Secondary Road



Reference Map



1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

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Attachment 1. Potentially Occurring Special Status Species

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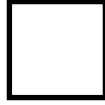
Attachment 1. Potentially Occurring Special Status Species

| Scientific Name | Common Name | Taxa | Federal¹ | Oregon² |
|--|--|-------------|----------------------------|---------------------------|
| <i>Accipiter gentilis</i> | Northern goshawk | Bird | SOC | - |
| <i>Agelaius tricolor</i> | Tricolored blackbird | Bird | SOC, BCC | - |
| <i>Ammodramus savannarum</i> | Grasshopper sparrow | Bird | - | S, CS |
| <i>Aquila chrysaetos</i> | Golden eagle | Bird | BGEPA, BCC | - |
| <i>Artemisiospiza nevadensis</i> | Sagebrush sparrow | Bird | - | SC, CS |
| <i>Athene cunicularia</i> | Burrowing owl | Bird | SOC | SC, CS |
| <i>Buteo regalis</i> | Ferruginous hawk | Bird | SOC, BCC | CS |
| <i>Buteo swainsoni</i> | Swainson's hawk | Bird | - | S, CS |
| <i>Chrysemys picta</i> | Western painted turtle | Reptile | - | SC, CS |
| <i>Contopus cooperii</i> | Olive-sided flycatcher | Bird | SOC | - |
| <i>Cottus marginatus</i> | Margined sculpin | Fish | SOC | - |
| <i>Empidonax traillii</i> | Willow flycatcher | Bird | SOC, BCC | - |
| <i>Falco peregrinus</i> | Peregrine falcon | Bird | BCC | |
| <i>Haliaeetus leucocephalus</i> | Bald eagle | Bird | BGEPA, BCC | - |
| <i>Icteria virens</i> | Yellow-breasted chat | Bird | SOC | - |
| <i>Lampetra tridentata</i> | Pacific lamprey | Fish | SOC | S, CS |
| <i>Lanius ludovicianus</i> | Loggerhead shrike | Bird | BCC | S, CS |
| <i>Melanerpes lewis</i> | Lewis's woodpecker | Bird | BCC | SC, CS |
| <i>Numenius americanus</i> | Long-billed curlew | Bird | BCC | SC, CS |
| <i>Oncorhynchus mykiss</i> | Steelhead (middle Columbia River ESU summer run) | Fish | SOC | SC, CS |
| <i>Oncorhynchus mykiss gairdneri</i> | Inland Columbia Basin redband trout | Fish | SOC | CS |
| <i>Oreortyx pictus</i> | Mountain quail | Bird | SOC | - |
| <i>Picoides albolarvatus</i> | White-headed woodpecker | Bird | SOC, BCC | - |
| <i>Salvelinus confluentus</i> | Bull trout | Fish | T | SC, CS |
| <i>Sceloporus graciosus</i> | Sagebrush lizard | Reptile | SOC | S, CS |
| <i>Urocitellus washingtoni</i> | Washington ground squirrel | Mammal | SOC | E, CS |
| (OCS 2016, ODFW 2016, ORBIC 2016, USFWS 2016, USFWS 2008) 1. Federally Status: SOC = Species of Concern, BCC = Bird of Conservation Concern. 2. Oregon Department of Fish and Wildlife Status in the Columbia Plateau: E = Endangered, SC = Critical Sensitive Species, S = Sensitive Species. | | | | |

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Attachment 2. Habitat Categorization Field Datasheet

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WHEATRIDGE I HABITAT CATEGORIZATION**HABITAT CATEGORY**

Date _____

Surveyor _____

Site description:**EFSC habitat type/subtype:** (circle one habitat type and one subtype):**Upland grassland, shrub-steppe and shrubland:** Eastside grassland(EG)/ Shrub-steppe(SS)**Agriculture, pasture, and mixed environs:** CRP lands(CR)/ Orchards, vineyards, wheat fields, other row crops, irrigated poplar plantations(AG)/ Irrigated pastures and hay meadows(PA)**Cliffs, caves and talus(CT)****Urban and mixed environs(UR)****Open water-lakes, rivers, streams:** Permanent ponds/lakes(PL)/ Seasonal ponds(SP)/ Perennial(PS)/ Intermittent(IS)**Riparian forest and shrubland complexes:** Eastside (interior) riparian(ER)**Wetlands:** Emergent wetlands(EW)/ Scrub-shrub wetlands(SW)/ Forested wetlands(FW)

Notes if confusion _____

Detailed vegetation measurements:**Dominant $\geq 20\%$, Subdominant 10-20%***Trees***

Dominant species _____

Subdominant species _____

Avg. dbh (in.) ____ Canopy closure (%) ____ No. subcanopy layers ____

Percent native cover _____ Percent bare ground or duff _____

Stumps present? Yes No

Snags present? Yes No Snag stage (circle one) 1 2 3 4 5 Abundance ____/ac

Forest phase per Brown: GF SHR OSP CSPA LGSAW OGDD

Shrubs

Dominant species _____

Subdominant species _____

Canopy closure (%) _____ No. subcanopy layers ____

Percent native cover _____ Percent bare ground ____

Percent cryptobiotic crust (if applicable)_____

Herbs & Grasses

Dominant species _____

Subdominant species _____

Canopy closure (%) _____ No. subcanopy layers ____

Percent native cover:_____ Percent bare ground or duff ____

Percent cryptobiotic crust (if applicable)_____

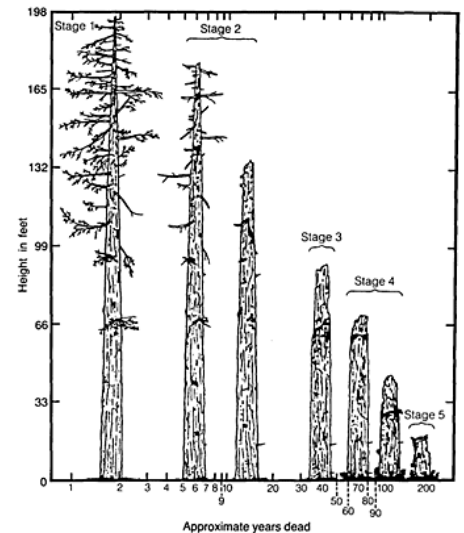


Figure 5.—Five stages of deterioration of Douglas-fir snags (adapted from Cline et al. 1980).

Other descriptions:

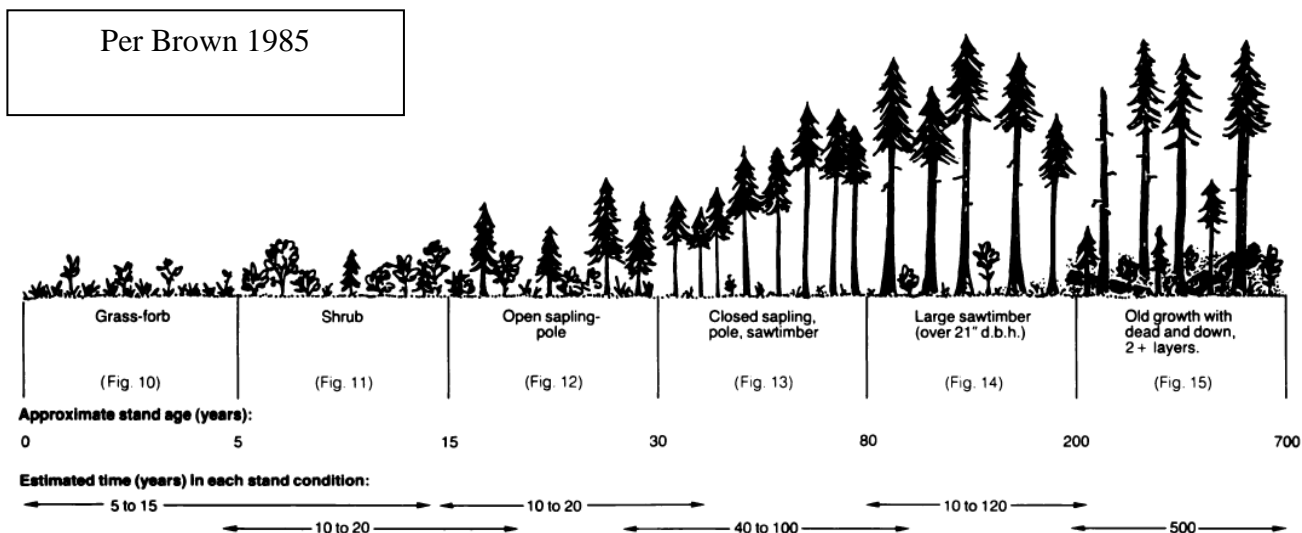
Disturbance type(s), check all that apply within the polygon, and for disturbances outside but in view of the polygon, insert the estimated distance in meters between the polygon edge and the disturbance:

| | | |
|---|---|---|
| <input type="checkbox"/> Grazing | <input type="checkbox"/> Thinning | <input type="checkbox"/> Wind Farm |
| <input type="checkbox"/> Invasive plants | <input type="checkbox"/> Quarry | <input type="checkbox"/> Fire |
| <input type="checkbox"/> Clearcut Logging | <input type="checkbox"/> Residence or Farm | <input type="checkbox"/> Other Building |
| <input type="checkbox"/> Railroad | <input type="checkbox"/> Communications Tower | <input type="checkbox"/> Campground |
| <input type="checkbox"/> Dirt Road | <input type="checkbox"/> Gravel Road | <input type="checkbox"/> Asphalt road |
| <input type="checkbox"/> Row Crop | <input type="checkbox"/> Urban Area | <input type="checkbox"/> Erosion |
| <input type="checkbox"/> Recreation, if so what kind? _____ | | Other (please specify) _____ |

Any sensitive species seen or habitat specifically noted (if yes, please explain)? Yes No

Any special features (for example: caves, mine openings, cliffs, rimrock, rock outcrops, talus slopes, abandoned buildings, large snags, abandoned wood bridges, balds and bluffs, wetland habitats (if yes, please explain)? Yes No

Any additional notes:



Attachment 3. Common Vascular Plant Species Observed During 2018 Field Surveys

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Attachment 1. Potentially Occurring Special Status Species

| Scientific Name (Synonym) | Common Name | Native or Introduced? ¹ | Notes |
|---|---------------------------------------|---|--------------------------|
| <i>Achillea millefolium</i> | Common yarrow | N | |
| <i>Agropyron cristatum</i> | Crested wheatgrass | I | |
| <i>Amsinckia lycopoides</i> | Tarneck fiddleweed | N | |
| <i>Artemisia tridentata</i> ssp. <i>tridentata</i> | Basin big sagebrush | N | |
| <i>Astragalus lentiginosus</i> var. <i>lentiginosus</i> | Freckled milkvetch | N | |
| <i>Astragalus purshii</i> | Woodypod milkvetch | N | |
| <i>Balsamorhiza careyana</i> | Carey's balsamroot | N | |
| <i>Bromus arvensis</i> | Field brome | I | |
| <i>Bromus tectorum</i> | Cheatgrass | I | |
| <i>Centaurea solstitialis</i> | Yellow star-thistle | I | ODA Noxious Weed, B List |
| <i>Chorispota tenella</i> | Crossflower | I | |
| <i>Chrysothamnus viscidiflorus</i> | Yellow rabbitbrush, green rabbitbrush | N | |
| <i>Collinisa parvifolia</i> | Maiden blue-eyed Mary | N | |
| <i>Draba verna</i> | Spring draba | N | |
| <i>Ericameria nauseosa</i> | Rubber rabbitbrush | N | |
| <i>Erigeron filifolius</i> | Threadleaf fleabane | N | |
| <i>Erigeron pumilis</i> | Shaggy fleabane | N | |
| <i>Eriogonum strictum</i> ssp. <i>proliferum</i> | Blue Mountain buckwheat | N | |
| <i>Erodium cicutarium</i> | Redstem stork's bill | I | |
| <i>Gutierrezia sarothrae</i> | Broom snakeweed | N | |
| <i>Hesperostipa comata</i> | Needle and thread | N | |
| <i>Lactuca serriola</i> | Prickly lettuce | I | |
| <i>Linum perenne</i> | Blue flax | N | |
| <i>Lomatium grayi</i> | Gray's biscuitroot | N | |
| <i>Lomatium macrocarpum</i> | Bigseed biscuitroot | N | |
| <i>Machaeranthera canescens</i> | Hoary tansyaster | N | |
| <i>Phlox longifolia</i> | Longleaf phlox | N | |
| <i>Plantago patagonica</i> | Woolly plantain | N | |
| <i>Plectritis macrocera</i> | Longhorn plectritis | N | |
| <i>Poa bulbosa</i> | Bulbous bluegrass | I | |
| <i>Poa secunda</i> | Sandberg bluegrass | N | |
| <i>Pseudoroegneria spicata</i> | Bluebunch wheatgrass | N | |

Attachment 1. Potentially Occurring Special Status Species

| Scientific Name (Synonym) | Common Name | Native or Introduced? ¹ | Notes |
|---|----------------------|---|--------------|
| <i>Pteryxia terebinthina</i> | Turpentine wavewing | N | |
| <i>Salsola kali</i> | Russian thistle | I | |
| <i>Sisymbrium altissimum</i> | Tall tumbled mustard | I | |
| <i>Vulpia bromoides</i> | Brome fescue | I | |
| <i>Vulpia microstachys</i> | Small fescue | N | |
| Nomenclature follows the Angiosperm Phylogeny Group III system, as used by the Oregon Flora Project (http://www.oregonflora.org/checklist.php). 1. N=Native, I=Introduced. | | | |

Attachment 4. Survey Photolog

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Photo 1. Colony 1 burrow.



Photo 2. Colony 1 scat.



Photo 3. Colony 1 habitat.



Photo 4. Large revegetated area south of OR-207.



Photo 5. Gravel yard.



Photo 6. Loggerhead shrike nest.



Photo 7. Ephemeral stream south of Juniper Road.



Photo 8. Ephemeral stream along Little Juniper Canyon.



Photo 9. Colony 2 habitat.



Photo 10. Colony 2 burrows.



Photo 11. Colony 2 burrow with scat.



Photo 12. Area 3: burrow.



Photo 13. Area 4: burrow in Category 6 dryland wheat.



Photo 14. Area 4: burrows in Category 6 dryland wheat.



Photo 15. Area 4: dryland wheat field.



Photo 16. Area 4: possible burrow in Category 3 habitat.



Photo 17. Area 4: possible burrow in Category 3 habitat.



Photo 18. Heavily grazed area dominated by cheatgrass.



Photo 19. Possible burrowing owl burrow with whitewash.



Photo 20. Possible burrowing owl burrow.



Photo 21. Ephemeral stream bed near Colony 2.

**Attachment P-2. Wheatridge 2019
Washington Ground Squirrel Surveys
Memo**

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MEMO

| | |
|------------------|---|
| To: | Sarah Esterson, Oregon Department of Energy |
| Cc: | Mike Pappalardo, NextEra; Carrie Konkol, Tetra Tech |
| From: | Matt Cambier, Tetra Tech |
| Date: | May 24, 2019 |
| Correspondence # | TTCES-PTLD-2019-074 |
| Subject: | Wheatridge 2019 Washington Ground Squirrel Surveys |

Introduction

This memo describes the Washington ground squirrel (*Uroditellus washingtoni* formerly *Spermophilus washingtoni*; WAGS) surveys that occurred in spring of 2019 supporting NextEra Energy Resources, LLC's (NextEra) Wheatridge Wind Energy Facility (Project), located in Morrow and Umatilla counties, Oregon. NextEra contracted with Tetra Tech, Inc. (Tetra Tech) to conduct these surveys for two items:

1. The Project wind facility pre-construction survey (as per conditions PRE-FW-01 – Habitat Categorization and PRE-TE-01 – Surveys To Determine WAGS Boundaries); and
2. Surveys as described in Request for Amendment #4 (RFA 4) for the which was submitted to the Oregon Energy Facility Siting Council (EFSC).

A full technical report will be prepared for the entire 2019 pre-construction compliance survey. This memo addresses the surveys performed in support of RFA 4.

Methods

Tetra Tech conducted surveys in accordance with the Preconstruction Threatened and Endangered Species Condition 1, as presented in the Third Amended Site Certificate for the Wheatridge Wind Energy Facility (submitted to EFSC in December 2018). The condition reads:

Prior to construction, the certificate holder shall determine the boundaries of Category 1 Washington ground squirrel habitat. The certificate holder shall hire a qualified professional biologist who has experience in detection of Washington ground squirrel to conduct

preconstruction surveys using a survey protocol approved by the department in consultation with ODFW. The biologist shall survey all areas of suitable habitat within 1,000 feet of any ground disturbing activity. Ground disturbing activity refers to any potential impact, whether permanent or temporary. The protocol surveys shall be conducted in the active squirrel season (March 1 to May 31) prior to construction commencement. The protocol survey is valid for three years. If construction begins within three years of conducting the protocol survey, but not within one year of the protocol survey, the certificate holder shall conduct a pre-construction survey only within areas of suitable Washington ground squirrel habitat where ground disturbing activity would occur.

The certificate holder shall provide written reports of the surveys to the department and to ODFW and shall identify the boundaries of Category 1 Washington ground squirrel (WGS) habitat. The certificate holder shall not begin construction within suitable habitat until the identified boundaries of Category 1 WGS habitat have been approved by the department, in consultation with ODFW.

The certificate holder shall avoid any permanent or temporary disturbance in all Category 1 WGS habitat. The certificate holder shall ensure that these sensitive areas are correctly marked with exclusion flagging and avoided during construction.

Tetra Tech followed a methodology generally consistent with a protocol developed by Morgan and Nugent (1999)¹ and is consistent with prior surveys conducted onsite. Habitat not suitable for WAGS surveys includes developed areas, areas of active agriculture, rocky or talus habitat, or other non-suitable soil conditions.

Two phases of surveys were completed in 2019 specific to the solar facilities being added to the site certificate under RFA 4. The first phase of surveys occurred April 10–12. The second phase of surveys occurred May 3–5. Surveys were conducted in the morning, beginning at least 1 hour after sunrise to allow for temperatures to increase sufficiently to support WAGS activity, and typically ending in the early afternoon. Pedestrian surveys were conducted by biologists walking meandering transects spaced at approximately 50–70 meters. Biologists documented signs (burrow openings, scat, sign of fresh activity, sightings, and vocalizations) of WAGS along the transects. When sign was identified, the area immediately surrounding the sign was intensively searched by walking spirally around the confirmed detection, outwards for 35 meters to the next outermost transect line, in order to provide sufficient coverage to determine the extent of any active site or colony.

If a colony was identified, the following information was recorded: habitat type, the locations of activity centers and colony boundaries using a GPS unit, the approximate number of burrows, how

¹ Morgan, R.L., and M. Nugent. 1999. Status and Habitat Use of the Washington Ground Squirrel (*Spermophilus washingtoni*) on State of Oregon Lands, South Boeing, Oregon in 1999. Report to the Oregon Department of Fish and Wildlife.

the colony was first discovered (e.g., sighting, vocalization, sign such as scat at a fresh burrow), and a couple of representative photographs of burrows, scat, and habitat at active colonies.

The second phase of surveys followed the same method as the first phase, except that transects were offset from the first phase of survey, and potential burrows identified in the first phase were approached from a different direction, where feasible. The approach direction was changed to account for topography and prevailing winds, which may affect detectability of WAGS from a given direction.

Results

Tetra Tech confirmed activity at a known WAGS colony identified during 2018 surveys (Colony 1) and described in Attachment P-1 of Exhibit P for RFA 4. No activity was observed during the first phase of surveys at Colony 1 in 2019; however, activity was confirmed during the second phase of surveys, as a few calls were recorded. Colony 1 was not as active in 2019 as it was in 2018, which could be due to annual fluctuations in environmental conditions and the colony being observed earlier in the survey season in 2019 compared to 2018. No other WAGS activity was observed during the 2019 survey.

Figure 1 shows the location of Colony 1, as well as observations of other special-status wildlife species. Figure 1 is an update to Figure 2 of Attachment P-1 of RFA 4. Figure 1 shows that 2019 WAGS surveys covered the remaining portion of the Amended Site Boundary that was not covered by 2018 WAGS surveys. It was assumed that ground disturbing activity associated with the solar facility could occur anywhere within the Amended Site Boundary. Therefore, the 2019 survey area extended 1,000 feet beyond the Amended Site Boundary to be in compliance with Threatened and Endangered Species Condition 1. Figure 1 does not show the 2019 WAGS survey areas associated with the wind portion of the facility which overlaps the Amended Site Boundary. The 2019 WAGS survey for the wind facilities is still on-going. The entire 2019 WAGS survey effort will be documented in a forthcoming technical report as required for pre-construction compliance.

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Attachment P-3. Draft Wildlife Monitoring and Mitigation Plan

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Wheatridge Wind Energy Project

Draft

Wildlife Monitoring and Mitigation Plan

Prepared for:
Wheatridge Wind Energy, LLC
245 W. Main Street, Suite 200
Ione, Oregon 97843

Prepared by:



Northwest Wildlife Consultants, Inc.
815 NW 4th St.
Pendleton, Oregon 97801

December 14, 2014

Updated by:



Tetra Tech, Inc.
1750 SW Harbor Way, Suite 400
Portland, Oregon 97201

June 2019

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. As part of Request for Amendment 4 (RFA 4) to the Facility Site Certificate through the Energy Facility Siting Council (EFSC), Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add up to 150 MW of photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. RFA 4 would expand the Approved Site Boundary by 2,294.3 acres (to a total of 14,264.3 acres) to provide for solar generation and energy storage facilities. A detailed Facility description can be found in Exhibit B of the Facility Application for Site Certificate (ASC) and RFA 4, and detailed maps of the Facility site boundary and associated and supporting facilities can be found in Exhibit C.

This document provides primary concepts for meeting the operations phase wildlife monitoring and mitigation needs and will be finalized by the Oregon Department of Energy (ODOE) into a formal Wildlife Monitoring and Mitigation Plan (WMMP). The WMMP will take into account monitoring recommendations from the Oregon Department of Fish and Wildlife (ODFW) and the United States Fish and Wildlife Service (USFWS).

The concepts provided herein are consistent with approved plans in place for other Oregon wind projects, in particular those that are permitted through the State process and the Energy Facility Siting Council. For most such plans in the Oregon Columbia Plateau, the objective has been to provide information useful for determining the impacts of construction and operation of wind energy facilities on wildlife in general—and on birds and bats in particular. As a result of such studies, a wealth of information is available, and the species and relative proportions of birds and bats impacted by wind development in the Oregon Columbia Plateau is now well established.

For this reason, and because multiple-species monitoring has often led to a suboptimal understanding of impacts to particular species of special conservation concern, the USFWS has established guidelines (USFWS, 2012) to facilitate the identifying and addressing such species and the potential impacts to them. For the Facility, pre- construction information reviews and field investigations (Gerhardt et al., 2014) followed those guidelines, as did subsequent siting and micro-siting of facilities (Exhibits P and Q of the Wheatridge ASC and RFA 4). The conclusion of this process led to discussions with USFWS centering on the potential risk of the Facility to golden eagle, discussions that likely will lead to an Eagle Conservation Plan and an Eagle Take Permit. In that case, the methods described in this WMMP (especially fatality monitoring and mitigation) may—prior to the beginning of construction of the Facility—be tailored specifically to golden eagles and other large raptors.

This plan describes wildlife monitoring that the Certificate Holder shall conduct during operation of the Facility. Monitoring objectives of the formal study are to determine whether the facility causes significant fatalities of birds and bats and to determine whether the facility results in a loss of

habitat quality. Objectives of continued recording, handling and reporting of incidentally discovered injured or dead wildlife are to meet the standards specified in any other requirement (federal, state, county) for understanding and documenting species found over time.

For the formal study, the Certificate Holder shall use experienced and properly trained personnel (the “investigators”) to conduct the monitoring required under this plan. The professional qualifications of the investigators are subject to approval by the ODOE. For all components of this plan except the life-of-project Wildlife Reporting and Handling System, the Certificate Holder shall hire independent third-party investigators (not employees of the Certificate Holder) to perform monitoring tasks.

The Wildlife Monitoring and Mitigation Plan for the Facility has the following components:

1. Fatality monitoring program including:
 - a. Removal trials
 - b. Searcher efficiency trials
 - c. Fatality search protocol
 - d. Statistical analysis
2. Raptor nesting surveys
3. Wildlife Reporting and Handling System

Component #1 is of shorter duration whereas #2 is periodic for a longer period and #3 if for the life of the Facility. Based on the results of the monitoring program, mitigation of significant impacts may be required. The selection of the mitigation actions should allow for flexibility in creating appropriate responses to monitoring results that cannot be known in advance. If the Department determines that mitigation is needed, the Certificate Holder shall propose appropriate mitigation actions to ODOE and shall carry out mitigation actions approved by ODOE, subject to review by the EFSC.

2.0 Fatality Monitoring – Wind Facility

2.1 Definitions and Methods

2.1.1 Seasons

This plan uses the following dates for defining seasons:

| Season | Dates |
|------------------|-------------------------|
| Spring Migration | March 16 to May 15 |
| Summer/Breeding | May 16 to August 15 |
| Fall Migration | August 16 to October 31 |
| Winter | November 1 to March 15 |

2.1.2 Search Plots

The investigators shall conduct fatality monitoring within search plots. The Certificate Holder, in consultation with the Oregon Department of Fish and Wildlife, shall select search plots based on a systematic sampling design that ensures that the selected search plots are representative of the habitat conditions in different parts of the site. Each search plot will contain one turbine. Search plots will be square or circular. Circular search plots will be centered on the turbine location; radius will be determined with regard to maximum blade tip height and species of concern. Square search plots will be of sufficient size to contain a circular search plot as described above. The Certificate Holder shall provide maps of the search plots to ODOE before beginning fatality monitoring at the facility. The Certificate Holder shall use the same search plots for each search conducted during a monitoring year.

2.1.3 Scheduling

Fatality monitoring will begin one month after commencement of commercial operation of the facility. Subsequent monitoring years will follow the same schedule (beginning in the same calendar month in the subsequent monitoring year).

In each monitoring year, the investigators shall conduct fatality monitoring searches at the rates of frequency shown below. Over the course of one monitoring year, the investigators will conduct 16 searches, as follows:

| Season | Frequency |
|------------------|-----------------------------------|
| Spring Migration | 2 searches per month (4 searches) |
| Summer/Breeding | 1 search per month (3 searches) |
| Fall Migration | 2 searches per month (5 searches) |
| Winter | 1 search per month (4 searches) |

2.1.4 Sample Size

The sample size for fatality monitoring is the number of turbines searched per monitoring year. The investigators shall conduct fatality monitoring during each monitoring year in search plots at one-

third of the turbines that are built or 50 turbines, whichever is greater. If fewer than 50 turbines are built, the Certificate Holder shall search all turbines.

2.1.5 Duration of Fatality Monitoring

The investigators shall perform one complete monitoring cycle during the first full year of facility operation (Year 1). At the end of the first year of monitoring, the Certificate Holder will report the results for joint evaluation by ODOE, the Certificate Holder, and ODFW. In the evaluation, the Certificate Holder shall compare the results for the Facility with the thresholds of concern described in Section 1(g) of this plan and with comparable data from other wind power facilities in the Columbia Basin, as available. If the fatality rates for the first year of monitoring at the Facility do not exceed any of the thresholds of concern and are within the range of the fatality rates found at other wind power facilities in the region, then the investigators will perform a second year of monitoring in Year 5 of operations.

If fatality rates for the first year of monitoring at the Facility materially exceed any of the thresholds of concern or the range of fatality rates found at other wind power facilities in the region, the Certificate Holder shall propose additional mitigation for ODOE and ODFW review within 6 months after reporting the fatality rates to the ODOE. Alternatively, the Certificate Holder may opt to conduct a second year of fatality monitoring immediately if the certificate holder believes that the results of Year 1 monitoring were anomalous. If the Certificate Holder takes this option, the investigators still must perform the monitoring in Year 5 of operations as described above.

2.2 Removal Trials

The objective of the removal trials is to estimate the length of time avian and bat carcasses remain in the search area. Estimates of carcass removal rates will be used to adjust carcass counts for removal bias. "Carcass removal" is the disappearance of a carcass from the search area due to predation, scavenging, or other means, such as farming activity.

The investigators shall conduct carcass removal trials within each of the seasons defined above during the first year of fatality monitoring. For each trial, the investigators shall use 10 to 15 carcasses of small- and large-bodied species. Trial carcasses shall be distributed within habitat categories and subtypes in proportion to their amounts within search plots.

After the first year of fatality monitoring, the investigators may reduce the number of removal trials and the number of removal trial carcasses during any subsequent year of fatality monitoring, subject to the approval of the Department. The investigators must show that the reduction is justified based on a comparison of the first year removal data with published removal data from nearby wind energy facilities.

The investigators shall use game birds or other legal sources of avian species as test carcasses for the removal trials, and the investigators may use carcasses found in fatality monitoring searches. The investigators shall select species with the same coloration and size attributes as species found within the site boundary. If suitable trial carcasses are available, trials during the fall season will

include several small brown birds to simulate bat carcasses. Legally obtained bat carcasses will be used if available.

Trial carcasses will be marked discreetly for recognition by searchers and other personnel. Carcasses will be placed in a variety of postures to simulate a range of conditions. For example, birds will be: (1) placed in an exposed posture (e.g., thrown over the shoulder),

(2) hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) or (3) partially hidden. The trial carcasses will be placed randomly within the carcass removal trial plots. Trial carcasses will be left in place until the end of the carcass removal trial.

An approximate schedule for assessing removal status is once daily for the first 4 days, and on days 7, 10, 14, 21, 28 and 35. This schedule may be adjusted depending on actual carcass removal rates, weather conditions and coordination with the other survey work. The condition of scavenged carcasses will be documented during each assessment, and at the end of the trial all traces of the carcasses will be removed from the site. Scavenger or other activity could result in complete removal of all traces of a carcass in a location or distribution of feathers and carcass parts to several locations. This distribution will not constitute removal if evidence of the carcass remains within an area similar in size to a search plot and if the evidence would be discernable to a searcher during a normal survey.

Before beginning removal trials for any subsequent year of fatality monitoring, the Certificate Holder shall report the results of the first year removal trials to ODOE and ODFW. In the report, the Certificate Holder shall analyze whether four removal trials per year, as described above, provide sufficient data to accurately estimate adjustment factors for carcass removal. The number of removal trials may be adjusted up or down, subject to the approval of ODOE.

2.3 Searcher Efficiency Trials

The objective of searcher efficiency trials is to estimate the percentage of bird and bat fatalities that searchers are able to find. The investigators shall conduct searcher efficiency trials on the fatality monitoring search plots in both grassland/shrub-steppe and cultivated agriculture habitat types. A pooled estimate of searcher efficiency may be used—if sample sizes are too small for some habitat types—to adjust carcass counts for detection bias.

The investigators shall conduct searcher efficiency trials within each of the seasons defined above during the years in which the fatality monitoring occurs. Each trial will involve approximately 4 to 15 carcasses. The searchers will not be notified of carcass placement or test dates. The investigators shall vary the number of trials per season and the number of carcasses per trial so that the searchers will not know the total number of trial carcasses being used in any trial. In total, approximately 80 carcasses will be used per year, or approximately 15 to 25 per season.

For each trial, the investigators shall use small- and large-bodied species. The investigators shall use game birds or other legal sources of avian species as test carcasses for the efficiency trials, and the investigators may use carcasses found in fatality monitoring searches. The investigators shall select species with the same coloration and size attributes as species found within the site

boundary. If suitable test carcasses are available, trials during the fall season will include several small brown birds to simulate bat carcasses.

Legally obtained bat carcasses will be used if available. The investigators shall mark the test carcasses to differentiate them from other carcasses that might be found within the search plot and shall use methods similar to those used to mark removal test carcasses as long as the procedure is sufficiently discreet and does not increase carcass visibility.

The Certificate Holder shall distribute trial carcasses in varied habitat in rough proportion to the habitat types within the facility site. On the day of a standardized fatality monitoring search (described below) but before the beginning of the search, investigators will place efficiency trial carcasses randomly within search plots (one to three trial carcasses per search plot) within areas to be searched. If scavengers appear attracted by placement of carcasses, the carcasses will be distributed before dawn.

Efficiency trials will be spread over the entire season to incorporate effects of varying weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a range of conditions. For example, birds will be: (1) placed in an exposed posture (thrown over the shoulder), (2) hidden to simulate a crippled bird or (3) partially hidden.

The number and location of the efficiency trial carcasses found during the carcass search will be recorded. The number of efficiency trial carcasses available for detection during each trial will be determined immediately after the trial by the person responsible for distributing the carcasses. Following plot searches, all traces of test carcasses will be removed from the site. If new searchers are brought into the search team, additional searcher efficiency trials will be conducted to ensure that detection rates incorporate searcher differences. The Certificate Holder shall include a discussion of any changes in search personnel and any additional detection trials in the reporting required under Section 4 of this plan.

Before beginning searcher efficiency trials for any subsequent year of fatality monitoring, the Certificate Holder shall report the results of the first year efficiency trials to ODOE and ODFW. In the report, the Certificate Holder shall analyze whether the efficiency trials as described above provide sufficient data to accurately estimate adjustment factors for searcher efficiency. The number of searcher efficiency trials for any subsequent year of fatality monitoring may be adjusted up or down, subject to the approval of ODOE.

2.4 Fatality Monitoring Search Protocol

The objective of fatality monitoring is to estimate the number of bird and bat fatalities that are attributable to facility operation as an indicator of the impact of the facility on habitat quality. The goal of bird and bat fatality monitoring is to estimate fatality rates and associated variances. The investigators shall perform fatality monitoring using standardized carcass searches according to the schedule described above.

Personnel trained in proper search techniques (“the searchers”) will conduct the carcass searches by walking concentric or parallel transects (with transect width determined by the species of

concern) within search plots. Search area and speed may be adjusted by habitat type after evaluation of the first searcher efficiency trial.

Searchers shall flag all avian or bat carcasses discovered. Carcasses are defined as a complete carcass or body part, 10 or more feathers or three or more primary feathers in one location. When parts of carcasses and feathers from the same species are found within a search plot, searchers shall make note of the relative positions and assess whether or not these are from the same fatality.

All carcasses (avian and bat) found during the standardized carcass searches will be photographed, recorded and labeled with a unique number. Searchers shall make note of the nearest two or three structures (turbine, power pole, fence, building or overhead line) and the approximate distance from the carcass to these structures. The species and age of the carcass will be determined when possible. Searchers shall note the extent to which the carcass is intact and estimate time since death. Searchers shall describe all evidence that might assist in determination of cause of death, such as evidence of electrocution, vehicular strike, wire strike, predation or disease. When assessment of the carcass is complete, all traces of it will be removed from the site.

Each carcass will be bagged and frozen for future reference and possible necropsy or (if the carcass is fresh and whole) for use in trials. A copy of the data sheet for each carcass will be kept with the carcass at all times. For each carcass found, searchers will record species, sex and age when possible, date and time collected, location, condition (e.g., intact, scavenged, feather spot) and any comments that may indicate cause of death. Searchers will photograph each carcass as found and will map the find on a detailed map of the search area showing the location of the wind turbines and associated facilities. The certificate holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The Certificate Holder shall coordinate collection of federally listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the U.S. Fish and Wildlife Service. The Certificate Holder shall obtain appropriate collection permits from ODFW and USFWS.

The investigators shall calculate fatality rates using the statistical methods described in Section (f), except that the investigators may use different notation or methods that are mathematically equivalent with prior approval of ODOE. In making these calculations, the investigators may exclude carcass data from the first search of each turbine plot (to eliminate possible counting of carcasses that were present before the turbine was operating).

The investigators shall estimate the number of avian and bat fatalities attributable to operation of the facility based on the number of avian and bat fatalities found at the facility site. All carcasses located within areas surveyed, regardless of species, will be recorded and, if possible, a cause of death determined based on blind necropsy results. If a different cause of death is not apparent, the fatality will be attributed to facility operation. The total number of avian and bat fatalities will be estimated by adjusting for removal and searcher efficiency bias.

On an annual basis, the Certificate Holder shall report an estimate of fatalities in eight categories: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) grassland birds, (6) nocturnal migrants, (7) state and federally listed threatened and endangered species and State Sensitive Species listed

under OAR 635-100-0040 and (8) bats. The Certificate Holder shall report annual fatality rates on both a per-MW and per-turbine basis.

2.5 Incidental Finds and Injured Birds

The searchers might discover carcasses incidental to formal carcass searches (e.g., while driving within the project area). For each incidentally discovered carcass, the searcher shall identify, photograph, record data and collect the carcass as would be done for carcasses within the formal search sample during scheduled searches. If the incidentally discovered carcass is found within a formal search plot, the fatality data will be included in the calculation of fatality rates. If the incidentally discovered carcass is found outside a formal search plot, the data will be reported separately. The Certificate Holder shall coordinate collection of incidentally discovered state endangered, threatened, sensitive or other state protected species with ODFW. The Certificate Holder shall coordinate collection of incidentally discovered federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

The Certificate Holder shall develop and follow a protocol for handling injured birds. Any injured native birds found on the facility site will be carefully captured by a trained project biologist or technician and transported to a qualified rehabilitation specialist approved by ODOE.¹ The Certificate Holder shall pay costs, if any, charged for time and expenses related to care and rehabilitation of injured native birds found on the site, unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

2.6 Statistical Methods for Fatality Estimates (Shoenfeld Estimator)

The estimate of the total number of wind facility-related fatalities is based on:

1. The observed number of carcasses found during standardized searches during the two monitoring years for which the cause of death is attributed to the facility.²
2. Searcher efficiency expressed as the proportion of planted carcasses found by searchers.
3. Removal rates expressed as the estimated average probability a carcass is expected to remain in the study area and be available for detection by the searchers during the entire survey period.

2.6.1 Definition of Variables

The following variables are used in the equations below:

c_i the number of carcasses detected at plot i for the study period of interest (e.g., one year) for which the cause of death is either unknown or is attributed to the facility

¹ Approved specialists include Lynn Tompkins (wildlife rehabilitator) of Blue Mountain Wildlife, a wildlife rehabilitation center in Pendleton, and the Audubon Bird Care Center in Portland. The Certificate Holder must obtain ODOE approval before using other specialists.

² If a different cause of death is not apparent, the fatality will be attributed to facility operation.

| | |
|-------------|--|
| n | the number of search plots |
| k | the number of turbines searched (includes the turbines centered within each search plot and a proportion of the number of turbines adjacent to search plots to account for the effect of adjacent turbines on the search plot buffer area) |
| \bar{c} | the average number of carcasses observed per turbine per year |
| s | the number of carcasses used in removal trials |
| s_c | the number of carcasses in removal trials that remain in the study area after 35 days |
| se | standard error (square of the sample variance of the mean) |
| t_i | the time (days) a carcass remains in the study area before it is removed |
| \bar{t} | the average time (days) a carcass remains in the study area before it is removed |
| d | the total number of carcasses placed in searcher efficiency trials |
| p | the estimated proportion of detectable carcasses found by searchers |
| I | the average interval between searches in days |
| $\hat{\pi}$ | the estimated probability that a carcass is both available to be found during a search and is found |
| m_t | the estimated annual average number of fatalities per turbine per year, adjusted for removal and observer detection bias |
| C | nameplate energy output of turbine in megawatts (MW) |

2.6.2 Observed Number of Carcasses

The estimated average number of carcasses (\bar{c}) observed per turbine per year is:

$$\bar{c} = \frac{\sum_{i=1}^n c_i}{k}$$

2.6.3 Estimation of Carcass Removal

Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean carcass removal time (t) is the average length of time a carcass remains at the site before it is removed:

$$\bar{t} = \frac{\sum_{i=1}^n t_i}{s - s_c}$$

This estimator is the maximum likelihood estimator assuming the removal times follow an exponential distribution and there is right-censoring of data. Any trial carcasses still remaining at 35 days are collected, yielding censored observations at 35 days. If all trial carcasses are removed before the end of the trial, then s_c is 0, and \bar{t} is just the arithmetic average of the removal times. Removal rates will be estimated by carcass size (small and large), habitat type and season.

2.6.4 Estimation of Observer Detection Rates

Observer detection rates (i.e., searcher efficiency rates) are expressed as p , the proportion of trial carcasses that are detected by searchers. Observer detection rates will be estimated by carcass size, habitat type and season.

2.6.5 Estimation of Facility-Related Fatality Rates

The estimated per turbine annual fatality rate (m_t) is calculated by:

$m_t = \frac{\bar{c}}{\hat{\pi}_t}$ Where $\hat{\pi}_t$ includes adjustments for both carcass removal (from scavenging and other means) and observer detection bias assuming that the carcass removal times t_i follow an exponential distribution. Under these assumptions, this detection probability is estimated by:

$$\hat{\pi}_t = \frac{\bar{t} \cdot p}{I} \cdot \left[\frac{\exp(I/\bar{t}) - 1}{\exp(I/\bar{t}) - 1 + p} \right]$$

The estimated per MW annual fatality rate (m) is calculated by:

$$m = \frac{m_t}{C}$$

The final reported estimates of m , associated standard errors and 90% confidence intervals will be calculated using bootstrapping (Manly 1997). Bootstrapping is a computer simulation technique that is useful for calculating point estimates, variances and confidence intervals for complicated test statistics. For each iteration of the bootstrap, the plots will be sampled with replacement, trial carcasses will be sampled with replacement, and \bar{c} , \bar{t} , p , $\hat{\pi}_t$ and m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap estimates is the estimated standard error. The lower 5th and upper 95th percentiles of the 5000 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

2.7 Nocturnal Migrant and Bat Fatalities

Differences in observed nocturnal migrant and bat fatality rates for lit turbines, unlit turbines that are adjacent to lit turbines and unlit turbines that are not adjacent to lit turbines will be compared graphically and statistically.

The Certificate Holder shall use a worst-case analysis to resolve any uncertainty in the results and to determine whether the data indicate that additional mitigation should be considered. ODOE may require additional, targeted monitoring if the data indicate the potential for significant impacts that cannot be addressed by worst-case analysis and appropriate mitigation.

Mitigation may be appropriate if fatality rates exceed a “threshold of concern.”³ For the purpose of determining whether a threshold has been exceeded, the Certificate Holder shall calculate the average annual fatality rates for species groups after each year of monitoring. Based on current knowledge of the species that are likely to use the habitat in the area of the facility, the following thresholds apply to the Facility:

| Species Group | Threshold of Concern (fatalities per MW) |
|---|---|
| Raptors (All eagles, hawks, falcons and owls, including burrowing owls.) | 0.09 |
| Raptor species of special concern (Swainson’s hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl.) | 0.06 |
| Grassland species (All native bird species that rely on grassland habitat and are either resident species occurring year round or species that nest in the area, excluding horned lark, burrowing owl and northern harrier.) | 0.59 |
| State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.) | 0.2 |
| Bat species as a group | 2.5 |

If the data show that a threshold of concern for an avian species group has been exceeded, the Certificate Holder shall implement mitigation if ODOE determines that mitigation is appropriate based on analysis of the data, consultation with ODFW, and consideration of any other significant information available at the time. In addition, ODOE may determine that mitigation is appropriate if fatality rates for individual avian or bat species (especially State Sensitive Species) are higher than expected and at a level of biological concern. If ODOE determines that mitigation is appropriate, the Certificate Holder, in consultation with ODOE and ODFW, shall propose mitigation measures designed to benefit the affected species. This may take into consideration whether the mitigation required or provided in conjunction with raptor nest monitoring, habitat mitigation, or other

³ The Council adopted “thresholds of concern” for raptors, grassland species, and state sensitive avian species in the Final Order on the Application for the Klondike III Wind Project (June 30, 2006) and for bats in the Final Order on the Application for the Biglow Canyon Wind Farm (June 30, 2006). As explained in the Klondike III order: “Although the threshold numbers provide a rough measure for deciding whether the Council should be concerned about observed fatality rates, the thresholds have a very limited scientific basis. The exceeding of a threshold, by itself, would not be a scientific indicator that operation of the facility would result in range-wide population level declines of any of the species affected. The thresholds are provided in the Wildlife Monitoring and Mitigation Plan to guide consideration of additional mitigation based on two years of monitoring data.”

components of the Wildlife Monitoring and Mitigation Plan or Habitat Mitigation Plan, would also benefit the affected species.

The Certificate Holder shall implement mitigation as approved by ODOE, subject to review by the Council. ODOE may recommend additional, targeted data collection if the need for mitigation is unclear based on the information available at the time. The Certificate Holder shall implement such data collection as approved by the Council.

The Certificate Holder shall design mitigation to benefit the affected species group. Mitigation may include, but is not limited to, protection of nesting habitat for the affected group of native species through a conservation easement or similar agreement. Tracts of land that are intact and functional for wildlife are preferable to degraded habitat areas. Preference should be given to protection of land that would otherwise be subject to development or use that would diminish the wildlife value of the land. In addition, mitigation measures might include: enhancement of the protected tract by weed removal and control; increasing the diversity of native grasses and forbs; planting sagebrush or other shrubs; constructing and maintaining artificial nest structures for raptors; improving wildfire response; and conducting or making a contribution to research that will aid in understanding more about the affected species and its conservation needs in the region.

If the data show that the threshold of concern for bat species as a group has been exceeded, the Certificate Holder shall implement mitigation if ODOE determines that mitigation is appropriate based on analysis of the data, consultation with ODFW, and consideration of any other significant information available at the time. For example, if the threshold for bat species as a group is exceeded, the Certificate Holder may contribute to Bat Conservation International or to a Pacific Northwest bat conservation group to fund new or ongoing research in the Pacific Northwest to better understand wind facility impacts to bat species and to develop possible ways to reduce impacts to the affected species.

2.8 Fatality Monitoring – Solar Facility

The Certificate Holder will consult with the ODOE and ODFW to confirm the extent of fatality monitoring that should be conducted for the solar facility.

3.0 Raptor Nest Surveys

The objectives of raptor nest surveys are: (1) to estimate the size of the local breeding populations of raptor species that nest on the ground or aboveground in trees or other aboveground nest locations in the vicinity of the facility; and (2) to determine whether there are noticeable changes in nesting activity or nesting success in the local populations of the following raptor species: Swainson's hawk, golden eagle, ferruginous hawk and burrowing owl.

The Certificate Holder shall conduct short-term and long-term monitoring. The investigators will use aerial and ground surveys to evaluate nest success by gathering data on active nests, on nests with young, and on young fledged.

3.1 Short-Term Monitoring

Short-term monitoring will be done in two monitoring seasons. The first monitoring season will be in the first raptor nesting season after completion of construction of the facility. The second monitoring season will be in the fourth year after construction is completed. The Certificate Holder shall provide a summary of the first-year results in the monitoring report described in Section 4. After the second monitoring season, the investigators will analyze two years of data compared to the baseline data.

During each monitoring season, the investigators will conduct a minimum of one aerial and one ground survey for raptor nests in late May or early June and additional surveys as described in this section. The survey area is the area within the facility site and a 2-mile buffer zone around the site. For the ground surveys while checking for nesting success (conducted within the facility site and up to a maximum of ½ mile from the facility site), nests outside the leased project boundary will be checked from an appropriate distance where feasible, depending on permission from the landowner for access.

All nests discovered during pre-construction surveys and any nests discovered during post-construction surveys, whether active or inactive, will be given identification numbers. Global positioning system (GPS) coordinates will be recorded for each nest. Locations of inactive nests will be recorded because they could become occupied during future years.

Determining nest occupancy may require one or two visits to each nest. Aerial surveys for nest occupancy will be conducted within the facility site and a 2-mile buffer. For occupied nests, the Certificate Holder will determine nesting success by a minimum of one ground visit to determine the species, number of young and young fledged within the facility site and up to ½ mile from the facility site. “Nesting success” means that the young have successfully fledged (the young are independent of the core nest site).

3.2 Long-Term Monitoring

In addition to the two years of post-construction raptor nest surveys described in Section 2(a), the investigators shall conduct long-term raptor nest surveys at 5-year intervals for the life of the facility.⁴ Investigators will conduct the first long-term raptor nest survey in the raptor nesting season of the ninth year after construction is completed and will repeat the survey at 5-year intervals thereafter. In conducting long-term surveys, the investigators will follow the same survey protocols as described above in Section 2(a) unless the investigators propose alternative protocols that are approved by ODOE. In developing an alternative protocol, the investigators will consult with ODFW and will take into consideration other raptor nest monitoring conducted in adjacent areas. The investigators will analyze the data—as a way of determining trends in the number of raptor breeding attempts the facility supports and the success of those attempts—and will submit a report after each year of long-term raptor nest surveys.

⁴ As used in this plan, “life of the facility” means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

4.0 Wildlife Reporting and Handling System

The Wildlife Reporting and Handling System (WRHS) is a monitoring program to search for and handle avian and bat casualties found by maintenance personnel during operation of the facility. Maintenance personnel will be trained in the methods needed to carry out this program. This monitoring program includes the initial response, handling and reporting of bird and bat carcasses discovered incidental to maintenance operations (“incidental finds”).

All avian and bat carcasses discovered by maintenance personnel will be photographed and data will be recorded as would be done for carcasses within the formal search sample during scheduled searches. If maintenance personnel discover incidental finds, the maintenance personnel will notify a project biologist. The project biologist (or the project biologist’s experienced wildlife technician) will collect the carcass or will instruct maintenance personnel to have an on-site carcass handling permittee collect the carcass. The Certificate Holder’s on-site carcass handling permittee must be a person who is listed on state and federal scientific or salvage collection permits and who is available to process (collect) the find on the day it is discovered. The find must be processed on the same day as it is discovered.

During the years in which fatality monitoring occurs, if maintenance personnel discover incidental finds outside the search plots for the fatality monitoring searches, the data will be reported separately from fatality monitoring data. If maintenance personnel discover carcasses within search plots, the data will be included in the calculation of fatality rates.

The maintenance personnel will notify a project biologist. The project biologist will collect the carcass or will instruct maintenance personnel to have an on-site carcass handling permittee collect the carcass. As stated above, the on-site permittee must be available to process the find on the day it is discovered. The Certificate Holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The Certificate Holder shall coordinate collection of federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

4.1 Data Reporting

The Certificate Holder will report wildlife monitoring data and analysis to the ODOE for each calendar year in which wildlife monitoring occurs. Monitoring data include fatality monitoring program data, raptor nest survey data, and WRHS data. The Certificate Holder may include the reporting of wildlife monitoring data and analysis in the annual report required under OAR 345-026-0080 or submit this information as a separate document at the same time the annual report is submitted. In addition, the Certificate Holder shall provide to ODOE any data or record generated in carrying out this monitoring plan upon request by ODOE.

The Certificate Holder shall notify USFWS and ODFW immediately if any federal or state endangered or threatened species are killed or injured on the facility site.

4.2 Amendment of the Plan

This Wildlife Monitoring and Mitigation Plan may be amended from time to time by agreement of the Certificate Holder and the Council. Such amendments may be made without amendment of the site certificate. The Council authorizes ODOE to agree to amendments to this plan and to mitigation actions that may be required under this plan. ODOE shall notify the Council of all amendments and mitigation actions, and the Council retains the authority to approve, reject or modify any amendment of this plan or mitigation action agreed to by ODOE.

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Attachment P-4. Draft Revegetation Plan

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Wheatridge Wind Energy Project

Draft Revegetation Plan

Prepared for
Wheatridge Wind Energy, LLC

245 W. Main Street, Suite 200

Ione, Oregon 97843

Prepared by:



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1.0 Introduction

This document has been prepared for the Wheatridge Wind Energy Facility (Facility) as part of Request for Amendment 4 (RFA 4) to the Facility Site Certificate, submitted to the Oregon Department of Energy (ODOE). It provides primary concepts for meeting the needs for revegetation following Facility construction and will be finalized (by ODOE) into a formal Revegetation Plan. The concepts provided here are consistent with approved plans in place for other Oregon wind projects in similar habitats, in particular those that are permitted through the Oregon Energy Facility Siting Council (EFSC). The Leaning Juniper II, Stateline, and Montague Revegetation Plans, and available revegetation monitoring reports for wind and natural gas energy projects served as models for the Wheatridge concepts.

The Revegetation Plan, which has been developed in consultation with personnel from the Oregon Department of Fish and Wildlife (ODFW), delineates practices and standards for restoring those areas temporarily disturbed during construction of the Facility; it does not apply to areas permanently occupied by the Facility. Such restoration is a requirement of the Site Certificate.

This plan describes planting methods, monitoring requirements, success criteria, and adaptive management (in case success criteria are not met). Throughout Facility construction and revegetation activities, the Certificate Holder will take appropriate actions to prevent the spread of noxious weeds (as identified in Morrow County Ordinance No. MC-C-3-90 and No. MC-C-2-99 Appendices A and B). Where appropriate, and pursuant to consultation with the county weed control managers, monitoring of the establishment of noxious weeds and of the effectiveness of weed control or eradication may be performed in concert with the revegetation monitoring described in this document.

2.0 Site Description

The Facility is located primarily in Morrow County, with a small portion in Umatilla County, Oregon. It lies within the Columbia Plateau Ecoregion, entirely on private land and primarily in agricultural land used for growing dryland wheat. Native vegetation has been modified by historical and current livestock grazing, by changes in fire regimes, and by the presence of exotic grasses and other vegetation.

Primary soil types include Mikkalo, Willis, Ritzville, and Warden, and land cover types are Developed (Dryland Wheat, Revegetated Grassland, and Other Developed), Grassland (Exotic Annual and Native Perennial), and Shrub-steppe (Basin Big Sagebrush and Snakeweed/Rabbitbrush). The amounts and types of habitats expected to be disturbed during Project construction are described in Exhibit P of the Application for Site Certificate and Exhibit P of RFA 4. For purposes of this plan, Developed-Dryland Wheat is referred to as cropland and Developed-Revegetated Grassland, both Grassland and both Shrub-steppe land cover types are referred to as wildlife habitat. Developed-Other land cover types include farm and ranch homes and

related infrastructure, roads, quarries, livestock facilities, and other areas associated with human activity.

3.0 Revegetation Methods

This plan addresses revegetation methods for both croplands and wildlife habitat. Restoration of Developed-Other land cover types will be determined on a case-by-case basis and is not covered further in this plan. Revegetation will begin as soon as feasible after completion of construction and seeding and planting will be done in a timely manner and in the appropriate season. Agricultural land restoration methods will likely be designed in consultation with the landowner. Soil preparation will involve standard, commonly-used methods, and will take into account all relevant site-specific factors, including slope, size of area, and erosion potential. Topsoil will be restored and mulching and other erosion control measures will be used throughout construction and during revegetation efforts. Preconstruction land use, soil, and vegetation type will dictate the seed mix used for each area to be restored; the wildlife habitat seed mixes used will be finalized in consultation with ODFW and will comply with the Oregon Seed Law (OAR 603-056).

3.1 Restoration of Cropland

It is expected that croplands will be reseeded with the appropriate crop or maintained as fallow in consultation with the landowner or farm operator. The Certificate Holder will also consult with the landowner or farm operator to determine seed mix and application methods and rates for seed and fertilizer. Success of cropland revegetation will have been achieved when production of the revegetated area is comparable to that of adjacent non-disturbed croplands. Success determination will involve consultation with the landowner or farm operator, and the holder of the Site Certificate will report to ODOE on the success of cropland restoration efforts.

Soil compaction is a concern for restoring agricultural soils to their pre-construction productivity. During construction of temporary features, the certificate holder would excavate and store soils by soil horizon, so that soils could be replaced and restored appropriately including replacing topsoil on the surface. During post-construction restoration of temporary impacts to agricultural areas, the Certificate Holder would loosen agricultural soil to a depth of six feet to reduce the potential effects of compaction.

3.2 Restoration of Wildlife Habitat

All wildlife habitat will be reseeded with a mix of native or native-like grasses, forbs, and shrubs characteristic of the area prior to construction disturbance. Seed mix and application rates will be determined in consultation with the landowner and ODFW, and will take into consideration soil types, erosion potential, and growing conditions. The seed mix will be approved by ODOE, and seeds will be obtained from a reputable supplier in compliance with the Oregon Seed Law (OAR 603-056).

Methods and timing of planting will be appropriate to the seed mix, weather conditions, and site conditions (including area size, slope, and erosion potential). Preparation of disturbed ground may

include replacing lost topsoil and/or chemical or mechanical weed control. Two common application methods for non-cropland are described below.

Broadcast Seeding

In this method, the seed mix will be broadcast at specified application rates. Broadcasting should not be utilized when winds exceed five miles per hour. If feasible, half of the seed mix will be broadcast in one direction, with the other half broadcast perpendicular to the first half. A tracking dye may be added to facilitate uniform application. Certified weed-free straw will be applied at a rate of two tons per acre immediately after seeding; straw may either be crimped into the ground or applied with a tackifier.

Drill Seeding

In this method, seed will be planted using an agricultural or range seed drill according to application rates recommended by the seed supplier.

4.0 Monitoring

4.1 Revegetation Record

Records will be kept of revegetation efforts, both for croplands and for wildlife habitat; records will include:

- Date construction was completed
- Description of the affected area
- Date revegetation was initiated
- Description of the revegetation effort

The holder of the Site Certificate will update these records periodically as revegetation work occurs, and will provide ODOE with copies of these records with submission of the annual report required by the Site Certificate.

4.2 Monitoring Procedures

Monitoring of the revegetation effort will be conducted by an independent botanist or revegetation specialist; this monitoring will be done during the first growing season after planting (Year 1), and again in Years 3 and 5. Nearby reference sites (approximating pre-construction conditions) will be selected as targets toward which revegetation will aim. Monitoring will not be required for areas that have been converted by the landowner to land uses that preclude meeting revegetation success criteria.

4.2.1 Weed Control

A qualified investigator will be employed to annually assess weed growth during the first five years of revegetation work and to make recommendations on weed control measures. Reports will be

submitted to the holder of the Site Certificate, to ODOE, and to ODFW following each annual inspection. These reports will identify areas and describe extent of weed growth and describe the success of control measures. At the time of the year-5 report, the investigator will consult with ODOE, ODFW, and the holder of the Site Certificate to design an appropriate plan for subsequent weed control.

4.2.2 *Wildlife Habitat Recovery*

In the first growing season after planting of areas to be revegetated, a qualified independent investigator (botanist or revegetation specialist) will inspect each wildlife habitat revegetation area to assess the success of revegetation measures. These assessments will be repeated in Year 3 and Year 5. Annual reports will be submitted to the holder of the Site Certificate, to ODOE, and to ODFW. Assessments will address whether each wildlife habitat revegetation area is trending toward meeting the success criteria described below.

In consultation with ODFW, reference sites—areas of habitat and quality similar to those found prior to disturbance at the areas to be revegetated—will be established to represent target conditions for revegetation areas. During each assessment, revegetated areas will be compared to reference sites with regard to:

- Presence and density of weeds
- Degree of erosion
- Vegetative density
- Proportion of desirable vegetation
- Species diversity and structural stage of desirable vegetation

Reference sites will be chosen with consideration to land use patterns, soil types, terrain, and presence of noxious weeds. It is expected that a variety of reference sites will be required to represent the range of disturbed areas for which revegetation is required. New reference sites may be chosen if land use changes, wildfire, or other disturbance makes a chosen reference site no longer representative of target conditions.

Based on the Year 5 assessment, the holder of the Site Certificate will consult with ODOE and ODFW to design an action plan for subsequent years. The holder of the Site Certificate may propose remedial actions and/or additional monitoring for areas that have not met the success criteria. Alternatively, revegetation efforts may in some cases be deemed to have failed, and mitigation may be proposed in such cases to compensate for habitat loss.

4.3 Success Criteria

Each annual report will involve an assessment of the progress toward revegetation objectives of each area of wildlife habitat disturbed during Project construction. The overarching metric for success is when the habitat quality is equal to or better than the quality at the relevant reference

site according to the conditions described above. Final determination of whether the holder of the Site Certificate has met the revegetation obligations will be made by ODOE.

4.4 Remedial Action

Remedial action options will be identified in cases where success criteria are not met, whether due to wildfire subsequent to Project construction or because of lower than expected rates of germination or survival. Remedial actions may include reseeding or other measures. The investigator will make recommendations for remedial actions after each monitoring visit, and the holder of the Site Certificate will take appropriate measures to meet the restoration objectives. The holder of the Site Certificate will annually report the investigator's recommendations for remedial actions and the measures taken. ODOE may require reseeding or other remedial actions in cases where revegetation objectives have not been met.

5.0 Plan Amendment

It is expected that the completed Revegetation Plan will make provision for an amendment process that would depend upon the agreement of all concerned parties. In particular, this Plan may be amended—without requiring an amendment to the Site Certificate—by agreement between the Oregon Energy Facility Siting Council (OEFSC) and the holder of the Site Certificate.

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Attachment P-5. Draft Habitat Mitigation Plan

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Wheatridge Wind Energy Project

Draft Habitat Mitigation Plan

Prepared for
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Ione, Oregon 97843

Prepared by:



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March 30, 2015

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June 2019

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. As part of Request for Amendment 4 (RFA 4) to the Facility Site Certificate through the Energy Facility Siting Council (EFSC), Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add up to 150 MW of photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. RFA 4 would expand the Approved Site Boundary by 2,294.3 acres (to a total of 14,264.3 acres) to provide for solar generation and energy storage facilities.

This draft Habitat Mitigation Plan (HMP) provides concepts for meeting the habitat mitigation needs of the amended Facility. Northwest Wildlife Consultants (NWC) has conducted habitat categorization surveys and other biological studies that inform habitat categorization in accordance with the Oregon Department of Fish and Wildlife's (ODFW) Fish and Wildlife Habitat Mitigation Policy, Oregon Administrative Rule (OAR) 635-415-0000 through 0025. NWC has also identified potential mitigation opportunities and potential habitat enhancement actions.

The Certificate Holder's goal is to reduce and eliminate the impact of the amended Facility over time by preserving and maintaining in-kind habitat in the Columbia Basin Ecoregion to achieve a net benefit to Category 2 habitat, and no net loss of Categories 3 and 4 through the concepts proposed in this draft HMP. The proposed concepts were discussed with personnel from the ODFW on August 20, 2012 and on July 11, 2014. The March 30, 2015 HMP Draft Concepts included habitat impact acreages known as of early spring 2015. This May 2019 version adds habitat impact acreages from the solar energy generation and its related or supporting facilities proposed for addition to the Facility under RFA 4. This May 2019 version also incorporates changes requested by ODFW in the April 28, 2017 Draft Final Order (Redline) with Attachments (EFSC 2017a). The actual acres of temporary and permanent impacts and the associated mitigation requirements will be determined based on the final design and included in a final HMP prior to construction.

2.0 Description of Impacts

Habitat mapping and categorization has been completed in accordance with the ODFW Fish and Wildlife Habitat Mitigation Policy. The process is documented in Exhibit P for both the ASC and for RFA 4, and summarized in this draft HMP. No wetlands, perennial streams or other aquatic habitats are addressed in this document because at the time of preparation (May 2019) no facilities are planned for these habitat types.

The ODFW Fish and Wildlife Habitat Mitigation Policy categorizes habitats based on type, quality, availability, and usefulness/importance to wildlife, and establishes mitigation goals and implementation standards for each. Table 1 defines each of the six habitat category types.

Table 1. Habitat Categorization Types

| Category Type | Definition ¹ | Mitigation Goal |
|------------------------------|--|--|
| 1 | Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage. | The mitigation goal for Category 1 habitat is no loss of either habitat quantity or quality. |
| 2 | Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage. | The mitigation goal if impacts are unavoidable is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality. |
| 3 | Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population. | The mitigation goal is no net loss of either habitat quantity or quality. |
| 4 | Important habitat for fish and wildlife species. | The mitigation goal is no net loss of either habitat quantity or quality. |
| 5 | Habitat for fish and wildlife having high potential to become either essential or important habitat. | The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality. |
| 6 | Habitat that has low potential to become essential or important habitat for fish and wildlife. | The mitigation goal is to minimize impacts. |
| 1. Source: OAR 635-415-0025. | | |

Impacts may be permanent or temporary. Permanent impacts are defined as those impacts that will exist for the life of the Facility. Temporary impacts are those impacts that will last for a time less than the life of the Facility. The duration of temporary impacts to habitat will vary by habitat subtype. For example, the recovery period for agricultural areas that were temporarily disturbed could be as short as 1 to 3 years, grasslands generally recover within 3 to 7 years, and shrublands may require 10 to 50 years to recover (with the longer recovery periods associated with disturbances in mature sagebrush habitats). The Certificate Holder will restore temporary impacts consistent with the Revegetation Plan.

As described in Exhibit P, Category 1 habitat includes habitat within 785 feet of documented Washington ground squirrel (*Urocitellus washingtoni*) colonies. Category 1 habitat occurs within the Site Boundary, but the Facility is designed and micrositied to avoid Category 1 habitat. Therefore, there are no impacts to Category 1 habitat. Category 2 habitat occurs in the Site Boundary and will be impacted by the Facility. Category 2 habitat is associated with ODFW mule deer winter range (ODFW 2012) and areas of potential Washington ground squirrel use. Areas of potential ground squirrel use are adjacent to and within 4,921 feet (1.5 kilometers [km]) of ground squirrel Category 1 habitat, but not occupied by any squirrels either for burrowing or foraging,

which is of similar habitat type and quality to the adjacent Washington ground squirrel Category 1 habitat. Category 3, 4, and 6 habitat will also be impacted by the Facility, while Category 5 habitat is not identified in the Site Boundary. Table 2 shows the acres of permanent and temporary impacts in each habitat category by habitat subtype for Wheatridge West, Wheatridge East, Transmission Intraconnection Line, and the Solar facilities.

Table 2. Temporary and Permanent Impacts by Habitat Category and Habitat Subtype

| Habitat Category and Habitat Subtype | | Impacts (acres) ¹ | |
|--|--------------|------------------------------|------------------|
| | | Temporary | Permanent |
| Wheatridge West | | | |
| Category 2 | | | |
| Developed-Revegetated or Other Planted Grassland | | 106.9 | 17.0 |
| Grassland-Exotic Annual | | 13.3 | 1.7 |
| Grassland-Native Perennial | | 32.3 | 5.5 |
| Shrub-steppe-Basin Big Sagebrush | | 2.5 | 0.8 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 0.4 | - |
| Subtotal Category 2 | | 155.5 | 24.9 |
| Category 3 | | | |
| Developed-Revegetated or Other Planted Grassland | | 60.7 | 8.0 |
| Grassland-Native Perennial | | 28.7 | 5.5 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 2.1 | 0.0 ² |
| Subtotal Category 3 | | 91.5 | 13.5 |
| Category 4 | | | |
| Grassland-Exotic Annual | | 11.6 | 1.8 |
| Subtotal Category 4 | | 11.6 | 1.8 |
| Category 6 | | | |
| Developed-Dryland Wheat | | 533.3 | 88.3 |
| Developed-Other | | 1.0 | 0.3 |
| Subtotal Category 6 | | 534.3 | 88.6 |
| Total for Wheatridge West | 921.7 | 792.9 | 128.8 |
| Wheatridge East | | | |
| Category 2 | | | |
| Grassland-Exotic Annual | | 17.2 | 3.3 |
| Grassland-Native Perennial | | 19.5 | 2.6 |
| Subtotal Category 2 | | 36.7 | 6.0 |
| Category 3 | | | |
| Grassland-Native Perennial | | 14.4 | 1.9 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 12.1 | 1.9 |

| Habitat Category and Habitat Subtype | | Impacts (acres) ¹ | |
|--|--------------|------------------------------|-------------|
| | | Temporary | Permanent |
| Subtotal Category 3 | | 26.4 | 3.8 |
| Category 4 | | | |
| Grassland-Exotic Annual | | 7.8 | 1.3 |
| Grassland-Native Perennial | | 1.2 | 0.2 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 2.7 | 0.3 |
| Subtotal Category 4 | | 11.7 | 1.8 |
| Category 6 | | | |
| Developed-Dryland Wheat | | 185.7 | 29.9 |
| Subtotal Category 6 | | 185.7 | 29.9 |
| Total for Wheatridge East | 302.1 | 260.6 | 41.5 |
| Transmission Intraconnection Line | | | |
| Category 2 | | | |
| Developed-Revegetated or Other Planted Grassland | | 11.5 | 0.1 |
| Grassland-Exotic Annual | | 3.0 | 0.0 |
| Grassland-Native Perennial | | 36.8 | 0.2 |
| Shrub-steppe-Basin Big Sagebrush | | 0.7 | 0.0 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 14.7 | 0.1 |
| Subtotal Category 2 | | 66.7 | 0.4 |
| Category 3 | | | |
| Developed-Revegetated or Other Planted Grassland | | 7.2 | 0.1 |
| Grassland-Native Perennial | | 6.7 | 0.0 |
| Shrub-steppe-Basin Big Sagebrush | | 0.4 | 0.0 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 2.5 | 0.0 |
| Subtotal Category 3 | | 16.8 | 0.1 |
| Category 4 | | | |
| Grassland-Exotic Annual | | 2.5 | 0.0 |
| Subtotal Category 4 | | 2.5 | 0.0 |
| Category 6 | | | |
| Developed-Dryland Wheat | | 56.3 | 0.4 |
| Developed-Irrigated Agriculture | | 1.0 | 0.0 |
| Developed-Other | | 0.6 | 0.0 |
| Subtotal Category 6 | | 58.0 | 0.4 |
| Total for Transmission Intraconnection Line | 144.9 | 144.0 | 0.9 |
| Solar Facilities | | | |
| Category 2 | | | |

| Habitat Category and Habitat Subtype | | Impacts (acres) ¹ | |
|---|----------------|------------------------------|----------------|
| | | Temporary | Permanent |
| Developed-Revegetated or Other Planted Grassland | | 0.7 | 0.0 |
| Grassland-Exotic Annual | | 0.6 | 3.0 |
| Grassland-Native Perennial | | 0.4 | 1.3 |
| Shrub-steppe-Basin Big Sagebrush | | 0.0 | 0.0 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 0.0 | 0.0 |
| Subtotal Category 2 | | 1.7 | 4.3 |
| Category 3 | | | |
| Developed-Revegetated or Other Planted Grassland | | 0.0 | 0.0 |
| Grassland-Native Perennial | | 0.7 | 0.0 |
| Shrub-steppe-Basin Big Sagebrush | | 0.0 | 0.0 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 0.0 | 0.0 |
| Subtotal Category 3 | | 0.7 | 0.0 |
| Category 4 | | | |
| Grassland-Exotic Annual | | 0.3 | 76.0 |
| Grassland-Native Perennial | | 0.0 | 0.0 |
| Shrub-steppe-Rabbitbrush/Snakeweed | | 0.0 | 0.0 |
| Subtotal Category 4 | | 0.3 | 76.0 |
| Category 6 | | | |
| Developed-Dryland Wheat | | 4.6 | 812.6 |
| Developed-Irrigated Agriculture | | 0.0 | 0.0 |
| Developed-Other | | 1.4 | 0.2 |
| Subtotal Category 6 | | 6.0 | 812.7 |
| Total for Solar Facilities | 901.8 | 8.7 | 893.1 |
| Grand Total | 2,270.4 | 1,206.2 | 1,064.3 |
| 1. Totals in this table may not be precise due to rounding. | | | |

3.0 Methods for Calculating Mitigation

Mitigation calculations presented in the 2015 Habitat Mitigation Plan were modified in response to comments from ODFW published in the April 2017 Final Order (EFSC 2017a). To be consistent with the Fish and Wildlife Habitat Standard (OAR 345-022-0060), the EFSC adopted Fish and Wildlife Condition 10 in the Site Certificate (EFSC 2017b), which states the following:

Before beginning construction the certificate holder shall prepare and receive approval from the department of a final Habitat Mitigation Plan. The final Habitat Mitigation Plan shall be based on

the final facility design and shall be approved by the department in consultation with ODFW. The Council retains the authority to approve, reject or modify the final HMP.

- a. The final Habitat Mitigation Plan and the department's approval must be received prior to beginning construction. The department shall consult with ODFW on the final plan. The certificate holder shall implement the requirements of the approved plan during all phases of construction and operation of the facility.*
- b. The certificate holder shall calculate the size of the habitat mitigation area according to the final design configuration of the facility and the estimated areas of habitat affected in each habitat category, in consultation with the department, as per the pre-construction survey results and impact assessment calculations called for in Fish and Wildlife Condition 1.*
- c. The certificate holder shall acquire the legal right to create, enhance, maintain, and protect the habitat mitigation area, as long as the site certificate is in effect, by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the department prior to the start of construction. Within the habitat*
- d. The final HMP shall include an implementation schedule for all mitigation actions, including securing the conservation easement, conducting the ecological uplift actions at the habitat mitigation area, revegetation and restoration of temporarily impacted areas, and monitoring. The mitigation actions shall be implemented according to the following schedule, as included in the HMP:*
 - i. Restoration and revegetation of temporary construction-related impact area shall be conducted as soon as possible following construction.*
 - ii. The certificate holder shall obtain legal authority to conduct the required mitigation work at the compensatory habitat mitigation site before commencing construction. The habitat enhancement actions at the compensatory habitat mitigation site shall be implemented concurrent with construction.*
- e. The final HMP shall include a monitoring and reporting program for evaluating the effectiveness of all mitigation actions, including restoration of temporarily impacted areas and ecological uplift actions at the habitat mitigation area.*
- f. The final HMP shall include mitigation in compliance with the Council's Fish and Wildlife Habitat standard, including mitigation for temporary impacts to Category 4 habitat (shrub-steppe habitat); and, mitigation for all Category 2 habitat impacts that meet the mitigation goal of no net loss of habitat quality or quantity, plus a net benefit of habitat quality or quantity.*
- g. The final HMP may be amended from time to time by agreement of the certificate holder and the Oregon Energy Facility Siting Council ("Council"). Such amendments may be made without amendment of the site certificate. The Council authorizes the Department to agree to amendments to this plan. The Department shall notify the Council of all amendments,*

and the Council retains the authority to approve, reject, or modify any amendment of this plan agreed to by the Department.

EFSC cites public hearing comments from ODFW, stating that the mitigation ratios for Category 2 habitat should all be the same, and that mitigation should be proposed for temporary impacts to Category 4 shrub-steppe habitat (EFSC 2017a). The 2015 HMP had used either a 2:1 or >1:1 ratio for impacts on Category 2 habitat, depending on whether or not that habitat is within big game winter ranges. The ratio has been modified so that all impacts on Category 2 habitat are mitigated at a >1:1 ratio. In addition, temporary impacts on Category 4 shrub-steppe habitat are mitigated at a <1:1 ratio, instead of not having mitigation. Table 3 shows the methods for calculating mitigation for permanent impacts and Table 4 shows the methods for calculating mitigation for temporary impacts. The Certificate Holder is not proposing compensatory mitigation under the ODFW Fish and Wildlife Habitat Mitigation Policy for impacts to Category 6 habitat.

Table 3. Calculating Mitigation for Permanent Impacts

| Habitat Category | Impact Acres | Mitigation Ratio | Mitigation Description |
|---------------------------|--------------|------------------|---|
| Category 2 | 1 | >1 | The mitigation goal for Category 2 habitat is “no net loss” and “net benefit.” Accordingly, mitigation for permanent impacts on Category 2 habitat needs to demonstrate a net benefit in quality or quantity. |
| Category 3 and Category 4 | 1 | 1 | The mitigation goal for Category 3 & 4 habitat is “no net loss” in quantity or quality. |
| Category 6 | 1 | 0 | The mitigation goal for impacts on Category 6 habitat is minimization; no compensatory mitigation proposed. |

Table 4. Calculating Mitigation for Temporary Impacts

| Habitat Category | Habitat Subtype | Impact Acres | Mitigation Ratio | Mitigation Description |
|------------------|--|--------------|------------------|---|
| Category 2 | All | 1 | >1 | The mitigation goal for Category 2 habitat is “no net loss” and “net benefit.” Accordingly, mitigation for temporary impacts on Category 2 habitat needs to demonstrate a net benefit in quality or quantity. Mitigation would be a greater amount of acreage than what is impacted by the project. All areas of temporary disturbance would be restored at the site of impact. The proposed mitigation ratio would meet the “net benefit” requirement and would account for the temporary loss of habitat function during restoration. |
| Category 3 | Grassland-Native Perennial, Shrub-steppe-Basin Big Sagebrush, Shrub-steppe-Rabbitbrush/Snakeweed | 1 | <1 | The mitigation goal for Category 3 & 4 habitat is “no net loss” in quantity or quality. Depending on the habitat subtype temporarily disturbed, the proposed mitigation ratio would result in a lesser amount of acreage of mitigation than what |

| Habitat Category | Habitat Subtype | Impact Acres | Mitigation Ratio | Mitigation Description |
|------------------|------------------------------------|--------------|------------------|--|
| Category 4 | Shrub-steppe-Rabbitbrush/Snakeweed | | | is impacted by the project. Combined with restoration of temporary disturbances, the proposed mitigation ratio is intended to account for the temporary loss of habitat functionality and meet the “no net loss” goal. |
| Category 6 | All | 1 | 0 | The mitigation goal for Category 6 habitat is minimization; no compensatory mitigation is proposed. |

4.0 Estimated Mitigation for the Amended Facility

Table 5 applies the acres of temporary and permanent impacts shown in Table 2 with the mitigation ratios shown in Table 3 and Table 4 to estimate mitigation requirements.

Table 5. Mitigation Accounting by Habitat Category and Habitat Subtype

| Habitat Category ¹ | Habitat Subtype | Impact | Acres | Mitigation Ratio | Estimated Mitigation | Mitigation Subtotal by Habitat Category |
|-------------------------------|--|--------|-------|------------------|----------------------|---|
| 2 | Developed-Revegetated or Other Planted Grassland | Temp | 119.1 | >1 | >119.1 | >296.2 ² |
| | | Perm | 17.1 | >1 | >17.1 | |
| | Grassland-Exotic Annual | Temp | 34.2 | >1 | >34.2 | |
| | | Perm | 8.0 | >1 | >8.0 | |
| | Grassland-Native Perennial | Temp | 89.0 | >1 | >89.0 | |
| | | Perm | 9.6 | >1 | >9.6 | |
| | Shrub-steppe-Basin Big Sagebrush | Temp | 3.2 | >1 | >3.2 | |
| | | Perm | 0.8 | >1 | >0.8 | |
| 3 | Developed-Revegetated or Other Planted Grassland | Temp | 15.1 | >1 | >15.1 | > 17.4, up to 84.9 |
| | | Perm | 0.1 | >1 | 0.1 | |
| | Grassland-Native Perennial | Temp | 67.9 | 0 | 0.0 | |
| | | Perm | 8.1 | 1 | 8.1 | |
| | Grassland-Native Perennial | Temp | 50.5 | <1 | <50.5 | |
| | | Perm | 7.4 | 1 | 7.4 | |
| | Shrub-steppe-Basin Big Sagebrush | Temp | 0.4 | <1 | <0.4 | |
| | | Perm | 0.0 | 0 | 0.0 | |
| | Shrub-steppe-Rabbitbrush/Snakeweed | Temp | 16.6 | <1 | <16.6 | |
| | | Perm | 2.0 | 1 | 2.0 | |

| Habitat Category ¹ | Habitat Subtype | Impact | Acres | Mitigation Ratio | Estimated Mitigation | Mitigation Subtotal by Habitat Category |
|--|--|--------|-------|------------------|----------------------|---|
| 4 | Grassland-Exotic Annual | Temp | 22.3 | 0 | 0.0 | > 79.7, up to 82.4 |
| | | Perm | 79.2 | 1 | 79.2 | |
| | Grassland-Native Perennial | Temp | 1.2 | 0 | 0.0 | |
| | | Perm | 0.2 | 1 | 0.2 | |
| | Shrub-steppe-Rabbitbrush/ Snakeweed | Temp | 2.7 | <1 | <2.7 | |
| | | Perm | 0.3 | 1 | 0.3 | |
| TOTALS | | | | | | > 393.3 |
| 1. No mitigation is accrued for impacts on Category 6 habitat. 2. Category 2 habitat originates from 224.2 acres of mule deer winter range and 88.4 acres of Washington ground squirrel potential area of use. Overlap occurs between mule deer winter range and Washington ground squirrel potential areas of use in some areas. | | | | | | |

5.0 Habitat Mitigation Area

5.1 Description

The Habitat Mitigation Area (HMA) is the area where the Certificate Holder is proposing to perform enhancement and preservation actions that are in addition to the revegetation of areas of temporary disturbance associated with the Facility. The HMA must be large enough and have the characteristics to meet the standards set in OAR 635-415-0025.

According to ODFW standards, areas appropriate for mitigation of Category 2 and Category 3 habitat impacts must provide “in-kind” mitigation which creates similar structure and function to that being disturbed and also be “in-proximity” to the Project and have potential for habitat enhancement. The Certificate Holder looked for privately-owned lands that contained native and revegetated uplands of interest and importance for conservation. The ODFW has identified “strategy habitats” and approaches for “conservation actions” within the Columbia Plateau Ecoregion (ODFW, 2006). The Oregon Conservation Strategy is “intended to provide a long-term, big-picture “blue print” for conserving Oregon’s natural resources to maintain or improve environmental health...” (ODFW, 2006). The Certificate Holder also looked for lands that were within designated mule deer winter range.

The Certificate Holder has identified more than 550 acres of suitable in-kind and in-proximity habitat for consideration by ODFW and ODOE. ODFW personnel are familiar with the proposed site of the HMA. The HMA contains ODFW “strategy habitats” and other wildlife habitat similar to those being impacted by the amended Facility.

The HMA habitats include Native Perennial Grassland, Revegetated Grassland, Basin Big Sagebrush Shrub-steppe, Rabbitbrush/Buckwheat Shrub-steppe, and Exotic Annual Grassland habitats of

varying quality. Basalt escarpments also occur in the HMA. Wildlife species usage of the HMA is similar to what has been recorded during surveys of the Facility. Other long-term conserved habitat (approximately 324 acres) consisting of Native Perennial Grassland and Shrub-steppe is nearby and with the addition of this HMA, a larger more valuable tract of protected habitat will be available for wildlife.

Raptors, including golden eagles, hunt on the HMA and some nest onsite or in the general area. There are opportunities for implementing habitat enhancement actions, as needed for the final habitat mitigation compliance. NWC has confirmed with ODFW that the parcels under current consideration have adequate potential for mitigating the habitat loss expected to occur and for providing benefit for the wildlife species that use the habitats impacted by habitat loss associated with the amended Facility, including big game. All of the habitat proposed for use as mitigation lies within designated deer winter range (ODFW 2012). Through an agreement with the landowner, the Certificate Holder has secured the ability for a long-term easement of suitable habitat on a portion of the available 550 acres at the site of the proposed HMA. The final amount of mitigation to be put into easement will be determined based on the final design and through pre-construction compliance surveys that will be performed to confirm habitat categorization.

5.2 Habitat Enhancement Actions

Habitat designated for mitigation will be conserved and protected from alteration for the life of the Facility. Final detailed enhancement actions and monitoring procedures will be designed in consultation with the ODFW and biologists familiar with the HMA. Besides such legal protection to ensure no development, potential enhancement actions for the HMA include the following.

- Modification of grazing practices—wildlife habitat values have priority and livestock grazing will be reduced or restricted from the HMA to ensure that habitat is maximally useful to wildlife, livestock grazing can be used as a wildlife habitat enhancement tool.
- The Certificate Holder will work with the landowner to monitor and control or eradicate County-designated noxious weeds impacting wildlife habitat quality. A Weed Plan will be prepared.
- Seeding and planting with native plants—sagebrush and bunch grasses—will occur in reasonable proportion to the acres of functional sagebrush and native grassland habitats lost through Facility construction. Sagebrush seeding and/or planting will provide future cover and browse for wintering mule deer. Specific details for amount and extent to be determined after final Facility impacts are known. Native grassland plugs and young shrubs can be planted in sensitive areas where seeding is not appropriate.
- A plan for fire response and control will be in place and applied to the HMA. It will include fire prevention measures, methods to detect fires, and a protocol for fire response and suppression.
- Wildlife Projects:

- Where old barbed wire fence on the HMA presents potential problems for big game and other wildlife, the Certificate Holder will work with the landowner to remove such fencing.
- Wildlife guzzler as a watering source for wildlife.
- Install burrowing owl artificial burrows. Burrows would be paired and pairs separated by 0.25 mile.
- Install artificial raptor nest platforms (target species is Ferruginous hawk).
- Strategic removal of Washington ground squirrel mammalian predators. An example would be to live-trap and transplant badgers that are disturbing ground squirrel natal sites in the fall and winter.
- Habitat protection will involve restricting any uses of the mitigation area that would be inconsistent with the goals of no net loss of habitats in Categories 2, 3, and 4 and a net benefit to Category 2 habitat quantity or quality.

Enhancement activities will be performed on an appropriate portion of the HMA to meet the required mitigation goals. The habitat within the HMA is currently of higher quality to most of the habitat to be impacted within mule deer winter range. In addition, the HMA and connected lands support Washington ground squirrel habitat.

5.3 HMA Monitoring

The Certificate Holder will hire a qualified, independent investigator (wildlife biologist, botanist, or revegetation specialist) to conduct monitoring at the HMA and the success of its protection and (within applicable acres) enhancements. Monitoring duration is for the life of the Facility, with annual monitoring occurring over the first three to 5 years and subsequent long-term monitoring occurring at 5-year intervals. At a minimum, annual monitoring will include assessments of:

- Amount and quality of vegetation;
- Success of weed control measures;
- Degree of recovery of native grasses and forbs;
- Success of revegetation measures (where applicable);
- Wildlife observed and notes on special status species (wildlife and plants) present; and
- Maintenance needs of guzzler, nest platforms and artificial burrows, if installed;

Methods and results of all monitoring will be reported to ODOE and ODFW, along with a report of the mitigation/enhancement measures undertaken since the last monitoring report.

5.4 HMA Success Criteria

The goal of the habitat mitigation described herein is to protect and enhance a sufficient quantity of habitat to meet ODFW standards of no net loss of habitat Category 3 and Category 4 and a net gain in habitat quantity and quality of Category 2. Habitat protection alone—apart from enhancement—

is not sufficient to meet the net-benefit criterion for Category 2 habitat. The minimum amount of habitat protection and enhancement required will be calculated as in Table 5 above using the impact acreages associated with the final Facility design. If sufficient high-quality habitat is not available for protection, habitat mitigation goals can be achieved by enhancing the required amount of habitat to bring it up to the higher category. Criteria for assessing such a category improvement will include density and quality of native vegetation of the appropriate types (e.g., desirable forbs and bunchgrasses) successful control of noxious weeds, and other criteria developed in conjunction with the department.

Habitat protection and enhancement must endure for the life of the Facility. That is, even after habitat protection and enhancement has been achieved, periodic monitoring must take place to assess whether protection and enhancement persists at levels commensurate with mitigation goals. Should habitat quality fall below that prescribed by the HMP, the Certificate Holder will, in consultation with ODFW and ODOE, propose adaptive management actions for compensating for such a failure to meet mitigation goals.

6.0 Amendment of the HMP

This HMP may be amended by agreement of the holder of the Site Certificate and the Oregon Energy Facility Siting Council. Amendments to this Plan will not require an amendment of the Site Certificate.

7.0 References

EFSC (Oregon Energy Facility Siting Council). 2017a. Final Order: In the Matter of the Application for a Site Certificate for the Wheatridge Wind Energy Facility. April 2017.

EFSC 2017b. Site Certificate for the Wheatridge Wind Energy Facility. April 27, 2017.

ODFW (Oregon Department of Fish and Wildlife). 2012. Elk and Deer Winter Range for Eastern Oregon, East of the Crest of the Cascades. GIS data files (2). Available online at: <https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=885.xml>

Exhibit Q

Threatened and Endangered Species

**Wheatridge Wind Energy Facility
June 2019**

**Prepared for
Wheatridge Wind Energy, LLC**

Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|--------------------|--|
| ASC | Application for Site Certificate |
| Certificate Holder | Wheatridge Wind Energy Facility, LLC |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| MW | megawatt |
| OAR | Oregon Administrative Rule |
| ODA | Oregon Department of Agriculture |
| ODFW | Oregon Department of Fish and Wildlife |
| ODOE | Oregon Department of Energy |
| ORBIC | Oregon Biodiversity Information Center |
| RFA 4 | Request for Amendment 4 |
| Tetra Tech | Tetra Tech, Inc. |
| USFWS | U.S. Fish and Wildlife Service |
| WAGS | Washington ground squirrel |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit Q was prepared in consideration of the proposed changes to meet the submittal requirements for the Facility, per Oregon Administrative Rule (OAR) 345-021-0010(1)(q) paragraphs (A) through (G), related to Oregon listed threatened and endangered species. As detailed in the following sections, although the proposed changes provide for a new source of energy generation for the Facility and a larger Site Boundary, the Certificate Holder can still comply with all Site Certificate conditions previously adopted by the Council for compliance with the respect to the Threatened and Endangered Species standard OAR 345-022-0070. Therefore, the Council may rely on its previous conclusion that the Facility complies with the Threatened and Endangered Species standard OAR 345-022-0070. OAR 345-022-0070 requires that:

¹ Per OAR 345-001-0010(32) “micrositing corridor” means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:

(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:

(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or

(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and

(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

The Final Order on the Approved Site Certificate (ASC) imposed three conditions intended to avoid potential impacts to threatened and endangered species (ODOE 2017a). Under RFA 4, the changes proposed will not compromise the Certificate Holder's ability to comply with these conditions. No new conditions are needed for protection of listed species.

1.1 Analysis Area

The Analysis Area for all species in Exhibit Q is defined as the Site Boundary plus a 5-mile buffer, as defined by OAR 345-001-0010(59)(a). Figure Q-1 shows the Analysis Area for state-listed and candidate species. Although RFA 4 proposes an expansion to the Site Boundary to accommodate the solar arrays, the Analysis Area is the same as previously analyzed because the Amended Site Boundary is interior to the Approved Site Boundary.

1.2 Agency Consultation

Consultation and coordination with personnel from the Oregon Department of Fish and Wildlife (ODFW) and the United States Fish and Wildlife Service (USFWS) prior to the ASC regarding the presence on and use of areas within the Approved Site Boundary by threatened and endangered plant and wildlife species can be found in the ASC's Exhibit Q (Wheatridge 2015). Consultation and coordination with ODFW and the Oregon Department of Energy (ODOE) with respect to modifications to the Facility proposed in this RFA included a conference call on November 11, 2018, as summarized below.

- Tetra Tech, Inc. (Tetra Tech) provided a summary of the anticipated RFA 4 to Steve Cherry (ODFW), Sarah Esterson (ODOE), and Sara Reif (ODFW), and described the extent and results of biological surveys performed in 2018 associated with the solar micrositing corridors.

- ODFW commented that ODFW Washington ground squirrel (WAGS) survey protocols include surveys of habitat within 1,000 feet of anticipated ground disturbance (which the Certificate Holder completed in 2019, see Attachment P-2 of Exhibit P), and that ODFW may consider the application complete with some areas remaining to be surveyed if the applicant commits to avoiding WAGS colonies identified during pre-construction surveys.
- ODFW indicated that they did not see any survey gaps based on the effort described in spring 2018 and the planned surveys for 2019.

2.0 Identification of Species – OAR 345-021-0010(1)(q)(A)

OAR 345-021-0010(1)(q) Information about threatened and endangered plant and animal species that may be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0070. The applicant shall include:

OAR 345-021-0010(1)(q)(A) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2) and ORS 564.105(2) that may be affected by the proposed facility.

Identification of state-listed or candidate species that might be affected by the Facility involved a combination of literature review and the familiarity of both Tetra Tech and Northwest Wildlife, Inc. personnel with the region. Field studies were then designed to verify the presence/absence of such species within the Analysis Area.

2.1 Desktop Review

Prior to conducting 2018 surveys within the Amended Site Boundary (wildlife habitat mapping and categorization, special status wildlife species, special status plant species, as described in Exhibit P), Tetra Tech conducted a desktop review to verify and update the status and occurrence of sensitive wildlife and plant species with the potential to occur in the Analysis Area. The information reviewed included federal and state endangered, threatened, proposed, and candidate species; species of concern; birds of conservation concern; and sensitive and sensitive-critical species (Burke Museum of Natural History and Culture 2003, OCS 2016, ODA 2018, ODFW 2016, ODFW 2018, ORBIC 2016, Oregon Flora Project 2017a, Oregon Flora Project 2017b, USFWS 2008, USFWS 2018a, USFWS 2018b, USFWS 2018c, WDNR 2017, Wheatridge 2015).

This exercise resulted in a list of five threatened or endangered species—one plant, two mammal, and two fish—with the potential for occurrence within 5 miles of the Facility. These species are Laurent’s milkvetch (*Astragalus collinus* var. *laurentii*; state threatened species, federal species of concern), Washington ground squirrel (*Urocitellus washingtoni*; state endangered species; federal species of concern), grey wolf (*Canis lupus*; state delisted, federal endangered species), bull trout (*Salvelinus confluentus*; federal threatened species), and steelhead (*Oncorhynchus mykiss*; Middle Columbia River summer run; federal threatened species). Three of these species are federally but not state listed, so they are not addressed in this RFA (gray wolf, bull trout, and steelhead).

Additionally, bull trout and steelhead have no potential for occurrence within the Facility as approved or as proposed. State-sensitive species are addressed in RFA 4 Exhibit P.

Based on range maps, and although the Oregon Biodiversity Information Center (ORBIC) had no record of them within the Analysis Area in the ASC (Wheatridge 2015), four Oregon Department of Agriculture (ODA) candidate plant species were included in lists of species that had the potential for occurrence at the Facility (see Exhibit P). These are dwarf suncup (*Cammissonia pygmaea*), disappearing monkeyflower (*Mimulus evanescens*), liverwort monkeyflower (*Mimulus jungermannioides*), and vernal pool mousetail (*Myosurus sessilis*).

The complete USFWS Morrow and Umatilla county lists, tables of the ORBIC results, and tables compiled for the surveys of wildlife, fish, and plant species that have the potential for occurrence at the approved Facility can be found in the ASC (Wheatridge 2015). No additional federal or state threatened, endangered, or candidate species were identified in desktop reviews preceding the 2018 surveys.

2.1.1 Wildlife

WAGS are endangered in the state of Oregon, and are a federal species of concern. The ORBIC database included numerous historical records within the Analysis Area, and surveys from 2011–2013 documented occurrence of the species (Wheatridge 2015).

2.1.2 Plants

2.1.2.1 Laurent's Milkvetch

Laurent's milkvetch is listed by ODA as a threatened species. The ORBIC database included two historical records within 5 miles of the Approved Site Boundary, and two populations were detected during 2011–2013 surveys (Wheatridge 2015).

2.1.2.2 Dwarf Evening-Primrose

Dwarf evening-primrose is listed by ODA as a candidate species. Found on rocky slopes, sandy banks, and in dry, gravelly washes, this species' range may include the Analysis Area. However, no records were found within 5 miles of the Approved Site Boundary in the ORBIC database, nor were any recorded during 2011–2013 surveys (Wheatridge 2015).

2.1.2.3 Disappearing Monkeyflower

Disappearing monkeyflower is listed by ODA as a candidate species. Found in moist, heavy gravel that is inundated in early spring, this species' range may include the Analysis Area. However, no records were found within 5 miles of the Approved Site Boundary in the ORBIC database, nor were any recorded during 2011–2013 surveys (Wheatridge 2015).

2.1.2.4 Liverwort Monkeyflower

Liverwort monkeyflower is listed by ODA as a candidate species. Found in basalt crevices in seepage zones of vertical cliffs and canyon walls, this species' range may include the Analysis Area.

However, no records were found within 5 miles of the Approved Site Boundary in the ORBIC database, nor were any recorded during 2011–2013 surveys (Wheatridge 2015).

2.1.2.5 Sessile Mouseltail

Sessile mouseltail is listed by ODA as a candidate species. Found in moist areas associated with drying vernal pools and alkali flats, this species' range includes the Analysis Area. However, no records were found within 5 miles of the Approved Site Boundary in the ORBIC database, nor were any recorded during 2011–2013 surveys (Wheatridge 2015).

Table Q-1. State-Listed and Candidate Species with the Potential to Occur in the Analysis Area

| Scientific Name (synonym) | Common Name | Federal Status ¹ | State Status ² | Occurrence within Analysis Area | Potential Habitat within the Amended Site Boundary |
|---|----------------------------|-----------------------------|---------------------------|---------------------------------|--|
| Mammals | | | | | |
| <i>Urocyon v. washingtoni</i> | Washington ground squirrel | SOC | E | Yes (ORBIC, ASC Exhibit Q) | Yes |
| Plants | | | | | |
| <i>Astragalus collinus</i> var. <i>laurentii</i> | Laurence's milkvetch | SOC | T | Yes | Unlikely |
| <i>Eremothera</i> (<i>Camissonia</i>) <i>pygmaea</i> | Dwarf evening-primrose | SOC | C | None | No |
| <i>Erythranthe</i> (<i>Mimulus</i>) <i>inflata</i> (<i>evanescens</i>) | Disappearing monkeyflower | SOC | C | None | No |
| <i>Erythranthe</i> (<i>Mimulus</i>) <i>jungermannioides</i> | Liverwort monkeyflower | – | C | None | No |
| <i>Myosurus sessilis</i> | Sessile mouseltail | SOC | C | None | No |
| Sources: Burke Museum of Natural History and Culture 2003, OCS 2016, ODA 2018, ODFW 2016, ODFW 2018, ORBIC 2016, Oregon Flora Project 2017a, Oregon Flora Project 2017b, USFWS 2008, USFWS 2018a, USFWS 2018b, USFWS 2018c, WDNR 2017, Wheatridge 2015. | | | | | |
| 1. SOC = Species of Concern. | | | | | |
| 2. T = Threatened, E = Endangered, C = Candidate for Listing. | | | | | |

2.2 Field Surveys

2.2.1 Wildlife

2.2.1.1 Washington Ground Squirrels

Tetra Tech conducted surveys for WAGS within the Amended Site Boundary from May 1-4, 2018, and again from May 30-31, 2018. The purpose of these surveys was to update and to supplement surveys completed for the ASC (see Exhibit P). Survey methods and results are described in detail in

the reports attached to the ASC (Wheatridge 2015) and Exhibit P, Attachment P-1. Areas surveyed during the 2011–2013 surveys and areas surveyed during the 2018 surveys are shown in Figure Q-2. Additional areas were added to the Amended Site Boundary after 2018 field surveys were completed; therefore, they were not surveyed in 2018. As requested during agency consultation with ODFW and ODOE on November 11, 2018, survey areas for WAGS during 2019 surveys should include all WAGS habitat within 1,000 feet of ground disturbance (i.e., permanent and temporary impacts associated with the solar micrositing corridors), similar to that shown in Figure Q-3 (submitted separately under a confidential cover). At the time of preparation of this exhibit, WAGS surveys had been completed for 2019 for the entire Amended Site Boundary associated with the solar facilities described in RFA 4. A memo summarizing the effort is included in Exhibit P as Attachment P-2.

2.2.1.2 Listed, Candidate, and Proposed Fish

No field studies were conducted for fish, because construction and operation of the Facility will involve no temporary or permanent impacts to intermittent or perennial fish-bearing streams. Moreover, there is no historical evidence of the occurrence of any state or federal listed, candidate, or proposed fish species within the Amended Site Boundary (per ORBIC results as described in Wheatridge 2015).

2.2.2 Plants

Rare plant surveys were designed to verify the presence or absence of Laurent’s milkvetch and the four-candidate species identified as having a possibility of occurrence. For each area of land studied, a single survey was conducted at a time deemed appropriate for detecting these species (early May). Complete descriptions of survey areas and methods can be found in the ASC (Wheatridge 2015) and Exhibit P, Attachment P-1. Areas surveyed during 2011–2013 and areas surveyed during 2018 are shown in Figure Q-2. Additional areas were added to the Amended Site Boundary after 2018 field surveys; therefore, they were not surveyed in 2018.

2.2.2.1 Laurent’s Milkvetch

This species was detected during surveys of the Approved Site Boundary (Wheatridge 2015). No individuals of this species were detected in 2018 surveys within the Amended Site Boundary.

2.2.2.2 Dwarf Evening-Primrose

No individuals of this species were detected in 2018 surveys within the Amended Site Boundary.

2.2.2.3 Disappearing Monkeyflower

No individuals of this species were detected in 2018 surveys within the Amended Site Boundary.

2.2.2.4 Liverwort Monkeyflower

No individuals of this species were detected in 2018 surveys within the Amended Site Boundary.

2.2.2.5 *Sessile Mouseltail*

No individuals of this species were detected in 2018 surveys within the Amended Site Boundary.

3.0 Occurrence and Potential Adverse Effects – OAR 345-021-0010(1)(q)(B)

OAR 345-021-0010(1)(q)(B) For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it.

3.1 Wildlife

WAGS occur only in the Columbia Basin of eastern Washington and north-central Oregon. WAGS are a small ground squirrel associated with shrub-steppe habitats of the Columbia Basin ecoregion (Verts and Carraway 1998). In Oregon, the WAGS range extends from Umatilla County, west through Gilliam and Morrow counties, to the John Day River. Concern for the long-term viability of WAGS populations led to their listing by the ODFW as endangered in January 2000. On September 21, 2016, the USFWS announced that listing the WAGS as endangered under the federal Endangered Species Act of 1973 was not warranted (USFWS 2016). WAGS are associated with deep, loose soils in shrub-steppe habitats with a high percentage of grass and forb cover. A secretive species, it is generally active only between February and June, estivating and hibernating deep in burrows through the remainder of the year. The objective of these surveys was to identify WAGS colonies within the areas surveyed, so that impacts to WAGS may be avoided and/or minimized.

Per the ASC, during surveys of the Approved Site Boundary from 2011–2013, 124 detections of WAGS were recorded within the special status vertebrate wildlife species survey corridors associated with the Facility (Wheatridge 2015). These included 50 detections associated with the Wheatridge West turbine group; however, none of these detections occurred within the Amended Site Boundary. These detections ranged from single holes with scat present to larger colonies where WAGS were both seen and heard. WAGS were detected in four habitat types, Basin Big Sagebrush Shrub-steppe, Rabbitbrush/Snakeweed Shrub-steppe, Exotic Annual Grassland, and Native Perennial Grassland. Maps of buffers established around all detections were submitted to ODFW and USFWS personnel in early October 2014. A description of results can be found in the ASC (Wheatridge 2015).

Given this known use of the area, surveys were performed within the Amended Site Boundary during the spring of 2018, as described in Section 2.2.1.1. Biologists recorded one active WAGS colony within the Amended Site Boundary (Figure Q-3). The initial observation was an audio detection at the west side of the colony, in Native Perennial Grassland habitat. Nineteen burrows were identified, with scat occurring at three burrows. Calling was continuous throughout the delineation process. Burrows were scattered across the area, with no more than five in a single location. No other areas of WAGS activity were noted in the Amended Site Boundary.

A potential adverse effect to WAGS would be direct mortality caused by Facility construction activities near the colony. Category 1 habitat related to this colony (i.e., a 785-foot buffer of the colony in suitable habitat) has been avoided by microsites within the Amended Site Boundary. Direct mortality is also possible from Facility vehicles throughout the life of the Facility. Potential indirect adverse effects include the loss of potential future suitable habitat (currently not occupied). Most habitat impacts related to the changes proposed in RFA 4 are to Dryland Wheat, which is not suitable WAGS habitat (see Exhibit P). No displacement of WAGS colonies is anticipated as a result of RFA 4 and the construction and operation of the solar arrays.

During pre-construction, construction, and operation, measures will be implemented to avoid both direct and indirect impacts to WAGS, as described in Section 4.

3.2 Plants

No rare or special-status plants were found within the Amended Site Boundary during 2018 surveys. Areas surveyed during 2011–2013 and 2018 are shown in Figure Q-2. Additional areas were added to the Amended Site Boundary after 2018 field surveys, and were therefore not surveyed. These new areas are located primarily in highly disturbed habitat (i.e., areas that are actively farmed and/or adjacent to Bombing Range Road) that is unlikely to support rare plants (as shown in Exhibit P, Figures P-3 and P-4). Therefore, no impacts to rare or special-status plants are anticipated. These areas will be included in pre-construction survey areas, as required by Final Order on ASC Condition 3 (PRE-TE-03). Per this condition, pre-construction plant surveys for Laurent's milkvetch will be conducted, and if the species is found to occur, the Certificate Holder will install flagging around the plant population and avoid any ground disturbance within this zone. Any protection zones that are established will be included on final design construction plans and exclude herbicide use.

4.0 Avoidance and Mitigation – OAR 345-021-0010(1)(q)(C)

OAR 345-021-0010(1)(q)(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.

4.1 General Measures

The Certificate Holder has implemented and will continue to implement a variety of measures intended to ensure avoidance or minimization of adverse impacts to plants, wildlife, and habitat generally and to state listed and candidate species and their habitats. Many of these measures are described in greater detail in the ASC (Wheatridge 2015) and in RFA 4 Exhibit P. The Certificate Holder will adhere to Site Certificate Conditions PRE-TE-01, PRE-TE-02, and PRE-TE-03, intended to avoid potential impacts to threatened and endangered species. This section identifies those avoidance and mitigation measures that apply to the only listed or candidate species found in the vicinity of the Amended Site Boundary (WAGS).

4.1.1 During Design and Micrositing

During the preliminary design and micrositing of the Facility, avoidance of listed and candidate species of plants and wildlife was ensured by surveying for these species and siting Facility infrastructure outside of locations where these species were found, and outside of Category 1 habitat associated with these species. In accordance with Site Certificate Condition PRE-TE-01, the Certificate Holder will conduct pre-construction surveys, and will engage in the required consultation with ODOE and ODFW to avoid permanent or temporary disturbance in all Category 1 WAGS habitat. While impacts to Category 2 habitat (suitable for WAGS) will be minimized in the final design and micrositing process, any unavoidable impacts will be mitigated for as described in the Habitat Mitigation Plan (ODOE 2017), and in accordance with the ODFW Fish and Wildlife Habitat Mitigation Policy.

Additional pre-construction activities by the Certificate Holder will include compliance with PRE-TE-02 to finalize the Wildlife Monitoring and Mitigation Plan (ODOE 2017), based on the final Facility design, as approved by ODOE in consultation with ODFW.

4.1.2 During Construction

The measures required in the Site Certificate for avoiding and minimizing impacts to wildlife and plants, including listed species (avoidance of flagged areas, construction monitoring, environmental sensitivity training, speed limits), will be implemented during Facility construction, as described in Exhibit P. Prior to construction activities, sensitive areas will be correctly marked with exclusion flagging so that they are avoided during construction.

4.1.3 Post-Construction

The Revegetation Plan, Habitat Mitigation Plan, and Wildlife Monitoring and Mitigation Plan provide guidance and provisions for rehabilitating or mitigating for temporary and permanent impacts to habitat (ODOE 2017). After Facility construction, areas where habitat was temporarily disturbed as a result of construction activities will be restored to their original conditions according to provisions in the Revegetation Plan. Both temporary habitat disturbance and permanent habitat loss will be mitigated for according to provisions of the Habitat Mitigation Plan. Ongoing environmental training for Facility personnel and reporting requirements governing incidental wildlife injuries and deaths on Facility roads will be implemented according to the Wildlife Monitoring and Mitigation Plan.

Speed limits that will minimize the likelihood of death or injury of wildlife generally, and of WAGS in particular, are expected to be implemented throughout the life of the Facility. An approved fire control plan will be implemented throughout the life of the Facility; this is expected to minimize undesired impacts to existing vegetation and wildlife habitats, including habitat for WAGS.

4.2 Wildlife

Initial design and siting of the solar arrays was completed only after the results of surveys for WAGS within the survey areas shown in Figure Q-2 were completed. For each detection of this species, an area of Category 1 habitat was designated, extending 785 feet in suitable habitat beyond the area of documented ground squirrel use (Exhibit P, Figure P-4). An additional buffer of 4,921 feet was designated Category 2 habitat around suitable WAGS habitat. Facility infrastructure was not sited in Category 1 habitat, a standard practice not only meant to avoid existing squirrels and their burrows, but also potential suitable habitat into which squirrels may later disperse.

Additional surveys for WAGS will be conducted in the spring prior to construction of the Facility to ensure that identified areas of use have not expanded to areas where facilities are to be constructed, in accordance with Site Certificate Condition PRE-TE-01. Surveys will ensure that WAGS colonies potentially located in or near the Facility are delineated and avoided in final Facility micro-siting (Figure Q-3).

5.0 Protection and Conservation Program Compliance/Impacts – OAR 345-021-0010(1)(q)(D)

OAR 345-021-0010(1)(q)(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).

There are no species with the potential to occur within the Analysis Area for which ODA has adopted a protection and conservation program. As a result, the Facility is not likely to impact any of ODA's recovery efforts, nor is the Facility likely to cause a significant reduction in the likelihood of survival or recovery of plants with a protection or conservation program under ORS 564.105(3).

6.0 Potential Impacts to Plants, Including Mitigation Measures – OAR 345-021-0010(1)(q)(E)

OAR 345-021-0010(1)(q)(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

No state threatened, endangered, or candidate species were observed within the Amended Site Boundary. Therefore, construction, operation, and maintenance of the Facility are not expected to

result in a significant reduction in the likelihood of survival or recovery of the state threatened Laurent's milk-vetch, or the state candidates dwarf evening-primrose, disappearing monkeyflower, liverwort monkeyflower, and sessile mouse-tail, because these species are not present within the Amended Site Boundary.

7.0 Potential Impacts to Animals, Including Mitigation Measures – OAR 345-021-0010(1)(q)(F)

OAR 345-021-0010(1)(q)(F) For each animal species identified under (A), a description of significant potential impacts of the proposed facility on the continued existence of such species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

7.1 Listed, Candidate, and Proposed Wildlife

WAGS are the only state threatened, endangered, or candidate wildlife species found or expected to be found in the Amended Site Boundary. Construction and operation of the solar arrays will have no significant impact on the survival or recovery of the species. Avoidance of impacts to WAGS and their colonies was accomplished through identifying and buffering areas of use and micrositeing Facility infrastructure outside of those buffers. No Facility infrastructure will be placed within Category 1 WAGS habitat. Impacts to areas which would potentially be colonized by WAGS (Categories 2, 3, and 4) have been minimized during the micrositeing process (see Exhibit P). Mitigation for loss of potentially suitable, but currently unoccupied WAGS habitat will be accomplished through provisions in the Habitat Mitigation Plan (ODOE 2017). Minimization of possible death or injury from interaction with Facility vehicles will be accomplished through speed limits and environmental training of all Facility personnel.

Conditions PRE-TE-01 and PRE-TE-02 require avoidance of any permanent or temporary disturbance in all Category 1 WAGS habitat, and that all sensitive areas are marked with exclusion flagging and avoided during construction (ODOE 2017). No modifications required under RFA 4 will compromise the Certificate Holder's ability to comply with these conditions. Therefore, construction and operation of the Facility are not expected to result in a significant reduction in the likelihood of survival or recovery of WAGS.

7.2 Listed, Candidate, and Proposed Fish

No threatened, endangered, or candidate fish species are found in streams within the Amended Site Boundary. Construction, operation, and maintenance of the Facility are expected to entail no adverse impacts to state listed fish species. No mitigation measures are planned or required.

8.0 Monitoring – OAR 345-021-0010(1)(q)(G)

OAR 345-021-0010(1)(q)(G) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.

The Wildlife Monitoring and Mitigation Plan will be updated to account for the Facility layout modifications proposed in this RFA 4 to satisfy the Council's requirements. Post-construction monitoring will be conducted for WAGS colonies as required by PRE-TE-02.

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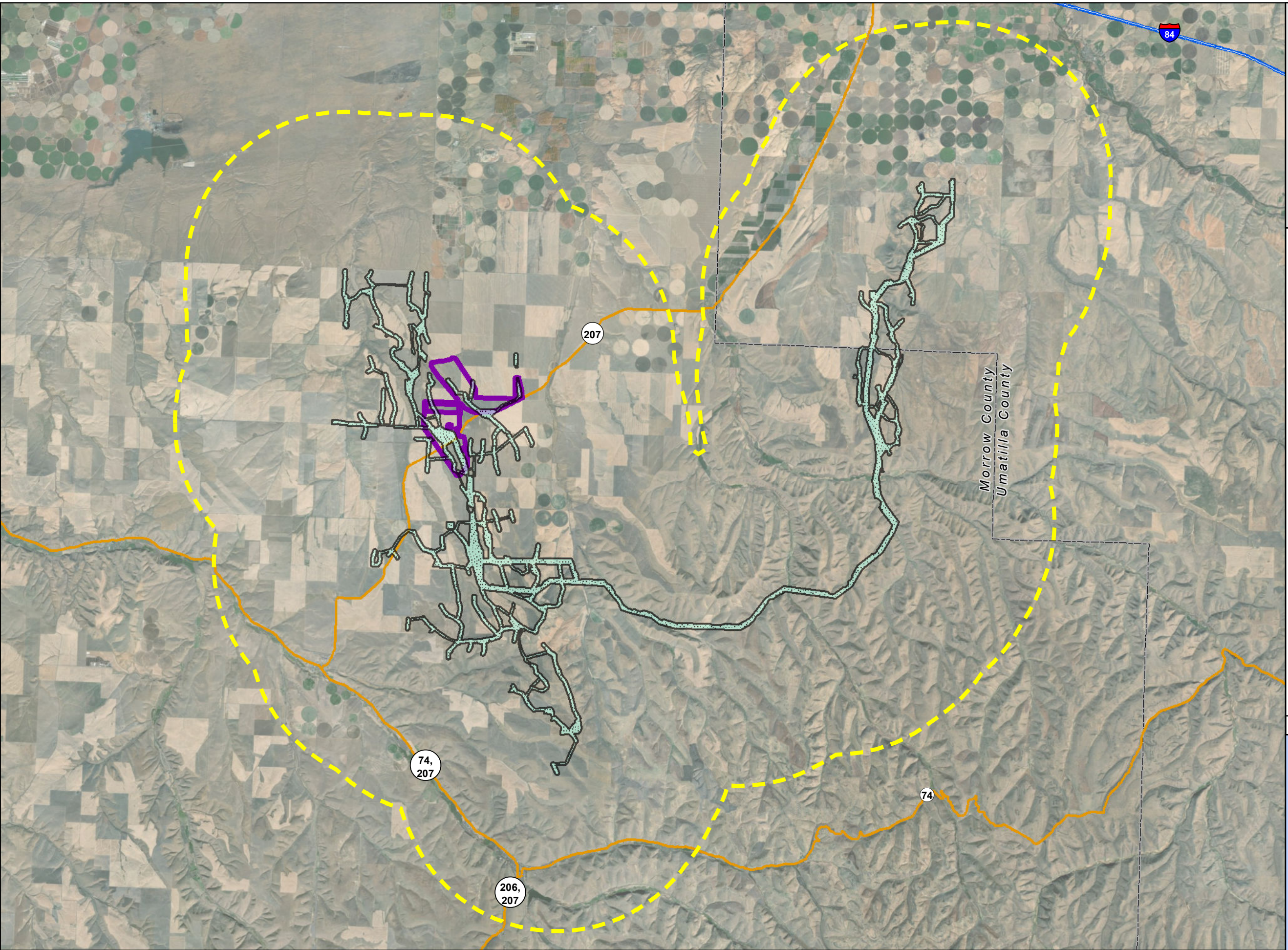
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Figures

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**Wheatridge
Wind Energy Facility
Request for Amendment 4**

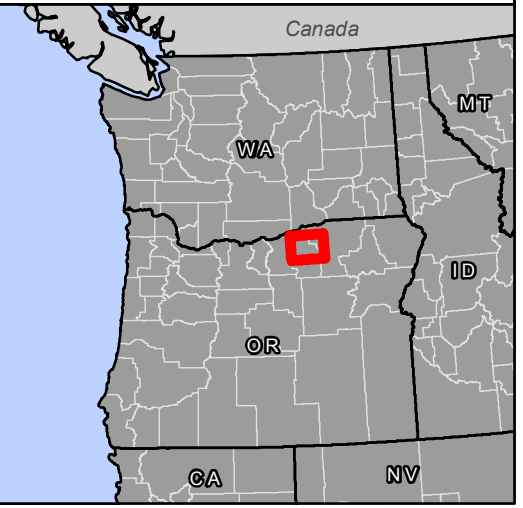
**Figure Q-1
Threatened and Endangered
Species Analysis Area**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (5-mile Buffer)
- Interstate Highway
- State Highway
- County Boundary



Reference Map



**Wheatridge
Wind Energy Facility
Request for Amendment 4**

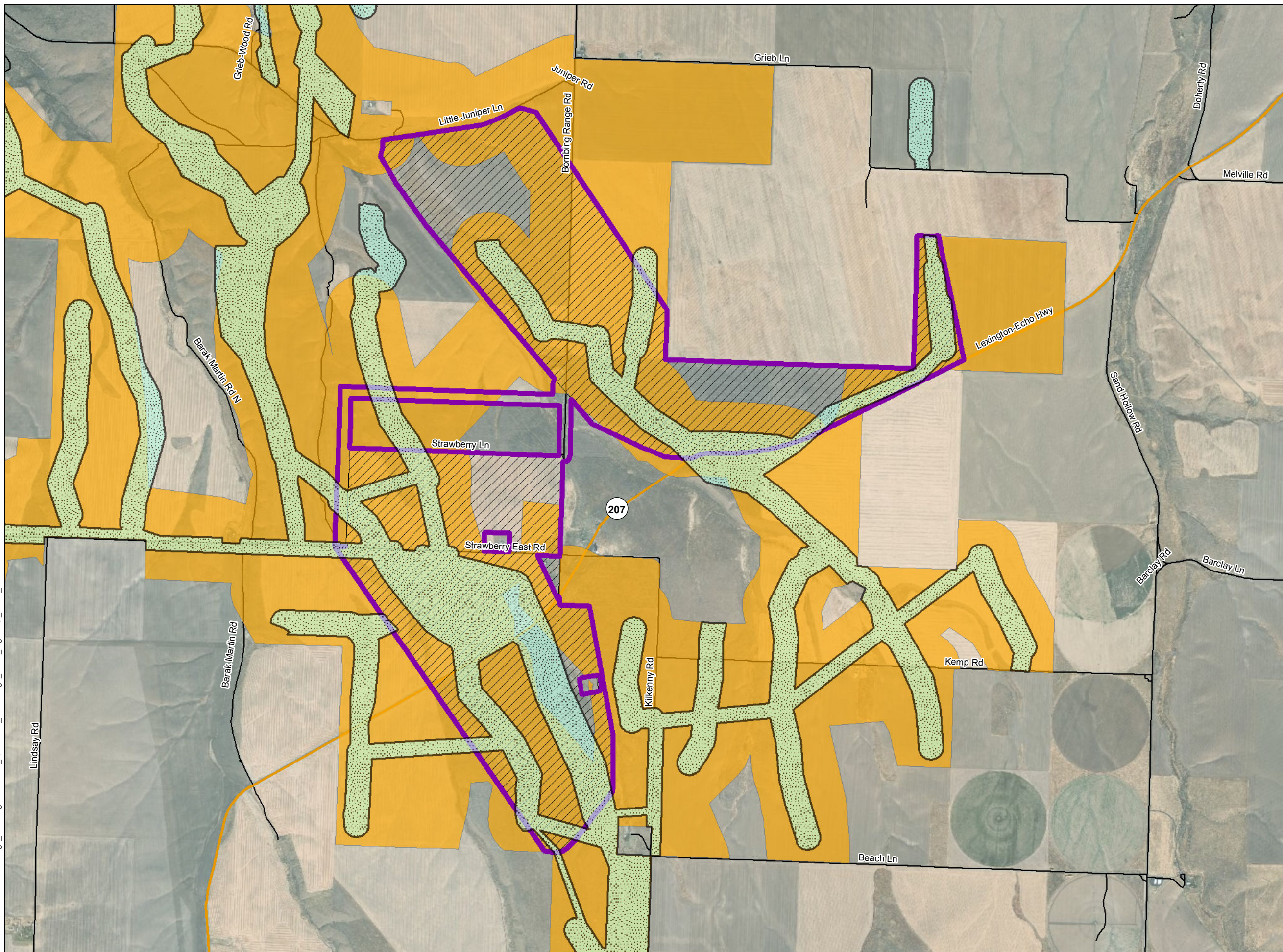
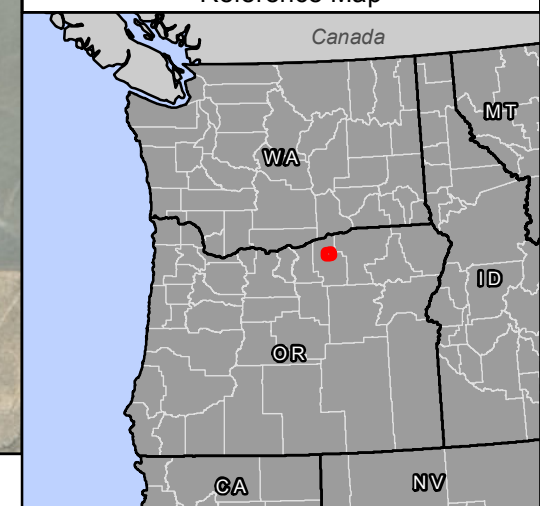
**Figure Q-2
Extent of Rare Plants and
WAGS Surveys 2011-2018**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- State Highway
- Local Road
- County Boundary
- Survey Areas**
 - 2011-2013 Surveys
 - Spring 2018 Surveys



Reference Map



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Exhibit R

Scenic Resources

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Figure R-2. Viewshed Analysis for Solar Facility

Acronyms and Abbreviations

| | |
|--------------------|--|
| ACEC | Area of Critical Environmental Concern |
| ASC | Application for Site Certificate |
| BLM | Bureau of Land Management |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| CMP | Comprehensive Management Plan |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| I-84 | Interstate Highway 84 |
| MW | megawatts |
| NTSA | National Trails System Act |
| NPS | National Park Service |
| OAR | Oregon Administrative Rule |
| ONHT | Oregon National Historic Trail |
| OR-## | Oregon State Highway Number [##] |
| RFA 4 | Request for Amendment 4 |
| RMP | Resource Management Plan |
| USFS | U.S. Forest Service |
| VRM | Visual Resource Management |
| ZVI | Zone of Visual Influence |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit R provides an analysis of the Facility impacts to scenic resources, as required to meet the submittal requirements of Oregon Administrative Rule (OAR) 345-021-0010 (1)(r) paragraphs (A) through (F). Exhibit R demonstrates that the Facility, as modified by RFA 4, can continue to comply with the approval standard in OAR 345-022-0080:

OAR 345-022-0080 Scenic Resources

...to issue a site certificate, the Council must find that the design, construction, and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to scenic resources and values identified as significant or important in local land use

¹ Per OAR 345-001-0010(32) “micrositing corridor” means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

plans, tribal land management plans and federal land management plans for any lands located within the analysis area described in the project order.

2.0 Analysis Area

The Analysis Area for scenic resources is defined in the Project Order as “the area within the Site Boundary and 10 miles from the Site Boundary” (ODOE 2017). The Site Boundary consists of the Approved Site Boundary and the Amended Site Boundary, and is defined in detail in Exhibits B and C. The Analysis Area is shown on Figure R-1.

3.0 Identification of Significant or Important Scenic Resources – OAR 345-021-0010(1)(r)(A)(B)(E)

OAR 345-021-0010(1)(r) An analysis of significant potential impacts of the proposed facility, if any, on scenic resources identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0080, including:

OAR 345-021-0010(1)(r)(A) A list of the local, tribal and federal plans that address lands within the analysis area.

OAR 345-021-0010(1)(r)(B) Identification and description of the scenic resources identified as significant or important in the plans listed in (A), including a copy of the portion of the management plan that identifies the resource as significant or important.

OAR 345-021-0010(1)(r)(E) A map or maps showing the location of the scenic resources described under (B).

This section documents the inventory of scenic resources identified as significant or important in local, tribal, and federal land use plans applicable to the Analysis Area, as required to demonstrate compliance with the approval standard in OAR 345-022-0080. The Analysis Area includes parts of two Oregon counties, six Oregon municipalities, land administered by the Bureau of Land Management (BLM), National Park Service (NPS), and Department of Defense, as well as designated resources under the jurisdiction of the NPS and the U.S. Forest Service (USFS). The following discussion generally reprises and updates information that was previously provided in the Application for Site Certificate (ASC; Wheatridge 2015). Although some plans have been updated since the original evaluation was conducted, the scenic resources located within the Analysis Area remain the same.

Based on a review of applicable land management plans, the Certificate Holder concludes that there are no scenic resources identified as significant or important by any land use plan applicable to the Analysis Area. The following sections describe the applicable jurisdictions, their applicable land use

plans, and the determination as to whether scenic resources identified in the Analysis Area are considered significant or important. These descriptions are summarized in Table R-1. The Analysis Area and the locations of referenced base map features are shown on Figure R-1.

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Table R-1. Inventory of Important Scenic Resources

| Jurisdiction | Plan | Scenic Resources Specified in Plan | Significant or Important Scenic Resources Identified in Analysis Area | Name of Scenic Resource | Location of Scenic Resources Discussed in Plan | Change from Final Order on the ASC? |
|---|---|------------------------------------|---|-------------------------|---|--|
| Counties | | | | | | |
| Morrow County | Morrow County Comprehensive Plan and Zoning Ordinance, as updated through 2016 | No | No | N/A | Goal 5 Natural Resources Element | Updated plan but no change to scenic resources |
| Umatilla County | Umatilla County Comprehensive Plan, as amended through 2017 | Yes | No | N/A | Chapter 8 | Updated plan but no change to scenic resources |
| Cities | | | | | | |
| City of Ione | City of Ione Comprehensive Plan, as referenced in City of Ione 1999, and Zoning Ordinance #158 | No | No | N/A | Section 5 | No |
| City of Lexington | City of Lexington Comprehensive Plan (1979) | No | No | N/A | Section IV | No |
| City of Heppner | City of Heppner Comprehensive Plan (2004) | No | No | N/A | Chapter I | No |
| City of Hermiston | City of Hermiston Comprehensive Plan (2014) | No | No | N/A | Chapters II, III | No |
| City of Stanfield | City of Stanfield Comprehensive Plan (2001) and Development Code (2003) | No | No | N/A | Development Code Chapters 2-3 | No |
| City of Echo | City of Echo Comprehensive Plan (City of Echo 2005) and Zoning Administrative Regulations (City of Echo 2010) | No | No | N/A | Comprehensive Plan Section 7-1-5 | No |
| Tribal | | | | | | |
| None Applicable | None | – | – | – | – | No |
| Federal | | | | | | |
| BLM, Vale District, Baker Resource Area | Baker Resource Management Plan (BLM 1989) | Yes | No | N/A | Chapter 2, Visual Resources; Management Guidance for applicable Geographic Units; Map 5 | No |
| NPS | Management and Use Plan Update, Oregon National Historic Trail and Mormon Pioneer National Historic Trail (NPS1999) | No | No | N/A | Historic Routes and Significant Resources Chapter | No |
| Department of Defense | Integrated Natural Resource Management Plan and Integrated Cultural Resource Management Plan for Boardman Bombing Range (Naval Weapons System Training Facility) (U.S. Navy 2012) | No | No | N/A | N/A; scenic resources not addressed in plan | No |
| USFS/ Oregon Department of Transportation | Blue Mountain Scenic Byway Interpretive Guide (USFS 1993) | Yes | No | N/A | Section II Resource Inventory | No |

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3.1 Counties

3.1.1 Morrow County, Oregon

The Morrow County Comprehensive Plan was originally acknowledged as compliant with State of Oregon planning goals in 1986 and was last updated in 2016 (Morrow County 2016). The Certificate Holder reviewed the collection of Morrow County documents that comprise the updated plan for references to scenic resources or sites identified as significant or important.

The Natural Resources Element includes a table with a summary of Goal 5 resource designations; the table entry for “Scenic Views; Sites” states: “Addressed in plan (p. 69) but none identified” (Morrow County 2016). No further information on scenic views or sites is provided in the document. Morrow County acknowledges in the text that due to amendments adopted in 2013 to the Natural Resources Element, which focused on aggregate and mineral resource protections, text pages are known to be out of order, and updated OAR standards will be applied to other resource categories in the future (Morrow County 2016).

Based on review of the applicable documents, the Certificate Holder concludes that the Morrow County Comprehensive Plan does not identify any scenic resource as significant or important for inclusion in this exhibit.

3.1.2 Umatilla County, Oregon

The Umatilla County Comprehensive Plan addresses the 14 statewide planning goals adopted by the State of Oregon (Umatilla County 2017). Chapter 8 of the Plan addresses open space, scenic and historic areas, and natural resources.” The Plan states that, “there are areas and views which are commonly recognized as striking in their effect upon those who experience them. Geological features, green vegetation, and water are major scenic features; human works and dry, shrub-steppe landscape are other attractions. So that areas do not lose their eye-catching attributes, plans attempt to identify ‘commonly recognized’ scenic features and suggest uses for these areas that minimize conflicts with the valuable features” (p. 8-1). No specific scenic resources are identified in this portion of Chapter 8 (Umatilla County 2017).

Subsequent material in Chapter 8 documents the finding that “Umatilla County has a number of outstanding scenic views and pleasant vistas” (p. 8-10; Umatilla County 2017). In response to the finding, the Plan establishes a series of policies intended to protect scenic views in the county. In general, the policies state the need to address and mitigate adverse visual effects of development and discuss programmatic steps to address potential scenic conflicts that might be associated with proposed changes in land use. One of the policies states that Wallula Gap (a prominent physiographic feature along the Columbia River where it enters Oregon) has been recognized as a significant scenic resource and the County shall enact special land use measures to protect this area (p. 8-12; Umatilla County 2017).

Based on the specific content of the plan, the Certificate Holder concludes that Wallula Gap is the only scenic resource that Umatilla County has identified as important or significant. Wallula Gap is located outside the Analysis Area; therefore, the Umatilla County Comprehensive Plan does not identify any significant or important scenic resources for inclusion in this Exhibit.

3.2 Municipalities

3.2.1 *City of Lexington*

The City of Lexington Comprehensive Plan (1979) establishes a series of goals and policies corresponding to the applicable statewide planning goals. The plan includes a policy goal “to conserve open space and protect natural and scenic resources.” This is followed by an objective “to identify open spaces, scenic and historical areas, and natural resources which should be preserved from urban development.” Section IV of the plan provides a summary of findings, and includes the statement, “No scenic views, wilderness areas, recreational trails or scenic waterways were identified.” Implementing measures listed in the Comprehensive Plan related to scenic resources include the use of an Open Space zoning district; however, there are no areas in the City of Lexington to which that designation has been applied.

Based on the content of the Comprehensive Plan, the Certificate Holder concludes that the City of Lexington does not identify any significant or important scenic resources for inclusion in this Exhibit.

3.2.2 *City of Echo*

The City of Echo Comprehensive Plan (City of Echo 2005) establishes goals and policies for a series of topical areas corresponding to the statewide planning goals. Section 7-1-5 of the plan states a policy for Open Spaces, Scenic and Historic Areas, and Natural areas to “conserve open space and protect natural scenic, historic, and cultural resources.” This is followed with a list of seven policies, none of which specify any particular scenic resource. The city’s Zoning Administrative Regulations (Ordinance 350-07 and 358-10) implement the goals and objectives of the comprehensive plan. The zoning regulations do not establish any scenic resource protection requirements or designate any scenic areas.

Based on the content of the Comprehensive Plan and zoning regulations, the Certificate Holder concludes that the City of Echo does not identify any significant or important scenic resources for inclusion in this Exhibit.

3.2.3 *City of Ione*

Ione is a small, incorporated community located in the west-central part of Morrow County, with a population of approximately 330 persons (Portland State University 2015). The Certificate Holder was unable to obtain or review a copy of the City of Ione Comprehensive Plan. The City of Ione Transportation System Plan (City of Ione 1999) indicates that the comprehensive plan and

implementing regulations were approved in 1979 and have been subsequently amended several times, including in 1987. Section 5 of the Plan establishes Plan Goals and Policies for a series of topical areas corresponding to the statewide planning goals. Section 5 states a policy for Open Spaces, Scenic and Historic Areas, and Natural Resources to “Examine any publicly owned lands including street rights-of-way for their potential open space use before their disposition; and conserve the area’s natural resources and protect open space and natural resources which should be preserved from urban development.”

The Lone zoning ordinance (Ordinance #158, as amended) implements the Comprehensive Plan (City of Lone, n.d.). The ordinance defines land use districts and establishes corresponding standards for the districts, along with other development standards. Section 2 of the ordinance establishes 10 zoning classifications, including a Permanent Open Space (O) zone. Section 3.85 states that no permanent structures may be built in the O zone; identifies permitted uses as farming, natural areas, outdoor recreational facilities and wildlife management and habitat enhancement; and includes no reference to scenic views or sites (City of Lone, n.d.).

Based on the content of the available planning documents and regulations described above, the Certificate Holder concludes that the City of Lone has not identified any significant or important scenic resources for inclusion in this Exhibit.

3.2.4 City of Hermiston

Hermiston is a community of approximately 17,520 residents (Portland State University 2015) located along Interstate 84 (I-84) in the northwestern corner of Umatilla County. The City of Hermiston Comprehensive Plan and supporting technical report was adopted in 1984, and the plan is updated through amendments to the city development code (City of Hermiston 2018). Chapter II of the Plan includes Background Information and Findings. Under the heading Other Goal 5 Resources, this chapter indicates “According to Oregon State Parks and Recreation Division, there are no wilderness areas, potential or approved Oregon wilderness trails, or state and federal wild/scenic waterways within the Hermiston UGB. Other Goal 5 resources, including outstanding scenic views/sites and indigenous energy resources, are discussed in the appropriate sections below” (City of Hermiston 2014). Subsequent content in Chapter II addresses air, noise, and water quality; natural hazards and development limitations; energy resources and conservation; and open space and recreation but does not include specific information about scenic sites or views.

Chapter III of the Plan identifies policies for the respective topical areas. Under the heading E. Resources (Goals 5, 6, 7 and 13), Policy 7 (p. III-10) is stated as “The City of Hermiston will protect natural resources to the maximum degree possible.” The subsequent discussion of implementing actions references the Open Space designation applied to the 100-year floodplain, wetlands in the northeastern part of the city, and the Oregon State University Agricultural Experiment Station. A footnote related to Policy 7 states that “For other Goal 5 resources, see Policy 8: Surface and Groundwater Resources, Policy 9: Aggregate Resources, Policy 10: Historic Resources, and Policy 16: Parks, Recreation and Open Space.” Policy 16 (p. III-18) indicates that Hermiston will acquire

and develop additional parks and will preserve as open space city-owned land that possesses recreational, scenic and other environmental qualities or is subject to natural hazards.

Based on the specific content of the Comprehensive Plan, the Certificate Holder concludes that the City of Hermiston has not identified any significant or important scenic resources for inclusion in this Exhibit.

3.2.5 City of Stanfield

Stanfield is an incorporated community with a population of approximately 2,125 residents (Portland State University 2015) located adjacent to I-84 in the in the northwestern part of Umatilla County. The City of Stanfield Comprehensive Plan was adopted in 1983 and updated in 2001 (City of Stanfield 2001). The technical report supporting the comprehensive plan was updated in 1984, and a zoning ordinance was adopted in the same year. The plan and technical report include 14 goals corresponding to the 14 statewide planning goals. Comprehensive planning guidance and zoning are integrated into the City of Stanfield development code (City of Stanfield 2003). The land use districts defined in Chapter 2 of the development code correspond to the comprehensive plan designations; they include an Open Space District, but do not include any districts oriented to scenic resources. Chapter 3 of the development code establishes design standards that include landscaping and screening provisions that relate to the aesthetic aspects of development.

Based on the specific content of the Comprehensive Plan and development code, the Certificate Holder concludes that the City of Stanfield has not identified any significant or important scenic resources for inclusion in this Exhibit.

3.2.6 City of Heppner

Heppner is a community of approximately 1,295 residents (Portland State University 2015) located at the intersection of OR-74 and OR-207, near the center of Morrow County. The City of Heppner initially developed a comprehensive plan in 1980; it was last updated in 2004. Chapter I of the Plan identifies a goal “To conserve open space and protect natural and scenic resources,” with an objective to identify “open spaces, scenic and historical areas and natural resources which should be preserved from urban development” (City of Heppner 2004).

Based on the specific content of the Comprehensive Plan, the Certificate Holder concludes that the City of Heppner has not identified any significant or important scenic resources for inclusion in this Exhibit.

3.3 Tribal Lands

There are no tribal lands located within the Analysis Area; therefore, this exhibit does not address any tribal land management plans.

3.4 Federal Lands

This section reviews the federal land management plans that apply to lands within the Facility's Analysis Area, as listed in Table R-1. The plans pertain to several parcels of BLM-managed lands, the Oregon Trail and its significant sites, resources within the Boardman Bombing Range, and interpretation associated with the Blue Mountain National Scenic Byway.

3.4.1 BLM

There are multiple, small, scattered parcels of lands managed by the BLM located within the Analysis Area, primarily in Umatilla County. Two of these are inholdings within the Wheatridge East area. A third is located approximately 5 miles north of Wheatridge East; this approximately 300-acre parcel is managed as part of the Oregon Trail Area of Critical Environmental Concern (ACEC), also known as Echo Meadows. The Echo Meadows site is also a protected area as analyzed in Exhibit L of RFA 4. Four other parcels are located south of I-84 and west of OR-207. The locations of these BLM parcels are shown on Figure R-1.

The Federal Land Policy and Management Act of 1976 requires the BLM to protect the quality of scenic values on public lands (43 USC 1701). The BLM manages scenic resources on the federal lands under its jurisdiction through application of the Visual Resource Management (VRM) system. BLM-administered lands in Morrow, Umatilla, Union, and Baker counties are within the Baker Resource Area of the Vale District; the current Resource Management Plan (RMP) for the Baker Resource Area was adopted in 1989 (BLM 1989). The RMP assigns the lands within the Baker area of the district to 14 geographic areas or planning units; Echo Meadows is within the Oregon Trail planning unit, and the two inholdings are managed as part of the Blue Mountain planning unit.

The RMP assigns VRM classifications to all BLM lands within its scope; lands are placed within VRM Classes I, II, III or IV depending on their existing visual quality and the management objectives relative to the amount of visual change that would be allowed to occur within those lands. All lands within the Oregon Trail planning unit, including the Oregon Trail ACEC, are assigned to VRM Class III. The specific VRM classification for the two inholdings is unclear; however, it can be confirmed that neither is assigned to VRM Class I or II².

The Certificate Holder understands that ODOE considers BLM-administered lands managed as VRM Class I and II to be important scenic resources, based on the level of visual resource protection afforded to those lands. Based on the assignment of the BLM-managed lands within the Analysis Area to VRM Class III or IV, the Certificate Holder concludes that there are no scenic resources identified as significant or important by the BLM's Baker RMP for inclusion in this Exhibit.

² Geographic Information System data obtained from BLM does not include VRM classifications for most of the northern half of the Vale District. The two inholdings are managed as part of the Blue Mountain planning unit. The Baker Resource Area RMP indicates that there are no areas within the Blue Mountain planning unit that are assigned to VRM Class I. Map 5 of the RMP identifies "areas of high visual quality" which are assigned to VRM Class II; none of these areas coincide with the location of the two inholding parcels. Because they are definitively not assigned to VRM Class I or II, the inholding parcels are managed either as VRM Class III or IV.

3.4.2 National Park Service

The Analysis Area includes a portion of the Oregon National Historic Trail (ONHT), which received federal designation as a “historic trail” under the National Trails System Act (NTSA) in 1978. The purpose of the historic trail designation on federal lands is to protect the historic route and any associated artifacts. Specifically, the purpose is described in the NTSA as follows:

National historic trails shall have as their purpose the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. Only those selected land and water based components of an historic trail which are on federally owned lands and which meet the national historic trail criteria established in this chapter are included as Federal protection components of a national historic trail....

Thus, the NTSA and its related protections apply only to where the ONHT is on federal lands. In addition, the focus of the NTSA is on historic preservation, not management of scenic resources.

The NTSA indicates that specific locations along a historic trail can be identified as “high-potential” sites or trail segments. High-potential sites and trail segments are described as those locations that provide an opportunity to interpret the historic significance of the trail during its major use. As identified in the Comprehensive Management and Use Plan – Oregon National Historic Trail and Mormon Pioneer National Historic Trail (CMP; NPS 1999), The portion of the ONHT within the Analysis Area includes two high-potential sites, Echo Meadows and the Well Spring Interpretive Site, as well as a portion of the 12 mile-long high-potential trail segment that passes through the southern end of the Boardman Bombing Range (Figure R-1). Echo Meadows is managed by the BLM as part of the Oregon Trail ACEC. The Well Spring Interpretive Site is located along the southern boundary of the Boardman Bombing Range.

The CMP was developed to comply with the requirements of the NHTA and to manage preservation of the ONHT. The CMP explains that the purposes of the ONHT are “to identify, preserve, and interpret sites, route, and history of the Oregon Trail” and “to commemorate the westward movement of emigrants to the Oregon country as an important chapter of our national heritage.” Thus, the ONHT is managed for historical significance and not primarily as a scenic resource. The CMP’s focus on the historic significance of the ONHT and not management of scenic resources is consistent with Energy Facility Siting Council findings in Section IV.3(d) of the Final Order on the Shepherds Flat Wind Farm, dated July 25, 2008. The scenic value connected with the ONHT is focused on the view of visible trail remnants and ruts, along with their immediate surroundings. Therefore, the high-potential sites and segment of the ONHT identified in the CMP and located in the Analysis Area are significant or important historic resources but are not specifically identified as scenic resources (NPS 1999).

Although the Oregon Trail high-potential trail segment and the two high-potential sites are important historic resources, they are neither considered nor managed as significant or important scenic resources. However, the Certificate Holder provides an analysis in Section 4 to demonstrate that the Facility will have limited impacts on the views from these locations.

3.4.3 Department of Defense

Literature search activities conducted for the Facility's scenic resource assessment indicate the U.S. Navy has not prepared an overall land or resource management plan for the Naval Weapons Training Facility Boardman (formerly the Boardman Bombing Range). The Navy has developed an Integrated Natural Resources Management Plan for the Facility (U.S. Navy 2012). This plan addresses wildlife and plant species and their habitats but does not address scenery or other non-ecological natural resources. Similarly, the Navy has also developed an Integrated Cultural Resources Management Plan for the Facility (U.S. Navy 2012). This plan addresses historic and archaeological resources; however, it does not address scenery or other non-cultural aspects of the human environment.

Based on the plans for the Naval Weapons Training Facility Boardman, the Certificate Holder concludes that the Navy does not identify any scenic resources as significant or important for inclusion in this Exhibit.

3.4.4 U.S. Forest Service

Although it is a designated state (not federal) scenic byway, the only "management plan" for this byway is the Blue Mountain Scenic Byway Interpretive Guide (USFS 1993), prepared by the U.S. Forest Service, Umatilla National Forest (a significant portion of the route is along USFS roads). This management plan is focused on means to enhance wayfinding and visitor experience in the many towns along the byway route, which includes OR-74 within the Analysis Area. It is not a land management plan, a transportation plan or a highway management plan, but is instead a plan for enhancing tourism. The plan does not grant or imply authority for land management outside of the Umatilla National Forest, which is outside of the Analysis Area.

The plan identifies a few specific views such as views of the Blue Mountains from a particular highway turnout; however, none of the identified viewpoints are located within the Facility Analysis Area. No specific scenic resources are identified in the area where the Facility would be near to, or potentially visible from, OR-74. Therefore, this plan does not identify any significant or important scenic resources for the purposes of this analysis. Although not included in the scenic resources analysis of this Exhibit, the Blue Mountain Scenic Byway is addressed as a recreation resource in Exhibit T.

4.0 Impact Assessment – OAR 345-021-0010(1)(r)(C)

OAR 345-021-0010(1)(r)(C) A description of significant potential adverse impacts to the scenic resources identified in (B), including, but not limited to, impacts such as:

*(i) Loss of vegetation or alteration of the landscape as a result of construction or operation;
and*

(ii) Visual impacts of facility structures or plumes.

4.1 Impacts to Important Scenic Resources

As stated in Section 3, no scenic resources within the Analysis Area have been identified as significant or important by any land use plan applicable to the Analysis Area. Therefore, the Facility would have no impacts on any important scenic resources.

4.2 Supplemental Visual Impact Assessment

Although it has been determined that applicable land use plans do not identify significant or important scenic resources within the Analysis Area, the Certificate Holder acknowledges that there may be public concern over visual aspects of the Facility. To address that concern, the following section provides a review of existing visual resource conditions in the area surrounding the Facility and the potential changes to those conditions with the Facility as modified by RFA 4. The analysis methodology used for this Exhibit builds on that used by the Council as the basis for its findings in the Final Order (ODOE 2017).

4.2.1 Visual Assessment Overview

Solar panels are the dominant visual element of a solar array. Ancillary Facility components, such as overhead collector lines and skid-mounted inverters and transformers are features that, by themselves, would not be extraordinary features in the landscape and would not present the same level of visual contrast as an array of solar panels. Therefore, the visual assessment is primarily an analysis of solar panel visibility and impact, unless otherwise noted.

The supplemental visual impact assessment involved identifying the areas from which the proposed Facility solar arrays might be visible, and the expected effect of solar array visibility on the existing visual setting. This assessment was based on a zone of visual influence (ZVI) analysis (also known as visibility or viewshed analysis), using ESRI ArcGIS software, to assess the visibility of the solar facilities. The ZVI analysis employed a 10-meter digital elevation model to represent the terrain within the Analysis Area. The ArcGIS software generated lines of sight from the three-dimensional coordinates of the solar facilities to points on the terrain surface, thereby identifying locations from which the solar facilities would potentially be visible. The bare-earth modeling approach used in the ZVI analysis, based only on the effects of terrain on visibility, results in a conservative assessment of potential visibility. A bare-earth analysis does not account for vegetation or buildings, which in practice would block or screen views in some places. In addition, the ZVI model does not account for distance, lighting, and atmospheric factors (such as weather) that diminish visibility under actual field conditions. The results of the ZVI analysis were used to address visual effects from potentially sensitive viewing locations within the Analysis Area.

4.2.2 Solar Array Visibility Characteristics

The proposed solar array is designed to generate power through the absorption of sunlight, resulting in limited reflectivity (glare) that may be visible in some locations within the scenic resources Analysis Area. Viewed at a distance from a similar elevation, the limited reflectivity of the

solar modules would contribute to an overall appearance of a dark line on the horizon. From closer-in views, modules in the solar array would be discernible but they are unlikely to be substantial sources of glint or glare.

The solar modules will be mounted on a tracking system that rotates the modules throughout the day as the sun's angle changes. The movement of the modules, combined with their antireflective coating, would minimize glare. Modern solar modules use a sophisticated antireflective coating to nearly eliminate the reflection of sunlight off the module face. A typical human eye reacts to light wavelengths from 390 to 700 nanometers; in that spectrum, the antireflective-coated glass on a typical module will have a high transmittance level of at least 90 percent. Transmittance is the percent of radiation (light) that travels through a surface. Such a high level of transmittance is important because it means that more light is traveling through the glass and onto the photovoltaic cells, rather than reflecting off the surface. Because the solar modules have transmittance values higher than a body of water or a glass window without an antireflective coating, the potential for them to cause glare is lower compared to these other surfaces. Based on systematic observations of solar facilities in the American Southwest, researchers from the Argonne National Laboratory (Sullivan et al., n.d.) found that thin-film photovoltaic facilities "...were not observed to generate glare."

The surfaces of other Facility components, such as the O&M building and inverter boxes, will be treated to reduce potential visibility and reflectivity through use of dulled finishes in colors selected to blend into the backdrop.

4.2.3 Visibility from Selected Reference Locations

The results of the ZVI analysis are presented in Figure R-2. Because of the low profile of the solar arrays and the terrain conditions in the area, the solar arrays would be blocked from view at most locations within the Analysis Area. Locations of potential visibility of any part of the solar arrays are concentrated in the western part of the Analysis Area, primarily within a radius of approximately 2 to 3 miles of the Amended Site Boundary. Patches of potential visibility are also located at greater distances to the southeast, west, and northwest of the solar facility. The following discussion summarizes expected visibility and potential visual impacts for selected locations within the Analysis Area that have not been identified as important scenic resources, but represent resources that may have a degree of sensitivity from a viewer perspective.

4.2.3.1 Oregon National Historic Trail

Congress designated the route of the Oregon Trail as a National Historic Trail in 1978, and the Oregon Historic Trails Advisory Committee was created to provide public input and advice to the NPS on management of historic trails in Oregon. The National Historic Trail designation applies to a general, primary route (and two specified branches) extending approximately 2,000 miles from Independence, Missouri to Oregon City, Oregon. The Oregon Trail designation was intended to preserve the legacy of the westward immigration of settlers to the Oregon Territory, based on routes used from 1841 to 1848 (NPS 1999). In recognition of the intermittent evidence of many of

the historic trail routes, the National Trails System Act provided for the identification of “high-potential sites and segments” along these routes, using specified criteria for historic significance, the presence of visible historic remnants, scenic quality, and relative freedom from intrusion. High-potential segments are portions of a trail route that afford high-quality recreational experiences in areas that have greater than average scenic values or afford the opportunity to vicariously share the experience of the original trail users, while high-potential sites are specific locations with similar attributes. Each site or segment must have the potential to interpret the trail’s historical significance and to provide opportunities for high-quality recreation.

The NPS (1999) management plan identifies a 12-mile Boardman Segment of the trail in Morrow County as a high-potential trail segment. This trail segment extends from the eastern edge of the Boardman Bombing Range in a southwest direction to Immigrant Lane and then parallels the road to the western edge of the Boardman Bombing Range and continues to the west. Physical evidence of the trail, i.e. wagon ruts, is still present in much of this 12-mile corridor. However, approximately 7 miles of this segment are within the Boardman Bombing Range and inaccessible to the public except for a small area surrounding the Well Spring site (see Section 4.2.3.2 below); the remainder of the high-potential segment is on private lands to the west of the Bombing Range (most of which is managed by The Nature Conservancy as part of the Boardman Conservation Area) and is also not open to the public.

As previously found by the Council, the overall visual impact of the Facility on the Oregon Trail would be negligible because there are virtually no viewers to be affected and the existing viewshed contains wind turbines and other industrial infrastructure (ODOE 2017). The updated visibility analysis for the proposed solar arrays demonstrates potential visibility along approximately 2 miles of the high-potential Oregon Trail segment within the Boardman Bombing Range. Given that the distance from the closest solar array is approximately 4.5 miles, it is questionable whether any of the solar arrays would be noticeable to a potential viewer. If a part of the Facility were visible, the visual impact would be negligible because this portion of the high-potential trail segment is not accessible to the general public and existing wind turbines and other industrial infrastructure would dominate any visual contrast that might be created by the Facility as modified under RFA 4.

4.2.3.2 Oregon Trail Well Spring Interpretive Site

The Oregon Trail Well Spring Interpretive Site is located on Immigrant Lane adjacent to the southern boundary of the Boardman Bombing Range. This site was identified by the NPS as a high-potential site along the Oregon Trail. The site includes an information kiosk located on the south side of the road that seems to be oriented to the south, although most of the trail-related interest (e.g., visible wagon ruts) is located to the north within the Bombing Range, in an area not accessible to the public.

The site is managed to maintain the history and historic artifacts associated with the Oregon Trail, rather than for its scenic qualities; there is no management direction for preservation of views or scenic quality related to the lands on which the Facility is located. Although the relatively undeveloped viewshed is said to provide an experience that enables visitors to relate to the

emigrants, the viewshed is no longer in the nearly pristine condition that it was during the emigrants' time. The road is evident, much of the landscape is farmed and fenced, little of the tallgrass native prairie remains, and the turbines of existing wind facilities are visible to the east and west.

The visibility analysis indicates that the solar arrays would not be visible from the Well Spring site, which is approximately 5 miles northwest of the Amended Site Boundary. The elevation difference between the Well Spring site and the Facility is 161 feet (with the Facility being higher in elevation) with several draws and large hills in between. Therefore, the arrays, with a maximum height of 16 feet, will be blocked from view at the lower-elevation Well Spring site. The remaining evidence of the Oregon Trail at the Well Spring site would not be disturbed by the Facility, allowing visitors to continue their enjoyment of the history of the site.

4.2.3.3 Oregon Trail ACEC Echo Meadows Site

The Echo Meadows interpretive site along the Oregon Trail is located a short distance north of Oregon Trail Road (also known as the Lexington-Echo Highway or OR-320), in an isolated parcel of BLM land within the Oregon Trail ACEC. The site is approximately 2.3 miles north of Wheatridge East and about 15.5 miles northeast of the Amended Site Boundary. The visibility analysis indicates that the solar arrays would not be visible from the Echo Meadows site, and there would be no additional visual impact from the Facility at this location.

4.2.3.4 Local Communities

Exhibit R of the original ASC addressed visibility of the approved Facility from nearby communities (Wheatridge 2015). As indicated in Table R-1 and Section 3.2, six municipalities are located at least partially within the Analysis Area. They are the cities of Lexington, Echo, Ione, Hermiston, Stanfield, and Heppner. The ZVI analysis indicates that the solar facilities would not be visible from any of these communities (see Figure R-2). Therefore, there would be no additional visual impact from the Facility as modified under RFA 4 at the local communities near the Facility.

5.0 Avoidance and Mitigation – OAR 345-021-0010(1)(r)(D)

OAR 345-021-0010(1)(r)(D) The measures the applicant proposes to avoid, reduce or otherwise mitigate any significant adverse impacts.

As described Section 4, the Facility will have no impact on any important scenic resources in the Analysis Area. In addition, a supplemental visual analysis determined that the Facility as modified under RFA 4 would not result in adverse visual impacts at selected locations that may be considered sensitive viewing areas. Consequently, no mitigation measures for scenic resources are proposed.

6.0 Monitoring – OAR 345-021-0010(1)(r)(F)

OAR 345-021-0010(1)(r)(F) The applicant's proposed monitoring program, if any, for impacts to scenic resources.

Monitoring for visual impacts is not proposed. Unlike some other types of impacts, such as potential impacts to biological resources, visual impacts typically do not change over time. Therefore, monitoring for visual impacts would not provide meaningful information.

7.0 References

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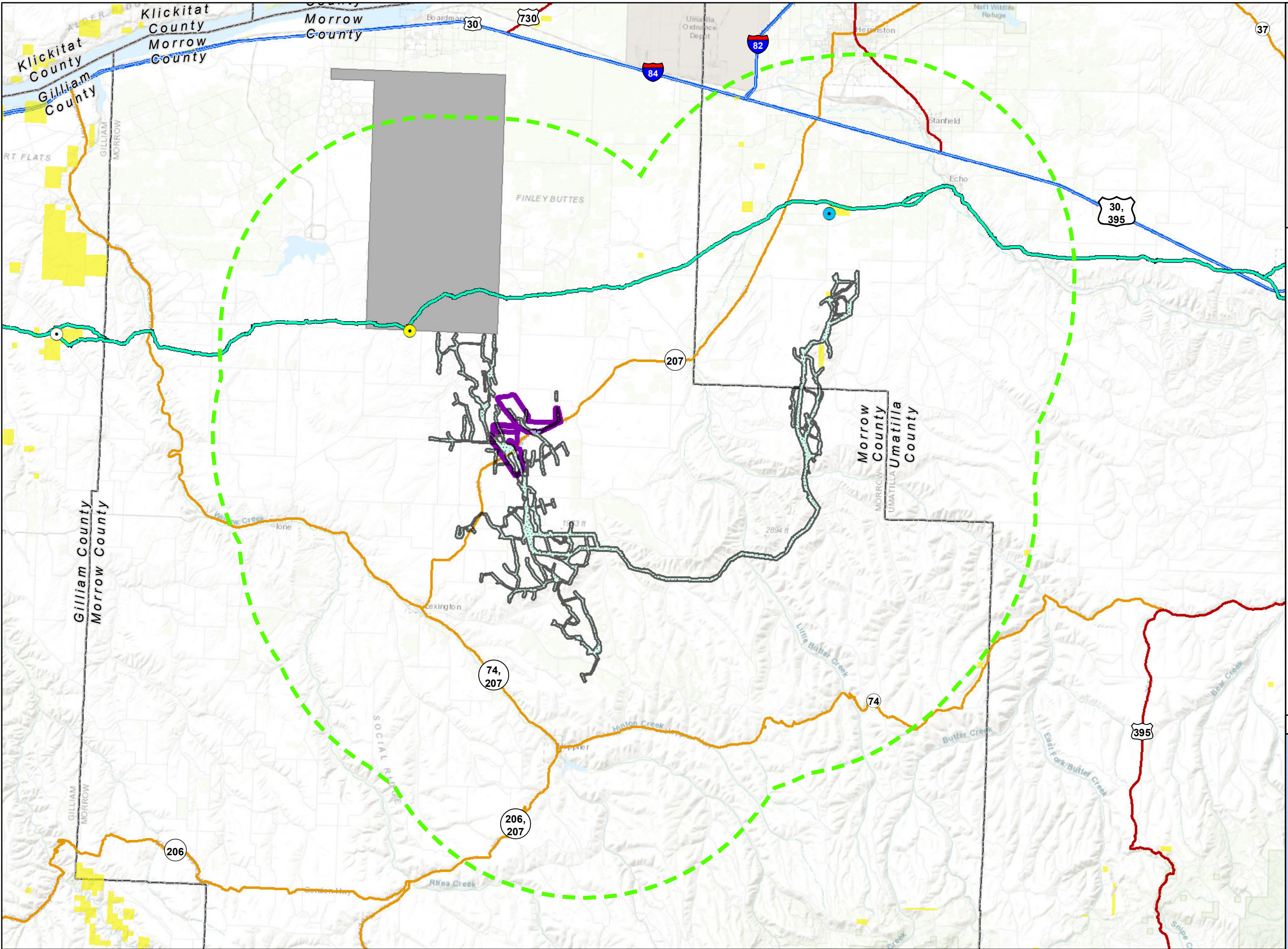
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Figures

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**Wheatridge
Wind Energy Facility
Request for Amendment 4**

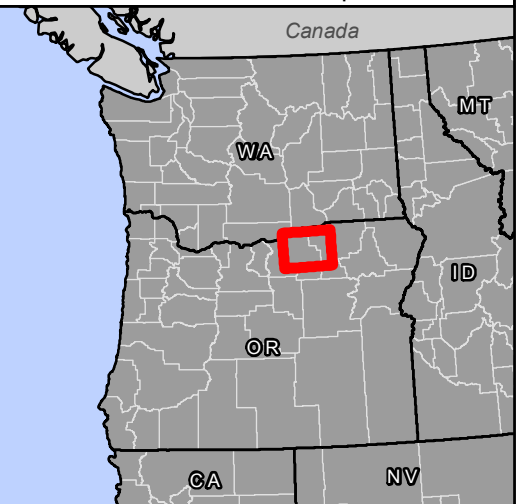
**Figure R-1
Analysis Area for
Scenic Resources**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (10-mile Buffer)
- Interstate Highway
- US Highway
- State Highway
- County Boundary
- Bureau of Land Managment (BLM)
- Boardman Bombing Range
- Oregon Trail Route
- Oregon Trail Interpretive Site
 - Echo Meadows
 - Well Spring
 - Fourmile Canyon



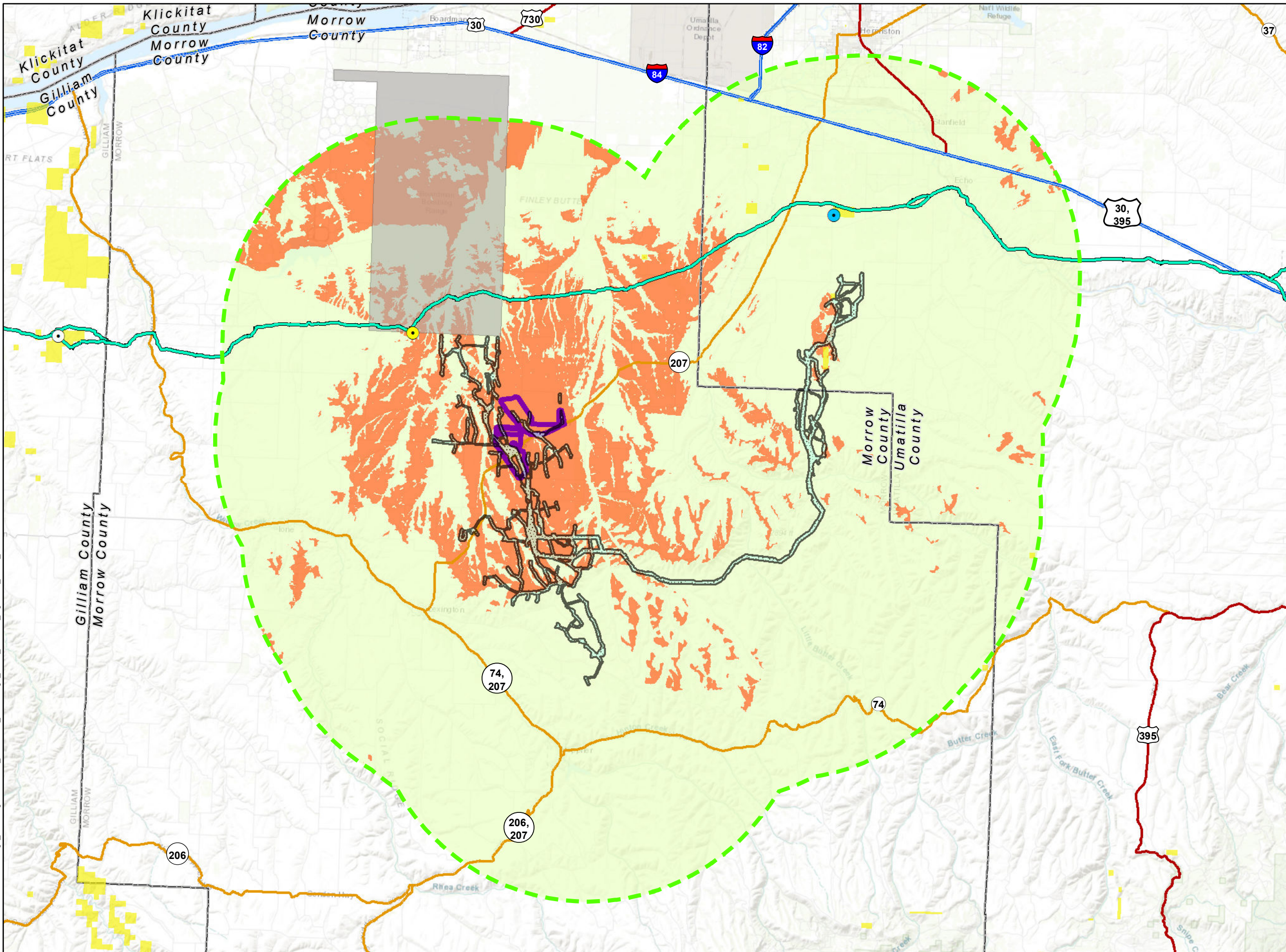
Reference Map



1:275,000 WGS 1984 UTM Zone 11N

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**Wheatridge
Wind Energy Facility
Request for Amendment 4**

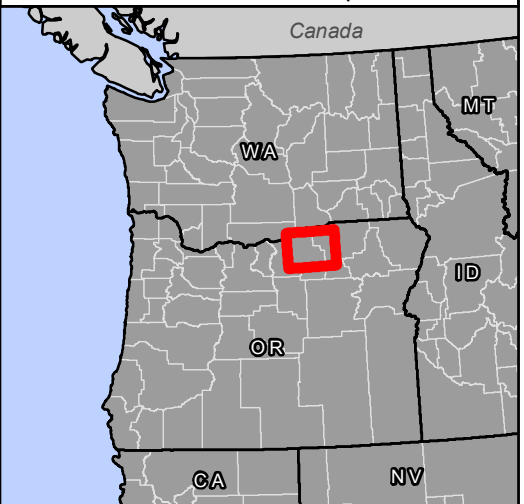
**Figure R-2
Viewshed Analysis
for Solar Facility**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (10-mile Buffer)
- Interstate Highway
- US Highway
- State Highway
- County Boundary
- Bureau of Land Managment (BLM)
- Boardman Bombing Range
- Oregon Trail Route
- Oregon Trail Interpretive Site
 - Echo Meadows
 - Well Spring
 - Fourmile Canyon
- Solar Facility Viewshed Analysis
 - Not Visible
 - Potentially Visible



Reference Map



1:275,000 WGS 1984 UTM Zone 11N

00.51 2 3 4
Miles

Exhibit S

Historic, Cultural, and Archaeological Resources

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|----------|--------------------------------------|
| ASC | Application for Site Certificate |
| Facility | Wheatridge Wind Energy Facility |
| NRHP | National Register of Historic Places |
| OAR | Oregon Administrative Rules |
| RFA 4 | Request for Amendment 4 |
| SHPO | State Historic Preservation Office |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit S provides an analysis of potential significant, adverse impacts of the Facility to historic, cultural, and archaeological resources for RFA 4. This exhibit demonstrates that the Facility, as proposed, complies with the approval standards in Oregon Administrative Rules (OAR) 345-022-0090 and the submittal requirements in OAR 345-021-0010(1)(s) paragraphs (A) through (E). Specifically, OAR 345-022-0090 states that:

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to:

(a) Historic, cultural, or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;

¹ Per OAR 345-001-0010(32) “micrositing corridor” means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

(b) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and

(c) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c).

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

2.0 Historic and Cultural Resources within the Analysis Area

OAR 345-021-0010(1)(s) Information about historic, cultural and archaeological resources. Information concerning the location of archaeological sites or objects may be exempt from public disclosure under ORS 192.502(4) or ORS 192.501(11). The applicant shall submit such information separately, clearly marked as “confidential,” and shall request that the Department and the Council keep the information confidential to the extent permitted by law. The applicant shall include information in Exhibit S or in confidential submissions providing evidence to support a finding by the Council as required by OAR 345-022-0090, including:

2.1 Analysis Area

Pursuant to OAR 345-021-0010(1)(a) and (b), the Analysis Area for cultural resources is the Site Boundary (Figure S-1). The Site Boundary consists of the Approved Site Boundary and the Amended Site Boundary, and is defined in detail in Exhibits B and C.

2.2 Listed or Potential Resources for the National Register of Historic Places – OAR 345-021-0010(1)(s)(A)

OAR 345-021-0010(1)(s)(A) Historic and cultural resources within the analysis area that have been listed, or would likely be eligible for listing, on the National Register of Historic Places.

There are seven archaeological sites within the Analysis Area that were recommended by Dickson (2014) as eligible for National Register of Historic Places (NRHP) listing (potential historic properties) (see Table S-2). None are within the Amended Site Boundary. No NRHP-eligible resources were identified by surveys of the solar arrays (King and Cody 2019 and King and Berger 2019).

2.3 Archaeological Objects and Sites on Private Lands – OAR 345-021-0010(1)(s)(B)

OAR 345-021-0010(1)(s)(B) For private lands, archaeological objects, as defined in ORS 358.905(1)(a), and archaeological sites, as defined in ORS 358.905(1)(c), within the analysis area.

A total of 16 archaeological sites and eight archaeological objects have been identified on private lands within the Analysis Area (see Table S-2). One of the archaeological sites (WRII-DM-04) and two of the archaeological objects (6B2H-MC-ISO-17 and WRII-BB-ISO-01) are within the Amended Site Boundary. The remainder of the sites and objects were identified by Dickson (2014) as within the original Application for Site Certificate (ASC) Site Boundary. As noted in the ASC Exhibit S, the Facility was designed to avoid cultural resources and there would be no impacts to the archaeological resources identified by Dickson (2014). Archaeological resources identified in the Amended Site Boundary have been recommended as not eligible for listing on the NRHP. With the exception of archaeological object WRII-BB-ISO-01 (a historic horseshoe), all identified archaeological resources are avoided by Facility components. The proposed collector line may impact WRII-BB-ISO-01 depending on the final collector line route and construction method. However, if impacts were to occur, since the archaeological object is considered not eligible for listing on the NRHP, impacts to it would not be expected to be significant. No impacts on the remaining archaeological objects or sites on private lands are expected to occur within the Analysis Area.

2.4 Archaeological Objects and Sites on Public Lands – OAR 345-021-0010(1)(s)(C)

OAR 345-021-0010(1)(s)(C) For public lands, archaeological sites, as defined in ORS 358.905(1)(c), within the analysis area.

There are no archaeological sites or objects on public lands within the Analysis Area.

3.0 Description of Cultural Resources Surveys Performed - OAR 345-021-0010(1)(s)(D)

OAR 345-021-0010(1)(s)(D) The significant potential impacts, if any, of the construction, operation and retirement of the proposed facility on the resources described in paragraphs (A), (B) and (C) and a plan for protection of those resources that includes at least the following:

3.1 Methods – OAR 345-021-0010(1)(s)(D)(i)

(i) A description of any discovery measures, such as surveys, inventories, and limited subsurface testing work, recommended by the State Historic Preservation Officer or the

National Park Service of the U.S. Department of Interior for the purpose of locating, identifying and assessing the significance of resources listed in paragraphs (A), (B) and (C).

The majority of the Analysis Area has been surveyed for cultural resources, either through the original survey (Dickson 2014) conducted for the original ASC, or a survey conducted for RFA 4 (King and Cody 2019, King and Berger 2019).

3.1.1 Records Review

Dickson (2014) provides a summary of previous studies conducted within 1 mile of the wind micrositing corridors, as well as a review of historic maps. This literature review search area encompassed the Analysis Area. In addition to Dickson (2014), in support of RFA 4, King and Cody (2019) reviewed Oregon State Historic Preservation Office's (SHPO) Online Archaeological Records Remote Access and Historic Sites Database to confirm the results of the file search conducted by Dickson (2014) remains valid for the Analysis Area. Historic aerial photographs of the Amended Site Boundary were also reviewed by King and Cody (2019).

In addition to those resources recorded by Dickson (2014), the records review conducted by King and Cody (2019) identified one previously recorded archaeological object (6B2H-MC-ISO-17) within the Amended Site Boundary of the Analysis Area. Dickson (2014) was the only previously conducted survey within the Analysis Area prior to the surveys conducted for RFA 4 by King and Cody (2019) and King and Berger (2019).

3.1.2 Field Surveys

Three surveys have been conducted within the Analysis Area. These are summarized in Table S-1, and provided as confidential Attachment S-1.

Table S-1. Field Efforts Undertaken for the Project

| Author (Affiliation) | Date | Title | Description |
|---|-------------|--|--|
| Catherine Dickson (Confederated Tribes of the Umatilla Indian Reservation) | 2014 | <i>An Archaeological Investigation for the Wheatridge Wind Energy Facility, Morrow and Umatilla Counties, Oregon</i> | Original ASC survey of the wind micrositing corridors conducted by the Confederated Tribes of the Umatilla Indian Reservation. |
| Erin King and Tia Cody (Tetra Tech, Inc.) | 2019 | <i>Supplemental Cultural Resources Pedestrian Survey Report, Wheatridge Wind & Solar Power Project, Morrow and Umatilla Counties, Oregon</i> | Survey conducted of the solar array areas (minus areas of overlap with previously surveyed wind micrositing corridors) conducted by Tetra Tech, Inc. |

| Author (Affiliation) | Date | Title | Description |
|---|------|---|---|
| Erin King and Brady Berger (Tetra Tech, Inc.) | 2019 | <i>Supplemental Cultural Resources Pedestrian Survey Report Addendum 1, Wheatridge Wind & Solar Power Project, Morrow and Umatilla Counties, Oregon</i> | Survey conducted of the collector line corridor between solar array areas (minus areas of overlap with previously surveyed wind microsites corridors) conducted by Tetra Tech, Inc. |

3.2 Survey and Inventory Results – OAR 345-021-0010(1)(s)(D)(ii)

(ii) The results of the discovery measures described in subparagraph (i), together with an explanation by the applicant of any variations from the survey, inventory, or testing recommended.

Surveys conducted within the Analysis Area have identified a total of 28 cultural resources. This includes 15 archaeological sites and 6 archaeological objects within the wind microsites corridors (including the intraconnection corridor) and documented by Dickson (2014). Another four historic sites, one archaeological site, and two archaeological objects were identified by King and Cody (2019) and King and Berger (2019) within the solar microsites corridors. These are summarized in Table S-2. Seven of the archaeological sites identified in the wind microsites corridors are considered NRHP-eligible. None of the resources in the solar microsites corridors have been recommended as eligible for listing on the NRHP. All of the resources within the Analysis Area, except for WRII-BB-ISO-01, are avoided by the Facility, as proposed.

Table S-2. Cultural Resources Identified in the Analysis Area

| Resource | Resource Description | Survey Report | Microsites Corridor | Landowner Status | NRHP Recommendation |
|---------------------------------|--|----------------------|---------------------|------------------|---------------------|
| Historic Sites | | | | | |
| Lexington-Echo Highway (OR 207) | In-use/modernized segment of historic road. | King and Cody (2019) | Solar | ODOT | Not Eligible |
| Bombing Range Road | In-use/modernized segment of historic road. | King and Cody (2019) | Solar | County | Not Eligible |
| Strawberry Lane | In-use/modernized segment of historic road. | King and Cody (2019) | Solar | County | Not Eligible |
| Starvation Farms | Historic buildings within modern farm. | King and Cody (2019) | Solar | Private | Not Eligible |
| Archaeological Sites | | | | | |
| WRII-DM-04 | Abandoned historic agricultural access road. | King and Cody (2019) | Solar | Private | Not Eligible |

EXHIBIT S: HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES

| Resource | Resource Description | Survey Report | Micrositing Corridor | Landowner Status | NRHP Recommendation |
|-------------------------------|---|------------------------|-----------------------------|-------------------------|----------------------------|
| 112013B | Rock feature | Dickson (2014) | Wind | Private | Eligible |
| 112108B | Rock feature | Dickson (2014) | Wind | Private | Eligible |
| 112112D | Farm equipment | Dickson (2014) | Wind | Private | Not eligible |
| 112609A | Farm equipment | Dickson (2014) | Wind | Private | Not eligible |
| 112613A | Farm equipment | Dickson (2014) | Wind | Private | Not eligible |
| 112714A | Farm equipment | Dickson (2014) | Wind | Private | Not eligible |
| 122408A | Farm equipment | Dickson (2014) | Wind | Private | Not eligible |
| 010711A | Lithic scatter | Dickson (2014) | Wind | Private | Eligible |
| 010913A | Well and reservoir | Dickson (2014) | Wind | Private | Not eligible |
| 102812A | Farm equipment | Dickson (2014) | Wind | Private | Not eligible |
| 103012A | Rock feature | Dickson (2014) | Wind | Private | Eligible |
| 110409A | Rock feature | Dickson (2014) | Wind | Private | Eligible |
| 111414A | Rock feature | Dickson (2014) | Wind | Private | Eligible |
| Vey Ranch Phone Line | Phone line | Dickson (2014) | Wind | Private | No recommendation |
| 111410A | Rock feature | Dickson (2014) | Intraconnection Corridor | Private | Eligible |
| Archaeological Objects | | | | | |
| 6B2H-MC-ISO-17 | Small agricultural cache of three hay mowers. | King and Cody (2019) | Solar | Private | Not Eligible |
| WR11-BB-ISO-01 | Isolated horseshoe. | King and Berger (2019) | Solar | Private | Not Eligible |
| 111813A | Isolated CCS flake | Dickson (2014) | Wind | Private | No recommendation |
| 121808B | Isolated CCS flake | Dickson (2014) | Wind | Private | No recommendation |

| Resource | Resource Description | Survey Report | Micrositing Corridor | Landowner Status | NRHP Recommendation |
|----------|---|----------------|----------------------|------------------|---------------------|
| 010610D | Isolated biface fragment | Dickson (2014) | Wind | Private | No recommendation |
| 102809A | Isolated obsidian flake | Dickson (2014) | Wind | Private | No recommendation |
| 103111A | Isolated bottle fragment | Dickson (2014) | Wind | Private | No recommendation |
| 110508B | Historic artifact scatter (isolated find) | Dickson (2014) | Wind | Private | No recommendation |

3.3 Measures Designed to Prevent the Destruction of Historic, Cultural, and Archaeological Resources – OAR 345-021-0010(1)(s)(D)(iii)

OAR 345-021-0010(1)(s)(D)(iii) A list of measures to prevent destruction of the resources identified during surveys, inventories and subsurface testing referred to in subparagraph (i) or discovered during construction.

The majority of identified resources are avoided by the Facility as proposed. The potential impact to the single archaeological object (WRII-BB-ISO-01) is not considered a significant impact.

All previously approved Site Certificate Conditions will remain applicable to prevent significant impacts on cultural resources. These include:

- PRE-HC-01: Submission of final design;
- PRE-HC-02: Marking of buffer areas around significant cultural resources;
- PRE-HC-03: Training by qualified archeologist;
- CON-HC-01: Flagging and monitoring of 200-foot avoidance buffer around significant cultural resources; and
- CON-HC-02: Implementation of approved Unanticipated Discovery Plan (see Section 7.2 of Wheatridge 2015).

4.0 Proposed Monitoring Plan – OAR 345-021-0010(1)(s)(E)

OAR 345-021-0010(1)(s)(E) The applicant's proposed monitoring program, if any, for impacts to historic, cultural and archaeological resources during construction and operation of the proposed facility.

Approved Site Certificate Condition CON-HC-01 requires monitoring of construction activities within 200 feet of a significant cultural resource. This condition remains applicable to the proposed changes in RFA 4.

5.0 References

- Dickson, C. 2014. *An Archaeological Investigation for the Wheatridge Wind Energy Facility, Morrow and Umatilla Counties, Oregon*. Confederated Tribes of the Umatilla Indian Reservation, Cultural Resources Protection Program, Pendleton, Oregon. Contract #363-013. Submitted to Wheatridge Wind Energy, Ione, Oregon. SHPO Report #26556.
- King, E. and B. Berger. 2019. *Supplemental Cultural Resources Pedestrian Survey Report Addendum 1, Wheatridge Wind & Solar Power Project, Morrow and Umatilla Counties, Oregon*. Draft. Tetra Tech, Inc., Portland, Oregon. Project #194-6496. Submitted to Wheatridge Wind Energy, LLC, Juno Beach, Florida.
- King, E. and T. Cody. 2019. *Supplemental Cultural Resources Pedestrian Survey Report, Wheatridge Wind & Solar Power Project, Morrow and Umatilla Counties, Oregon*. Draft. Tetra Tech, Inc., Portland, Oregon. Project #194-6496. Submitted to Wheatridge Wind Energy, LLC, Juno Beach, Florida.
- Wheatridge (Wheatridge Wind Energy, LLC). 2015. Wheatridge Wind Energy Facility Application for Site Certificate. Prepared by Tetra Tech, Inc. July 2015.

Figures

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**Wheatridge
Wind Energy Facility
Request for Amendment 4**

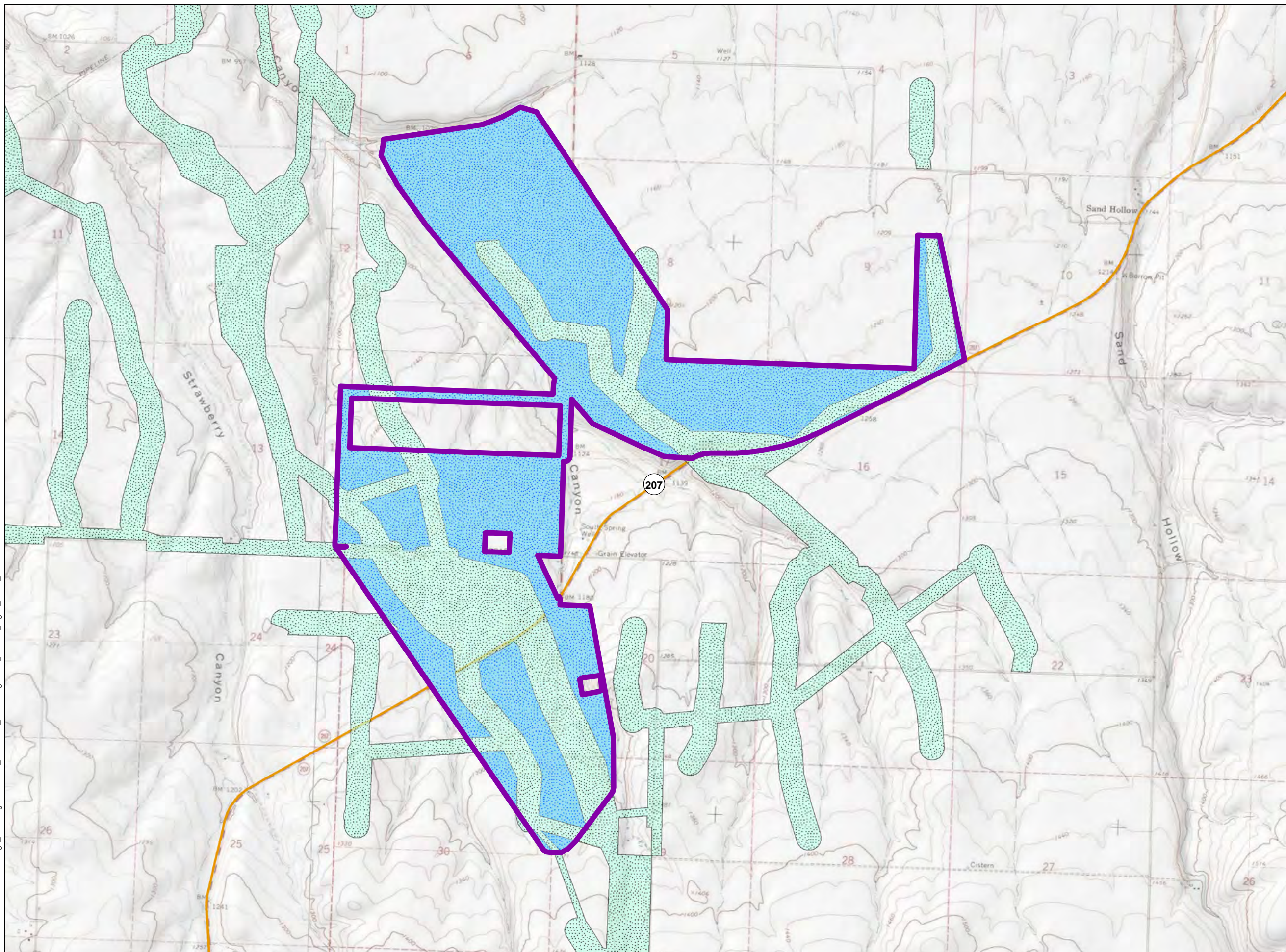
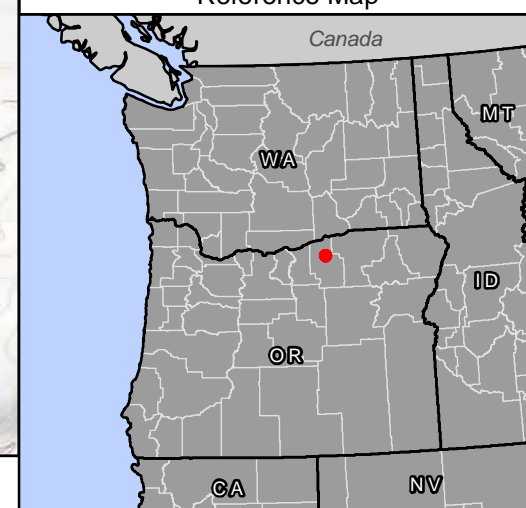
**Figure S-1
Cultural Resources Survey Area**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Surveyed Area
- State Highway



Reference Map



1:30,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 Miles

NOT FOR CONSTRUCTION

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**Attachment S-1: Cultural Resources
Survey Reports**

**(CONFIDENTIAL – PROVIDED UNDER
SEPARATE COVER)**

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Exhibit T

Recreation

Wheatridge Wind Energy Facility June 2019

Prepared for



Prepared by



Tetra Tech, Inc.

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Attachment T-1. Inventory of Recreational Opportunities in the Analysis Area

Acronyms and Abbreviations

| | |
|--------------------|--|
| ACEC | Area of Critical Environmental Concern |
| BLM | Bureau of Land Management |
| Council | Energy Facility Siting Council |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| dBA | decibel |
| Facility | Wheatridge Wind Energy Facility |
| MW | megawatts |
| NPS | National Park Service |
| OAR | Oregon Administrative Rule |
| ODFW | Oregon Department of Fish and Wildlife |
| OPRD | Oregon Parks and Recreation Department |
| OR-74 | Oregon State Highway 74 |
| RFA 4 | Request for Amendment 4 |
| ZVI | Zone of visual influence |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit T contains information pertaining to potential adverse impacts of construction and operation for the Facility on important recreational opportunities, as required to meet the submittal requirements in Oregon Administrative Rule (OAR) 345-021-0010(t) paragraphs (A) through (E). This Exhibit demonstrates that the Facility can comply with the approval requirements found in OAR 345-022-0100:

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of a facility, taking into account mitigation, are not likely to result in a significant adverse impact to important recreational opportunities in the analysis area as described in the project order. The Council shall consider the following factors in judging the importance of a recreational opportunity:

¹ Per OAR 345-001-0010(32) "Micrositing corridor" means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

- (a) Any special designation or management of the location;*
 - (b) The degree of demand;*
 - (c) Outstanding or unusual qualities;*
 - (d) Availability or rareness; and*
 - (e) Irreplaceability or irretrievability of the opportunity.*
- (2) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*

2.0 Recreational Opportunities in the Analysis Area – OAR 345-021-0010(1)(t)(A)(D)

OAR 345-021-0010(1)(t) Information about the impacts the proposed facility would have on important recreational opportunities in the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0100, including:

OAR 345-021-0010(1)(t)(A) A description of the recreational opportunities in the analysis area that includes information on the factors listed in OAR 345-022-0100(1) as a basis for identifying important recreational opportunities.

OAR 345-021-0010(1)(t)(D) A map of the analysis area showing the locations of important recreational opportunities identified in (A).

OAR 345-001-0010(59)(d) defines the Analysis Area for recreational resources as the area within and extending five miles from the Site Boundary. The Site Boundary consists of the Approved Site Boundary and the Amended Site Boundary, and is defined in detail in Exhibits B and C. As previously found by the Council, the design, construction and operation of the facility are not likely to result in a significant adverse impact to any important recreational opportunities in the Analysis Area (ODOE 2017). No new recreational areas are located within the Analysis Area since the Site Certificate was issued. Although RFA 4 proposes an expansion to the Site Boundary to accommodate the solar arrays, the Analysis Area for recreational resources is the same as previously analyzed because the Amended Site Boundary is interior to the Approved Site Boundary. The Recreational Analysis Area is shown on Figure T-1 and an inventory of the recreational opportunities within the Analysis Area is included as Attachment T-1.

2.1 Inventory Methods

Recreational opportunities within the Analysis Area were identified through collection and review of existing information available from desktop research sources, including the following types of sources:

- Published maps with geographic coverage applicable to the Analysis Area. Specific sources included US Geological Survey 1:100,000 scale and 1:24,000 scale topographic maps; maps published by land management agencies, primarily the Bureau of Land Management (BLM); and the Oregon Atlas and Gazetteer (DeLorme 2017), which includes topographic maps and data on a wide variety of recreational opportunities.
- Geographic Information System files documenting recreational resources obtained from key recreation provider agencies, including BLM (BLM 2018), Oregon Parks and Recreation Department (OPRD; OPRD 2017), and Oregon Department of Fish and Wildlife (ODFW; ODFW 2016).
- Land management agency planning documents.
- Comprehensive plans, park and recreation plans, and individual park master plans prepared by OPRD and by counties and municipal governments within the Analysis Area.
- Internet sites maintained by recreation provider agencies, including OPRD and county and city park departments.
- Internet sites maintained by various commercial entities, including sites providing general recreation and tourism information and sites applicable to specific private-sector recreational opportunities (ORBIC 2015).

2.2 Summary of Recreational Opportunities

In general, recreation activities in the Analysis Area consist of hiking, fishing, boating, camping, bicycling, photography, game and bird hunting, and sightseeing. These activities also occur in numerous locations outside the Analysis Area, and therefore some of the recreational opportunities identified within the Analysis Area do not rise to the level of uniqueness or irreplaceability that is required by OAR 345-022-0100(1).

There are 15 identified recreational opportunities within the Analysis Area. These include the Morrow County Fairgrounds, several parks managed by the City of Heppner, Willow Creek Reservoir and the adjacent Willow Creek RV Park, the Blue Mountain Scenic Byway, a portion of the Oregon Trail, a golf course open to the public, and several areas open to the public for hunting. As noted above, none of these recreational areas are new and all were previously assessed by Council as described in the Final Order on the ASC (ODOE 2017). However, two of the recreational opportunities within the Analysis Area are within five miles of the Amended Site Boundary, as proposed by RFA 4. These include a portion of the Oregon Trail and the Well Springs Interpretive Site for the trail.

Recreational opportunities within the Analysis Area are described below in order of federal, state, local and private ownership/management. Attachment T-1 provides a summary of each identified recreational opportunity, and an assessment of the importance of each opportunity. Figure T-1 shows the location of the recreation opportunities identified in the Analysis Area.

2.2.1 Federal

The National Park Service (NPS), in conjunction with the Oregon Historic Trails Advisory Committee, manages the remaining segments and important sites of the Oregon National Historic Trail. The trail route passes about 1.2 miles north of Wheatridge West (4.5 miles northwest of the proposed solar area) and 2.9 miles north of Wheatridge East. The Well Spring Interpretive Site and the Echo Meadows Interpretive Site are two high-potential sites located within the Analysis Area. Due to its rareness and historic importance, the Oregon Trail and Well Spring and Echo Meadows sites are considered important recreational resources. The Echo Meadows site is managed by the BLM as an Area of Critical Environmental Concern (ACEC); as such it is also considered a protected area for the analysis in Exhibit L of this application.

The U.S. Army Corps of Engineers constructed and manages the Willow Creek Dam and the impounded Willow Creek Reservoir. A baseball field is located near the foot of the dam on U.S. Army Corps of Engineers' property. The dam and lake were constructed primarily for flood control; secondary uses include providing irrigation water and recreational use – fishing and boating. Water quality in the reservoir has been an ongoing problem, sometimes limiting the availability of the reservoir for recreational use. The baseball field is one of four in Heppner.

The BLM Prineville District manages two parcels within the Analysis Area (in addition to the Echo Meadows parcel discussed above); neither parcel contains a designated recreation area nor is considered to be a recreational resource.

There are no other federal lands or lands managed by a federal agency within the Analysis Area. Only a portion of the Oregon Trail within the Boardman Bombing Range and the Well Spring Interpretive Site for the trail are within five miles of the Amended Site Boundary.

2.2.2 State

There are no lands owned or managed by the State of Oregon within the Analysis Area except for state highway rights-of-way. Within the Analysis Area, Oregon State Highway 74 (OR-74) is designated as a part of the route of the Blue Mountains Scenic Byway. As a result of the designation OR-74 is considered an important recreation resource, inviting travelers from afar and providing an economic boost to towns along the route. This scenic byway is further than five miles from the Amended Site Boundary.

2.2.3 Local Governments and Special Districts

Counties, cities, and special districts provide a number of recreation opportunities within the Analysis Area. Local government resources tend to be smaller-scale parks with an emphasis on day-use activities and typically serve more localized user populations. Local government recreation providers within the Analysis Area include the following:

- Morrow and Umatilla counties; and

- Cities of Heppner and Lexington.

Morrow County (2011) operates one recreational facility in the Analysis Area, the Morrow County Fairgrounds in Heppner. The County Fair and other agricultural- and ranching-related events that take place at the fairgrounds form an important part of community life in Morrow County. Because of its role in community life and the rare nature of county fairgrounds, this is considered an important recreation resource.

Four parks owned and managed by the City of Heppner are located in the Analysis Area: Hager Park, Heritage Park, Heppner City Park, and the Willow Creek Water Park. Hager Park and Heppner City Park both have some recreational facilities (playgrounds), restrooms and usable open space. Heritage Park is primarily dedicated to history with several displays of antique farming equipment and informational signs, but no recreational facilities. These parks primarily serve the residents of Heppner, as do many other small parks in other towns and cities in the region. The Willow Creek Water Park is one of a few public pools in the region; due to its relative scarcity it is considered an important recreation resource.

The Willow Creek RV Park is operated by a small group of Morrow County residents calling themselves the Willow Creek Park District. The 24-space Willow Creek RV Park is built into the side of a gently sloping hill above the Willow Creek Reservoir, on the southeastern outskirts of Heppner. It is a fairly typical small RV park; most spaces have electricity, and some have full utility hookups, there are picnic tables, grills, restrooms and pay showers but little landscaping, and an undetermined number of tent spaces. It overlooks Willow Creek Reservoir, and offers swimming, boating, hiking and wildlife viewing. The campground is open March 15th through December 1st.

None of the recreational facilities owned by local governments or special districts are within five miles of the Amended Site Boundary.

2.2.4 Private

Four privately-owned recreational opportunities (not including the Willow Creek RV Park, which appears to be a private resource) have been identified within the Analysis Area. These recreation facilities were included in the ASC because, although they are privately owned, they are open to the public. These private opportunities include three hunting areas and the Willow Creek Country Club and golf course.

Hunting is an important recreational and subsistence activity in eastern Oregon. ODFW's Access and Hunting Program facilitates the use of private lands for hunting by the public; available sites are identified on ODFW's online map (ODFW 2014). There is one property within the Analysis Area, the Bunker Hill Access Area, that is designated as open to hunting by permission under ODFW's Access and Habitat Program; it is located south of OR-74, approximately 4 miles northwest of Heppner. Under this designation, hunters must contact the landowner for permission prior to entering the area to hunt, as well as obtain a daily permit from the self-serve box at the site entrance. In addition, the Social Ridge Access Area is designated as "Welcome to Hunt" under

ODFW's Access and Habitat Program. Hunters using this area must obtain a daily hunting permit from the self-serve permit box at the entrance but do not need specific landowner permission.

Several privately owned and operated hunting and birding clubs are found in the region, but only one is within the Analysis Area: Rolling Hills Bird Hunting's Harrison Preserve, located south of OR-74 between Lexington and Ione. The owners of Rolling Hills Bird Hunting raise grouse and other game birds for release and hunting on the Harrison Preserve and two other large ranch properties located southeast of Heppner, outside the Analysis Area. Access is strictly controlled to one party, typically four to five people, per day during the hunting seasons.

The Willow Creek Country Club is a private, nonprofit social club located near the western outskirts of Heppner. While the club is private, the golf course is open to the public with greens fees. Facilities and amenities are few but include cart and club rental. The 9-hole course is rated below average difficulty by the United States Golf Association.

None of the privately owned recreational areas are within five miles of the Amended Site Boundary.

2.3 Importance Criteria

Recreational opportunities identified within the Analysis Area were evaluated for "importance" based on the criteria outlined in OAR 345-022-0100. A recreational opportunity may be determined to be important based on assessment of available information specific to each criterion, and a qualitative balancing of the attributes for all five criteria for a given resource. Specific considerations used to characterize the importance of a recreational opportunity relative to the five criteria outlined in OAR 345-022-0100 are summarized as follows:

- 1. Any special designation or management of the location;*

There are distinct, identifiable differences among the types of special management designations that apply to lands within the Analysis Area, and their associated implications for resource protection. Wilderness designation, for example, results in management direction to preserve the resource values of the designated area and represents a high level of protection. Other types of designations allow much more latitude in undertaking management activities and involve a lower degree of resource protection. The source of the special designation is also a relevant consideration; a designation established through an act of Congress clearly carries more weight than an administrative designation applied by a resource management agency.

- 2. The degree of demand;*

Qualitative ratings of High, Moderate, and Low were used as proxy measures for the level of demand for a specific recreational opportunity.

- 3. Outstanding or unusual qualities;*

Identification of characteristics that might be considered outstanding or unusual for a given opportunity is a highly subjective task, as there is a wide variation in the values, tastes, and perceptions among the recreational public. The standard does not specify what qualities would define an opportunity as "outstanding" or "unusual," or indicate how those characteristics could be

measured. Some sites or areas have attributes that qualify them as “unique” (i.e., one of a kind), while others have qualities that are not unique, but intuitively set them apart from other opportunities and could be considered outstanding or unusual.

4. Availability or rareness; and

Qualitative ratings of Rare, Uncommon, and Common were used to address the criterion based on the apparent rareness of an opportunity. Consideration of this rareness attribute was based on the approximate set of comparable opportunities (and the geographic scale appropriate to each type of opportunity) available within the region surrounding the Facility.

5. Irreplaceability or irretrievability of the opportunity.

Ratings of Irreplaceable, Somewhat Irreplaceable, and Replaceable were used to address the criterion based on the ability to replace an opportunity. In general, opportunities based on inherent natural resource characteristics that could not feasibly be recreated in the same place or at another reasonably nearby location were considered Irreplaceable. By contrast, most opportunities that are based on constructed recreational facilities or infrastructure (such as typical campgrounds) could feasibly be replaced and were considered Replaceable.

The assessment of the overall importance for each identified recreational opportunity occurred on a case-by-case basis. Attachment T-1 provides a summary of each identified recreational opportunity in the Analysis Area, describes the characteristics of the opportunity relative to the importance criteria, and indicates which opportunities are considered important for the purposes of this Exhibit. A description of each recreational opportunity appears in the following section.

2.4 Importance Assessment Summary

Based on the importance criteria described above, six of the identified recreation resources have been determined to be important for the purposes of this Exhibit. These are:

- The high-potential segment of the Oregon National Historic Trail and the two high-potential sites, the Well Spring Interpretive Site and Oregon Trail ACEC Echo Meadows Interpretive Site;
- The Blue Mountain Scenic Byway;
- The Morrow County Fairgrounds; and
- The Willow Creek Water Park.

These resources were described in the ASC and are summarized in Attachment T-1 of this Exhibit. The potential for impacts to the important recreation resources as a result of the proposed solar facilities is discussed in Section 3.

3.0 Impact Assessment – OAR 345-021-0010(1)(t)(B)

OAR 345-021-0010(1)(t)(B) A description of any significant potential adverse impacts to the important opportunities identified in (A) including, but not limited to:

The potential effects to important recreational opportunities in the Analysis Area were studied to determine whether the Facility's design, construction, and operation, when taking into account mitigation, would be likely to result in any significant adverse impacts. The following sections summarize the types of potential adverse impacts evaluated and provide summaries of the analysis.

3.1 Direct or Indirect Loss of Recreational Opportunities – OAR 345-021-0010(1)(t)(B)(i)

(i) Direct or indirect loss of a recreational opportunity as a result of facility construction or operation.

For a direct loss of opportunity to occur, the Facility would need to physically disturb the ground located within the affected recreational resource area. The Facility as modified by RFA 4 would not directly impact any identified recreation resource.

An indirect loss of opportunity could occur if 1) a recreational opportunity nearby the Facility would not be physically disturbed by construction activity but might need to be temporarily closed to public use in response to safety concerns; or 2) if development of the Facility were to so alter the environment of a recreational opportunity through indirect effects that it substantially adversely impacted the quality of the recreation experience at that site. For example, if the Facility were to destroy intact evidence of the Oregon Trail in view of an interpretive site (which it does not), it could render the site meaningless in terms of its historic importance and value as a tourism resource.

Because all of the important recreation resources in the Analysis Area are located farther than one mile from the Site Boundary, indirect loss of opportunity for safety concerns is unlikely to occur. The indirect effects of the Facility, including traffic, noise, and visual impacts, are similarly unlikely to substantially impact any important recreation resource such that the resource would be considered lost.

Potential sources of indirect disturbance impacts to important recreational opportunities include noise, traffic, and changes in visual quality associated with the Facility.

3.2 Facility Noise – OAR 345-021-0010(1)(t)(B)(ii)

(ii) Noise resulting from facility construction or operation.

Exhibit X provides an assessment of the existing acoustical environment and anticipated Facility sound levels. Exhibit X describes sound level thresholds derived from the Oregon Department of Environmental Quality noise regulations (OAR 340-035-0035), which are used to assess the significance of impacts to noise sensitive properties. As defined in OAR 340-035-0035, "noise

sensitive properties” are “real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries. Property used in industrial or agricultural activities is not Noise Sensitive Property unless it meets the above criteria in more than an incidental manner.”

The Council previously found that the noise generated by the construction and operation of the approved Facility is not likely to result in significant adverse noise impacts to any of the recreational opportunities identified as “important” (ODOE 2017). As described in Exhibit X for RFA 4, operation of the solar arrays and related or supporting facilities will not create noise that is measurably different from what was previously analyzed, and therefore will not result in new impacts to important recreational opportunities. For both the Oregon Trail portion that runs through the southern end of the Boardman Bombing Range and the Oregon Trail Well Spring Interpretive Site, the noise levels would be indistinguishable from background noise.

Noise generating activities during construction could result from the use of heavy machinery, such as heavy trucks, bulldozers, graders and cranes. At this time, pending geo-technical investigation of the final layout, blasting is not anticipated to be required for Facility construction. Noise from construction may be audible at the Well Spring site and the high-potential Oregon Trail segment; Facility noise levels along the trail would peak at the Well Spring site, the nearest point of the trail to the Facility. Pursuant to OAR 340-035-0035(5), noise from construction activities is exempt from the state noise standards.

3.3 Traffic – OAR 345-021-0010(1)(t)(B)(iii)

(iii) Increased traffic resulting from facility construction or operation.

OAR 345-021-0010(1)(t) requires consideration of impacts to recreational resources from Facility-related traffic that could occur during construction or operation. Exhibit U provides information on construction traffic levels and typical travel routes for Facility truck and construction worker traffic. Based on the analysis provided in Exhibit U, construction traffic resulting from construction of the solar arrays proposed in RFA 4 will be similar to or less than traffic already evaluated for the approved Facility. Therefore, the construction traffic is not anticipated to result in a reduction of Level of Service on any roads that provide access to the important recreational resources identified in this Exhibit. However, some roads near some recreational opportunities would experience higher traffic levels during construction, and visitor travel to some areas may be disrupted or delayed for brief periods due to delivery of Facility materials or construction equipment.

As previously found by the Council, the traffic generated by the construction and operation of the facility is not likely to result in significant adverse impacts to any of the recreational opportunities identified as “important” (ODOE 2017). Delays are most likely to occur only during deliveries of oversized loads, which will occur sporadically and will be accompanied by traffic control teams. These impacts would be intermittent and temporary, and traffic levels would return to normal following construction.

The only recreation site for which a temporary traffic impact is likely is the Oregon Trail Well Spring Interpretive Site because it is accessed by roads that would also carry Facility construction

traffic. Access to the Well Spring Interpretive Site from the east most likely involves travel on Oregon State Highway 207 and/or Bombing Range Road and Little Juniper Canyon Road; all of these will carry Facility construction traffic. The Well Spring Interpretive Site can also be accessed from the west, via routes that would not carry Facility construction traffic, for example, from OR-74 via Immigrant Lane. Therefore, visitors to the Well Spring site would be able to use an alternative route that would not be affected by Facility construction traffic.

The traffic analysis in Exhibit U demonstrates that the Facility would not cause an appreciable reduction in Level of Service on any roads in the area. Recreational traffic tends to be dispersed throughout the day rather than concentrated with the peak hours and would generally coincide with Facility truck traffic rather than worker commuter traffic. During peak construction periods roads used for Facility construction traffic would see up to an estimated total of 5 to 10 truck trips per day. This level of traffic is significantly lower than the traffic levels estimated for the approved wind Facility. Therefore, the affected local roads would continue to function at a high level of service. The use of Little Juniper Canyon and other minor roads in the vicinity of the Well Spring site would be limited to a relatively brief period of time while the northern end of the west solar array is constructed. Due to the low visitor numbers to the Well Spring site, the likelihood of significant delays for visitors is very low.

Other important and identified recreation resources are accessed primarily by roads that would not carry substantial amounts of Facility construction traffic and are therefore unlikely to experience any traffic impacts. Again, temporary, short-term delays are most likely to occur only during deliveries of oversized loads such as turbine blades, which will occur sporadically and will be accompanied by traffic control teams.

The operational phase of the Facility would affect recreational opportunities only to the extent that operation and maintenance activities generate significant amounts of traffic. Typical operational traffic would be minimal, as the Facility would permanently employ only approximately 10 to 15 personnel. Larger amounts of traffic would be generated only if a turbine would need significant repairs or replacement. In that event, some roads would experience higher traffic levels, and visitor travel to some areas may be disrupted or delayed for brief periods during delivery of materials or equipment. However, these impacts would be rare, intermittent and temporary, and would not represent significant adverse impacts to any recreational resource in the area.

3.4 Visual – OAR 345-021-0010(1)(t)(B)(iv)

(iv) Visual impacts of facility structures or plumes.

3.4.1 Visual Impact Assessment Methodology

Visual impacts of the proposed Facility are primarily related to views of the solar arrays. Evaluation of potential visual impacts to recreational opportunities echoes the methodology described in Exhibits L and R.

The solar array components are described in further detail in Exhibit B. The solar panels will be the most visible components of the solar arrays and will consist of solar module strings, mounted on single-axis tracker systems. The visibility of the solar arrays will depend primarily on topographic or other view obstructions and the distance from the viewer to the solar arrays. With a maximum height of 16 feet, the arrays won't be visible from sites lower in elevation than the area on which the array is constructed. From sites that are similar in elevation to the arrays, viewers will see only a line on the horizon, and not individual solar panels. Depending on the viewing distance, viewers at sites higher in elevation may have views of the panels, especially if the view direction is toward the angle at which the panel is tilted toward the sun.

To the extent possible, reflectivity of the solar arrays will be minimized. Antireflective coating will be used to reduce glare and the surface of the panels will have high transmittance to increase the amount of light reaching the PV cells. With these methods, the panels will be less reflective than a natural water body or a coated glass surface that is not antireflective.

In evaluating the visual impacts, the Certificate Holder first determined whether the Facility would potentially be visible from each recreation resource area using digital bare-earth terrain modeling. The analysis began with a zone of visual influence (ZVI) analysis (also known as a viewshed or visibility analysis), using Environmental Systems Research Institute ArcGIS software, to identify the areas from which the proposed Facility solar panels, arrays might be visible. It should be noted that this "bare-earth" modeling approach, based only on the effects of terrain on visibility, results in a conservative assessment of potential visibility. The model does not account for distance, lighting, weather, and atmospheric attenuation factors that diminish visibility under actual field conditions. A bare-earth analysis also does not account for the effects of vegetation or buildings, which will in practice block or screen views in some places. Figure T-2 shows the areas from which the solar arrays would potentially be visible.

3.4.2 Visual Impact Assessment Results

The results of the ZVI analysis are presented in Figure T-2. Because of the low profile of the solar arrays and the terrain conditions in the area, the solar facility would be blocked from view at most locations within the Analysis Area. Locations of potential visibility of any part of the solar facility are concentrated in the western part of the Analysis Area, primarily within a radius of approximately 2 to 3 miles of the arrays. Patches of potential visibility are also located at greater distances to the southeast, west and northwest of the solar facility.

The ZVI analysis demonstrates that the solar facilities would not be visible from the Oregon Trail ACEC Echo Meadows Interpretive Site, the Blue Mountain Scenic Byway, the Morrow County Fairgrounds, or the Willow Creek Water Park. The lack of visibility at these four important recreation resources is understandable and expected, given that they are all located at least 12 miles from the closest part of the proposed solar facilities.

Based on the results of the ZVI analysis, there would be potential visibility of some portions of the Facility's solar panels from some locations along the Oregon Trail Route within the Boardman

Bombing Range. Therefore, expected visual conditions for the two important recreation resources in this part of the Analysis Area are discussed below.

Potential visibility is one of several factors that comprise an assessment of visual impact to a recreation resource. Other factors to consider include the existing visual context, particularly other sources of visual contrast present within the view; the likely number and nature of visitors to a recreation area; and whether there is any management direction related to preservation of scenic quality, either within the recreation area or outside of it. Table T-1 provides a summary of the visual impact assessment for the important recreation resources in the Analysis Area that are within five miles of the Amended Site Boundary and are within or near areas of potential visibility.

3.4.2.1 Oregon National Historic Trail

Congress designated the route of the Oregon Trail as a National Historic Trail in 1978, and the Oregon Historic Trails Advisory Committee was created to provide public input and advice to the NPS on management of historic trails in Oregon. The National Historic Trail designation applies to a general, primary route (and two specified branches) extending approximately 2,000 miles from Independence, Missouri to Oregon City, Oregon. The Oregon Trail designation was intended to preserve the legacy of the westward immigration of settlers to the Oregon Territory, based on routes used from 1841 to 1848 (NPS 1999). In recognition of the intermittent evidence of many of the historic trail routes, the National Trails System Act provided for the identification of “high-potential sites and segments” along these routes, using specified criteria for historic significance, the presence of visible historic remnants, scenic quality, and relative freedom from intrusion. High-potential segments are portions of a trail route that afford high-quality recreational experiences in areas that have greater than average scenic values or afford the opportunity to vicariously share the experience of the original trail users, while high-potential sites are specific locations with similar attributes. Each site or segment must have the potential to interpret the trail’s historical significance and to provide opportunities for high-quality recreation.

The NPS (1999) management plan identifies a 12-mile Boardman Segment of the trail in Morrow County as a high-potential trail segment. This trail segment extends from the eastern edge of the Boardman Bombing Range in a southwest direction to Immigrant Lane and then parallels to road to the western edge of the range and continues to the west. Physical evidence of the trail, i.e. wagon ruts, is still present in much of this 12-mile corridor. However, approximately 7 miles of this segment are within the Boardman Bombing Range and inaccessible to the public except for a small area surrounding the Well Spring site; the remainder of the high-potential segment is on private lands to the west of the Bombing Range (most of which is managed by The Nature Conservancy as part of the Boardman Conservation Area) and is also not open to the public. Due to the restricted access to this high-potential trail segment, it is questionable whether this should be considered an important resource for recreation; however, its federal protection status, irreplaceability, and historical importance qualify it as important for the purposes of this analysis.

As previously found by the Council, the overall visual impact of the Facility on the Oregon Trail would be negligible because there are virtually no viewers to be affected and the existing viewshed

contains wind turbines and other industrial infrastructure (ODOE 2017). The updated visibility analysis for the proposed solar arrays demonstrates potential visibility along approximately 2 miles of the high-potential Oregon Trail segment within the Boardman Bombing Range, which is not accessible to the public. Wind turbines from the approved facility were previously identified as potentially visible in the background from this area. The subject portion of the trail follows a northeast-southwest orientation and is located to the northeast of the Well Spring site. Given that the distance from the closest solar array is approximately 4.5 miles, it is questionable whether any of the solar facility would actually be noticeable to a viewer. If a part of the facility were visible, the visual impact would be negligible because this portion of the high-potential trail segment is not accessible to viewers and existing wind turbines and other industrial infrastructure would dominate any visual contrast that might be created by the solar facility. Most of the high-potential trail segment is within the Boardman Bombing Range and is off-limits to the public, except for a small area surrounding the Well Spring site that is not within an area of potential visibility. The remaining evidence of the Oregon Trail can be viewed from a few points along Immigrant Road, and the solar facility would not be visible from those viewpoints.

Although the high-potential Oregon Trail segment is an important historic resource, it is neither considered nor managed as a significant or important scenic resource. The management plans for the Bombing Range (U.S. Navy 2012a, U.S. Navy 2012b) do not address scenic resources; there is no management direction for preservation of views or scenic quality related to the lands on which the high-potential trail segment or the Facility are located. This segment of the Oregon Trail was nominated for listing in the National Register of Historic Places in 1978 by the US Navy, with a recommendation for a corridor extending “200 feet on each side of the Trail in order to preserve the historic appearance of the lands adjacent to the Trail, plus the stagecoach station site and the graveyard” (NPS 1978). The Facility would not affect the visual quality within that corridor or on lands surrounding the stagecoach station and graveyard site.

3.4.2.2 Oregon Trail Well Spring Interpretive Site

This high-potential Oregon Trail site is located on Immigrant Lane adjacent to the southern boundary of the Boardman Bombing Range, approximately 5 miles northwest of the Amended Site Boundary. Well Spring was an important emigrant water source and campsite. While the spring itself is now essentially dry, trail ruts, a graveyard, and the remains of a stage station can be found nearby (NPS 1999). Non-governmental organizations have installed several interpretive displays near the spring and trail location markers along the route in this area. The information kiosk is located on the south side of the road and seems to be oriented southward; however, most of the trail-related interest (e.g., visible wagon ruts) is located to the north within the Bombing Range, in a small portion of the Bombing Range that is accessible to the public. There are no facilities beyond the information kiosk. The Oregon-California Trail Association, Northwest Chapter estimates the level of visitation to this site to be similar to the Echo Meadows site, at about 550 to 650 visitors per year, assuming that people who visit one will often visit the other; however, no actual use numbers are available (personal communication between Thomas Kruger, Tetra Tech and Billy Symms, Chapter Preservation Officer and Jim Tomkins, Chapter President on March 11, 2015).

As previously found by the Council, significant adverse visual impacts from the Facility would not be expected at this important recreation opportunity (ODOE 2017). Updated visual impacts to the Well Spring Interpretive Site for the proposed solar arrays are analyzed in Exhibit R. Based on the updated visibility analysis, the solar arrays would not be visible from a distance of approximately 5 miles. The elevation difference between the site and the Facility is 161 feet (with the Facility being higher in elevation) with several draws and large hills in between. Therefore, the arrays with a maximum height of 16 feet will be blocked from view at the lower-elevation Well Spring site.

The Well Spring site is managed to maintain the history and historic artifacts associated with the Oregon Trail, rather than for its scenic qualities; there is no management direction for preservation of views or scenic quality related to the lands on which the site or the Facility are located. Although the relatively undeveloped viewshed is said to provide an experience that enables visitors to relate to the emigrants, the viewshed is no longer in the nearly pristine condition that it was during the emigrants' time. The road (Immigrant Lane) is evident, much of the visible landscape is farmed and fenced, little of the tallgrass native prairie remains and the turbines of existing wind farms are visible to the east and west. The Facility solar panels would not be visible to the southeast and would not influence views northward from the kiosk to the remaining evidence of the Trail within the Bombing Range. The remaining evidence of the Oregon Trail at the Well Spring site would not be disturbed by the Facility, allowing visitors to continue their enjoyment of the history of the site.

3.4.2.3 Summary of Visual Impacts

Due to the low profile and minimal reflectivity of the solar arrays and the distances between the recreation areas and the arrays, the arrays are expected to have limited or no visibility from the important recreational opportunities identified previously. Therefore, the addition of the solar array to the Facility will not result in a significant adverse visual impact to important recreational opportunities. As modified by RFA 4, the views from the Facility will continue to be dominated by wind turbines and other infrastructure.

3.5 Summary of Impacts

The Facility has been designed to avoid direct loss to all important and identified recreational opportunities (see Table T-1), and indirect disturbance effects would not lead to an indirect loss of any important or identified recreational opportunity. Due to their low visual profile, the solar arrays will have minimal visibility from any of the important recreational facilities within the Analysis Area.

Most identified recreation resources would experience virtually no impact from the Facility. They are located where they would not be affected by Facility traffic; they are too far away to hear operational noise; and they already have the turbines of existing wind farms in view and would have limited or no views of the Facility that would adversely affect the visitor experience. The Well Spring site would not receive Facility operational noise beyond the levels previously analyzed; as shown in Exhibit X, the addition of solar arrays will not increase the level of operational noise at the site. Facility solar arrays would not be visible from this site. Oregon Trail Well Spring Interpretive

Site may experience some minor traffic impacts during construction. Traffic impacts for this site would be limited to potential delays accessing the site rather than traffic at the site; any potential traffic impacts would be temporary and intermittent during construction, and unlikely to affect the level of use at this site. The turbine noise level, alone, at this site would be comparable in volume to a whisper or less and may be indistinguishable from background noise when the wind is blowing.

Table T-1. Summary of Impacts to Important Recreational Opportunities

| Recreational Opportunity | Direct or Indirect Loss of Opportunity? | Worst-case Modeled Operational Noise Level (dBA L ₅₀) | Maximum Received Sounds Levels During Construction (dBA) | Potential Traffic Impacts | Potential Visual Impacts |
|--|---|---|--|---|--|
| Oregon Trail high potential segment | No | Indistinguishable from background | 34 | Negligible | Viewshed analysis indicates potential visibility of solar arrays along approximately 2 miles of the trail route within the Boardman Bombing Range, at a distance of 4.5 miles or more; due to restricted access no viewers are expected to be present, resulting in no overall visual impact; no conflict with management direction. |
| Oregon Trail Well Spring Interpretive Site | No | Indistinguishable from background | 34 | Negligible to Minor; potential short-term, intermittent access delays during construction | Viewshed analysis indicates no potential visibility of solar arrays, therefore no visual impact; no conflict with management direction. |

dBA = A-weighted decibels.

4.0 Minimization and Mitigation Measures – OAR 345-021-0010(1)(t)(C)

OAR 345-021-0010(1)(t)(C) A description of any measures the applicant proposes to avoid, reduce or otherwise mitigate the significant adverse impacts identified in (B).

As described Section 3, the Facility will have no significant, direct adverse impact on any important recreational opportunity in the Analysis Area. Indirect disturbance effects associated with traffic,

noise or visual aspects of the proposed solar facilities would not lead to an indirect loss of any important or identified recreational opportunity. Consequently, no mitigation measures for recreation are proposed.

5.0 Monitoring Program – OAR 345-021-0010(1)(t)

OAR 345-021-0010(1)(t)(E) The applicant's proposed monitoring program, if any, for impacts to important recreational opportunities.

Because construction and operation of the proposed Facility would have no significant adverse impacts on recreational opportunities in the Analysis Area, and no mitigation specific to recreation is warranted or proposed, no monitoring program for recreation is proposed.

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Figures

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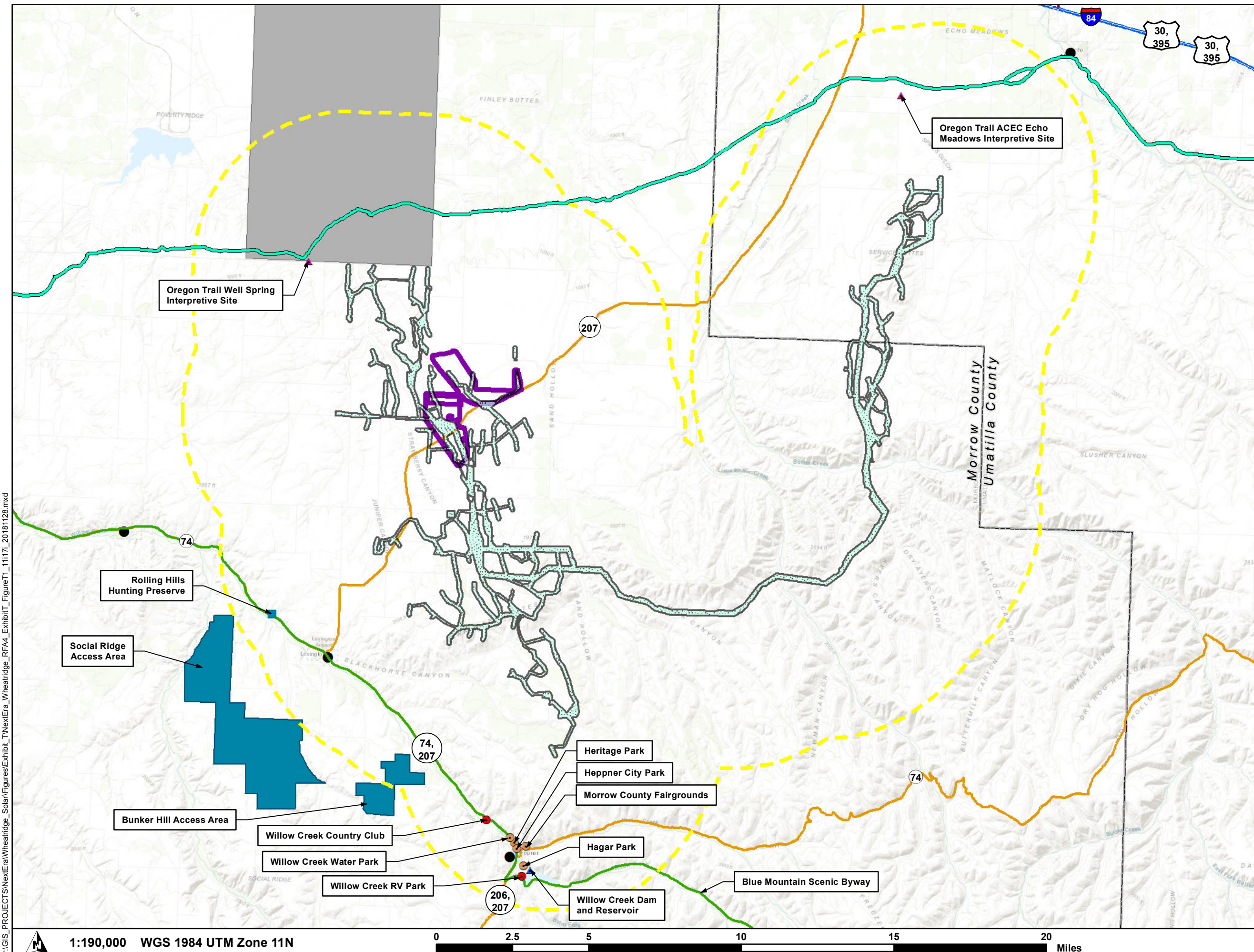
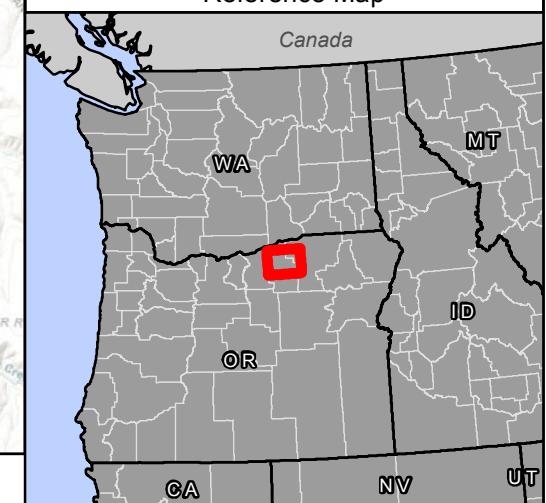
**Wheatridge
Wind Energy Facility
Request for Amendment 4**

**Figure T-1
Recreation Opportunities
in the Analysis Area**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
 - Amended Site Boundary
(Proposed Solar Micrositing Corridors)
 - Analysis Area (5-mile Buffer)
 - City/Town
 - Interstate Highway
 - US Highway
 - State Highway
 - County Boundary
 - Boardman Bombing Range
- Recreation Resources**
- Federal
- Oregon Trail Route
 - Oregon Trail Interpretive Site
 - Willow Creek Dam and Reservoir
- State
- Blue Mountain Scenic Byway
- Local
- Park
- Private
- Hunting Area
 - Other Site
- TETRA TECH**
- NEXTERA ENERGY**
RESOURCES

Reference Map



Wheatridge
Wind Energy Facility
Request for Amendment 4

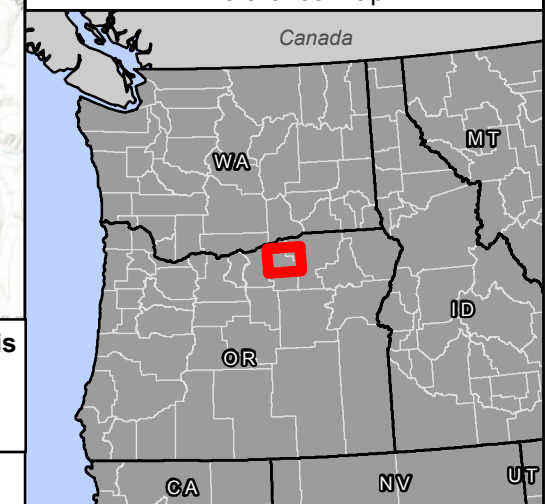
Figure T-2
Viewshed Results

MORROW AND UMATILLA COUNTIES, OR

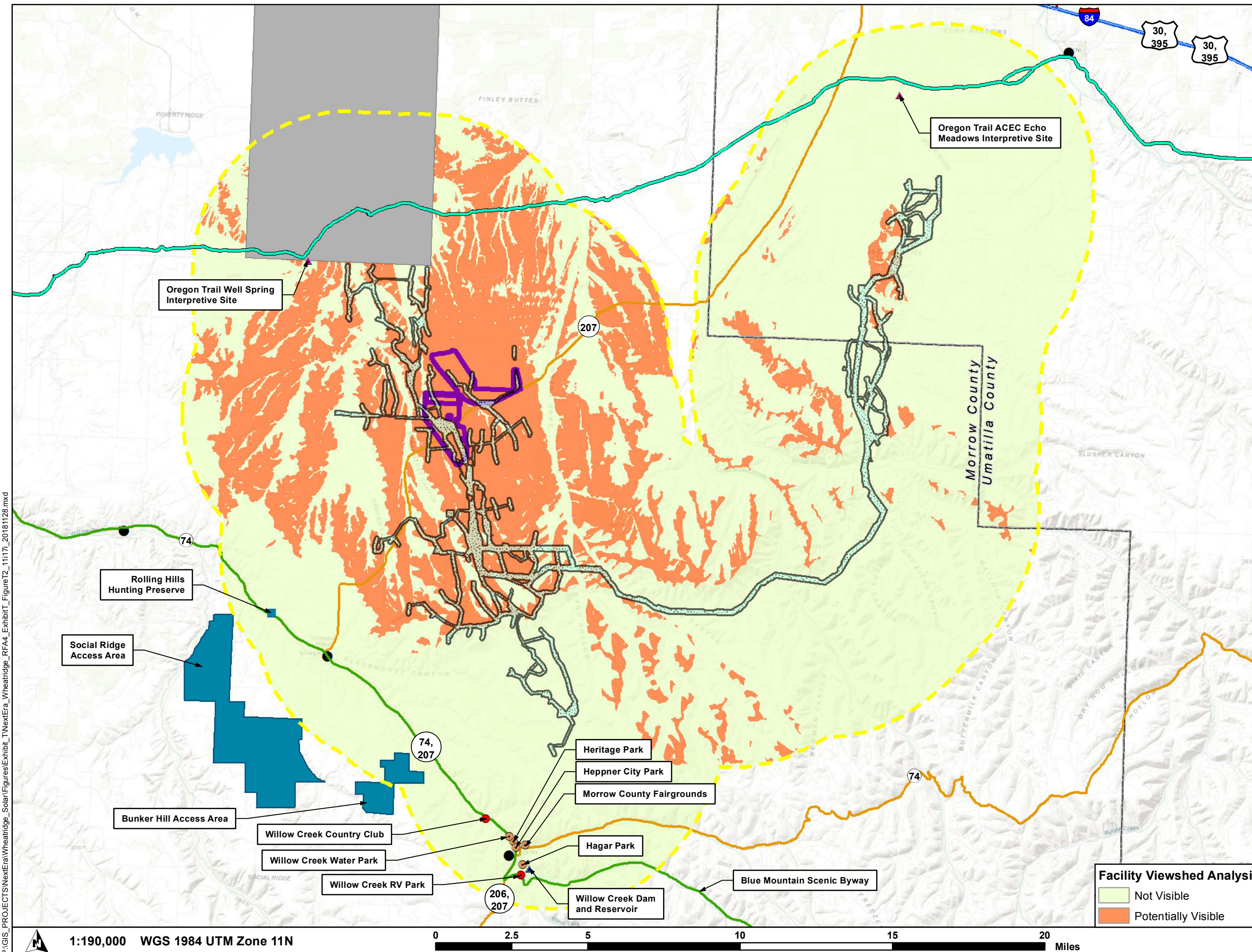
- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (5-mile Buffer)
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- Interstate Highway
- US Highway
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 - Oregon Trail Route
 - Oregon Trail Interpretive Site
 - Willow Creek Dam and Reservoir
 - State**
 - Blue Mountain Scenic Byway
 - Local**
 - Park
 - Private**
 - Hunting Area
 - Other Site



Reference Map



- Facility Viewshed Analysis**
- Not Visible
 - Potentially Visible



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**Attachment T-1.
Inventory of Recreational Opportunities
in the Analysis Area**

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Inventory of Recreational Opportunities in the Analysis Area

| Recreational Opportunity | Responsible Entity | Distance from the Site Boundary (miles) | Description | Size or Distance | Importance Factors | | | | | Important Recreation Resource? |
|---|--|---|--|--|---|----------|--|---|--------------------------------------|--------------------------------|
| | | | | | Designation | Demand | Qualities | Rareness | Replaceability | |
| Blue Mountain Scenic Byway | Oregon Department of Transportation, Federal Highway Administration | 4.0/8 | Route starts at Heppner Junction on I-84 and ends at Sumpter and Haines in Baker County. The route passes through agricultural land, forest land, near Oregon Trail segments and several historic towns (USFS 1993). | Approx. 145 miles total; Approx. 21 miles in analysis area | Oregon State Scenic Byway | Moderate | Entire route includes diverse scenery, historic towns, a national forest, rocky peaks, and streams; OR 74 is one of several highways through similar eastern Oregon landscapes | Relatively common travel route in the north-central Oregon region | Somewhat Irreplaceable | Yes |
| Oregon National Historic Trail Segments/Sites | National Parks Service and Oregon Historic Trails Advisory Committee | 1.2/4.2 | The Oregon Trail was one of the main overland migration routes on the North American continent, leading from locations on the Missouri River to the Oregon Country. A high-potential trail segment has been identified, extending from the eastern boundary of the Boardman Bombing Range westward to Immigrant Road (NPS 1999). | Approx. 8.7 miles of high-potential trail segment in Analysis Area | National Historic Trail | Low | Most trail segments destroyed by agricultural use; interpretive information at the Wells Springs Interpretive Site; public access to this high-potential trail segment restricted by federal and private ownership | Intact evidence of trail route rare | Irreplaceable (intact segments only) | Yes |
| | | 1.2/5.1 | The Well Spring Interpretive Site offers views of intact wagon ruts, a graveyard and remains of a stage station along with informational signage (NPS 1999). | 0.5 acres | National Historic Trail interpretive site | Low | Interpretive signage with historical information but no other facilities; views of intact wagon ruts; appears to be located on private land | Intact evidence of trail route rare | Irreplaceable | Yes |
| | | 2.8/15.5 | The Echo Meadows site offers a short paved trail walk with informational signage, and views of about one mile of intact wagon ruts (BLM 2015, City of Echo 2013). | 300 acres | National Historic Trail interpretive site; BLM ACEC | Low | Interpretive signage with historical information; paved trail leading to views of intact wagon ruts; no other facilities; surrounded by center-pivot irrigated agriculture | Intact evidence of trail route rare | Irreplaceable | Yes |
| Willow Creek Dam/Reservoir | U.S. Army Corps of Engineers (USACE) | 3.8/13.5 | Flood control dam constructed to protect the City of Heppner and provide water supply and irrigation; offers fishing, boating and swimming but in-water activities often restricted due to ongoing water quality issues. Baseball diamond at foot of dam (USACE 2014, DEQ 2012). | 268 acres | Federal project land with adjacent RV park/campground | Low | Shallow artificial impoundment in unremarkable setting of grassy rolling hills; lake stocked for fishing but ongoing water quality problems often restrict recreational use; provides setting for adjacent private RV park | Relatively common; one of several reservoirs and large water bodies in region. Baseball field is common, one of four in Heppner | Somewhat irreplaceable | No |
| Morrow County Fairgrounds | Morrow County | 3.1/12.7 | Site developed for County Fair with large riding/competition ring, stockyards, barns, grandstand, multipurpose sport field and other facilities, located in City of Heppner (Morrow County 2011). | 11.7 acres | County fairgrounds | Moderate | Venue for agricultural/ ranching-related events that are important part of community social and business life | Uncommon; one per county | Replaceable | Yes |
| Hager Park | City of Heppner | 3.7/13.3 | Typical small city park with playground and open activity area (Google Earth 2014). | 2.3 acres | City park | Low | Typical city park | Common in the local area | Replaceable | No |

| Recreational Opportunity | Responsible Entity | Distance from the Site Boundary (miles) | Description | Size or Distance | Importance Factors | | | | | Important Recreation Resource? |
|--|---|---|--|---------------------|---|--------------|---|--|----------------|--------------------------------|
| | | | | | Designation | Demand | Qualities | Rareness | Replaceability | |
| Heritage Park | City of Heppner | 3.1/12.5 | Open space between two roads, with historic information/ exhibits; no developed recreation facilities (Google Earth 2014). | 1.4 acres | City park | Low | Typical neighborhood park | Common in the local area | Replaceable | No |
| Heppner City Park | City of Heppner | 3.3/12.7 | Small park near center of Heppner, with playground and restrooms (Google Earth 2014). | 0.8 acres | City park | Low | Typical neighborhood park | Common in the local area | Replaceable | No |
| Willow Creek Water Park | City of Heppner | 3.0/12.3 | Community swimming pool offering seasonal public swimming, lessons and private parties; includes a basketball court (Willow Creek Water Park 2015). | - | City park | Moderate | Outdoor swimming pool open in summer; facilities include locker rooms, showers, slide, hot pool, basketball court | Rare; one of a few public pools in the region | Replaceable | Yes |
| Willow Creek RV Park | Private/Willow Creek Park District | 4.0/13.6 | Commercial RV camping facility with 24 RV spaces, some with full utility hookups, restrooms, showers, BBQ pits, picnic tables, additional tent camping spaces, and a boat launch. Campground overlooks Willow Creek Reservoir (USACE 2014, Travel Oregon 2015). | 8 acres | Privately managed RV campground | Low-moderate | Typical small RV park with average level of development | RV parks common in local area | Replaceable | No |
| Willow Creek Country Club | Private | 3.0/11.7 | Private country club with 9-hole golf course open to public use (Oregon Golf 2014). | 30 acres | Private club and golf course | Low-moderate | Short course of below average difficulty in unremarkable setting | Relatively uncommon in the local area | Replaceable | No |
| Social Ridge Access Area | Private/Oregon Department of Fish and Wildlife (ODFW) | 4.9/8.8 | Private land designated “Welcome to Hunt” under ODFW’s Access and Habitat Program (ODFW 2015). | 7,018 acres | Private land where owner permits public hunting | Low-moderate | Open access area consists of rolling hills with a mix of agriculture and grasslands, with no developed facilities or trails | Common in the region | Replaceable | No |
| Bunker Hill Access Area | Private/Oregon Department of Fish and Wildlife | 3.8/9.6 | Private land designated for “hunting by permission” under ODFW’s Access and Habitat Program (ODFW 2015). | 1,345 acres | Private land where owner permits public hunting | Low-moderate | Access area consists of rolling hills with a mix of agriculture and grasslands, with no developed facilities or trails; access by owner permission only | Common in the region | Replaceable | No |
| Rolling Hills Hunting Preserve, Harrison section | Private | 3.9/7.8 | Fee hunting on private land for upland game birds raised on site; use limited by reservation to one group per day (Robinson 2002; personal communication between Tim Adams, Rolling Hills Hunting Preserve owner and Thomas Kruger, Tetra Tech, September 2014). | Approx. 1,000 acres | Commercial hunting grounds | Low-moderate | Game birds raised on site for reliable hunting; hunting terrain in rolling grassland; limited availability | Uncommon; one of a few private hunting grounds with stocked game birds in region | Replaceable | No |

Exhibit U

Availability of Public and Private Providers to Provide Services

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Attachment U-6: Record of Correspondence with Finley Butte Landfill

Acronyms and Abbreviations

| | |
|--------------------|----------------------------------|
| ASC | Application for Site Certificate |
| Aviation | Oregon Department of Aviation |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| FAA | Federal Aviation Administration |
| Facility | Wheatridge Wind Energy Facility |
| MW | Megawatts |
| OAR | Oregon Administrative Rule |
| O&M | Operations and maintenance |
| ORS | Oregon Revised Statutes |
| RFA 4 | Request for Amendment 4 |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Council previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit U describes the Facility's ability to meet the requirements of Oregon Administrative Rule (OAR) 345-021-0010(1)(u), paragraphs (A) through (E) in consideration of the proposed changes. Exhibits B and C provide additional information on the proposed modifications. As detailed in the following sections, although the proposed changes provide for a new source of energy generation for the Facility and a larger Site Boundary, the Certificate Holder can still comply with all Site Certificate conditions previously adopted by the Council for compliance with respect to OAR 345-022-0110 Public Services.

2.0 Applicable Rules and Standards

Under OAR 345-022-0110, the Council must find through appropriate study that:

- (1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.*
- (2) The Council may issue a site certificate for a facility that will produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*
- (3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*

To demonstrate compliance with this standard, and in accordance with OAR 345-021-0010(1)(u), Exhibit U must include information about significant, potential, adverse impacts resulting from the construction and operation of the Facility on the ability of public and private providers in the Analysis Area to provide the services listed in the standard.

3.0 Analysis Area

The Analysis Area for public services within the Site Boundary and 10 miles from the Site Boundary.. The Site Boundary consists of the Approved Site Boundary and the Amended Site Boundary, and is defined in detail in Exhibits B and C. The Analysis Area is shown on Figure U-1.

3.1 Methods

This exhibit presents an analysis of potential impacts on public service and demonstrates that the Facility will comply with the Public Services standard. It also provides updated information on providers and demographic information within the Analysis Area and demonstrates that there has been no significant change to area resources since the Site Certificate was issued. This exhibit analyses the maximum footprint within the solar micrositing corridors to address the worst-case impact.

3.2 Assumptions Used to Evaluate Potential Impacts – OAR 345-001-0010(1)(u)(A)

OAR 345-021-0010(1)(u) Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by 345-022-0110. The applicant shall include:

OAR 345-021-0010(1)(u)(A) The important assumptions the applicant used to evaluate potential impacts.

Employment during each phase of the Facility was previously reviewed by the Council in the Final Order on the Application (ODOE 2017). The following sections describe employment requirements for RFA 4.

For the purposes of demonstrating impacts to public and private services, the Certificate Holder presents the impact analysis as if the solar arrays will be constructed in a single phase lasting up to 12 months after completion of wind facility construction. Construction of the solar arrays is not expected to overlap with construction of the wind project except to the extent that efficiencies may be gained from construction of some elements of the solar arrays. This approach assumes the maximum average daily traffic count, the daily water use requirement, and the number of workers onsite at any given time.

3.2.1 Construction

Construction of the wind project and construction of the solar arrays will not overlap to any significant extent, and the number of workers needed to construct the solar arrays is less than the number of workers needed to construct the wind project. Therefore, the primary way in which the modifications proposed under RFA 4 will impact public and private services is by extending the duration of construction from 18 months to up to 30 months. An estimated maximum of 250 workers will be onsite at one time, when multiple disciplines of contractors complete their work simultaneously during periods of the highest activity. This is fewer than the 360 workers that were estimated to be on site for construction of the wind power facilities in the ASC (ODOE 2017). Most construction workers will be employees of construction and equipment manufacturing companies under contract to the Certificate Holder.

Approximately 80 percent of the construction workforce hired for construction of the solar arrays will be hired locally (i.e., from within commuting distance of the Facility), and the remaining 20 percent of the workforce will be from out of state and will temporarily relocate to the Facility. Very few, if any, of the out-of-state workers employed during the construction phase of the Facility will be expected to permanently relocate to the area. Local hiring may be greater than anticipated due to the number of renewable energy projects being built in Oregon and will depend on the availability of workers with the appropriate skill-sets. Workers in some positions, such as construction foremen and inspectors, will be employed for the entire duration of the Facility, but many workers will only be employed for approximately 6 months. The Certificate Holder assumes

very few construction workers will relocate their families because it is anticipated most construction workers will not be in the area for more than 6 months. Most construction worker housing will be provided by hotels and recreational vehicle parks (see Sections 3.3.4 and 3.4.4).

Construction truck activity is expected to peak at approximately 5-10 trucks per day for a 6-month period, primarily related to the delivery of solar module and tracker components and concrete. As before, privately owned vehicles will be the primary means of transporting workers to and from the Facility on a daily basis.

Approximately 36.3 Mgal million gallons of water will be needed during Facility construction, primarily for making concrete for solar panel foundation construction and for dust control. As discussed in Exhibit O, potential water sources include the cities of Hermiston, Heppner, Boardman, or other nearby municipalities. Multiple sources may be used to obtain sufficient quantities of water. Water use during operation of the Facility will be limited to small amounts used for solar panel washing as discussed in Exhibit O.

3.2.2 Operations and Maintenance

As previously estimated, approximately 10 to 15 operational personnel will be permanently employed at the Facility at its full capacity (ODOE 2017). The operations and maintenance (O&M) of the solar array will require up to two additional staff. O&M staff will be hired locally, to the extent that skilled workers are available. Some outside contractors may also be required from time to time for specialized maintenance tasks, such as solar panel inspections. The Certificate Holder assumes that the Facility will be in operation for at least 50 years.

3.2.3 Facility Retirement Employment

If the Facility is retired (decommissioned), operational jobs will be eliminated. Retirement of the Facility will require removal of most Facility components and the restoration of disturbed areas (see Exhibits V and W). These activities will result in temporary decommissioning employment similar to the construction of the Facility.

3.3 Affected Public and Private Service Providers – OAR 345-001-0010(1)(u)(B)

OAR 345-021-0010(1)(u)(B) Identification of the public and private providers in the analysis area that will likely be affected.

As previously found by the Council, the Facility is not expected to have any significant, adverse impact on the ability of public or private service providers in the Analysis Area to provide services, either during the construction phase or the operation and maintenance phase (ODOE 2017). Construction workers will be dispersed throughout the construction area and will generally stay in a single location for a period ranging from a few weeks to as long as 12 months.

3.3.1 Sewer and Water Services

In the rural area surrounding the Facility, there are still no developed sewer systems that will be impacted by construction or operation of the Facility. Sewage treatment in this rural area is limited to onsite septic systems. The nearest developed sewer system is located in the city of Heppner, approximately 5 miles from the Site Boundary. As identified in the ASC, due to the rural location of the Facility, portable toilets and onsite private septic systems (in the O&M Buildings) will be used during the construction and operation phases of the Facility (Wheatridge 2015).

In the rural area surrounding the Facility, there are still no developed water systems that will be impacted by construction or operation of the Facility within the Site Boundary. Water sources in the Site Boundary are limited to private landowners' wells. The nearest developed water systems within the Analysis Area are located in the cities of Lexington or Heppner, both approximately 5 miles from the Site Boundary.

3.3.2 Stormwater Drainage

There are no new stormwater drainage facilities within the Analysis Area. As identified in the ASC, in the rural area surrounding the proposed Facility, stormwater infrastructure is limited to minimal facilities associated with public roads maintained by Morrow or Umatilla counties (Wheatridge 2015). The nearest developed stormwater drainage facilities in the vicinity of the Facility are located within the limits of the cities of Heppner and Lexington; however, the Site Boundary is approximately 5 miles from each city, and the Facility will not connect to or otherwise impact either city's stormwater system.

3.3.3 Solid Waste Management

There are no new solid waste facilities located within the Analysis Area. As identified in the ASC, both Morrow and Umatilla counties provide solid waste disposal and recycling services through franchise agreements with various private providers (Wheatridge 2015). Solid waste disposal for the Facility during construction and operations will continue to be provided through a private contract with a local commercial hauler (or haulers). The public landfill closest to the Site Boundary is the Finley Buttes Regional Landfill, located approximately 10 miles south of Boardman, Oregon and approximately 20 miles north of the Site Boundary.

Morrow County has adopted a Solid Waste Management Ordinance that addresses solid waste disposal and recycling in the county. The Certificate Holder will continue to coordinate with waste and recycling franchisees servicing the Facility to maintain required records as needed for the ordinance (Conditions CON-PS-01 and OPR-PS-03).

3.3.4 Housing

There are no new major sources of housing located within the Analysis Area. Typical housing options for temporary workers include hotels or motels, apartments, short-term rental homes, and

campgrounds, or other areas where workers can park mobile housing (e.g., trailers or recreational vehicles). The Certificate Holder assumes that most construction workers will be in the area for approximately 6 months, and that the housing for those workers will primarily be provided by hotels and recreational vehicle parks. Based on this, no existing housing will be directly impacted by the Facility.

The availability of temporary housing will continue to vary seasonally with summer having the highest demand and winter having the lowest demand. Publicly available hotel and motel occupancy data show an estimated statewide year-to-date occupancy rate of 70.3 percent in September from 2016 (OTC 2016). Hotel and motel occupancy rates also vary by region, with occupancy rates in Oregon generally higher in the Portland Metro area.

Some construction workers, particularly those employed for the entire duration of construction, may rent a house or apartment during construction of the Facility. Table U-1 presents updated rental housing supply and availability data for Morrow and Umatilla counties, as reported in the 2017 US Census and 2016 US Census Estimates (US Census Bureau 2017, US Census Bureau 2016). The estimated number of vacant rental units is calculated as a percentage of total vacant housing units; that percentage is based on the ratio of renter-occupied dwellings to owner-occupied dwellings. Using this method, an estimated 1,320 housing units are currently available for rent in Morrow and Umatilla counties.

Table U-1. Available Housing Estimates

| Geographic Area | Total Housing Units | Vacant Housing Units | Of Occupied Housing, Percentage Occupied by Renter | Estimated Number of Vacant Rental Units |
|---|----------------------------|-----------------------------|---|--|
| Umatilla County | 30,459 | 3122 | 36.5% | 1140 |
| Morrow County | 4,606 | 640 | 28.1% | 180 |
| Total | 35,065 | 3,762 | 35.4% | 1,320 |
| Source: US Census 2017, US Census Estimates for 2016. | | | | |

3.3.5 Transportation and Traffic Safety

The transportation service providers near the Facility are the Oregon Department of Transportation for state highways, and the Public Works departments for Umatilla and Morrow counties for other public roads. Major transportation routes used to access the solar micro-siting corridors will be the same as those used to access the Approved Site Boundary (Figure U-2). No new transportation services have been identified as a result of the Site Boundary expansion proposed under RFA 4.

3.3.6 Performance Standards and Existing Traffic

The ODOT performance standards in terms of volume to capacity ratio for State highways have not changed (ODOT 2015). Performance standards for Morrow County roads as defined in the 2012 Morrow County Transportation System Plan have not changed (Morrow County 2012). The performance standards for Umatilla County roads as defined in the 2002 Umatilla County Transportation System Plan have not changed (Umatilla 2002). Based on existing traffic data, the state highways and county roads in Morrow County and Umatilla County are operating well below maximum acceptable volume to capacity ratios.

Road design standards have not changed from the ASC, at this time none of the state roads are restricted; nevertheless, at the time of construction, ODOT and the county transportation departments will be contacted as before by the transportation contractor to make certain that no roads are restricted at that time (PRE-PS-01). The pavement conditions on the state roads are very good at this time and no impairment to the quality of these roads is expected.

The volume of truck traffic for the delivery of solar array components will be considerably less than previously approved by the Council for the wind power project. Condition PRE-PS-01 requires the Certificate Holder prepare a Traffic Management Plan that, among other things, requires the Certificate Holder to notify local jurisdictions of the potential for heavy traffic, and to maintain at least one lane of traffic at all times (see Section 4.0).

3.3.7 Air Transportation

Federal Aviation Administration (FAA) notification will occur as previously approved by Site Certificate Condition PRE-PS-04, which requires that before beginning construction, the Certificate Holder will submit FAA form 7460-1 to the FAA and the Oregon Department of Aviation (Aviation) in accordance with ORS 836.535(2)(a) requesting a determination of No Hazard in order to allow the agency to evaluate the effect of the proposed construction on air safety and navigable airspace.

Following the submittal of the Facility's notice to the FAA and Aviation (a pre-construction requirement), the agency will conduct an aeronautical study; a Determination of No Hazard to Air Navigation will be issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but will not have a substantial aeronautical impact to air navigation. A Determination of No Hazard may include conditional provisions, limitations to minimize potential problems, supplemental notice requirements, or requirements for marking and lighting, as appropriate. The Certificate Holder will provide to the Council a record of all correspondence with FAA and Aviation.

3.3.8 Police and Fire Protection

3.3.8.1 Police

There are no new police services located within the Analysis Area. Police service is primarily provided by county police departments; some of the cities in the Analysis Area have a city police

department that operates within their respective cities but will not cover the Site Boundary. As necessary, the Certificate Holder will continue to seek assistance from the nearest Morrow County Sheriff's Office, located in Heppner, Oregon, or from the nearest Umatilla County Sheriff's Office, located in Hermiston, Oregon. Additional law enforcement service is available through the Oregon State Police, with offices in Arlington, Heppner, Hermiston, and Pendleton. Attachments U-1 and U-2 are records of correspondence with the Morrow and Umatilla county sheriff offices.

3.3.8.2 Fire

There are no new fire districts located within the Analysis Area. Fire protection service in the Analysis Area will continue to be provided by a number of agencies including the Boardman Rural Fire Protection District, the Ione Rural Fire Protection District, the Heppner Volunteer Fire Department, and the Echo Rural Fire Protection District.

The fire protection providers below have been re-contacted for RFA 4:

- Morrow County:
 - Heppner Volunteer Fire Department: Fire Chief Rusty Estes
 - Ione Rural Fire Protection District: Fire Chief Virgil L. Morgan
 - Boardman Rural Fire Protection District: Fire Chief Marc Rogelstad
- Umatilla County:
 - Echo Rural Fire District: Fire Chief Merle Gehrke

Attachments U-3 through U-5 are a record of correspondence with these fire protection providers confirming that the construction and operation of the Facility will not impede their abilities to provide emergency services. The Heppner Volunteer Fire Department was contacted multiple times, but no response has been received to date. As the Facility is outside the boundaries of the City of Lexington, and is completely within the rural fire protection districts of Heppner, Ione, and Echo, any emergency fire response would be by one of those three rural fire protection districts, and any assistance by another fire department would be in the service of one of these three rural fire protection districts.

3.3.9 Health Care

There are no new healthcare facilities located within the Analysis Area. The nearest hospitals are the Pioneer Memorial Hospital located in Heppner and the Good Shepherd Medical Center in Hermiston. The nearest Level III trauma center is the Mid-Columbia Medical Center in The Dalles (Oregon Rural Health Association 2018). Ambulance service in the area is provided by the Morrow County Health District's Emergency Medical Services (Oregon Licensed Ambulance Service Providers 2016). Some of the nearby fire districts also have First Response Vehicles, with equipment and crew trained to stabilize a patient until the arrival of an ambulance for transport.

In the event of a serious injury during construction or operation of the Facility, the patient may be flown by helicopter (operated by Life Flight) to one of the two Level 1 hospitals located in Portland: Oregon Health & Science University Hospital or Legacy Emmanuel Medical Center.

3.3.10 Schools

There are no new school districts or schools located within the Analysis Area. The Site Boundary still falls within two school districts: Morrow County School District No 1 and Echo School District No. 5 in Umatilla County. Other nearby school districts (most of which are outside of the 10-mile Analysis Area) that may experience an increase in enrollment due to the Facility include: the Hermiston, Stanfield, and Pendleton school districts in Umatilla County, the Ione School District in Morrow County, and the Richland, Kennewick, Prosser, Kiona-Benton City, and Finley school districts in Benton County, Washington.

3.4 Potential Impacts on Public and Private Providers – OAR 345-001-0010(1)(u)(C)(D)

OAR 345-021-0010(1)(u)(C) A description of any likely adverse impact to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110.

OAR 345-021-0010(1)(u)(D) Evidence that adverse impacts described in (C) are not likely to be significant, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts.

3.4.1 Sewer and Water Services

As previously found by the Council, the Facility is not likely to have an adverse impact to water or sewer services because in the rural area in which the Facility is proposed, there are no developed water or sewer systems that will be impacted by construction or operation of the Facility (ODOE 2017). There are no new systems, facilities, or water systems located within the Site Boundary. Due to the distance to the nearest developed sewer system, the Certificate Holder does not anticipate that connection to sewers or sewage treatment facilities will be required. Therefore, impacts to community sewer systems are not anticipated.

Because water for construction will only be obtained from permitted municipal sources with adequate water rights, public water systems will not be adversely affected by construction of the Facility. The Public Works Departments of Hermiston, Stanfield, and Boardman, as well as the Port of Morrow, have provided written correspondence (see Exhibit O) that adequate water is available for the construction of the Facility. Construction of the Facility is highly unlikely to affect the small number of wells in the Analysis Area. As identified in the ASC, water use during operations will be limited and supplied through an exempt well located at each of the O&M Buildings (Wheatridge 2015). The limited amount of water that can be used from an exempt well is not expected to result in injury to other private water rights in the vicinity of the Facility.

3.4.2 Stormwater Drainage

As previously found by the Council, the Facility is not likely to have an adverse impact on the provision of stormwater drainage services because construction, operation and decommissioning will not require construction or expansion of public stormwater drainage facilities (ODOE 2017).

The Certificate Holder will continue to implement best management practices during construction through retention and infiltration systems and will continue to comply with previously outlined statutes and regulations related to stormwater runoff, including the National Pollutant Discharge Elimination System 1200-C permit and the associated Erosion and Sediment Control Plan. In accordance with Condition CON-SP-01, these will be completed prior to construction.

3.4.3 Solid Waste Management

As previously found by the Council, construction and operation of the Facility is not likely to have an adverse impact on solid waste management (ODOE 2017).

The Certificate Holder will continue to implement best management practices for disposal and recycling, by collecting all waste to be hauled away by a licensed waste disposal service as required by Condition CON-PS-01. The Facility is not likely to cause adverse impacts to services already being provided in the counties or nearby communities. The operation and routine maintenance of the solar array will not require additional staff during operations, which will not increase the generation of solid waste. Exhibit V includes detailed information about types and quantities of solid waste and disposal.

Wastes will be recycled to the extent practicable and will contract with a local franchise waste hauler to remove both recyclables and solid waste from the Facility area. As mandated by Morrow County's Solid Waste Management Ordinance, the Certificate Holder will coordinate with waste and recycling franchisees servicing the Facility to maintain required records (Condition GEN-PS-01). Solid wastes are anticipated to be disposed at the Finley Butte Landfill, which has adequate capacity to serve the Facility, confirmed via correspondence with Dean Large, Sales Manager at Finley Butte Landfill, (Attachment U-6).

3.4.4 Housing

As previously found by the Council, construction and operation of the Facility is not likely to have a significant adverse impact on housing in the Analysis Area (ODOE 2017). The construction workforce will be dispersed among a number of communities in the area and will generally stay in one place for up to 6 months at a time.

3.4.5 Transportation and Traffic Safety

The Council previously found that impacts on roadways and traffic safety could be effectively minimized or mitigated through implementation of identified minimization measures, best management practices, and Site Certificate Conditions (ODOE 2017). In addition, the Certificate Holder will enter into Road Use Agreements with the county works departments to ensure county roads are maintained and repaired, and to ensure new access roads, private roads, and modifications of county roads conform to county requirements, as required by Site Certificate Conditions.

3.4.6 Impacts to Existing Levels of Service

As described in Section 3.3.6, the volume of truck traffic for the delivery of solar array components will be considerably less than previously approved by the Council for the wind power project. Given the low traffic volumes and volume to capacity ratios on existing roads, the additional Facility traffic generated during construction commuting is not anticipated to cause notable congestion. Therefore, the Council can rely on its earlier finding that there will not be impacts to existing levels of service (ODOE 2017).

3.4.7 Police and Fire Protection

3.4.7.1 Police

The changes proposed under RFA 4 are not expected to require more police services than those considered in the Final Order (ODOE 2017). The number of temporary construction workers is not anticipated to place significant new demands on law enforcement agencies in the area. The law enforcement service providers in Morrow and Umatilla counties have been re-contacted (Attachments U-1 and U-2). Both have indicated that they can provide services to the Facility without impact to their current customer service base.

As required by Site Certificate Condition CON-PS-02, onsite 24-hour security during construction and effective communications will be established between onsite security personnel and the local sheriff offices. As previously approved by the Council, construction and operation of the Facility will not have a substantial adverse impact on the provision of law enforcement services in the Analysis Area (ODOE 2017).

3.4.7.2 Fire

The greatest risk of fire on a solar farm occurs during construction, particularly from metal cutting and welding. In addition, fire hazards can result from workers smoking, refueling vehicles and equipment, and operating or parking vehicles and other equipment off roadways in areas of tall dry grass that could ignite upon contact with hot vehicle parts (e.g., mufflers or catalytic convertors). Fire danger during construction can be significantly reduced through the implementation of safe working practices, such as maintaining adequate firefighting equipment and water supplies on

hand during operations that carry a high fire risk, conducting metal cutting and welding within a cleared or graveled area, and preventing parking of vehicles in areas with high, dry grass.

Transportation of lithium-ion batteries for the distributed energy storage system is subject to 49 Code of Federal Regulations 173.185, as described in Exhibit G. The regulations include requirements for the prevention of a dangerous evolution of heat, short circuits, and damage to the terminals, and also require that no battery come in contact with other batteries or conductive materials. Adherence to the requirements and regulations, personnel training, safe interim storage, and segregation from other potential waste streams will minimize any public hazard related to the transport, use, or disposal of batteries. Fire prevention practices previously listed in the Final Order will continue to be adhered to. In addition, Site Certificate Conditions requiring fire prevention and response training (GEN-PS-03), submission of site plan to fire protection officials (PRO-PS-02) and requiring the Site Certificate Holder to provide current contact information for personnel (OPR-PS-04) will help minimize impacts.

During the operational phase of the Facility, fire danger will be minimal. Solar panels contain a number of safety features designed to provide increased fire protection. The distributed energy storage system must be kept in a temperature-controlled facility with individual battery modules isolated to prevent the spread of fire if it were to occur. The battery storage system will incorporate a fire sprinkler system as designed by the battery manufacturer. The battery systems will be stored in completely contained, leak-proof modules. O&M staff will conduct frequent inspections of the battery systems according to the manufacturer's recommendations, which are assumed to be monthly inspections. An emergency management plan will also be developed with response procedures in the event of an emergency, such as a fire (Condition PRE-PS-05). In addition, the portions of the Project Area that will be graded will be replanted with a low-growing mix of grasses. The site will be mowed as needed for fire safety requirements and to keep vegetation from interfering with operations and maintenance activities.

Typical maintenance activities will not carry a significant fire risk, while maintenance vehicles will drive and park on maintained gravel roads, avoiding hazards associated with driving or parking in tall dry grass. Given the inherent fire-safety features of Facility components and the relatively small number of new temporary and permanent residents, significant new demands on fire protection forces are not anticipated.

The fire protection providers identified in Section 3.3.6 have been re-contacted, see Attachments U-3 through U-5. Except for the Heppner Volunteer Fire Department, which has not responded to multiple attempts at contact, all fire protection providers have indicated that the construction and operation of the Facility will not impact their ability to provide fire protection services to their respective districts.

3.4.8 Health Care

As previously found by the Council, construction and operation of the Facility is not likely to have an adverse impact on area health care providers (ODOE 2017). Impacts on health care will remain

the same since the need for the services will not increase because of the modifications proposed under RFA 4 and the ability of the community to provide health care services has not changed since the Site Certificate was issued.

3.4.9 Schools

As previously found by the Council, no significant adverse impacts to schools are anticipated during construction and operation of the Facility (ODOE 2017). No schools are located within the Site Boundary or will be directly affected by Facility construction or operations. Construction will be temporary and short-term, and much of the peak work period will occur during the summer months when school is not in session. Therefore, the Council may rely on its earlier findings to conclude that the modifications proposed under RFA 4 will not adversely affect schools.

4.0 Proposed Monitoring Programs – OAR 345-001-0010(1)(u)(E)

OAR 345-001-0010(1)(u)(E) The applicant's proposed monitoring program, if any, for impacts to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110.

The following plans were previously identified for monitoring potential Facility impacts on service providers and are now Site Certificate Conditions:

- Provide employees fire prevention and response training and equivalent training for new employees or subcontractors working on the site and retain records (Condition GEN-PS-03).
- Prepare an Emergency Management Plan, maintain the plan, and train onsite workers on the fire prevention and safety procedures (Condition PRE-PS-05).
- Develop a site Health and Safety Plan, update the plan annually, and maintain through operations (Condition PRE-PS-06).
- Ensure all construction workers are certified in first aid, cardio pulmonary resuscitation and automated external defibrillator use; maintain records and certification; and keep a working automated external defibrillator onsite during construction (Condition PRE-PS-07).
- Provide 24-hour onsite security during construction and develop effective communications with local sheriff's offices (Condition CON-PS-02).
- Provide a final site plan to the identified fire protection districts and first-responders included in the Emergency Medical Plan (Condition PRO-PS-02).

- Prepare a Traffic Management Plan to include procedures and actions described in the Project Order and mitigation measures identified in Section 3.4.5 (Condition PRE-PS-01).
- Enter into Road Use Agreements with counties and conduct pre-construction assessments, construction monitoring, and post-construction inspection and repair as required by counties public works departments (Conditions PRE-PS-02, PRE-PS-03, and PRE-PS-04).

The modifications proposed under RFA 4 do not affect the Certificate Holder's ability to comply with these conditions and no new monitoring programs are required as a result of the proposed modifications.

5.0 Conclusions

Based on the evidence presented in this Exhibit U, the Council may rely on its earlier findings to conclude in accordance with OAR 345-022-0110 that the construction and operation of the Facility, as modified under RFA 4, taking into account Site Certificate Conditions, is not likely to result in significant adverse impacts on the ability of the providers within the Analysis Area to provide the following services: sewers and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, healthcare, and schools.

6.0 References

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Figures

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Wheatridge
Wind Energy Facility
Request for Amendment 4

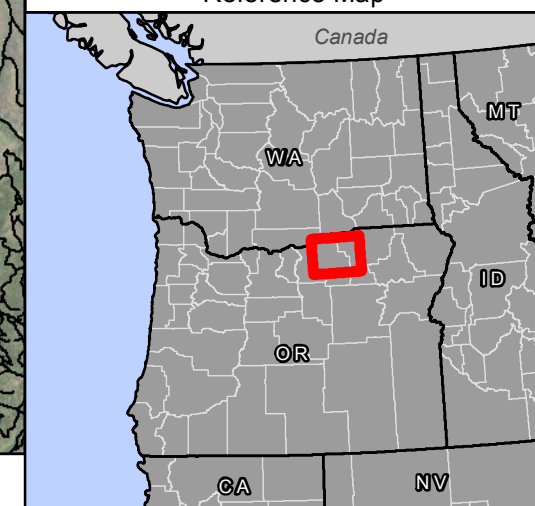
Figure U-1
Analysis Area
of Public Services

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (10-mile Buffer)
- Interstate Highway
- US Highway
- State Highway
- County Highway
- Local Road



Reference Map



P:\GIS\PROJECTS\NextEra\Wheatridge_Solar\Figures\Exhibit_UNNextEra_Wheatridge_RFA4_Figure U1_11171_20181128.mxd



1:275,000 WGS 1984 UTM Zone 11N

0 2.5 5 10 15 20 Miles

**Wheatridge
Wind Energy Facility
Request for Amendment 4**

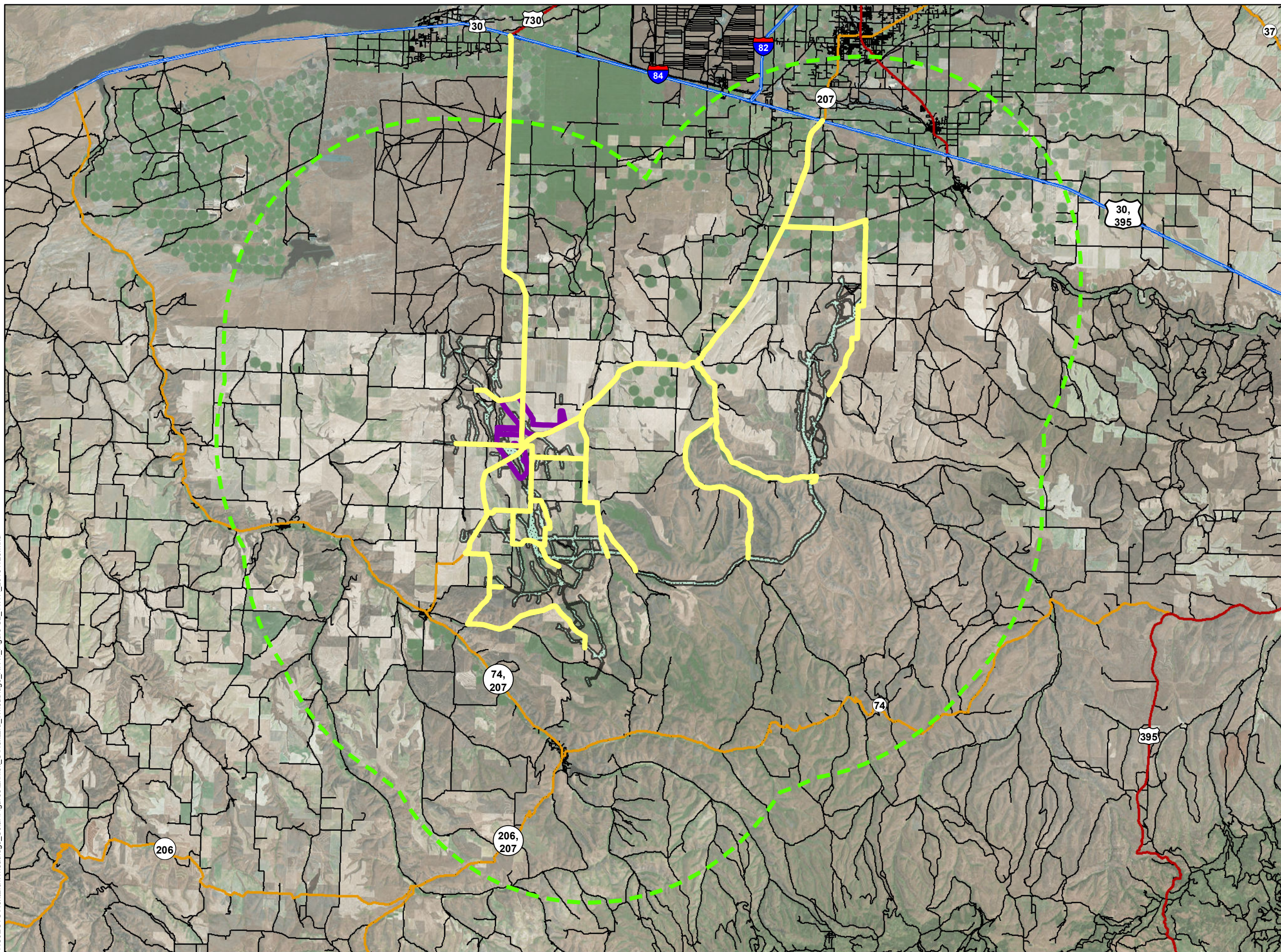
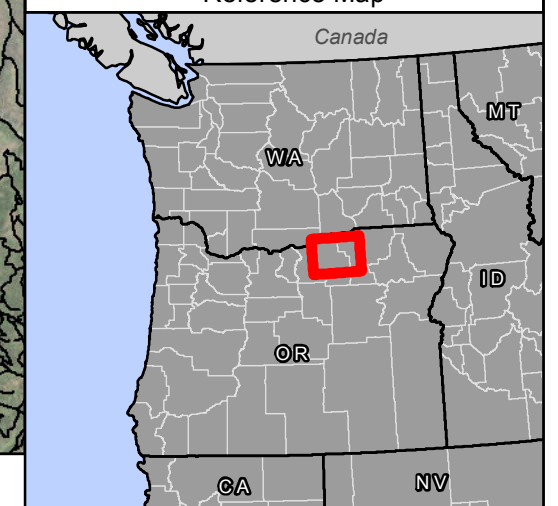
**Figure U-2
Primary Construction
Transportation Routes**

MORROW AND UMATILLA COUNTIES, OR

- Approved Site Boundary
(Approved Wind Micrositing Corridors)
- Amended Site Boundary
(Proposed Solar Micrositing Corridors)
- Analysis Area (10-mile Buffer)
- Interstate Highway
- US Highway
- State Highway
- County Highway
- Local Road
- Transportation Route



Reference Map



1:275,000 WGS 1984 UTM Zone 11N

0 2.5 5 10 15 20 Miles

**Attachment U-1. Record of
Correspondence with Morrow County
Sheriff's Department**

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MORROW COUNTY SHERIFF

325 Willow View Drive :- P.O. Box 159
Heppner, Oregon 97836
Phone: (541) 676-5317
Fax: (541) 676-5577

Kenneth W. Matlack, Sheriff
John A. Bowles, Undersheriff

To: Kristen Gulick

Date: 10-24-2018

From: John A. Bowles, Undersheriff

Re: Wheatridge Energy Project

The Morrow County Sheriff's Office is the primary Law Enforcement agency for the area in which the Wheatridge Wind Energy Facility will be located. This project is in a low to medium crime area in our county.

The Sheriff's Office will respond appropriately and as necessary to all complaints that come from the Wheatridge Project. We do not expect this project to adversely affect the Morrow County Sheriff's Office in terms of additional workload.

Sincerely,

John A. Bowles, Undersheriff/ Emergency Manager
Morrow County Sheriff's Office

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**Attachment U-2. Record of
Correspondence with Umatilla County
Sheriff's Department**

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From: [Terry Rowan](#)
To: [Sheriff](#); [Gulick, Kristen](#)
Subject: Re: RESPONSE NEEDED ASAP - Umatilla County Sheriff's Office Agreement with Wheatridge Wind/Solar Project - ATTENTION TERRY ROWAN
Date: Friday, October 19, 2018 12:59:03 PM

Kristen,

Yes, the agreement is accurate. The Umatilla County Sheriff's Office (UCSO) is the primary policing agency responsible for coverage in the project area. UCSO will respond to incidents as required.

Thank you
Sheriff Terry L. Rowan

On Wed, Oct 17, 2018 at 1:52 PM Sheriff <sheriff@umatillacounty.net> wrote:

----- Forwarded message -----

From: **Gulick, Kristen** <Kristen.Gulick@tetrattech.com>
Date: Wed, Oct 17, 2018 at 10:13 AM
Subject: RESPONSE NEEDED ASAP - Umatilla County Sheriff's Office Agreement with Wheatridge Wind/Solar Project - ATTENTION TERRY ROWAN
To: sheriff@umatillacounty.net <sheriff@umatillacounty.net>

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2014 confirming that the Umatilla County Sheriff's Office will respond as needed for the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email.

Thanks so much,

Kristen.Gulick@tetrattech.com

Tetra Tech | Portland

1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com

Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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--

Terry Rowan

Sheriff

Umatilla County Sheriff's Office

4700 NW Pioneer Place

Pendleton, OR 97801

phone: (541)966-3603

cell: (541)969-1910

Email: terry.rowan@umatillacounty.net



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Attachment U-3. Record of Correspondence with Lone Rural Fire Protection District

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I.R.F.P.D
Ione Rural Fire Protection District
PO Box 6 – 160 West Main Street
Ione, Oregon 97843
541-422-7303

July 2, 2018
Carrie Konkol
Tetra Tech, Inc.
1750 SW Harbor Way, Suite 400
Portland, OR 07201
503-721-7225 ext. 2258

The Ione Rural Fire Protection District is one of five departments that will provide protection to the area where Wheatridge Wind Energy Facility, including energy storage, will be located.

Ione RFPD does not provide high angle or confined space rescue.

We find that this wind facility will not have a significant impact on our ability to fight wildfires.

Sincerely,

Virgil L. Morgan



Ione RFPD Fire Chief

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**Attachment U-4. Record of
Correspondence with Echo Rural Fire
Protection District**

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From: Delbert Gehrke
To: [Solsby, Anneke](#)
Subject: RE: Wheatridge Wind Energy Facility
Date: Friday, July 06, 2018 6:23:49 AM

Anneke, the only change we would request would be that a 100 foot vegetation free zone be maintained around the battery storage area in the event of a wildland fire.

Sincerely,
Chief Delbert Gehrke
Echo Rural Fire Protection District.

From: Solsby, Anneke [mailto:Anneke.Solsby@tetrattech.com]
Sent: Monday, July 02, 2018 12:56 PM
To: dgehrke000@centurytel.net
Subject: Wheatridge Wind Energy Facility

Hello Delbert,

As discussed on the phone, we are proposing to add energy (battery) storage to the Wheatridge Wind Energy Facility. Wheatridge Wind Energy Facility is an approved wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts, to be located on approximately 13,097 acres both in Morrow and Umatilla counties – see attached map. Previously, Merle Gehrke had provided a letter stating that the Echo Rural Fire District did not have any reservations regarding the project – see attached. We need a similar confirmation stating that the potential fire and hazard risk from the proposed addition of energy (battery) storage systems would not impact Echo Rural Fire District's ability to provide fire protection services to the Facility. An email response to this email will suffice.

Although siting and design isn't final, the proposed energy storage systems (20 MW system in Umatilla County) would consist of lithium-ion batteries contained in a building or series of modular containers and would include approximately 18 inverters and associated step-up transformers, as well as interconnecting facilities (control house, protective device and power transformer). The proposed battery storage systems may include ground-level cooling equipment, power conditioning systems, distribution and auxiliary transformers. The proposed battery storage systems would be located adjacent to the previously approved substation and operation and maintenance building sites and would each result in up to 5 acres of new permanent disturbance.

Please let me know if you need additional information. Thank you in advance for your assistance.

Sincerely,

Anneke Solsby | Environmental Planner

Anneke.Solsby@tetratech.com

Tetra Tech | Portland

1750 SW Harbor Way, Suite 400 | Portland, OR 97201

Direct: 503.721.7217 | Fax: 503.227.1287 | Cell: 503.860.9076

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Attachment U-5: Record of Correspondence with Boardman Rural Fire Protection District

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From: [Marc Rogelstad](#)
To: [Gulick, Kristen](#)
Subject: RE: RESPONSE NEEDED ASAP - Boardman Rural Fire Protection District Agreement with Wheatridge Wind/Solar Project
Date: Wednesday, October 17, 2018 11:26:59 AM

No Changes to the Document.

Chief Rogelstad

From: Gulick, Kristen [mailto:Kristen.Gulick@tetrattech.com]
Sent: Wednesday, October 17, 2018 10:01 AM
To: Marc Rogelstad
Cc: Boardman Fire
Subject: RESPONSE NEEDED ASAP - Boardman Rural Fire Protection District Agreement with Wheatridge Wind/Solar Project

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2015 confirming that the Boardman Rural Fire Protection District will aid local Fire Districts in fire protection as needed for the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email.

Thanks so much,

Kristen Gulick | Environmental Planner
Kristen.Gulick@tetrattech.com

Tetra Tech | Portland
1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com
Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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Attachment U-6: Record of Correspondence with Finley Butte Landfill

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From: [Jocelyn Jones](#)
To: [Gulick, Kristen](#)
Subject: FW: RESPONSE NEEDED ASAP - Finley Butte Landfill Agreement with Wheatridge Wind/Solar Project
Date: Wednesday, October 17, 2018 10:43:26 AM
Attachments: [Finley Butte Landfill Correspondence.pdf](#)
[ATT00001.htm](#)

Kristen,

I am the new sales rep for Wasco and Finley Buttes Landfill. Below is my contact information if you need anything. Is regards to Finley being able accept this material and its capacity we can still adequately handle 9000cy of waste over a 34 week period.

Jocelyn Jones | Landfill Sales

Wasco County and Finley Buttes

Western Region – Waste Connections

501 SE Columbia Shores Blvd. Ste 350 Vancouver, WA 98661

Mobile: 360.936.0386 | jocelynr@wcnx.org



Sent from my iPhone

Begin forwarded message:

From: "Gulick, Kristen" <Kristen.Gulick@tetrattech.com>
Date: October 17, 2018 at 9:53:46 AM PDT
To: "DeanL@WasteConnections.com" <DeanL@WasteConnections.com>
Cc: "customerservice2050@wcnx.org" <customerservice2050@wcnx.org>, "cust2050@wcnx.org" <cust2050@wcnx.org>, "jeffb@wcnx.org" <jeffb@wcnx.org>
Subject: **RESPONSE NEEDED ASAP - Finley Butte Landfill Agreement with Wheatridge Wind/Solar Project**

Hello,

I am contacting you on behalf of the Wheatridge Wind/Solar Project.

Correspondence was received from you in 2015 confirming that the Finley Butte Landfill will have the adequate capacity to handle the construction waste generated by the project.

This correspondence occurred during the original project development phase and we are contacting you in regards to the new phase, the addition of a solar array, to verify that you are still able to provide the same service (assuming mutually agreeable terms can be reached). Please see the attached letter of correspondence.

If you could please confirm that the correspondence agreement is still accurate as soon as possible, that would be greatly appreciated. This is a very quick project turn-around. It can be a statement on your letterhead with your signature if you like, or even a reply to this email that Finley Butte can adequately handle 9,000cy of waste over a 34 weeks period.

Thanks so much,

Kristen Gulick | Environmental Planner

Kristen.Gulick@tetrattech.com

Tetra Tech | Portland

1750 SW Harbor Way, Suite 400 | Portland, OR 97201 | www.tetrattech.com

Direct: 503.721.7216 x 2241 | Fax: 503.227.1287 | Cell: 541.740.3316

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Exhibit V

Generation of Solid Waste and Wastewater

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|--------------------|---|
| ASC | Application for Site Certificate |
| BMP | Best Management Practices |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| MW | Megawatts |
| NPDES | National Pollutant Discharge Elimination System |
| O&M | Operations and maintenance |
| OAR | Oregon Administrative Rule |
| ODEQ | Oregon Department of Environmental Quality |
| RFA | Request for Amendment |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment (RFA) 4 to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit V provides information on anticipated solid waste and wastewater generation during construction and operation of the Facility as amended by RFA 4, to meet the submittal requirements in Oregon Administrative Rule (OAR) 345-021-0010(1)(v) paragraphs (A) through (G).

As detailed in the following sections, although the proposed changes provide for additional solid waste and wastewater needs for the Facility and a larger Site Boundary, the Certificate Holder can still comply with all Site Certificate conditions previously adopted by the Council for compliance with the respect to OAR 345-022-0210 for waste minimization.

¹ Per OAR 345-001-0010(32) "micrositing corridor" means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

Conditions applicable to solid waste and wastewater include:

- PRE-WM-01: Minimum waste management plan requirements.
- PRE-WM-02: Confirmation of no surface/ground/drinking water impacts from concrete washout.
- CON-WM-01: Requirements of off-site soil disposal.
- CON-PS-01: Construction Waste Management Plan.
- OPR-PS-01: Discharge of wastewater.
- OPR-PS-03: Implementation of an operations waste management plan.
- GEN-PS-01: Coordination with solid waste handler.
- GEN-OE-04: Transport and disposal of battery waste.
- CON-SP-01: Work in compliance with a final Erosion and Sediment Control Plan as required under the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge General Permit 1200-C.

2.0 Description of Solid Waste and Wastewater Generation – OAR 345-021-0010(1)(v)(A)

OAR 345-021-0010(1)(v) Information about the applicant's plans to minimize the generation of solid waste and wastewater and to recycle or reuse solid waste and wastewater, providing evidence to support a finding by the Council as required by OAR 345-022-0120. The applicant shall include:

OAR 345-021-0010(1)(v)(A) A description of the major types of solid waste and wastewater that construction, operation and retirement of the facility are likely to generate, including an estimate of the amount of solid waste and wastewater.

OAR 345-022-0120 Waste Minimization

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that, to the extent reasonably practicable:

(a) The applicant's solid waste and wastewater plans are likely to minimize generation of solid waste and wastewater in the construction and operation of the facility, and when solid waste or wastewater is generated, to result in recycling and reuse of such wastes;

(b) The applicant's plans to manage the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility are likely to result in minimal adverse impact on surrounding and adjacent areas.

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

2.1 Solid Waste

The following sections identify the types of solid waste anticipated to be generated throughout the Facility and the estimated quantities of waste. During construction and operation, the Certificate Holder shall coordinate with its solid waste handler to provide the information solicited through the Oregon Department of Environmental Quality's (ODEQ) Recycling Collector Survey to the Morrow County waste shed representative on an annual basis (Condition GEN-PS-01).

2.1.1 Construction

Construction of the Facility would generate a small amount of non-hazardous solid waste, required in the minimum Waste Management Plan requirements (Condition PRE-WM-01). The types of solid waste will be similar to those from construction of wind turbines, given that the same types of construction materials will be used (see Exhibit G). Waste materials generated through construction of the solar components will primarily consist of concrete waste and packaging materials, which are consistent with materials previously considered by Council. It is estimated that Facility construction would produce approximately 2,000 cubic yards of waste, which will be disposed of following the Construction Waste Management Plan (Condition CON-PS-01).

Access road construction and grading are expected to produce negligible amounts of dirt and rock spoils that would need disposal, since cut and fill measures are expected to balance the need for and use of soils. Excavation for the solar array foundations, support structures, and the collector substation expansion are not expected to produce significant amounts of dirt and rock spoils. These materials would be spread over areas previously disturbed during construction. Materials would only be spread as appropriate, with adequate measures for soil conservation and erosion and sediment control, as required by the Erosion and Sediment Control Plan (Condition CON-PS-01). When it is not appropriate to spread materials over previously disturbed areas, materials would be hauled to appropriate disposal sites on participating landowner property; the location of such sites will be determined on an as-needed basis during construction. If off-site soil disposal is necessary, the requirements of off-site soil disposal in Condition CON-WM-01 will be followed.

2.1.2 Operation

The addition of the solar arrays will not change the way that operational solid waste will be handled from what the Council previously considered. An insignificant amount of solid waste is

expected to be generated during the operation and maintenance of the Facility. This waste may include equipment and components that are replaced, packing materials for replacement components, and waste typical of a small office employing up to 10 people. It is estimated that no more than 2 cubic yards of waste would be produced monthly based on the addition of the proposed solar arrays, for a total of up to 8 cubic yards of waste for the Facility as a whole, to be disposed of at either the Finley Butte Landfill or through the Morrow County Rural Solid Waste Collection Services, as identified in the Application for Site Certificate (ASC). The waste would be handled consistent with the Morrow County Solid Waste Management Ordinance and according to the Operations Waste Management Plan (Condition OPR-PS-03).

As described in Exhibit G, the distributed energy storage system will require regular replacement of batteries as they degrade over time. These batteries will be replenished at a rate dependent on usage. For example, a battery that is cycled more often will degrade faster than one that is used less often. For this analysis, the Certificate Holder assumed that 11 battery racks per 1 MW will be replaced every 3 years over the life of the Facility (assumed to be 50 years). This assumption likely overestimates the number of batteries that will flow into and out of the Facility, because not all batteries will be replaced during each replenishment cycle (e.g., fewer batteries will need replacing early in the Facility life span). A group of lithium-ion battery cells will comprise a “rack.” At this rate of replacement, approximately 27,555 battery racks will be used over operation term of the distributed energy storage system (Exhibit G).

As identified in RFA 2, for the replacement of batteries during operation, the Certificate Holder will follow the handling guidelines of 49 Code of Federal Regulations 173.185 – Department of Transportation Pipeline and Hazardous Material Administration related to the shipment of lithium-ion batteries. Licensed third party battery suppliers will be responsible for transporting batteries to and from the Facility in accordance with applicable regulations, as required through their licensure (Condition GEN-OE-04). Spent batteries will be disposed at a facility permitted to handle them, in compliance with applicable Resource Conservation and Recovery Act and Toxic Substances Control Act regulations administered by the U.S. Environmental Protection Agency or ODEQ (Condition OPR-PS-03).

Repair or replacement of the solar arrays and associated electrical equipment could generate incidental waste. However, a solar array typically lasts more than 30 years without significant degradation in function, and will be replaced infrequently, if at all. Operation of the solar arrays will not result in a significant amount of solid waste.

2.1.3 Decommissioning

The anticipated working life span of the Facility is 50 years, after which time the Facility may be extended, repowered, or decommissioned. Facility retirement is discussed in greater detail in Exhibit W. In the event the Facility would be decommissioned, and the site restored to a useful, non-hazardous condition for other planned uses, the amount of solid waste can be inferred from the materials inventory provided in Exhibit G. Should the Facility be decommissioned, the components will be disassembled, and the materials will be recycled, sold for scrap, or taken to a landfill

following the requirements of the Operational Waste Management Plan (Condition OPR-PS-03). Ancillary components, such as concrete foundations and gravel, will be removed in a manner similar to the methodology approved in the ASC. Underground cables would typically be left in place, as removing them would cause unnecessary habitat disturbance.

The retirement of the battery storage system will involve disposing of battery components at an off-site facility designed and approved for disposal or recycling of batteries by licensed third party battery suppliers, who will be responsible for transporting batteries to and from the Facility in accordance with applicable regulations, as required through their licensure (Condition GEN-OE-04). The batteries will be disposed of at retirement in the same manner described above for operational replacement.

Wastes generated by retirement from the solar arrays and battery storage system will be recycled where feasible to reduce waste generation. Decommissioning of Facility components will generate waste that will be recycled where feasible, or disposed of at the Finley Butte Landfill. Facility components to be removed and recycled or disposed will include solar photovoltaic modules, steel mounting racks, posts, and trackers; any aboveground 34.5-kilovolt electrical cable and associated support structures; inverters, transformers, and distributed energy storage modules; and concrete and aggregate used for foundations and road construction. Exhibit W has further details on Facility decommissioning.

2.2 Wastewater

Wastewater generated by the Facility will include construction wastewater consisting of equipment wash water and concrete washout water and operational wastewater from washing of solar panels. This section discusses how each of these types of wastewater will be handled throughout the life of the Facility.

2.2.1 Sanitary Wastewater

Sanitation during construction activities will be addressed through the provision of portable toilets located throughout the Facility Site Boundary at locations that will be determined prior to and during construction, as described in the ASC. Portable toilets will be provided by a licensed subcontractor, who will be responsible for servicing the toilets at regular intervals and disposing of wastewater in accordance with local jurisdictional regulations. The construction contractor will ensure that a sufficient number of toilets are provided, and that the licensed subcontractor complies with applicable regulations, including the use of holding tanks for biological waste that conform to OAR 340-071 and transportation of waste in accordance with Oregon Revised Statutes 466.005.

For operation and maintenance of the Facility, there will be no change to the previously approved plan of how sanitary waste would be handled, through an on-site septic system serving each of the operations and maintenance (O&M) Buildings, as discussed in the ASC.

2.2.2 Construction

No new types of wastewater will be generated from the construction of the solar arrays. Construction, operation, or decommissioning activities may generate small amounts of wastewater that can be allowed to infiltrate on-site, according to the terms of a NPDES Permit that will be issued by ODEQ (Condition CON-SP-01). Facility construction, operation, and decommissioning would not generate substantial amounts of wastewater that would need to be treated as effluent. The nature of the Facility is such that it would not produce industrial wastewater.

Concrete truck chutes would be washed down at each foundation site to prevent the concrete from hardening within the chutes. Concrete wastewater will be handled as previously described, using Best Management Practices (BMP) for the construction of wind generation facilities within the area, which have been accepted by ODEQ. In addition, an investigation in coordination with ODEQ will be required to confirm that no surface, ground, or drinking water impacts would occur from concrete washouts (Condition PRE-WM-02).

2.2.3 Operation

Minimal water will be used during operations and will primarily be related to sanitation at the O&M building. There will be no change to the Certificate Holder's plan to construct a septic system to serve the sanitary uses at the O&M Building. The Certificate Holder will design each septic system for a discharge capacity of less than 2,500 gallons per day (OPR-PS-01).

New operational wastewater sources may be needed for periodic washing of the solar modules to minimize the effects of dust and dirt on energy production. Assuming the solar modules are washed, at an estimated 0.5 gallons per module, for a total of 650,250 modules, each wash will require 325,125 gallons, for a total of 650,250 gallons per year (see Exhibit O). The water used for solar array cleaning is not anticipated to require off-site disposal due to the extremely high evaporation rate and expected infiltration at the site.

2.2.4 Decommissioning

Minimal wastewater will be generated during retirement of the solar arrays and supporting facilities, and the solar facilities will be decommissioned the same manner as previously described and approved for the wind facilities. Retirement of the solar array and related electrical components will not generate any wastewater. Facility retirement is discussed in greater detail in Exhibit W.

3.0 Description of Waste Management and Disposal Structures, Systems and Equipment – OAR 345-021-0010(1)(v)(B)

OAR 345-021-0010(1)(v)(B) A description of any structures, systems and equipment for management and disposal of solid waste, wastewater and storm water.

The Certificate Holder will comply with all applicable waste handling and disposal regulations on all lands associated with the Facility. Solid waste will be stored and transported in a manner that does not constitute a fire, health, or safety hazard until such waste can be hauled off for recycling or disposal, as appropriate. The following sections describe the handling and disposal of non-hazardous solid waste planned throughout the duration of the Facility. The Certificate Holder will comply with the Morrow County Solid Waste Management Ordinance Sections 5.000 as discussed in the following sections.

3.1 Construction

Construction of the solar arrays will not add any new types or significant quantities of waste, and as a result, no new structures, systems, or equipment will be needed to manage and dispose of construction wastes. All waste will be disposed of following the Construction Waste Management Plan (Condition CON-PS-01) which will be consistent with Morrow County Solid Waste Management Ordinance Sections 5.020 and 5.030.

3.2 Operation

Any solid waste generated operation of the solar arrays will be collected by the maintenance crews and transported to off-site to facilities that handle the disposal or recycling of these items. All operational waste will be handled according to the Operations Waste Management Plan (Condition OPR-PS-03) which will be consistent with Morrow County Solid Waste Management Ordinance Sections 5.020, 5.030 and 5.040.

Spent batteries will be disposed at a facility permitted to handle them in compliance with applicable Resource Conservation and Recovery Act and Toxic Substances Control Act regulations administered by the U.S. Environmental Protection Agency or ODEQ (Condition OPR-PS-03). The batteries will be handled by a licensed third party battery suppliers in accordance with applicable regulations, as required through their licensure (Condition GEN-OE-04). Additionally, waste hauling by facility personnel within Morrow County will be performed in compliance with Morrow County Solid Waste Management Ordinance Section 5.000 Public Responsibilities and 5.030 Responsibility for Propose Disposal of Waste Hazard (Condition OPR-PS-03).

Some washing of solar panels may be conducted (see Exhibit O). The limited quantity of wash water will evaporate or will infiltrate into the ground near the point of use. No additional industrial

wastewater streams will be generated during operation of the solar array. No additional structures, systems, or equipment are required for stormwater resulting from the addition of the solar arrays.

3.3 Retirement

Waste produced from retirement activities will be managed in a similar manner to the waste produced during construction and operation (see Sections 3.1 and 3.2). At the expected Facility life span of 50 years, an available solar array could still be capable of generating 80 to 85 percent of its initial capacity, in which case the solar array will be repurposed for use at other locations.

Retirement of the Facility is described in Exhibit W. If continued reuse is not practical, the array will be dismantled and recycled to reclaim constituent parts, such as glass, aluminum, silicon solar cells, and metals. The distributed battery storage system will require disposal of the concrete container structures housing the batteries and their constituent parts. The batteries will be disposed of at retirement in the same manner described above for operational replacement.

3.4 Solid Waste Disposal Site

Solid waste generated by the Facility will be disposed of at the Finley Butte landfill in Morrow County. See Exhibit U for further discussion of landfills. Correspondence with the Finley Butte Sales Manager (Exhibit U, Attachment U-8) confirms that the Finley Butte Landfill has adequate capacity to handle the projected waste generated by construction, operation, and decommissioning of the Facility. Solid waste will be transported off-site from designated collection points at the construction yards and the O&M buildings by contracted waste haulers. The waste haulers would be responsible for compliance with the Morrow County Solid Waste Ordinance Section 5.010 to cover and secure the loads. Any solid waste transported by construction personnel from work sites to the collection points would be done in compliance with the Morrow County Solid Waste Ordinance Section 5.010 to cover and secure loads. During construction and operation, the Certificate Holder shall coordinate with its solid waste handler to provide the information solicited through ODEQ's Recycling Collector Survey to the Morrow County waste shed representative on an annual basis (Condition GEN-PS-01).

4.0 Actions or Restrictions to Reduce Consumptive Water Use – OAR 345-021-0010(1)(v)(C)

OAR 345-021-0010(1)(v)(C) A discussion of any actions or restrictions proposed by the applicant to reduce consumptive water use during construction and operation of the facility.

As discussed in the ASC, minimizing use of water for the Facility will be an important environmental consideration as the Facility moves into the construction phase. The Certificate Holder will use appropriate BMPs to reduce water use to the greatest extent feasible. Wind and solar energy facility construction by nature does not afford the construction contractor significant opportunities for reducing water use. Specific quantities of water must be used in making concrete,

a minimal amount of water is required for the washing of concrete trucks and tools, and fugitive dust on surface roads must be controlled with water. In an effort to minimize water use, the Certificate Holder proposes the following:

- Weather and soil conditions will be regularly monitored to minimize watering the construction road while maintaining regulatory compliance for fugitive dust issues. Water for dust control would not be applied if weather conditions are such that disturbed soils will remain sufficiently damp and fugitive dust will not be created.
- Water will be applied only as needed in areas of active construction or vehicle movement, will be applied sparingly, and only at necessary intervals. Binders or tackifiers, such as magnesium chloride, may be used to lengthen the interval between necessary dust control water applications, if such additives are permitted by landowners and applicable regulations.
- During operation, the changes described in RFA 4 will result in additional water use for the purpose of periodic solar panel washing. Water used for solar panel washing will be limited to the minimum necessary for effective panel function.

5.0 Minimization and Recycling Plans – OAR 345-021-0010(1)(v)(D)

OAR 345-021-0010(1)(v)(D) The applicant's plans to minimize, recycle or reuse the solid waste and wastewater described in (A).

The changes described in this amendment request will result in additional solid waste in the form of potential solar array replacements during operation, and through decommissioning at the time of retirement. These materials will be recycled where practicable, and disposed at an approved disposal location where necessary (Condition PRE-WM-01). Water used for solar panel washing will be discharged for infiltration into the ground near the point of use, but will not be discharged into wetlands, streams, or other waterways. All operational waste would be handled according to the Operations Waste Management Plan (Condition OPR-PS-03).

6.0 Waste-Related Impacts

6.1 Description of Impacts – OAR 345-021-0010(1)(v)(E)

OAR 345-021-0010(1)(v)(E) A description of any adverse impact on surrounding and adjacent areas from the accumulation, storage, disposal and transportation of solid waste, wastewater and stormwater during construction and operation of the facility.

Solid waste, wastewater, and stormwater for the Facility will be generated and managed consistent with the methods and procedures that have been previously approved by the Council for the

Facility, and through the Site Certificate Conditions discussed above. As a result, there will be no new, adverse impacts resulting from the changes proposed under RFA 4.

6.2 Evidence that Impacts are Minimal – OAR 345-021-0010(1)(v)(F)

OAR 345-021-0010(1)(v)(F) Evidence that adverse impacts described in (D) are likely to be minimal, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts.

Generation of wastes from construction will be minimized by estimating material needs and employing efficient construction practices. Waste generated during construction and operation of the Facility will be recycled when feasible (Conditions PRE-WM-01 and OPR-PS-03).

Because waste generation will be minimal, there is little anticipated adverse impact on surrounding areas from solid waste or wastewater due to Facility construction, operation, or retirement. Waste will be reused or recycled, or when necessary, disposed at permitted disposal facilities. Any waste disposed on-site (e.g., excess spoils from foundation or road excavation) will be inert, disposed of in a manner consistent with applicable regulations, and protective of human health and the environment.

6.3 Proposed Monitoring Plan – OAR 345-021-0010(1)(v)(E)

OAR 345-021-0010(1)(v)(G) The applicant's proposed monitoring program, if any, for minimization of solid waste and wastewater impacts.

Because no significant, adverse impacts from waste or wastewater will occur in the adjacent or surrounding areas, no monitoring program is proposed. Waste management activities will be subject to periodic inspections to ensure compliance with applicable regulations and Site Certificate Conditions.

7.0 Conclusion

The evidence provided above demonstrates that the Council's Waste Minimization standard is met because waste generated as a result of the changes described in RFA 4 will be minimized, reused, or recycled where feasible, and because minimal adverse impacts on the surrounding or adjacent areas will result from the management of waste related to the Facility.

Exhibit W

Facility Retirement and Site Restoration

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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List of Attachments

Attachment W-1. Wheatridge Solar Decommissioning Estimate

Acronyms and Abbreviations

| | |
|--------------------|----------------------------------|
| ASC | Application for Site Certificate |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| OAR | Oregon Administrative Rules |
| ODOE | Oregon Department of Energy |
| RFA | Request for Amendment |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment (RFA) 4 to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

Exhibit W provides the information required by Oregon Administrative Rules OAR 345-021-0010(1)(w) to demonstrate that the Facility, as proposed, complies with the Retirement and Financial Assurance standard required in Oregon Administrative Rules (OAR) 345-022-0050.

OAR 345-022-0050 Retirement and Financial Assurance

To issue a site certificate, the Council must find that:

(1) The site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility.

(2) The applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.

¹ Per OAR 345-001-0010(32) “micrositing corridor” means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

To the extent it is representative of the best available information, analysis in this Exhibit incorporates and/or relies on reference information, analysis, and findings found in the Application for Site Certificate (ASC), previous RFAs², and Oregon Department of Energy (ODOE) Final Orders (ODOE 2017a, ODOE 2017b, Wheatridge 2015, Wheatridge 2017, Wheatridge 2018a, Wheatridge 2018b) to demonstrate that the Facility, as proposed, continues to comply with applicable Site Certificate conditions and the approval standard in OAR 345-022-0050. Under OAR 345-022-0050(1), before the Council will approve the proposed energy facility, it must find that the proposed Facility site can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the Facility. Information about site restoration and retirement of the Facility components, and the estimated costs of restoring the site, are based on the ODOE's *First Revised Cost Guide for Decommissioning Oregon Energy Facilities*.

The Council previously found in the Final Order on the Application and Final Order on Amendment 1, that the actions necessary to retire and restore the site are feasible and that retirement and restoration of the site to a useful, nonhazardous condition could be achieved (ODOE 2017a). RFA 2 and RFA 3 are currently under consideration by Council. RFA 2, which added energy storage to the facility, increased the estimated retirement cost by \$279,000 to cover the cost of decommissioning the energy storage facility. RFA 3 modified the proposed turbine height and included a full recalculation of retirement cost based on modified number and size of turbines, and updated the estimate to Q3 2018 dollars, for a total of \$19.173 million. Pending Council authorization of RFA 3, this cost estimate to retire the wind facility along with related or supporting facilities including the substation and energy storage is considered to be current and is not further updated with this amendment request.

The following Site Certificate Conditions apply to facility retirement:

- GEN-RF-01: Prevention of non-restorable site
- PRE-RF-01: Letter of credit to restore site to non-hazardous condition
- PRE-RF-02: Letter of credit naming State as payee
- RET-RF-01: Compliance with retirement plan
- RET-RF-02: Retirement of facility upon cessation of activities

² In May 2018, the Certificate Holder submitted RFA 2 and RFA 3 for the Facility. RFA 2 proposed adding two battery storage locations (one in Wheatridge East and one in Wheatridge West). RFA 3 proposed increasing the maximum turbine height allowed. Both of these requests are pending before the Council. The Certificate Holder assumes that by the time RFA 4 appears before the Council that RFA 2 and RFA 3 will have been approved; therefore, RFA 4 incorporates by reference the record from RFAs 2 and 3 to support approval of RFA 4. However, references to the Site Certificate are for the Amended Site Certificate for RFA 1, which is the authorized Site Certificate at the time of submittal of RFA 4.

2.0 Estimated Useful Life of the Facility – OAR 345-021-0010(1)(w)(A)

OAR 345-021-0010(1)(w) Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant shall include:

OAR 345-021-0010(1)(w)(A) The estimated useful life of the proposed facility.

For the purposes of RFA 4, and as described and approved in the Final Order on the ASC (ODOE 2017a), the useful life of the Facility is estimated to be 50 years. At the end of that period, the Facility may be decommissioned; its useful life could be extended if equipment continues to function well with routine maintenance; or the Facility could be repowered with newer-generation equipment in the same locations. While retirement of the Facility is possible, the need for electricity generation and transmission, along with supporting facilities, is expected to increase into the foreseeable future.

3.0 Actions to Restore the Site – OAR 345-021-0010(1)(w)(B)

OAR 345-021-0010(1)(w)(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition.

The Retirement Plan will include, pursuant to OAR 345-027-0110(5), the following information:

5) In the proposed final retirement plan, the certificate holder shall include:

(a) A plan for retirement that provides for completion of retirement without significant delay and that protects public health, safety and the environment.

(b) A description of actions the certificate holder proposes to take to restore the site to a useful, non-hazardous condition, including information on how impacts to fish, wildlife and the environment would be minimized during the retirement process.

(c) A current detailed cost estimate and a plan for ensuring the availability of adequate funds for completion of retirement.

(d) An updated list of the owners of property located within or adjacent to the site of the facility, as described in OAR 345-021-0010(1)(f).

In the ASC, the Certificate Holder provided a list of specific actions and tasks needed to remove wind turbines and related or supporting facilities and restore the site to a useful, non-hazardous condition. RFA 2 provided supplemental corresponding information for the energy storage site. This RFA 4 lists additional actions to be taken for the solar energy generating components of the Facility, in the unlikely event that the Certificate Holder elects to retire the Facility.

In accordance with Site Certificate Condition RET-RF-01, prior to retiring the Facility, the Certificate Holder will prepare a final Retirement Plan for approval by the Council. The proposed final

Retirement Plan will be submitted to the ODOE at least 90 days prior to Facility retirement, in accordance with Site Certificate Condition RET-RF-02. The Retirement Plan will describe the activities necessary to restore the site to a useful, nonhazardous condition, as described in OAR 345-027-0110(5). After Council approval of the Retirement Plan, the Certificate Holder will obtain the necessary authorization from the appropriate regulatory agencies to proceed with restoration of the site.

In addition to actions previously described for decommissioning of wind turbines and related or supporting facilities, the following specific actions will be taken to decommission the solar energy generating facilities:

- **Removal of all facilities.** Facilities to include perimeter fencing, the substation, module supports, modules, inverters, transformers and distributed energy storage systems. Underground electrical cable will be removed to its lateral depth; lateral runs are assumed to be a minimum of 3 feet deep, and will be abandoned in place.
- **Removal of foundations.** Concrete foundations for transformers and inverters are assumed to be slab on grade; thus, they will be removed in their entirety. For all foundation areas, the area will be filled with soil or gravel as part of site restoration.
- **Site Restoration.** Restoration of all Facility locations and access roads to a useful condition consistent with site zoning. This restoration will include restoring the site to a condition suitable for uses comparable with the surrounding land uses, intended land use, and then-current technologies.
- **Revegetation:** Vegetation will be restored to the maximum extent practicable, and all areas disturbed by construction shall be landscaped in a manner compatible with the surroundings and proposed use. In forested areas, the area would either be reforested or allow to regrow naturally.

4.0 Total Costs, Estimating Methods, and Assumptions

4.1 Estimate of Cost – OAR 345-021-0010(1)(w)(C)

OAR 345-021-0010(1)(w)(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.

Attachment W-1 provides a detailed Facility retirement and restoration cost estimate for the solar generation facility components. The estimated cost of retirement and restoration for the solar facility is \$7.772 million (in fourth-quarter 2018 dollars; see Attachment W-1). Combined with the prior estimates of \$19.173 million for the wind turbines (see RFA 3) and \$279,000 for the energy storage facility (see RFA 2), the total retirement and restoration cost estimate for the Facility as modified by RFA 4 is \$27.224 million.

The Certificate Holder's ability to achieve the objectives of the Council's financial assurance rules is described in Exhibit M; Attachment M-2 demonstrates an ability to secure a letter of credit for \$27.224 million towards the cost of site restoration.

4.2 Estimating Methods and Assumptions – OAR 345-021-0010(1)(w)(D)

OAR 345-021-0010(1)(w)(D) A discussion and justification of the methods and assumptions used to estimate site restoration costs.

The scope of work and individual tasks were established using professional experience, in collaboration with Certificate Holder's engineering staff and contractors. The Facility retirement is broken into individual tasks that were each estimated separately to include labor requirements, equipment needs, and duration. Production rates were established using professional experience and published standards that include RS Means³. Labor and equipment rates prevalent to the geographic area of the Facility were obtained based on U.S. Department of Labor wage determinations. After the estimate was completed, typical average markups that are industry standards were applied for contingency, overhead, and fee.

Estimating methods and assumptions specific to this estimate are as follows:

- Labor costs were developed by reviewing the U.S. Department of Labor wage determinations and rates published by RS Means. Using this method, an average rate is developed that includes base wage, fringe, and payroll tax liability. The final rate used in the estimate is an average of 40 hours of standard time and 10 hours of overtime per week, assuming a 50-hour work week during construction activities.
- Equipment rates used in the estimate are developed by reviewing rates published by RS Means and historical vendor quotes. Rates include fuel, maintenance, and wear and tear of ground engaging components. The rates assume the use of rental equipment, not owned equipment.
- Mobilization and demobilization costs are estimated to be approximately 2 percent of the overall contractor's costs. This reflects the actual cost to mobilize equipment, facilities, and crew to the Facility site, assuming the work is performed by local contractors. This amount does not include the front-loading of costs from other tasks.
- Restoration is estimated on a unit cost basis, priced by task that follows the progression of work from start to finish, as illustrated in Attachment W-1. Unit costs are developed by including the labor, equipment, and production rate required for each individual task. RS Means and estimator experience are utilized to establish the crew, equipment, and production for each individual task. Several other miscellaneous costs have been approximated, including permits, engineering, signage, fencing, traffic control, utility

³ www.rsmeans.com

disconnects, etc. In the context of the overall estimate, these are incidental costs that are covered in the estimate's contingency.

- Roads would be restored pursuant to the Council-approved Retirement Plan so that they become a part of the natural surroundings and are no longer recognizable or usable as a road. On private lands, roads would be restored at the request of the current landowner.
- The cost for temporary facilities have been included in the restoration cost. These include an office trailer, two Conex storage units, portable toilets, first aid supplies, and utilities.
- Field management during construction activities has been added to the estimate. These include one Superintendent, one Health & Safety Representative and two Field Engineers. These positions are critical to the safe and successful execution of work.
- A contractor's Home Office, Project Management, Overhead, and Fee can vary widely by contractor. As such, averages were developed for the estimate and added as a percentage of total cost. These include 5 percent for Home Office and Project Management, 5 percent Contingency, and 15 percent for Overhead and Fee.

5.0 Monitoring Plan – OAR 345-021-0010(1)(w)(E)

OAR 345-021-0010(1)(w)(E) For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.

In the event that the Certificate Holder elects to retire the Facility, the site could be restored to a useful, non-hazardous condition consistent with site zoning, including Exclusive Farm Use zoning. The Facility is not expected to cause site contamination with hazardous materials, and no contamination monitoring plan is proposed. The existing facilities could be removed without significant risk of contamination.

Hazardous materials associated with the Facility would largely be limited to oils in turbine gearboxes and transformers, which would be pumped out to a specialized vehicle for recycling prior to removing the equipment. The proposed Facility would not have any underground storage tanks or on-site bulk storage of hazardous materials. Small quantities of lubricants, vehicle fuel, and herbicides might be transported over and across the site during operation, and leaks, spills and improper handling of these materials could occur. Given the small amounts of such materials used at the Facility site, soil contamination is highly unlikely, and therefore a monitoring plan is unnecessary.

6.0 References

- ODOE (Oregon Department of Energy). 2017a. Final Order in the Matter of the Application for a Site Certificate for the Wheatridge Wind Energy Facility. April 2017.
- ODOE. 2017b. Final Order in the Matter of the Request for Transfer (Amendment #1) for the Wheatridge Wind Energy Facility. July 2017.
- Wheatridge (Wheatridge Wind Energy, LLC). 2015. Wheatridge Wind Energy Facility Application for Site Certificate. Prepared by Tetra Tech, Inc. July 2015.
- Wheatridge. 2017. Wheatridge Wind Energy Facility Request for Amendment 1. Prepared by Tetra Tech, Inc. July 2017.
- Wheatridge. 2018a. Wheatridge Wind Energy Facility Request for Amendment 2. Prepared by Tetra Tech, Inc. September 2018.
- Wheatridge. 2018b. Wheatridge Wind Energy Facility Request for Amendment 3. Prepared by Tetra Tech, Inc. September 2018.

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Attachment W-1. Wheatridge Solar Decommissioning Estimate

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Estimate Summary**TETRA TECH EC, INC.****Job Code: Wheatridge Solar****Description: Decommissioning Estimate**

| Cost Item | | | | | | | | |
|-------------------|-----------------------------|-----------------------------|---------------------|--------|-------------|-------------|--------------|--------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| 1 | 1.00 Lump Sum | WHEATRIDGE SOLAR RETIREMENT | 785.32 | 0.00 | Detail | U.S. Dollar | 7,771,796.61 | 7,771,796.61 |
| 1.1 | 1.00 Lump Sum | Mob / Demob | 5.00 | 0.20 | Detail | U.S. Dollar | 123,728.59 | 123,728.59 |
| 1.1.1 | 1.00 Lump Sum | Equipment Mob | 0.00 | 0.00 | Detail | U.S. Dollar | 61,200.00 | 61,200.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| UERNTRLG | Rental Equip Transp-Large | | 6.00 Each | | U.S. Dollar | | 10,000.00 | 60,000.00 |
| UERNTRSM | Rental Equip Transp-Small | | 8.00 Each | | U.S. Dollar | | 150.00 | 1,200.00 |
| 1.1.2 | 1.00 Lump Sum | Site Facilities | 0.00 | 0.00 | Detail | U.S. Dollar | 2,200.00 | 2,200.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| UOCONMOB | Connex Box Mob | | 2.00 Each | | U.S. Dollar | | 300.00 | 600.00 |
| UOTRLTRN | Trailer Trnsp/Setup/Trdwn | | 2.00 Each | | U.S. Dollar | | 800.00 | 1,600.00 |
| 1.1.3 | 3.00 Day | Crew Mob & Site Setup | 3.00 | 1.00 | Detail | U.S. Dollar | 12,065.72 | 36,197.15 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 720.00 | 24.00 Each (hourly) | | U.S. Dollar | | 38.04 | 27,386.82 |
| L010101 | OPERATOR | 180.00 | 6.00 Each (hourly) | | U.S. Dollar | | 48.95 | 8,810.33 |
| 1.1.4 | 2.00 Day | Crew Demob & Site Cleanup | 2.00 | 1.00 | Detail | U.S. Dollar | 12,065.72 | 24,131.44 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 480.00 | 24.00 Each (hourly) | | U.S. Dollar | | 38.04 | 18,257.88 |
| L010101 | OPERATOR | 120.00 | 6.00 Each (hourly) | | U.S. Dollar | | 48.95 | 5,873.56 |
| 1.2 | 8.00 Month | Site Facilities | 0.00 | 0.00 | Detail | U.S. Dollar | 2,155.00 | 17,240.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| URCONNEX | Connex Box | | 16.00 Month | | U.S. Dollar | | 150.00 | 2,400.00 |
| UROFFTRL | Office Trailer -12x60 | | 8.00 Month | | U.S. Dollar | | 500.00 | 4,000.00 |
| UO1STAD | 1st Aid Supplies | | 8.00 Month | | U.S. Dollar | | 300.00 | 2,400.00 |
| UOOFFPHN | Monthly Office Phone | | 8.00 Month | | U.S. Dollar | | 500.00 | 4,000.00 |
| UOOFFSUP | Office Supplies(\$/prs/mo) | | 8.00 Month | | U.S. Dollar | | 55.00 | 440.00 |
| UINT | Internet | | 8.00 Month | | U.S. Dollar | | 200.00 | 1,600.00 |
| URPRTAJH | Port-a-John Unit(s) (4) | | 8.00 Month | | U.S. Dollar | | 300.00 | 2,400.00 |
| 1.3 | 32.00 Week | Field Management | 192.00 | 0.17 | Detail | U.S. Dollar | 21,851.73 | 699,255.40 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L90FX02 | Field - Proj Superintendent | 1,920.00 | 1.00 Each (hourly) | | U.S. Dollar | | 83.18 | 159,709.44 |
| RPUTRK05 | F-250 4X4 3/4 TON PICKUP | 9,600.00 | 5.00 Each (hourly) | | U.S. Dollar | | 11.07 | 106,224.00 |
| L90FEL00 | Field - Engr. Tech | 1,920.00 | 1.00 Each (hourly) | | U.S. Dollar | | 39.57 | 75,982.12 |
| L90FX03 | Field - SHSO | 1,920.00 | 1.00 Each (hourly) | | U.S. Dollar | | 89.26 | 171,386.69 |
| L90FEJ00 | Field - Asst. Engr. | 3,840.00 | 2.00 Each (hourly) | | U.S. Dollar | | 48.43 | 185,953.15 |
| 1.4 | 1.00 Lump Sum | Substation Retirement | 30.95 | 0.03 | Detail | U.S. Dollar | 271,108.50 | 271,108.50 |
| 1.4.1 | 1.00 Day | Fence Removal | 1.00 | 1.00 | Detail | U.S. Dollar | 1,202.19 | 1,202.19 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L010101 | OPERATOR | 10.00 | 1.00 Each (hourly) | | U.S. Dollar | | 48.95 | 489.46 |
| L060100 | GENERAL LABORER | 10.00 | 1.00 Each (hourly) | | U.S. Dollar | | 38.04 | 380.37 |
| RBACKH09 | Deere 710J BACKHOE, 1.62CY | 10.00 | 1.00 Each (hourly) | | U.S. Dollar | | 33.24 | 332.35 |
| 1.4.2 | 2.00 Each | Transformer Removal | 12.00 | 0.17 | Detail | U.S. Dollar | 91,639.33 | 183,278.65 |

| Cost Item | | | | | | | | |
|----------------------|--------------------------------|--|--------------------|--------|----------------|-------------|-----------|------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| 1.4.2.1 | 2.00 Each | Oil Removal & Disposal | 2.00 | 1.00 | Detail | U.S. Dollar | 58,135.75 | 116,271.49 |
| 1.4.2.1.1 | 2.00 Each | Oil Removal | 2.00 | 1.00 | Detail | U.S. Dollar | 760.75 | 1,521.49 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 40.00 | 2.00 Each (hourly) | | U.S. Dollar | | 38.04 | 1,521.49 |
| 1.4.2.1.2 | 28,000.00 Gallon | Oil Disposal | 0.00 | 0.00 | Detail | U.S. Dollar | 4.00 | 112,000.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USDISPOSAL | Disposal Fee's | | 112,000.00 Each | | U.S. Dollar | | 1.00 | 112,000.00 |
| 1.4.2.1.3 | 2.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 2,750.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 2,750.00 Each | | U.S. Dollar | | 1.00 | 2,750.00 |
| 1.4.2.2 | 2.00 Each | Dismantle & Loadout Transformer | 10.00 | 0.20 | Detail | U.S. Dollar | 33,503.58 | 67,007.16 |
| 1.4.2.2.1 | 2.00 Each | Dismantle, Cut & Size | 10.00 | 0.20 | Detail | U.S. Dollar | 28,003.58 | 56,007.16 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 400.00 | 4.00 Each (hourly) | | U.S. Dollar | | 38.04 | 15,214.90 |
| L010101 | OPERATOR | 200.00 | 2.00 Each (hourly) | | U.S. Dollar | | 48.95 | 9,789.26 |
| *REXCAV06A | Excav 100K w/ Bucket & Grapple | 100.00 | 1.00 Each (hourly) | | U.S. Dollar | | 124.54 | 12,453.50 |
| *REXCAV06E | Excav 100K w/ Shear | 100.00 | 1.00 Each (hourly) | | U.S. Dollar | | 185.50 | 18,549.50 |
| 1.4.2.2.2 | 8.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 11,000.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 11,000.00 Each | | U.S. Dollar | | 1.00 | 11,000.00 |
| 1.4.3 | 1.00 Each | Remove Control Building | 0.50 | 2.00 | Detail | U.S. Dollar | 2,432.59 | 2,432.59 |
| 1.4.3.1 | 1.00 Each | Demo | 0.50 | 2.00 | Detail | U.S. Dollar | 1,057.59 | 1,057.59 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 5.00 | 1.00 Each (hourly) | | U.S. Dollar | | 38.04 | 190.19 |
| L010101 | OPERATOR | 5.00 | 1.00 Each (hourly) | | U.S. Dollar | | 48.95 | 244.73 |
| *REXCAV06A | Excav 100K w/ Bucket & Grapple | 5.00 | 1.00 Each (hourly) | | U.S. Dollar | | 124.54 | 622.68 |
| 1.4.3.2 | 1.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 1,375.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 1,375.00 Each | | U.S. Dollar | | 1.00 | 1,375.00 |
| 1.4.4 | 2.00 Day | UG Utility & Ground Removal | 2.00 | 1.00 | Detail | U.S. Dollar | 1,202.19 | 2,404.37 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L010101 | OPERATOR | 20.00 | 1.00 Each (hourly) | | U.S. Dollar | | 48.95 | 978.93 |
| L060100 | GENERAL LABORER | 20.00 | 1.00 Each (hourly) | | U.S. Dollar | | 38.04 | 760.75 |
| RBACKH09 | Deere 710J BACKHOE, 1.62CY | 20.00 | 1.00 Each (hourly) | | U.S. Dollar | | 33.24 | 664.70 |
| 1.4.5 | 500.00 Cubic Yard | Remove Foundations To Subgrade | 6.79 | 73.68 | Detail | U.S. Dollar | 27.02 | 13,512.25 |
| 1.4.5.1 | 500.00 Cubic Yard | Excavate / Remove Foundation - Various Depth | 1.79 | 280.00 | Detail | U.S. Dollar | 15.05 | 7,525.53 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 17.86 | 1.00 Each (hourly) | | U.S. Dollar | | 38.04 | 679.24 |

| Cost Item | | | | | | | | |
|----------------------|--------------------------------|--------------------------------|-------------|---------------|----------------|-------------|--------------|--------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| L010101 | OPERATOR | 35.71 | 2.00 | Each (hourly) | U.S. Dollar | | 48.95 | 1,748.08 |
| *REXCAV06C | Excav 100K w/ Hammer | 17.86 | 1.00 | Each (hourly) | U.S. Dollar | | 160.97 | 2,874.38 |
| *REXCAV06A | Excav 100K w/ Bucket & Grapple | 17.86 | 1.00 | Each (hourly) | U.S. Dollar | | 124.54 | 2,223.84 |
| 1.4.5.2 | 500.00 Cubic Yard | Concrete Transport Offsite | 5.00 | 100.00 | Detail | U.S. Dollar | 11.97 | 5,986.72 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| RDUTRK06 | CAT D350D, 18CY-24CY | 50.00 | 1.00 | Each (hourly) | U.S. Dollar | | 74.29 | 3,714.50 |
| L080940 | TEAMSTER | 50.00 | 1.00 | Each (hourly) | U.S. Dollar | | 45.44 | 2,272.22 |
| 1.4.6 | 1.00 Lump Sum | Misc. Material Disposal | 0.00 | 0.00 | Detail | U.S. Dollar | 1,675.00 | 1,675.00 |
| 1.4.6.1 | 1.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 1,375.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 1,375.00 | Each | U.S. Dollar | | 1.00 | 1,375.00 |
| 1.4.6.2 | 10.00 Ton | Disposal Cost | 0.00 | 0.00 | Detail | U.S. Dollar | 30.00 | 300.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USDISPOSAL | Disposal Fee's | | 300.00 | Each | U.S. Dollar | | 1.00 | 300.00 |
| 1.4.7 | 1.00 Lump Sum | Restore Yard | 8.67 | 0.12 | Detail | U.S. Dollar | 66,603.46 | 66,603.46 |
| 1.4.7.1 | 4.00 Acre | Backfill / Regrade | 2.00 | 2.00 | Detail | U.S. Dollar | 1,540.15 | 6,160.62 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 40.00 | 2.00 | Each (hourly) | U.S. Dollar | | 38.04 | 1,521.49 |
| L010101 | OPERATOR | 40.00 | 2.00 | Each (hourly) | U.S. Dollar | | 48.95 | 1,957.85 |
| REXCAV06B | Gradall - Excavator | 20.00 | 1.00 | Each (hourly) | U.S. Dollar | | 75.73 | 1,514.57 |
| *RDOZER08 | CAT D6 LGP Dozer | 20.00 | 1.00 | Each (hourly) | U.S. Dollar | | 58.34 | 1,166.70 |
| 1.4.7.2 | 2,000.00 Cubic Yard | Vegetative Cover | 6.67 | 300.00 | Detail | U.S. Dollar | 27.22 | 54,442.84 |
| 1.4.7.2.1 | 2,000.00 Cubic Yard | Topsoil, Delivered | 0.00 | 0.00 | Detail | U.S. Dollar | 20.00 | 40,000.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| IMSOIL | Topsoil | | 2,000.00 | Cubic Yard | U.S. Dollar | | 20.00 | 40,000.00 |
| 1.4.7.2.2 | 2,000.00 Cubic Yard | Placement | 6.67 | 300.00 | Detail | U.S. Dollar | 7.22 | 14,442.84 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L010101 | OPERATOR | 133.33 | 2.00 | Each (hourly) | U.S. Dollar | | 48.95 | 6,526.17 |
| RDOZER08 | CAT D6N XL | 133.33 | 2.00 | Each (hourly) | U.S. Dollar | | 59.38 | 7,916.67 |
| 1.4.7.3 | 4.00 Acre | Re-Seed With Native Vegetation | 0.00 | 0.00 | Detail | U.S. Dollar | 1,500.00 | 6,000.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USLANDSCAPE | Landscape Sub | | 4.00 | Acre | U.S. Dollar | | 1,500.00 | 6,000.00 |
| 1.5 | 1.00 Lump Sum | Solar Array Retirement | 411.61 | 0.00 | Detail | U.S. Dollar | 4,323,139.70 | 4,323,139.70 |
| 1.5.1 | 102,496.00 Linear Feet | Fence Removal | 20.00 | 5,124.80 | Detail | U.S. Dollar | 0.93 | 94,953.48 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L010101 | OPERATOR | 600.00 | 3.00 | Each (hourly) | U.S. Dollar | | 48.95 | 29,367.78 |
| L060100 | GENERAL LABORER | 1,200.00 | 6.00 | Each (hourly) | U.S. Dollar | | 38.04 | 45,644.70 |
| RBACKH09 | Deere 710J BACKHOE, 1.62CY | 600.00 | 3.00 | Each (hourly) | U.S. Dollar | | 33.24 | 19,941.00 |
| 1.5.2 | 41.00 Each | Inverter / Transformer Removal | 82.00 | 0.50 | Detail | U.S. Dollar | 5,779.67 | 236,966.43 |
| 1.5.2.1 | 41.00 Each | Disconnect Electrical | 41.00 | 1.00 | Detail | U.S. Dollar | 1,050.92 | 43,087.56 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |

| Cost Item | | | | | | | | |
|--|--------------------------------|--------------------------------------|-------------|---------------|----------------|-------------|-----------|------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| L010110 | ELECTRICIAN | 410.00 | 1.00 | Each (hourly) | U.S. Dollar | | 55.99 | 22,955.63 |
| L060100 | GENERAL LABORER | 410.00 | 1.00 | Each (hourly) | U.S. Dollar | | 38.04 | 15,595.27 |
| RPUTRK05 | F-250 4X4 3/4 TON PICKUP | 410.00 | 1.00 | Each (hourly) | U.S. Dollar | | 11.07 | 4,536.65 |
| 1.5.2.2 | 41.00 Each | Loadout Inverter & Transformer | 41.00 | 1.00 | Detail | U.S. Dollar | 2,663.75 | 109,213.87 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 1,640.00 | 4.00 | Each (hourly) | U.S. Dollar | | 38.04 | 62,381.09 |
| L010101 | OPERATOR | 410.00 | 1.00 | Each (hourly) | U.S. Dollar | | 48.95 | 20,067.98 |
| RHYDCR06 | GROVE RT880 73 TON | 410.00 | 1.00 | Each (hourly) | U.S. Dollar | | 65.28 | 26,764.80 |
| 1.5.2.3 | 41.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 56,375.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 56,375.00 | Each | U.S. Dollar | | 1.00 | 56,375.00 |
| 1.5.2.4 | 943.00 Ton | Disposal Cost | 0.00 | 0.00 | Detail | U.S. Dollar | 30.00 | 28,290.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USDISPOSAL | Disposal Fee's | | 28,290.00 | Each | U.S. Dollar | | 1.00 | 28,290.00 |
| 1.5.3 | 41.00 Each | Remove Foundations To Subgrade | 53.42 | 0.77 | Detail | U.S. Dollar | 2,594.35 | 106,368.42 |
| Notes: ***** Assumption: 24x36x1 concrete pad per inverter/ transformer/DC storage location. ***** | | | | | | | | |
| 1.5.3.1 | 3,936.00 Cubic Yard | Excavate / Remove Foundation | 14.06 | 280.00 | Detail | U.S. Dollar | 15.05 | 59,241.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 140.57 | 1.00 | Each (hourly) | U.S. Dollar | | 38.04 | 5,346.95 |
| L010101 | OPERATOR | 281.14 | 2.00 | Each (hourly) | U.S. Dollar | | 48.95 | 13,760.90 |
| *REXCAV06C | Excav 100K w/ Hammer | 140.57 | 1.00 | Each (hourly) | U.S. Dollar | | 160.97 | 22,627.08 |
| *REXCAV06A | Excav 100K w/ Bucket & Grapple | 140.57 | 1.00 | Each (hourly) | U.S. Dollar | | 124.54 | 17,506.06 |
| 1.5.3.2 | 3,936.00 Cubic Yard | Concrete Transport Offsite | 39.36 | 100.00 | Detail | U.S. Dollar | 11.97 | 47,127.42 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| RDUTRK06 | CAT D350D, 18CY-24CY | 393.60 | 1.00 | Each (hourly) | U.S. Dollar | | 74.29 | 29,240.54 |
| L080940 | TEAMSTER | 393.60 | 1.00 | Each (hourly) | U.S. Dollar | | 45.44 | 17,886.88 |
| 1.5.4 | 41.00 Each | DC Storage System Removal | 94.30 | 0.43 | Detail | U.S. Dollar | 10,793.47 | 442,532.32 |
| 1.5.4.1 | 123.00 MW | Battery Removal & Disposal | 82.00 | 1.50 | Detail | U.S. Dollar | 2,525.49 | 310,635.68 |
| 1.5.4.1.1 | 82.00 Day | Remove Batteries, Load For Transport | 82.00 | 1.00 | Detail | U.S. Dollar | 1,737.94 | 142,511.08 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L060100 | GENERAL LABORER | 3,280.00 | 4.00 | Each (hourly) | U.S. Dollar | | 38.04 | 124,762.18 |
| RLIFTS05 | JCB 508C, 8,000lbs FRKLFT | 820.00 | 1.00 | Each (hourly) | U.S. Dollar | | 21.65 | 17,748.90 |
| 1.5.4.1.2 | 41.00 Each | Transport Batteries | 0.00 | 0.00 | Detail | U.S. Dollar | 1,480.60 | 60,704.60 |
| 1.5.4.1.2.1 | 41.00 Each | Roll Off Liners | 0.00 | 0.00 | Detail | U.S. Dollar | 105.60 | 4,329.60 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| UODCLINER | Rolloff Liner | | 41.00 | Each | U.S. Dollar | | 105.60 | 4,329.60 |
| 1.5.4.1.2.2 | 41.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 56,375.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |

| Cost Item | | | | | | | | |
|---|--------------------------------|--------------------------------------|-------------|---------------|----------------|-------------|--------------|--------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 56,375.00 | Each | | U.S. Dollar | 1.00 | 56,375.00 |
| 1.5.4.1.3 | 537.10 Ton | Disposal Fee's | 0.00 | 0.00 | Detail | U.S. Dollar | 200.00 | 107,420.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USDISPOSAL | Disposal Fee's | | 107,420.00 | Each | U.S. Dollar | | 1.00 | 107,420.00 |
| 1.5.4.2 | 123.00 MW | Structure & Components Removal | 12.30 | 10.00 | Detail | U.S. Dollar | 1,072.33 | 131,896.64 |
| 1.5.4.2.1 | 533.00 Ton | Structure Demo | 12.30 | 43.33 | Detail | U.S. Dollar | 111.69 | 59,531.64 |
| 1.5.4.2.2 | 41.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 56,375.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 56,375.00 | Each | U.S. Dollar | | 1.00 | 56,375.00 |
| 1.5.4.2.3 | 533.00 Ton | Disposal Cost | 0.00 | 0.00 | Detail | U.S. Dollar | 30.00 | 15,990.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USDISPOSAL | Disposal Fee's | | 15,990.00 | Each | U.S. Dollar | | 1.00 | 15,990.00 |
| 1.5.5 | 1.00 Lump Sum | Solar Panel Removal | 86.89 | 0.01 | Detail | U.S. Dollar | 1,921,677.75 | 1,921,677.75 |
| 1.5.5.1 | 417,093.00 Each | Solar Panel Removal | 86.89 | 4,800.00 | Detail | U.S. Dollar | 2.78 | 1,161,292.75 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| RLIFTS05 | JCB 508C, 8,000lbs FRKLFT | 5,213.66 | 6.00 | Each (hourly) | U.S. Dollar | | 21.65 | 112,849.72 |
| L010101 | OPERATOR | 5,213.66 | 6.00 | Each (hourly) | U.S. Dollar | | 48.95 | 255,189.49 |
| L060100 | GENERAL LABORER | 20,854.65 | 24.00 | Each (hourly) | U.S. Dollar | | 38.04 | 793,253.54 |
| Notes: ***** Assumed production: 20 panels per laborer per hour, includes packaging and preparing for shipment offsite. ***** | | | | | | | | |
| 1.5.5.2 | 371.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 510,125.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USTRUCKING | Trucking Sub | | 510,125.00 | Each | U.S. Dollar | | 1.00 | 510,125.00 |
| Notes: ***** Assumption: 45,000 lbs per load ***** | | | | | | | | |
| 1.5.5.3 | 8,342.00 Ton | Disposal Cost | 0.00 | 0.00 | Detail | U.S. Dollar | 30.00 | 250,260.00 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| USDISPOSAL | Disposal Fee's | | 250,260.00 | Each | U.S. Dollar | | 1.00 | 250,260.00 |
| Notes: ***** Assumption: 417,096 modules x 40 lbs each ***** | | | | | | | | |
| 1.5.6 | 1.00 Lump Sum | Solar Rack (Trackers) & Post Removal | 75.00 | 0.01 | Detail | U.S. Dollar | 1,507,116.30 | 1,507,116.30 |
| 1.5.6.1 | 6,000.00 Each | Solar Rack (Trackers) & Post Removal | 75.00 | 80.00 | Detail | U.S. Dollar | 242.00 | 1,451,991.30 |
| Resource Code | Description | Hours | Quantity UM | | Currency | | Unit Cost | Total Cost |
| L010101 | OPERATOR | 6,000.00 | 8.00 | Each (hourly) | U.S. Dollar | | 48.95 | 293,677.80 |
| L060100 | GENERAL LABORER | 6,000.00 | 8.00 | Each (hourly) | U.S. Dollar | | 38.04 | 228,223.50 |
| *REXCAV06A | Excav 100K w/ Bucket & Grapple | 3,000.00 | 4.00 | Each (hourly) | U.S. Dollar | | 124.54 | 373,605.00 |
| *REXCAV06E | Excav 100K w/ Shear | 3,000.00 | 4.00 | Each (hourly) | U.S. Dollar | | 185.50 | 556,485.00 |

| Cost Item | | | | | | | | |
|---|-----------------------|--|--------------------|-------------|----------------|-------------|------------|------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| <div>Notes: *****</div> <div>Assumed production: .5 hour per rack per crew. Crew to include 1 excavator w/shear, 1 excavator w/grapple, 2 operators and 2 laborers. Includes post removal and sizing of steel for sale as scrap, and loadout to haul trucks.</div> <div>*****</div> | | | | | | | | |
| 1.5.6.2 | 27.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 37,125.00 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USTRUCKING | Trucking Sub | | 37,125.00 Each | U.S. Dollar | 1.00 | 37,125.00 | | |
| <div>Notes: *****</div> <div>Assumption: 45,000 lbs per load</div> <div>*****</div> | | | | | | | | |
| 1.5.6.3 | 600.00 Ton | Disposal Cost | 0.00 | 0.00 | Detail | U.S. Dollar | 30.00 | 18,000.00 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USDISPOSAL | Disposal Fee's | | 18,000.00 Each | U.S. Dollar | 1.00 | 18,000.00 | | |
| <div>Notes: *****</div> <div>Assumption: 6000 racks x 200 lbs each</div> <div>*****</div> | | | | | | | | |
| 1.5.7 | 7.00 Each | Trucking - Per Load | 0.00 | 0.00 | Detail | U.S. Dollar | 1,375.00 | 9,625.00 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USTRUCKING | Trucking Sub | | 9,625.00 Each | U.S. Dollar | 1.00 | 9,625.00 | | |
| 1.5.8 | 130.00 Ton | Disposal Cost | 0.00 | 0.00 | Detail | U.S. Dollar | 30.00 | 3,900.00 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USDISPOSAL | Disposal Fee's | | 3,900.00 Each | U.S. Dollar | 1.00 | 3,900.00 | | |
| 1.6 | 1.00 Lump Sum | Site Restoration | 145.76 | 0.01 | Detail | U.S. Dollar | 681,735.72 | 681,735.72 |
| 1.6.1 | 72,804.00 Linear Feet | Decompact Roads | 91.01 | 800.00 | Detail | U.S. Dollar | 2.68 | 195,262.69 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| *RDOZER08 | CAT D6 LGP Dozer | 1,820.10 | 2.00 Each (hourly) | U.S. Dollar | 58.34 | 106,175.53 | | |
| L010101 | OPERATOR | 1,820.10 | 2.00 Each (hourly) | U.S. Dollar | 48.95 | 89,087.16 | | |
| <div>Notes: *****</div> <div>Decompaction to include discing and regrading</div> <div>*****</div> | | | | | | | | |
| 1.6.2 | 219.00 Acre | Spot Grade Disturbed Areas | 54.75 | 4.00 | Detail | U.S. Dollar | 536.41 | 117,473.02 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| *RDOZER08 | CAT D6 LGP Dozer | 1,095.00 | 2.00 Each (hourly) | U.S. Dollar | 58.34 | 63,876.83 | | |
| L010101 | OPERATOR | 1,095.00 | 2.00 Each (hourly) | U.S. Dollar | 48.95 | 53,596.20 | | |
| <div>Notes: *****</div> <div>Assumption: 2212 acres total property area. 27 acres of roads, and 2185 acres of remaining area. Assume that 10% of the remaining area disturbed by construction will be regraded.</div> <div>*****</div> | | | | | | | | |
| 1.6.3 | 246.00 Acre | Re-Seed With Native Vegetation - Roads & Areas Disturbed By Construction | 0.00 | 0.00 | Detail | U.S. Dollar | 1,500.00 | 369,000.00 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USLANDSCAPE | Landscape Sub | | 246.00 Acre | U.S. Dollar | 1,500.00 | 369,000.00 | | |

| Cost Item | | | | | | | | |
|--|--------------------|--|--------------------|-----------------|------------------|-------------------|--------------|--------------|
| CBS Position Code | Quantity UM | Description | Days | UM/Day | Cost Source | Currency | Unit Cost | Total Cost |
| Notes: ***** Assumption: 2212 acres total property area. 27 acres of roads, and 2185 acres of remaining area. Assume that 27 acres of road area to be reseeded, and 10% of the remaining area distrubed by construction will be reseeded. 246 acres total to be reseeded. ***** | | | | | | | | |
| 1.7 | 1.00 Lump Sum | Home Office, Project Management (5% Of Cost) | 0.00 | 0.00 | Detail | U.S. Dollar | 309,022.60 | 309,022.60 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USMARKUP5 | 5% Markup | | 6,180,452.00 Each | U.S. Dollar | 0.05 | 309,022.60 | | |
| 1.8 | 1.00 Lump Sum | Contractor Contingency (5% Of Cost) | 0.00 | 0.00 | Detail | U.S. Dollar | 324,473.75 | 324,473.75 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USMARKUP5 | 5% Markup | | 6,489,475.00 Each | U.S. Dollar | 0.05 | 324,473.75 | | |
| 1.9 | 1.00 Lump Sum | Contractor OH & Fee (15% Of Cost) | 0.00 | 0.00 | Detail | U.S. Dollar | 1,022,092.35 | 1,022,092.35 |
| Resource Code | Description | Hours | Quantity UM | Currency | Unit Cost | Total Cost | | |
| USMARKUP | 15% Markup | | 6,813,949.00 Each | U.S. Dollar | 0.15 | 1,022,092.35 | | |
| Report Total: | | | 785.32 | | | | | 7,771,796.61 |
| Category | | | | | Total | | | |
| Labor | | | | | 2,789,830.12 | | | |
| Rented Equipment | | | | | 1,556,548.19 | | | |
| Supplies | | | | | 7,169.60 | | | |
| Materials | | | | | 40,000.00 | | | |
| Subcontract | | | | | 3,370,448.70 | | | |
| ODCs | | | | | 7,800.00 | | | |

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Exhibit X

Noise

Wheatridge Wind Energy Facility June 2019

Prepared for



Prepared by



Tetra Tech, Inc.

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Attachment X-1. Tabulated Summary of Acoustic Modeling Results by Receptor Location
(Confidential)

Acronyms and Abbreviations

| | |
|--------------------|--|
| ASC | Application for Site Certificate |
| CadnaA | Computer Aided Noise Abatement |
| Certificate Holder | Wheatridge Wind Energy, LLC |
| dBA | A-weighted decibel |
| Facility | Wheatridge Wind Energy Facility |
| HVAC | heating, ventilation, and air conditioning |
| ISO | International Organization for Standardization |
| m/s | meters per second |
| MVA | megavolt amperes |
| MW | Megawatt |
| NRO | Noise Reduced Operation |
| OAR | Oregon Administrative Rules |
| ODEQ | Oregon Department of Environmental Quality |
| ODOE | Oregon Department of Energy |
| RFA 4 | Request for Amendment 4 |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres, located in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility's Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and conditions of the Site Certificate. Exhibit X provides information regarding noise generated by construction and operation of the Facility, to meet the submittal requirements of Oregon Administrative Rule (OAR) 345-021-0010(1)(x) paragraphs (A) through (D). Exhibit X demonstrates that the Facility, as modified by RFA 4, can continue to comply with the approval standard in OAR 340-35-0035.

¹ Per OAR 345-001-0010(32) "micrositing corridor" means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

2.0 Analysis Area

The Analysis Area for noise impacts is defined in OAR 345-021-0010 as including those noise sensitive receptors within 1 mile of the Site Boundary. The Site Boundary, which includes the Approved Site Boundary and Amended Site Boundary, is defined in detail in Exhibits B and C.

3.0 Regulatory Environment

The modifications proposed under RFA 4 do not affect the Certificate Holder's ability to comply with the existing Site Certificate. This section presents information on the noise criteria used to evaluate the potential effects of noise from the Facility.

A review was conducted of noise regulations applicable to the Project at the federal, state, county, and local levels. There are no federal environmental noise requirements specific to this Project. In addition, Morrow and Umatilla counties have no additional noise requirements for consideration in this analysis; they generally defer to state requirements.

The following subsections describe the regulations at the State level that apply to the Project, including the Oregon Energy Facility Siting Council (EFSC or Council) rule regarding the contents of Exhibit X, and the Oregon Department of Environmental Quality's (ODEQ) noise control standards in Oregon Administrative Rule (OAR) 340-035-0035 (ODEQ Noise Rules).

3.1 Required Contents of Exhibit X

In accordance with OAR 345-021-0010(1)(x), Exhibit X must include the following:

Information about noise generated by construction and operation of the proposed facility, providing evidence to support a finding by the Council that the proposed facility complies with the Oregon Department of Environmental Quality's noise control standards in OAR 340-35-0035. The applicant shall include:

- (A) Predicted noise levels resulting from construction and operation of the proposed facility.*
- (B) An analysis of the proposed facility's compliance with the applicable noise regulations in OAR 340-35-0035, including a discussion and justification of the methods and assumptions used in the analysis.*
- (C) Any measures the applicant proposes to reduce noise levels or noise impacts or to address public complaints about noise from the facility.*
- (D) Any measures the applicant proposes to monitor noise generated by operation of the facility.*
- (E) A list of the names and addresses of all owners of noise sensitive property, as defined in OAR 340-035-0015, within one mile of the proposed site boundary.*

3.2 State Noise Regulations

OAR Chapter 340, Division 35 prescribes noise regulations applicable throughout the State of Oregon, with specific requirements in OAR 340-035-0035, “Noise Control Regulations for Industry and Commerce.” This standard provides guidance for new noise sources on a previously used site:

OAR 340-035-0035(1)(b)(A) New Sources Located on Previously Used Sites. No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies.

Table X-1 gives statistical noise limits as summarized below. All limits are presented in terms of A-weighted decibels (dBA). The L_{50} is the median sound level (50 percent of the measurement interval is above this level, 50 percent is below). The noise limits apply at “appropriate measurement points” on “noise sensitive property.”² The appropriate measurement point is defined as whichever of the following is farther from the noise source:

- 25 feet toward the noise source from that point on the noise sensitive building nearest the noise source; or
- The point on the noise sensitive property line nearest the noise source.

“Noise sensitive property” is defined as “real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries. Property used in industrial or agricultural activities is not Noise Sensitive Property unless it meets the above criteria in more than an incidental manner.”

Table X-1. New Industrial and Commercial Noise Standards

| Statistical Descriptor | Maximum Permissible Statistical Noise Levels (dBA) | |
|-----------------------------------|--|---------------------------------|
| | Daytime (7:00 a.m. – 10 p.m.) | Nighttime (10 p.m. – 7 a.m.) |
| L_{50} | 55 | 50 |
| L_{10} | 60 | 55 |
| L_1 | 75 | 60 |
| Source: OAR 340-035-0035, Table 8 | | |

The standard also provides guidance for new noise sources on a previously unused site, which is defined in OAR 340-035-0015(47) as property that has not been used by any industrial or commercial noise source during the 20 years immediately preceding commencement of

² OAR 340-035-0035(3)(b)

construction of a new industrial or commercial source on that property. The standard reads as follows:

OAR 340-035-0035(1)(b)(B)(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L_{10} or L_{50} , by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

OAR 340-035-0035(1)(b)(B)(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)–(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

Specifically, for wind energy facilities the following provision is provided at OAR 340-035-0035(1)(b)(B)(iii)(I) with regard to establishing existing conditions:

The increase in ambient statistical noise levels is based on an assumed background L_{50} ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L_{10} and L_{50} background level.

In accordance with the regulatory definitions in OAR Chapter 340-035, the analysis presented in this Exhibit X assumes that both the wind energy facility, solar facility, battery storage, Intraconnection Line, and other associated facilities will constitute an industrial or commercial use, predominantly located on previously unused sites. Therefore, to demonstrate compliance with OAR 340-035-0035(1)(b)(B)(i), the Facility must demonstrate that as a result of operation, the ambient statistical noise level must not be increased by more than 10 dBA in any one hour at any identified NSR. In the absence of actual ambient sound data, the Oregon Department of Energy has previously allowed applicants to assume a default rural background sound level of 26 dBA, resulting in an effective limit of 36 dBA at the farthest appropriate measurement point.

3.2.1 Exemptions to State Noise Regulations

OAR 340-035-0035(5) specifically exempts construction activity from the state noise standards and regulations, as indicated below.

OAR 340-035-0035(5) Exemptions:

Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:

[section abridged for brevity]

- (b) Warning devices not operating continuously for more than 5 minutes;*
- (g) Sounds that originate on construction sites.*
- (h) Sounds created in construction or maintenance of capital equipment;*
- (j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;*
- (k) Sounds created by the operation of road vehicle auxiliary equipment complying with the noise rules for such equipment as specified in OAR 340-035-0030(1)(e);*
- (m) Sounds created by activities related to the growing or harvesting of forest tree species on forest land as defined in subsection (1) of ORS 526.324.*

3.2.2 Exceptions to State Noise Regulations

OAR 340-035-0035(6) allows for some exceptions to the state noise regulations:

OAR 340-035-0035 (6) Exceptions:

Upon written request from the owner or controller of an industrial or commercial noise source, the Department may authorize exceptions to section (1) of this rule, pursuant to rule 340-035-0010, for:

- (a) Unusual and/or infrequent events;*
- (b) Industrial or commercial facilities previously established in areas of new development of noise sensitive property;*
- (c) Those industrial or commercial noise sources whose statistical noise levels at the appropriate measurement point are exceeded by any noise source external to the industrial or commercial noise source in question;*
- (d) Noise sensitive property owned or controlled by the person who controls or owns the noise source;*
- (e) Noise sensitive property located on land zoned exclusively for industrial or commercial use.*

4.0 Existing Conditions

The Facility area is rural, with occasional farm houses interspersed throughout. For the purposes of the acoustic analysis, it is considered by OAR 340-035-0035 as being lands that were previously “unused” for commercial or industrial uses. Existing ambient sound levels were not monitored in the Analysis Area; however, to assess compliance with OAR 340-035-0035 an assumed default rural background sound level of 26 dBA is used as ambient background in this acoustic analysis. Noise

levels from the wind facility were recently assessed for Request for Amendment 3, which has been reviewed and approved by the Oregon Department of Energy (ODOE) and the Council.

A wide range of noise settings occur within the acoustic Analysis Area. The background sound level will vary spatially and is related to various physical characteristics such as topography, land use, proximity to transportation corridors and terrain coverage including extent and height of exposed vegetation. The acoustic environment will also vary due in part to surrounding land use and population density. Areas in proximity to major transportation corridors such as interstate highways and areas with higher population densities and are expected to generally have higher existing ambient sound levels as compared to open and rural lands. Table X-2 shows the relative A-weighted noise levels of common sounds measured in the environment and industry.

Table X-2. Sound Pressure Levels (L_p) and Relative Loudness

| Noise Source or Activity | Sound Level (dBA) | Subjective Impression | Relative Loudness (Perception of Different Sound Levels) |
|--|-------------------|-----------------------|--|
| Jet aircraft takeoff from carrier (50 feet) | 140 | Threshold of pain | 64 times as loud |
| 50-hp siren (100 feet) | 130 | | 32 times as loud |
| Loud rock concert near stage Jet takeoff (200 feet) | 120 | Uncomfortably loud | 16 times as loud |
| Float plane takeoff (100 feet) | 110 | | 8 times as loud |
| Jet takeoff (2,000 feet) | 100 | Very loud | 4 times as loud |
| Heavy truck or motorcycle (25 feet) | 90 | | 2 times as loud |
| Garbage disposal Food blender (2 feet) Pneumatic drill (50 feet) | 80 | Loud | Reference loudness |
| Vacuum cleaner (10 feet) | 70 | Moderate | 1/2 as loud |
| Passenger car at 65 mph (25 feet) | 65 | | |
| Large store air-conditioning unit (20 feet) | 60 | | 1/4 as loud |
| Light auto traffic (100 feet) | 50 | Quiet | 1/8 as loud |
| Quiet rural residential area with no activity | 45 | | |
| Bedroom or quiet living room Bird calls | 40 | Faint | 1/16 as loud |
| Typical wilderness area | 35 | | |
| Quiet library, soft whisper (15 feet) | 30 | Very quiet | 1/32 as loud |
| Wilderness with no wind or animal activity | 25 | Extremely quiet | |
| High-quality recording studio | 20 | | 1/64 as loud |
| Acoustic test chamber | 10 | Just audible | |

| Noise Source or Activity | Sound Level (dBA) | Subjective Impression | Relative Loudness (Perception of Different Sound Levels) |
|--------------------------|-------------------|-----------------------|--|
| | 0 | Threshold of hearing | |

Adapted from: Bolt, Beranek, and Newman, Inc. 1988 and EPA 1971.

5.0 Predicted Noise Levels and Assessment of Compliance with Applicable Noise Regulations – OAR 345-021-0010(1)(x)(A)(B)

OAR 345-021-0010(1)(x) Information about noise generated by construction and operation of the proposed facility, providing evidence to support a finding by the Council that the proposed facility complies with the Oregon Department of Environmental Quality's noise control standards in OAR 340-035-0035. The applicant shall include:

OAR 345-021-0010(1)(x)(A) Predicted noise levels resulting from construction and operation of the proposed facility.

OAR 345-021-0010(1)(x)(B) An analysis of the proposed facility's compliance with the applicable noise regulations in OAR 340-035-0035, including a discussion and justification of the methods and assumptions used in the analysis.

The following assessment primarily focuses on the potential construction and operational noise impacts associated with the photovoltaic solar generation equipment planned for installation; however, potential noise impacts are also considered cumulatively with other Facility components, such as the wind turbines, substations, battery storage, and the Intraconnection Line.

5.1 Construction Noise Assessment

Construction noise levels were predicted using a semi-qualitative approach based on equipment sound levels provided in the Federal Highway Administration Roadway Construction Noise Model (FHWA 2006). These sound source levels are often used on major infrastructure projects, such as solar energy projects.

5.1.1 Compliance with State Noise Regulations – OAR 345-021-0010(1)(x)(B)

OAR 340-035-0035(5)(g) specifically exempts noise emanating from construction activities from compliance with the state noise regulations.

5.1.2 Construction Noise Sources

Construction of the proposed changes in RFA 4 would involve building of access roads, excavating and forming array and inverter foundations, and actual solar panel assembly and commissioning. Construction activities associated with the Facility have the potential for localized noise on a temporary basis as construction activities progress through certain locations within the Analysis Area. Construction activities to be conducted for the proposed changes in RFA 4 can be generally divided into five phases:

- Site preparation, grading, preparation of staging areas, and on-site access routes;
- Array foundation installation, conductor installation, and construction of the control building;
- Solar panel assembly and constructing electrical components;
- Inverter pad construction; and
- Array and interconnection commissioning, revegetation, and construction of waste removal and recycling facilities.

Work on these construction activities is expected to overlap. It is likely that the solar arrays would be erected in small groupings. Each grouping may undergo testing and commissioning prior to commencement of full commercial operation. The sound levels resulting from construction activities vary significantly depending on several factors such as the type and age of equipment, the specific equipment manufacturer and model, the operations being performed, and the overall condition of the equipment and exhaust system mufflers. The list of construction equipment that may be used on the Facility, and estimates of near and far sound source levels, are presented in Table X-3.

Table X-3. Estimated Lmax Sound Pressure Levels from Construction Equipment

| Equipment | Estimated Sound Pressure Level at 50 feet (dBA) | Estimated Sound Pressure Level at 2,000 feet (dBA) |
|---------------|---|--|
| Forklift | 80 | 48 |
| Backhoe | 80 | 48 |
| Grader | 85 | 53 |
| Man basket | 85 | 53 |
| Dozer | 83 - 88 | 51 - 56 |
| Loader | 83 - 88 | 51 - 56 |
| Scissor Lift | 85 | 53 |
| Truck | 84 | 52 |
| Welder | 73 | 41 |
| Compressor | 80 | 48 |
| Concrete Pump | 77 | 45 |

| Equipment | Estimated Sound Pressure Level at 50 feet (dBA) | Estimated Sound Pressure Level at 2,000 feet (dBA) |
|--|--|---|
| Crane | 85 | 42 |
| Sources: Bolt, Beranek, and Newman, Inc. 1977, FHWA 1992, FHWA 2006. | | |

Construction of the Facility will include various components such as wind turbines, solar facilities, substations, battery storage, and the Intraconnection Line. Potential construction noise impacts associated with the majority of those components have been analyzed and addressed in previous filings submitted to the ODOE, and are approved; therefore, these approved impacts are not included in this exhibit.

There is a possibility that construction of different Facility components could occur simultaneously, which would result in cumulative effects; however, in general it is expected that construction would be carried out in a staggered manner. Construction noise may be periodically audible at offsite locations, but is expected to be comparable to noise produced by farm machinery in nearby agricultural fields. Work in proximity of any single residence will likely last no more than a few weeks, as construction activities progress across the Analysis Area. Therefore, no one residence will be exposed to elevated noise levels for an extended period of time. Received sound levels would fluctuate, depending on the construction activity, equipment type, and separation distances between source and receiver. Construction activity will generate traffic having potential noise effects, such as trucks traveling to and from the Analysis Area on public roads, but that traffic will be short-term. Reasonable efforts will be taken to minimize the impact of noise resulting from construction activities.

5.2 Operational Noise Assessment

The proposed changes in RFA 4 would implement photovoltaic solar energy generation at the Facility. Exhibit B describes the proposed changes in RFA 4 in detail. Exhibit B indicates that the Certificate Holder is seeking flexibility in the final layout for the Facility, including locations of solar arrays, access roads, and collector lines. Prior to constructing the Facility, the Certificate Holder will finalize siting of the solar arrays within the solar micrositing corridors.

Acoustic analyses were conducted for solar arrays incorporating the proposed maximum number of inverters, transformers, and distributed battery storage containers. The predicted sound levels from the operation of the solar arrays were added to modeled sound levels from the approved wind facility³ to establish that the Facility is likely to be in compliance with OAR 340-035-0035. Prior to constructing the Facility, the Certificate Holder will submit an acoustic analysis of the final layout. Construction of the Facility will not commence until ODOE is in agreement that the Facility complies with the requirements of OAR 340-035-0035.

³ Third Amended Site Certificate for the Wheatridge Wind Energy Facility effective February 7, 2019.

5.2.1 Acoustic Modeling Analysis

5.2.1.1 Acoustic Modeling Software and Setup Parameters

Acoustic modeling was performed incorporating the inverters, transformers, and battery storage cooling equipment. The Computer Aided Noise Abatement (CadnaA) software program, was used to calculate received sound levels at identified noise sensitive receptors within the Analysis Area. CadnaA conforms to the International Organization for Standardization's (ISO) standard ISO 9613-2 "Attenuation of Sound during Propagation Outdoors" (ISO 1996), which has engineering algorithms that incorporate such factors as geometric divergence, atmospheric absorption, reflection from surfaces, screening by topography and obstacles, terrain complexity and ground effects, source directivity factors, seasonal foliage effects, and meteorological conditions.

CadnaA allows for three basic types of sound sources to be introduced into the model: point, line, and area sources. Each noise-radiating element was modeled based on its noise emission pattern. Point sources were programmed for concentrated small dimension sources such as heating, ventilation, and air conditioning (HVAC) units that radiate sound hemispherically. Larger dimensional sources such as the transformers and inverters were modeled as area sources.

Topographical information was imported into the acoustic model using U.S. Geological Survey 10-meter digital elevation models to accurately represent terrain in three dimensions. Terrain conditions, vegetation type, ground cover, and the density and height of foliage can influence the absorption that takes place when sound waves travel over land. The ISO 9613-2 standard accounts for ground absorption rates by assigning a numerical coefficient of 0 for acoustically hard, reflective surfaces and 1 for absorptive surfaces and soft ground. If the ground is hard-packed dirt (which is typically found in industrial complexes), pavement, or water, the absorption coefficient is defined as $G=0$ to account for reduced sound attenuation. In contrast, ground covered in snow (common at the area during the winter season) or vegetation (including suburban lawns, livestock and agricultural fields; both fallow with bare soil and planted with crops) will be acoustically absorptive and aid in sound attenuation (i.e., $G=1.0$). For the acoustic modeling analysis, a conservative ground absorption rate of 0.5 was selected, accounting for a semi-reflective ground surface. Table X-4 summarizes setup parameters used in the Facility acoustic modeling analysis.

Table X-4. Acoustic Model Input Parameters

| Model Input | Parameter Value |
|------------------------------|---|
| Noise Modeling Software | DataKustik CadnaA v 2018 MR1 |
| Standards | ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors |
| Project Layout Date Received | November 9, 2018 |
| Sources Modeled | 41 Inverters, 41 Distribution Transformers, 1 Substation Transformer, 82 HVAC Units |
| Receiver Height | 1.52 m |
| Terrain Parameters | U.S. Geological Survey digital elevation data Agricultural rough fields |

| Model Input | Parameter Value |
|--|---------------------------------|
| Specify Vegetation Areas for Attenuation | No |
| Ground Absorption | 0.5 (semi-reflective), spectral |
| Temperature | 10°C (50°F) |
| Relative Humidity | 70 % |

Sound propagation in the atmosphere is not strongly dependent on temperature and humidity. The sound level variations caused by wind and temperature gradients are most pronounced for large separation distances. Calculations were completed for meteorological conditions corresponding to moderate downwind propagation (i.e., moderate downward refraction). In other words, the modeling assumes a downwind scenario in all directions. While this wind condition is an impossibility, it tends to result in a conservative assessment of received sound levels from the Facility instead of assuming the predominant wind patterns in the area, such as those represented in a wind rose. Modeling using these conditions assumes efficient outdoor sound propagation between a source and receptor and is consistent with the ISO 9613-2 standard. Sound attenuation through foliage and diffraction around and over existing anthropogenic structures such as buildings were ignored under all acoustic modeling scenarios. The results are therefore representative of defoliate winter time conditions.

5.2.1.2 Acoustic Modeling Input Data

The primary noise sources during operations are the inverters, transformers, and battery storage HVAC units. Reference sound power levels input to CadnaA were provided by equipment manufacturers, based on information contained in reference documents, or developed using empirical methods. A summary of sound power data for the inverters, transformers, and battery storage cooling equipment are presented in Table X-5.

Table X-5. Sound Power Level by Octave Band Center Frequency for Solar Facility Sound Sources

| Noise Sources | Octave Band Sound Power Level by Frequency (Hz) dBA | | | | | | | | | Broadband (dBA) |
|-----------------------------------|---|------|------|------|------|------|------|------|------|-----------------|
| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | |
| Inverters | 51.8 | 59.8 | 66.8 | 67.8 | 66.8 | 63.8 | 58.8 | 51.8 | 44.8 | 73.0 |
| Inverter Distribution Transformer | 34.2 | 53.4 | 65.5 | 68.0 | 73.4 | 70.6 | 66.8 | 61.6 | 52.5 | 77.0 |
| DC- Coupled Battery Storage | 53.6 | 63.8 | 70.9 | 76.9 | 79.8 | 79.0 | 77.7 | 72.5 | 63.9 | 85.0 |

In addition to the distributed inverters, transformers, and battery storage cooling equipment, the Facility will include two substations that were approved as part of the wind facility. The substation located closest to the proposed solar arrays may potentially be used for both wind and solar

facilities. This substation currently has approval for two transformers; however, one additional transformer would potentially be added to the substation to accommodate the additional capacity from the solar arrays. Therefore, one 115 megavolt-amperes (MVA) transformer was included in the assessment of solar operational noise impacts. Noise from the two approved transformers that were previously modeled with the wind facility are incorporated in the results of the cumulative acoustic assessment, presented below. Table X-6 provides the sound power data used for the transformer in the acoustical analysis.

Table X-6. Transformer Sound Power Level by Octave Band Center Frequency

| Noise Source | Octave Band Sound Power Level by Frequency (Hz) dBA | | | | | | | | | Broadband (dBA) ¹ |
|---|---|----|-----|-----|-----|------|------|------|------|------------------------------|
| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | |
| Wheatridge West 115 MVA Transformer | 55 | 74 | 86 | 89 | 94 | 92 | 88 | 83 | 73 | 98 |
| 1. The National Electrical Manufacturers Association rating was assumed to be 75 dBA for the 115-megavolt-amperes transformers, and were assessed using National Electrical Manufacturers Association sound power assessment guidelines as documented in Standards Publication No. TR 1-1993 (R2000) Transformers, Regulators and Reactors (NEMA 2000). | | | | | | | | | | |

5.2.2 Noise Modeling Results – ODEQ Regulations; OAR 345-021-0010(1)(x)(A)(B)

The Facility has a design goal threshold of 10 dBA above the assumed background sound levels to represent the point where the audibility of Facility noise might be characterized as an adverse noise impact per OAR 340-035-0035(1)(b)(B)(iii)(IV). Modeling results are presented for the solar equipment including the inverters, distribution transformers, and DC-coupled battery storage. As well as the additional substation transformer needed to support the solar facilities. In addition, a cumulative acoustic assessment was conducted where all Facility components, including wind turbines, solar equipment, substation transformers, battery storage, and the Intraconnection Line, were assumed to be in operation. The results of that cumulative assessment was evaluated relative to the applicable ODEQ Noise Rules. For the purposes of modeling the Intraconnection Line, it was assumed that route Option 1A and line configuration C were selected, which corresponds to the worst case transmission line design as far as potential sound impacts at NSRs.

Broadband sound pressure levels were calculated for expected normal Facility operation assuming that all components identified previously are operating continuously and concurrently at the representative manufacturer-rated sound. Table X-7 provides the received sound level at noise sensitive receptors within 1 mile of the solar Site Boundary. Results show there are no predicted noise exceedances of the ODEQ Noise Rules at non-participating receptors. Incremental increases of greater than 10 dBA are anticipated at 19 participating receptors (NSR IDs 1, 2, 13, 16, 67, 68, 77, 78, 79, 80, 81, 82, 85, 89, 91, 98, 99, 100, 195); however, those are not considered exceedances since they are participating. Sound contour plots displaying broadband sound levels presented as

color-coded isopleths are provided in Figure X-1. The noise contours are graphical representations of the cumulative noise associated with full operation of the solar equipment and show how the solar facility's operational noise would be distributed over the surrounding area within a 1-mile radius of the Facility. An updated acoustical analysis will be completed using the final layout and submitted to ODOE for approval prior to construction.

Table X-7. Acoustic Modeling Results Summary

| NSR ID | Participant Status | Background Sound Level (dBA) | Solar Facility Noise (dBA) | Cumulative Assessment (Background Wind Facility Plus Solar Facility Noise) (dBA) | Change in Noise (dBA) | Compliance with OAR 340-035-0035 |
|--------|--------------------|------------------------------|----------------------------|--|-----------------------|----------------------------------|
| 1 | Participant | 26 | <1 | 40 | 14 | Yes |
| 2 | Participant | 26 | <1 | 38 | 12 | Yes |
| 3 | Participant | 26 | <1 | 34 | 8 | Yes |
| 5 | Non-Participant | 26 | <1 | 35 | 10 | Yes |
| 6 | Non-Participant | 26 | <1 | 35 | 9 | Yes |
| 7 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 8 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 9 | Non-Participant | 26 | <1 | 29 | 5 | Yes |
| 10 | Non-Participant | 26 | <1 | 30 | 5 | Yes |
| 11 | Non-Participant | 26 | <1 | 25 | 3 | Yes |
| 12 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 13 | Participant | 26 | <1 | 44 | 18 | Yes |
| 14 | Participant | 26 | <1 | 36 | 10 | Yes |
| 15 | Non-Participant | 26 | <1 | 36 | 10 | Yes |
| 16 | Participant | 26 | <1 | 37 | 11 | Yes |
| 17 | Participant | 26 | <1 | 29 | 4 | Yes |
| 18 | Non-Participant | 26 | <1 | 28 | 4 | Yes |
| 19 | Non-Participant | 26 | <1 | 28 | 4 | Yes |
| 20 | Non-Participant | 26 | <1 | 28 | 4 | Yes |
| 21 | Participant | 26 | <1 | 26 | 3 | Yes |
| 22 | Non-Participant | 26 | <1 | 36 | 10 | Yes |
| 23 | Non-Participant | 26 | <1 | 36 | 10 | Yes |
| 24 | Non-Participant | 26 | <1 | 36 | 10 | Yes |
| 25 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 26 | Non-Participant | 26 | <1 | 21 | 1 | Yes |

| NSR ID | Participant Status | Background Sound Level (dBA) | Solar Facility Noise (dBA) | Cumulative Assessment (Background Wind Facility Plus Solar Facility Noise) (dBA) | Change in Noise (dBA) | Compliance with OAR 340-035-0035 |
|--------|--------------------|------------------------------|----------------------------|--|-----------------------|----------------------------------|
| 27 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 28 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 29 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 30 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 31 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 32 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 33 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 34 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 35 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 36 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 37 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 38 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 39 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 40 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 41 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 42 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 43 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 44 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 45 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 46 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 47 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 48 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 49 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 50 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 51 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 52 | Non-Participant | 26 | <1 | 18 | 1 | Yes |
| 53 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 54 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 55 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 56 | Non-Participant | 26 | <1 | 16 | 0 | Yes |
| 57 | Participant | 26 | <1 | 17 | 0 | Yes |

| NSR ID | Participant Status | Background Sound Level (dBA) | Solar Facility Noise (dBA) | Cumulative Assessment (Background Wind Facility Plus Solar Facility Noise) (dBA) | Change in Noise (dBA) | Compliance with OAR 340-035-0035 |
|--------|--------------------|------------------------------|----------------------------|--|-----------------------|----------------------------------|
| 58 | Participant | 26 | <1 | 16 | 0 | Yes |
| 59 | Non-Participant | 26 | <1 | 16 | 0 | Yes |
| 60 | Non-Participant | 26 | <1 | 8 | 0 | Yes |
| 61 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 62 | Non-Participant | 26 | <1 | 26 | 3 | Yes |
| 63 | Non-Participant | 26 | <1 | 27 | 4 | Yes |
| 65 | Participant | 26 | <1 | 27 | 3 | Yes |
| 67 | Participant | 26 | <1 | 46 | 20 | Yes |
| 68 | Participant | 26 | 3 | 48 | 22 | Yes |
| 69 | Non-Participant | 26 | <1 | 36 | 10 | Yes |
| 70 | Non-Participant | 26 | <1 | 34 | 9 | Yes |
| 71 | Non-Participant | 26 | 0 | 31 | 6 | Yes |
| 72 | Non-Participant | 26 | 0 | 31 | 6 | Yes |
| 73 | Non-Participant | 26 | 1 | 32 | 7 | Yes |
| 74 | Non-Participant | 26 | 6 | 34 | 9 | Yes |
| 75 | Participant | 26 | 1 | 33 | 8 | Yes |
| 76 | Non-Participant | 26 | 7 | 36 | 10 | Yes |
| 77 | Participant | 26 | 8 | 40 | 14 | Yes |
| 78 | Participant | 26 | 10 | 47 | 21 | Yes |
| 79 | Participant | 26 | 20 | 48 | 22 | Yes |
| 80 | Participant | 26 | 36 | 46 | 20 | Yes |
| 81 | Participant | 26 | 26 | 43 | 17 | Yes |
| 82 | Participant | 26 | 21 | 46 | 20 | Yes |
| 83 | Non-Participant | 26 | 19 | 36 | 10 | Yes |
| 84 | Non-Participant | 26 | 18 | 35 | 10 | Yes |
| 85 | Participant | 26 | 20 | 39 | 13 | Yes |
| 86 | Non-Participant | 26 | 3 | 34 | 8 | Yes |
| 87 | Non-Participant | 26 | 2 | 31 | 6 | Yes |
| 88 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 89 | Participant | 26 | <1 | 45 | 19 | Yes |
| 90 | Non-Participant | 26 | 7 | 28 | 4 | Yes |

| NSR ID | Participant Status | Background Sound Level (dBA) | Solar Facility Noise (dBA) | Cumulative Assessment (Background Wind Facility Plus Solar Facility Noise) (dBA) | Change in Noise (dBA) | Compliance with OAR 340-035-0035 |
|--------|--------------------|------------------------------|----------------------------|--|-----------------------|----------------------------------|
| 91 | Participant | 26 | 5 | 37 | 12 | Yes |
| 92 | Participant | 26 | 3 | 32 | 7 | Yes |
| 93 | Non-Participant | 26 | <1 | 36 | 10 | Yes |
| 94 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 95 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 96 | Non-Participant | 26 | <1 | 28 | 4 | Yes |
| 97 | Non-Participant | 26 | <1 | 26 | 3 | Yes |
| 98 | Participant | 26 | <1 | 44 | 18 | Yes |
| 99 | Participant | 26 | 27 | 43 | 17 | Yes |
| 100 | Participant | 26 | 26 | 43 | 17 | Yes |
| 119 | Non-Participant | 26 | <1 | 31 | 6 | Yes |
| 120 | Non-Participant | 26 | <1 | 31 | 6 | Yes |
| 121 | Non-Participant | 26 | <1 | 31 | 6 | Yes |
| 122 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 123 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 124 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 125 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 126 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 127 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 128 | Non-Participant | 26 | <1 | 28 | 4 | Yes |
| 129 | Non-Participant | 26 | <1 | 27 | 3 | Yes |
| 130 | Non-Participant | 26 | <1 | 29 | 5 | Yes |
| 131 | Non-Participant | 26 | <1 | 26 | 3 | Yes |
| 132 | Non-Participant | 26 | <1 | 26 | 3 | Yes |
| 133 | Non-Participant | 26 | <1 | 29 | 5 | Yes |
| 134 | Non-Participant | 26 | <1 | 28 | 4 | Yes |
| 135 | Non-Participant | 26 | <1 | 25 | 2 | Yes |
| 136 | Non-Participant | 26 | <1 | 26 | 3 | Yes |
| 138 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 139 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 140 | Non-Participant | 26 | <1 | <1 | 0 | Yes |

| NSR ID | Participant Status | Background Sound Level (dBA) | Solar Facility Noise (dBA) | Cumulative Assessment (Background Wind Facility Plus Solar Facility Noise) (dBA) | Change in Noise (dBA) | Compliance with OAR 340-035-0035 |
|--------|--------------------|------------------------------|----------------------------|--|-----------------------|----------------------------------|
| 142 | Non-Participant | 26 | <1 | 13 | 0 | Yes |
| 143 | Participant | 26 | <1 | 35 | 9 | Yes |
| 144 | Participant | 26 | <1 | 36 | 10 | Yes |
| 145 | Participant | 26 | <1 | 33 | 8 | Yes |
| 146 | Participant | 26 | <1 | 33 | 8 | Yes |
| 147 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 149 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 150 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 151 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 152 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 153 | Non-Participant | 26 | <1 | <1 | 0 | Yes |
| 154 | Non-Participant | 26 | <1 | 4 | 0 | Yes |
| 155 | Non-Participant | 26 | <1 | 4 | 0 | Yes |
| 156 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 157 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 158 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 159 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 160 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 161 | Non-Participant | 26 | <1 | 18 | 1 | Yes |
| 162 | Non-Participant | 26 | <1 | 18 | 1 | Yes |
| 163 | Non-Participant | 26 | <1 | 18 | 1 | Yes |
| 164 | Non-Participant | 26 | <1 | 18 | 1 | Yes |
| 165 | Non-Participant | 26 | <1 | 22 | 2 | Yes |
| 166 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 167 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 168 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 169 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 170 | Non-Participant | 26 | <1 | 22 | 2 | Yes |
| 171 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 172 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 173 | Non-Participant | 26 | <1 | 23 | 2 | Yes |

| NSR ID | Participant Status | Background Sound Level (dBA) | Solar Facility Noise (dBA) | Cumulative Assessment (Background Wind Facility Plus Solar Facility Noise) (dBA) | Change in Noise (dBA) | Compliance with OAR 340-035-0035 |
|--------|--------------------|------------------------------|----------------------------|--|-----------------------|----------------------------------|
| 174 | Non-Participant | 26 | <1 | 17 | 1 | Yes |
| 175 | Non-Participant | 26 | <1 | 17 | 1 | Yes |
| 176 | Non-Participant | 26 | <1 | 21 | 1 | Yes |
| 177 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 178 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 179 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 180 | Non-Participant | 26 | <1 | 20 | 1 | Yes |
| 181 | Non-Participant | 26 | <1 | 19 | 1 | Yes |
| 182 | Non-Participant | 26 | <1 | 17 | 1 | Yes |
| 183 | Non-Participant | 26 | <1 | 18 | 1 | Yes |
| 184 | Non-Participant | 26 | <1 | 22 | 1 | Yes |
| 185 | Non-Participant | 26 | <1 | 16 | 0 | Yes |
| 186 | Non-Participant | 26 | <1 | 11 | 0 | Yes |
| 187 | Non-Participant | 26 | <1 | 11 | 0 | Yes |
| 188 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 189 | Non-Participant | 26 | <1 | 23 | 2 | Yes |
| 190 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 191 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 192 | Non-Participant | 26 | <1 | 24 | 2 | Yes |
| 193 | Non-Participant | 26 | 7 | 35 | 10 | Yes |
| 194 | Non-Participant | 26 | 7 | 36 | 10 | Yes |
| 195 | Participant | 26 | <1 | 47 | 21 | Yes |

6.0 Measures to Reduce Noise Levels or Impacts to Address Public Complaints – OAR 345-021-0010(1)(x)(C)

OAR 345-021-0010(1)(x)(C) Any measures the applicant proposes to reduce noise levels or noise impacts or to address public complaints about noise from the facility.

The Certificate Holder has secured the necessary noise waivers to achieve compliance with OAR 340-035-0035 at all noise sensitive receptors. Additionally, the following mitigation measures will

be considered and incorporated into the Facility's contract specifications, as necessary and appropriate, to minimize Facility noise levels to the extent practicable:

- Construction site and access road speed limits will be established and enforced during the construction period.
- Electrically-powered equipment will be used instead of pneumatic or internal combustion powered equipment, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas will be located as far as practicable from noise sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, will be for safety warning purposes only.
- All noise-producing construction equipment and vehicles using internal combustion engines will be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) will be equipped with shrouds and noise control features that are readily available for that type of equipment.
- Final transformer specifications and noise warranty data will be reviewed by an acoustician to ensure compliance with OAR 340-035-0035.
- All construction noise complaints will be logged within 48 hours of issuance. The construction supervisor will have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Certificate Holder will be established prior to the start of construction that will allow for resolution of noise problems that cannot be resolved by the site supervisor in a reasonable period of time.

7.0 Monitoring – OAR 345-021-0010(1)(x)(D)

OAR 345-021-0010(1)(x)(D) Any measures the applicant proposes to monitor noise generated by operation of the facility.

Noise monitoring is not proposed for the Facility. With the mitigation measures implemented, no exceedances of the OAR 340-035-0035 anti-degradation rule or the fixed thresholds are predicted. Additionally, the legislative authority granted to the Council in OAR 345-026-0010(1) states that under Oregon Revised Statute 469.430, "the Council has continuing authority over the site for which a site certificate is issued and may inspect, direct the Department of Energy to inspect, or ask another state agency or local government to inspect, the site at any time to ensure that the certificate holder is operating the facility in compliance with the terms and conditions of the site certificate."

8.0 Owners of Noise Sensitive Property– OAR 345-021-0010(1)(x)(E)

OAR 345-021-0010(1)(x)(E) A list of the names and addresses of all owners of noise sensitive property, as defined in OAR 340-035-0015, within one mile of the proposed site boundary.

Confidential Attachment X-1 provides the names and addresses, Universal Transverse Mercator Zone 11 North X and Y coordinates in meters, and a summary of modeled received sound levels at all noise sensitive properties within 1 mile of the Site Boundary (which includes the Approved Site Boundary and Amended Site Boundary).

9.0 References

Bolt, Beranek, and Newman, Inc. 1977. Power Plant Construction Noise Guide, prepared for the Empire State Electric Energy Research Corporation, Report No. 3321, 1977.

DataKustik GmbH. 2014. Computer-Aided Noise Abatement Model CadnaA, Version 4.4.145. Munich, Germany, 2014.

FHWA (Federal Highway Administration). 1992. “Procedures for Abatement of Highway Traffic Noise and Construction Noise”. Code of Federal Regulations, Title 23, Part 772, 1992.

FHWA. 2006. FHWA Roadway Construction Noise Model User’s Guide, FHWA-HEP-05-054, January 2006.

ISO (Organization for International Standardization). 1996. Standard ISO 9613-2 Acoustics – Attenuation of Sound During Propagation Outdoors. Part 2 General Method of Calculation. Geneva, Switzerland.

NEMA (National Electrical Manufacturers Association). 2000. NEMA Standards Publication No. TR 1-1993 (R2000) Transformers, Regulators and Reactors.

Figure

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Wheatridge Wind Energy Facility Request for Amendment 4

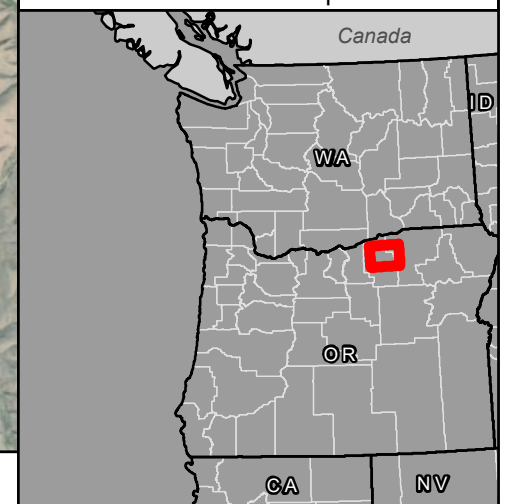
Figure X-1
Received Sound Levels
for Facility as Proposed
(Wind Facilities at Maximum
Rotational Wind Speed)

MORROW AND UMATILLA COUNTIES, OR

- Site Boundary
- 1 mile Buffer of Site Boundary
- Turbine
- Substation
- Intraconnection Line (Option 1A)
- Solar Facility & Battery Storage Area
- County Boundary
- Noise Sensitive Receptor**
 - Participant, In Exceedance
 - Participant, Not In Exceedance
 - Non-Participant, Not In Exceedance
- Total Sound Pressure Level (dB)**
 - 30 - 35
 - 35 - 40
 - 40 - 45
 - 45 - 50
 - 50 - 55
 - 55 - 60
 - 60 - 65
 - > 65



Reference Map



P:\GIS_PROJECTS\NextEra\Wheatridge\MXD\Noise\NEE_Wheatridge_NoiseAnalysis_111171_20190514.mxd



1:165,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

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Attachment X-1. Tabulated Summary of Acoustic Modeling Results by Receptor Location

CONFIDENTIAL

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Exhibit AA

Electromagnetic Frequencies from Transmission Lines

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Attachment AA-2. Results of the BPA CAFE Modeling Program for 34.5 kV Overhead Single-Circuit Collector Lines

Attachment AA-3. Results of the BPA CAFE Modeling Program for 34.5 kV Overhead Double-Circuit Collector Lines

Acronyms and Abbreviations

| | |
|---------|--|
| AC | Alternating current |
| CAFE | Corona and Field Effect Program, Version 3 |
| Council | Oregon Energy Facility Siting Council |
| dB | Decibels |
| EMF | Electromagnetic fields |
| Hz | Hertz |
| kcmil | thousand circular mil |
| kV | Kilovolt |
| kV/m | Kilovolts per meter |
| m/sec | meters per second |
| mG | Milligauss |
| MW | Megawatt |
| NESC | National Electrical Safety Code |
| OAR | Oregon Administrative Rule |
| OR-## | Oregon State Highway ## |

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1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. In Request for Amendment 4 (RFA 4) to the Facility Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In RFA 4, the Certificate Holder is proposing four changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility—including Facility transmission and collection lines—in compliance with Council standards and the conditions of the Site Certificate. As detailed in the following sections, although the proposed changes provide for two new areas of 34.5-kV collector lines, the Certificate Holder can still comply with all Site Certificate conditions previously adopted by the Council for compliance with the respect to OAR 345-024-0090.

The 230-kV transmission line and 34.5-kV collector lines in the approved site boundary already been reviewed and approved by the Council. Thus, only the two new areas of 34.5-kV line are discussed in this exhibit (see Exhibit C, Figure C-2). The 34.5-kV potential configurations—underground collector lines and overhead single and double-circuit collector line configurations—are the same as what was provided and analyzed in Exhibit AA of the ASC. Therefore, this exhibit

¹ Per OAR 345-001-0010(32) “micrositing corridor” means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

primarily relies on information provided in the ASC, which accurately reflects the electromagnetic field (EMF) conditions of the 34.5-kV lines.

1.1 EMF Background Information

EMFs occur both naturally and as a result of the generation, transmission, and use of electric power. The earth itself generates steady-state magnetic and electric fields. Electromagnetic fields are present around any conductors or devices that transmit or use electrical energy; as a result, exposure to EMF is common from an array of electrical appliances and equipment, building wiring, and electric distribution and transmission lines. The electrical power system in the United States is an alternating current (AC) system operating at a frequency of 60 hertz (Hz)², resulting in “power frequency” or “extremely low frequency (ELF)” EMF.³ While electric and magnetic fields are often referred to and thought of collectively, each arises through a different mechanism and can have differing effects.

Electric fields around transmission lines are produced by the presence of an electric charge, measured as voltage, on the energized conductor. Electric field strength is directly proportional to the line’s voltage; that is, increased voltage produces a stronger electric field. The strength of the electric field is inversely proportional to the square of distance from the conductors; the electric field strength declines as the distance from the conductor increases. The strength of the electric field is measured in units of kilovolts per meter (kV/m). Electric fields are readily weakened or blocked by conductive objects such as trees or buildings. The direction of force within the electric field alternates at a frequency of 60 Hz, in direct relation to the charge on each conductor. However, the overall transmission line voltage, and therefore the overall strength and reach of the electric field, remains practically steady and is not affected by the common daily and seasonal fluctuations in usage of electricity by customers.

Magnetic fields around transmission lines are produced by the movement of electrical charge, measured in terms of amperage, through the conductors. Like the electric field, the magnetic field alternates at a frequency of 60 Hz. Magnetic field strength is expressed in units of milligauss (mG).⁴ The magnetic field strength is directly proportional to the amperage; that is, increased current flow resulting from increased power flow through the line produces a stronger magnetic field. As with electric fields, the magnetic field is inversely proportional to the square of the distance from the conductors, declining in strength as the distance from the conductor increases. Magnetic fields are not blocked or shielded by most materials. Unlike voltage, the amperage and the resulting magnetic

² Hertz is a measure of cycles per second. In a 60-Hz transmission system, the charge and direction of current flow on each conductor will cycle from positive to negative and back to positive 60 times per second. The direction of force in the electric and magnetic fields will also cycle in direct relation to the charge and direction of flow on the conductor.

³ The electric transmission system in the U.S. operates at 60 Hz, while in Europe and other parts of the world, the systems operate at 50 Hz; both produce fields that are referred to as power frequency or ELF EMF.

⁴ Magnetic field strength may also be measured in terms of the Tesla, an International System unit of measurement. 1 Gauss = 0.0001 Tesla, or 1 Tesla = 10,000 Gauss; 1 Gauss = 1,000 mG.

field around a transmission line fluctuate daily and seasonally as the usage of electricity varies and the resulting amount of current flow varies.

Each AC three-phase circuit carries power over three conductors. One phase of the circuit is carried by each of the three conductors. The AC voltage and current in each phase conductor is out of sync with the other two phases by 120 degrees, or one-third of the 360-degree cycle. The fields from each of these conductors tend to cancel each other out because of this phase difference. However, since the conductors are separated from each other, when a person stands under a transmission line, one conductor is somewhat closer than the others and will contribute a net uncanceled field at the person's location.

1.2 EMF Standards

No federal regulations or guidelines apply directly to the EMF levels for transmission lines. The National Institute of Environmental Health Sciences (NIEHS) performed an extensive review of field-related issues in the 1990s that resulted in the decision that regulatory actions are unwarranted (NIEHS 1999). Although there are no federal regulations on power-frequency EMF in the United States, international recommendations and guidelines exist. Table AA-1 lists power-frequency EMF guidelines recommended by the European Union, the International Committee on Electromagnetic Safety (ICES), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), which is an affiliate of the World Health Organization (EU 1999, ICES 2002, ICNIRP 2010).

Table AA-1. International Guidelines for Alternating Current Power-Frequency EMF Levels

| Agency | Exposure | Electric Field (kV/m) | Magnetic Field (mG) |
|--|------------------------------------|--------------------------|------------------------|
| European Union | General public | 4.2 | 833 |
| ICES ¹ | Occupational | 20 | 27,100 |
| | General public | 5 | 9,040 |
| | General public within right-of-way | 10 | NA |
| ICNIRP | Occupational | 8.3 | 10,000 |
| – | General public | 4.2 | 2,000 |
| Magnetic fields are measured in gauss (G) and milligauss. 1 G = 1,000 mG NA = Not Applicable (no requirements) 1. ICES recommendations have been adopted as standards by the Institute of Electrical and Electronics Engineers (IEEE); see Standard C95.6 -2002 (R2007). | | | |

Transmission line projects in Oregon must comply with the electric field standard found in OAR 345-024-0090, which requires that the applicant design, construct, and operate the proposed transmission line so that AC electric fields do not exceed 9 kV/m at 1 meter above the ground surface in areas accessible to the public. There is no similar Oregon design standard for magnetic fields.

Six other states have adopted limits for electric field strength either at the edge or within the right-of-way of the transmission line corridor. Only Florida and New York currently limit magnetic fields levels from transmission lines. The magnetic field levels set in those two states only apply at the edge of the right-of-way and were developed to prevent magnetic fields from increasing beyond levels currently experienced by the public. Table AA-2 shows the AC electric field and magnetic field standards that have been adopted by states in the U.S.

Table AA-2. Other State Alternating Current Power-Frequency EMF Standards

| State | | Location | Electric Field (kV/m) | Magnetic Field (mG) |
|--|------------------------|------------------------------------|--------------------------|------------------------|
| Florida | 230 to 500 kV lines | Within right-of-way | 10 | NA |
| | | Edge of right-of-way | 2 | 200 ¹ |
| | 230 kV or less | Within right-of-way | 8 | NA |
| | | Edge of right-of-way | 2 | 150 |
| Minnesota | | Within right-of-way | 8 | NA |
| Montana | | Within right-of-way: road crossing | 7 | NA |
| | | Edge of right-of-way | 1 ² | NA |
| New Jersey | | Within right-of-way | NA | NA |
| | | Edge of right-of-way | 3 | NA |
| New York | | Within right-of-way: open | 11.8 | NA |
| | | Within right-of-way: public road | 7 | NA |
| | | Within right-of-way: private road | 11 | NA |
| | | Edge of right-of-way | 1.6 | 200 |
| North Dakota | | Within right-of-way | 9 | NA |
| | | Edge of right-of-way | NA | NA |
| Oregon | | Within right-of-way | 9 | NA |
| | | Edge of right-of-way | NA | NA |
| NA = Not Applicable (no requirements) | | | | |
| 1. Magnetic field strength is limited to 250 mG for new double-circuit 500-kV lines constructed on a previously existing right-of-way. | | | | |
| 2. Can be waived by landowner. | | | | |

In the fall of 2009, the Council commissioned a review of existing information to prepare for the review of several transmission lines under discussion at that time. That review was conducted by Dr. Kara Warner and presented to the Council on November 20, 2009, during a regular Council meeting. The prevailing conclusions were that there is a need to continue to monitor the science on EMF; that low-cost, prudent avoidance measures of public EMF exposure are appropriate; and that health-based limits are not appropriate given the scientific data available (EFSC 2009).

2.0 Facility EMF – OAR 345-021-0010(1)(aa)(A)

2.1 Sensitive Receptors

OAR 345-021-0010(1)(aa) Exhibit AA. If the proposed energy facility is a transmission line or has, as a related or supporting facility, a transmission line of any size:

OAR 345-021-0010(1)(aa)(A) Information about the expected electric and magnetic fields, including:

(i) The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way.

The Facility, as proposed, would include up to approximately 2.98 miles of 34.5-kV collector lines as part of the electrical collection system, carrying power from the solar arrays to a Facility Substation. There is no specific right-of-way width defined for the 34.5-kV collector lines. The collector system will occupy private land pursuant to leases or easements with landowners or road authority; the leases will authorize placement of the cables and restrict inconsistent or competing uses of the property, but will not contain any defined right-of-way with a fixed width. Therefore, no new right-of-way will be required, and no existing right-of-way will be widened.

(ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line

(iii) The approximate distance in feet from the proposed center line to each structure identified in (A).

There are no known occupied buildings, residences, or other sensitive receptors within 200 feet of the collector lines. The nearest residence is located over 1,000 feet from the 34.5-kV collector lines.

2.2 Modeling Results – OAR 345-021-0010(1)(aa)(iv)

OAR 345-021-0010(1)(aa)(A)(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line.

The 34.5-kV collector lines for the solar array have the same configuration as those described for the approved Facility, and were previously considered by the Council. The collector lines would generally be buried in a trench, typically not less than 3 feet deep; however, it is possible that some of the collector lines will need to be run overhead in some locations where a buried cable would be infeasible or would create unnecessary impacts, such as at stream or canyon crossings. Collector lines may be constructed in single or double-circuit configurations, depending on the specific location within the Facility. Consequently, this analysis looks at three collector line configurations: underground single-circuit, above-ground single-circuit, and above-ground double-circuit (Figures AA-1 through AA-3).

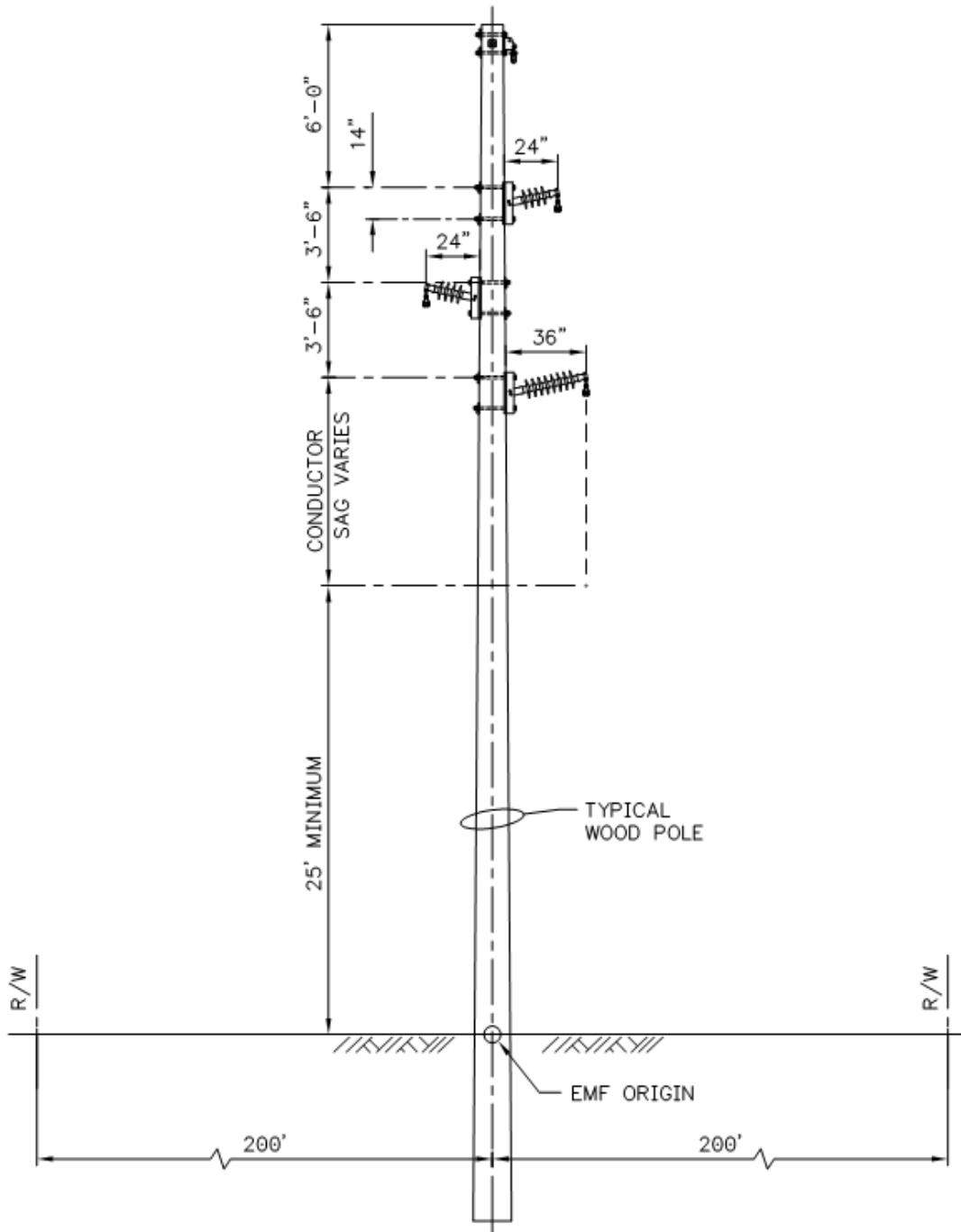


Figure AA-2. 34.5-kV Collection System, Typical Overhead Single-Circuit, Monopole Structure

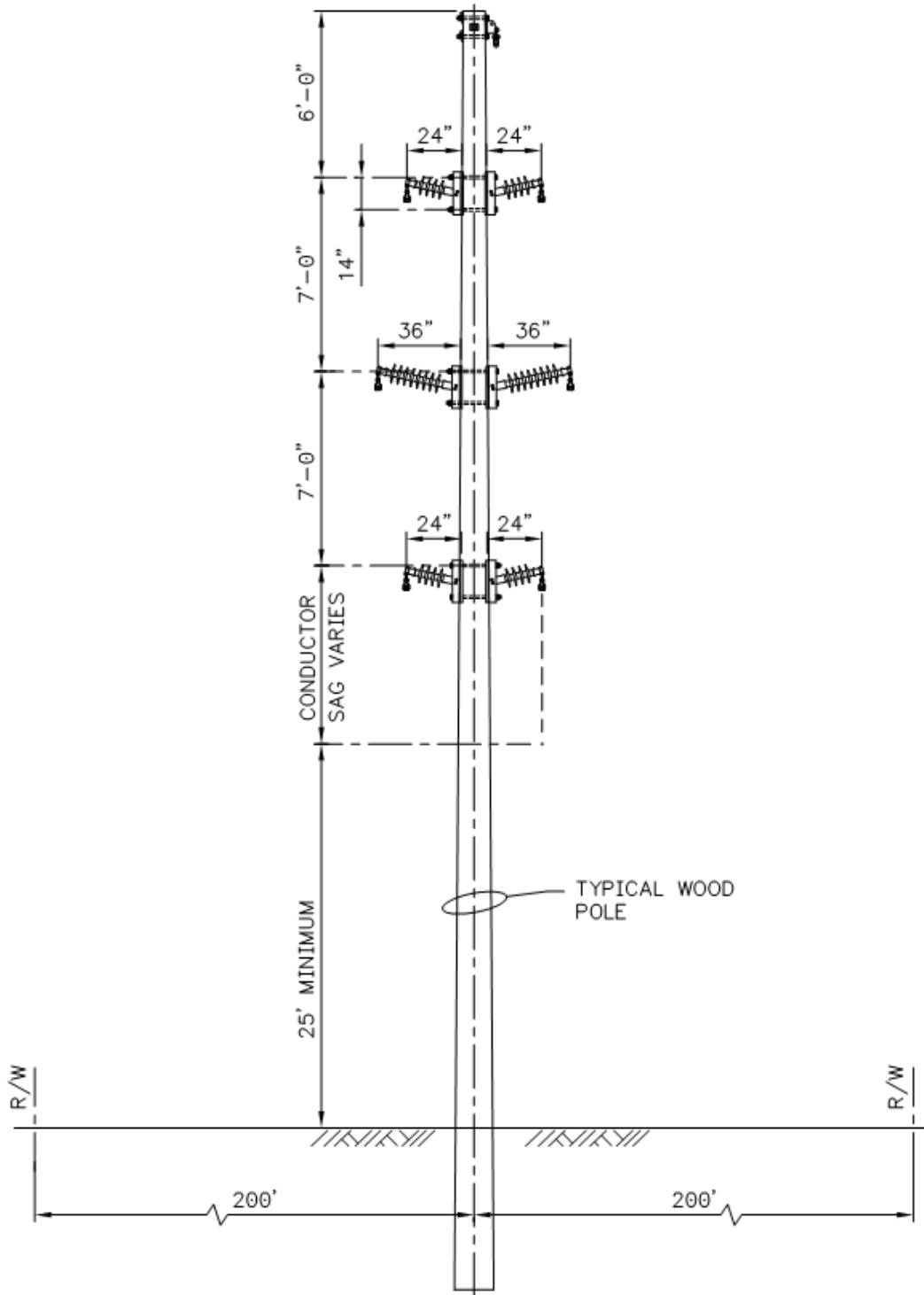


Figure AA-3. 34.5-kV Collection System, Typical Overhead Double-Circuit, Monopole Structure

2.2.1 Underground Collector Lines

The entire 34.5-kV underground collector system is rated for a nominal voltage of 34.5-kV measured phase to phase. The peak line loading value assumed for each circuit is 50 megavolt amperes, or approximately 700 amperes per phase cable for each underground collector circuit. The underground 34.5-kV collector lines would consist of an insulated, stranded aluminum or copper conductor in a size range of 1/0 American wire gauge to 1,000 thousand circular mils (kcmils). The total diameter of the collector line cable is less than 3 inches. Figure AA-1 illustrates the typical underground configuration of the 34.5-kV distribution collector line. For an underground 34.5-kV circuit, the electric field is totally contained within the insulation of the cable and the soil over the line. Each cable has a semiconducting insulation shield and a grounded concentric neutral, made up of multiple strands of copper wire that encircle the cable just under the outer jacket. This means that the cable jacket has no measurable voltage to ground, or between other cable jackets. Because the electric field is contained within the buried cables or shielded by the earth, no electric field is measurable at the surface of the ground. Underground cables and the soil in which they are buried do not shield the magnetic fields generated in the conductors. Therefore, the net magnetic field of buried cables is measurable on the surface of the ground above the cables.

2.2.2 Overhead Collector Lines

Although the entire 34.5-kV collector system is designed to be installed underground, there may be some areas where it would be constructed as an above-ground line to avoid unnecessary environmental impacts. Potential above-ground sections would also be rated for a nominal voltage of 34.5-kV measured phase to phase. The peak line loading value assumed for each overhead circuit is 60 megavolt amperes, or approximately 1,000 amperes per phase conductor for each overhead collector circuit. This value is used for both the single and double circuits. The conductor for both types of support structures is assumed to be a single conductor per phase of 1,590 kcmil aluminum alloy conductor “Coreopsis” with a diameter of 1.453 inches. The minimum conductor-to-ground clearance for the aboveground 34.5-kV collector lines is assumed to be 25 feet. Figure AA-2 illustrates the typical proposed monopole overhead structural configuration of the 34.5-kV single-circuit collector line with a shield wire. Figure AA-3 illustrates the typical proposed monopole overhead structural configuration of the 34.5-kV double-circuit collector line with a shield wire. For this configuration, the phase positions are reversed on one side of the structure compared to those on the other side of the structure; the placement of different phases opposite one another reduces the composite electric and magnetic fields. The results are summarized in Tables AA-3 for electric field values and in Table AA-4 for magnetic field values. Tables AA-3 and AA-4 provide the calculated EMF values of the 34.5-kV collector lines at the centerline, at 75 and 200 feet to either side of the centerline, and the peak value for the projected maximum currents during peak load at minimum conductor ground clearances. The levels shown represent the highest magnetic fields expected for the proposed Facility. Average fields along the ground between poles, and over a year’s time would be considerably less than the peak or even the typical values shown.

Table AA-3. Calculated Electric Field Values for 34.5-kV Collector Lines

| Line Description | Figure | Electric Field (kV/m) | | | | |
|---|--------|-----------------------|--------------|------------|---------------|----------------|
| | | 200 feet Left | 75 feet Left | Peak Value | 75 feet Right | 200 feet Right |
| 34.5-kV Underground | AA-1 | See Note 1 and Note 2 | | | | |
| 34.5-kV Overhead Single-Circuit | AA-2 | 0.00 | 0.02 | 0.34 | 0.02 | 0.00 |
| 34.5-kV Overhead Double-Circuit | AA-3 | 0.00 | 0.00 | 0.23 | 0.00 | 0.00 |
| Note 1: 34.5-kV collector circuits are located within the boundaries of the Facility and do not have specific rights-of-way defined for each circuit. | | | | | | |
| Note 2: Underground cable configuration such that all electric fields are shielded within the cable and are not externally detectable. | | | | | | |

Table AA-4. Calculated Magnetic Field Values for 34.5-kV Collector Lines

| Line Description | Figure | Magnetic Field (mG) | | | | |
|---|--------|---------------------|--------------|------------|---------------|----------------|
| | | 200 feet Left | 75 feet Left | Peak Value | 75 feet Right | 200 feet Right |
| 34.5-kV Underground | AA-1 | 0.0 | Note 1 | 6.95 | Note 1 | 0.0 |
| 34.5-kV Overhead Single-Circuit | AA-2 | 1.00 | 6.40 | 73.30 | 7.09 | 1.05 |
| 34.5-kV Overhead Double-Circuit | AA-3 | 0.21 | 2.20 | 38.19 | 2.20 | 0.21 |
| Note 1: 34.5-kV collector circuits are located within the boundaries of the Facility and do not have specific rights-of-way defined for each circuit. | | | | | | |

The results of the CAFE model presented above in Table AA-3 demonstrate that the proposed collector lines can be constructed and operated such that the AC electric field would not exceed 9 kV/m at 1 meter above the ground surface, as required by OAR 345-024-0090(1). As represented in Table AA-4 and shown in the following figures, the strength of the electric field would peak under the conductors at less than 0.4 kV/m for either above ground configuration. There would be no measurable electric field associated with the underground collector lines. Magnetic field strength would be lower than adopted standards from other states, and lower than international guidelines as presented in Tables AA-2 and AA-1, respectively. Figures AA-4 through AA-8 show typical magnetic and electric field profiles for the underground, single-circuit overhead, and double-circuit overhead collector lines. For a typical 34.5kV underground collector circuit, see Figure AA-5 for the magnetic field profile graph. No electric field is present for the underground circuit. For a typical 34.5kV single-circuit, monopole support structure, see Figure AA-6-M for the magnetic field profile graph and Figure AA-6-E for the electric field profile graph. For a typical 34.5kV double-circuit, monopole support structure, see Figure AA-7-M for the magnetic field profile graph and Figure AA-7-E for the electric field profile graph.

**60 Hz MAGNETIC FIELD AT 1 METER FROM GRADE
(in milli-Gauss)**

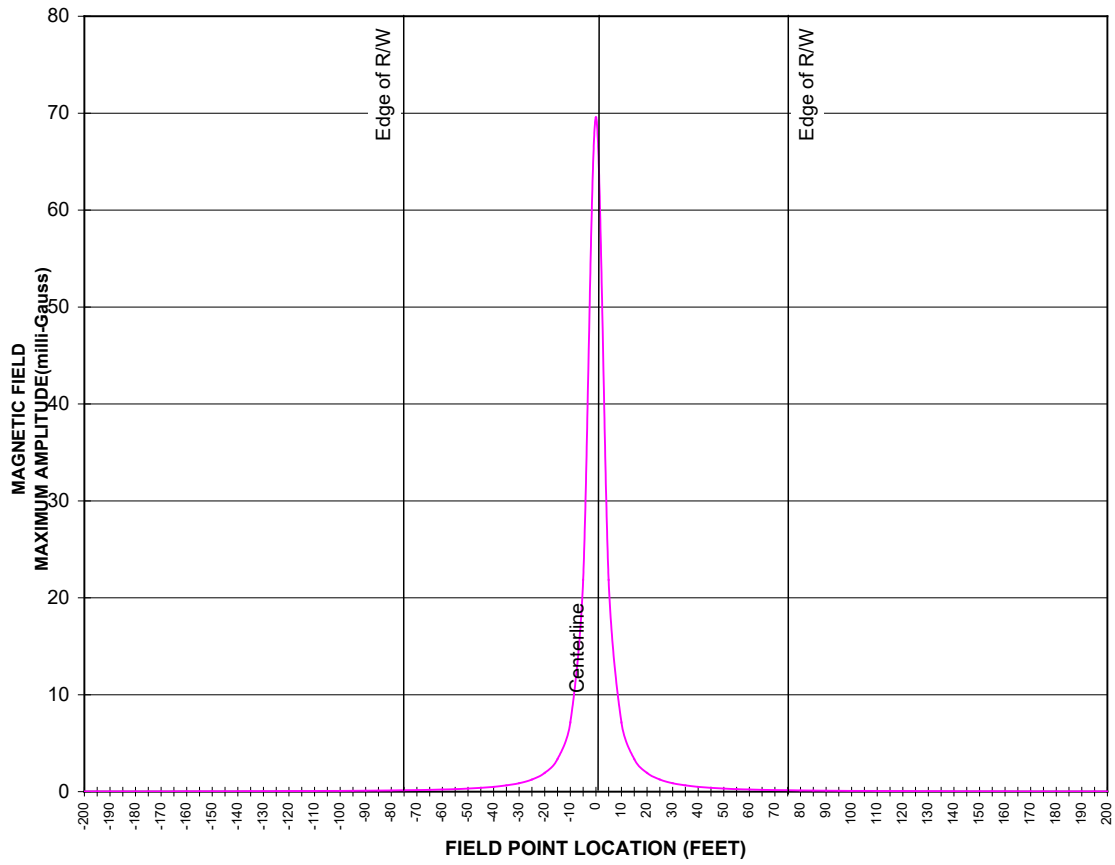


Figure AA-4. Magnetic Field Profile for 34.5-kV Underground Circuit

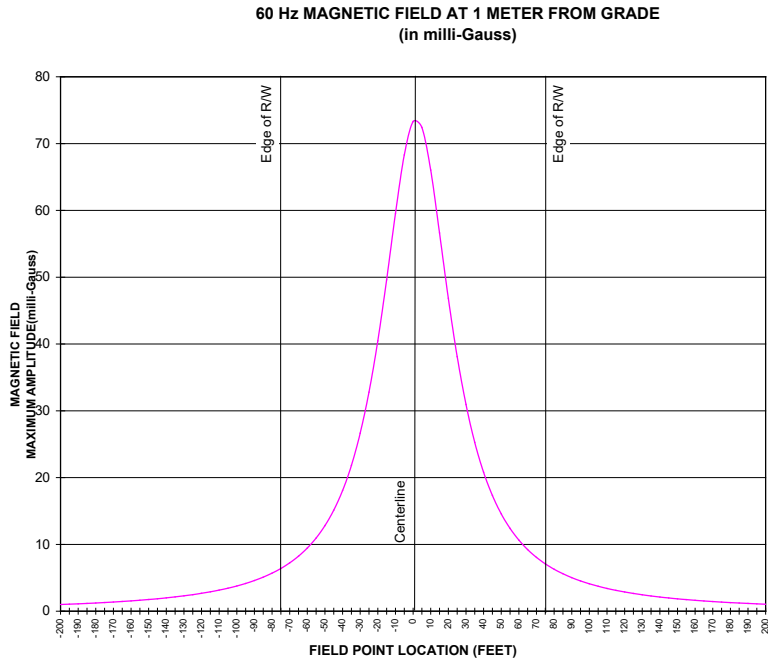


Figure AA-5. Magnetic Field Profile for 34.5-kV Single-Circuit, Monopole Structure

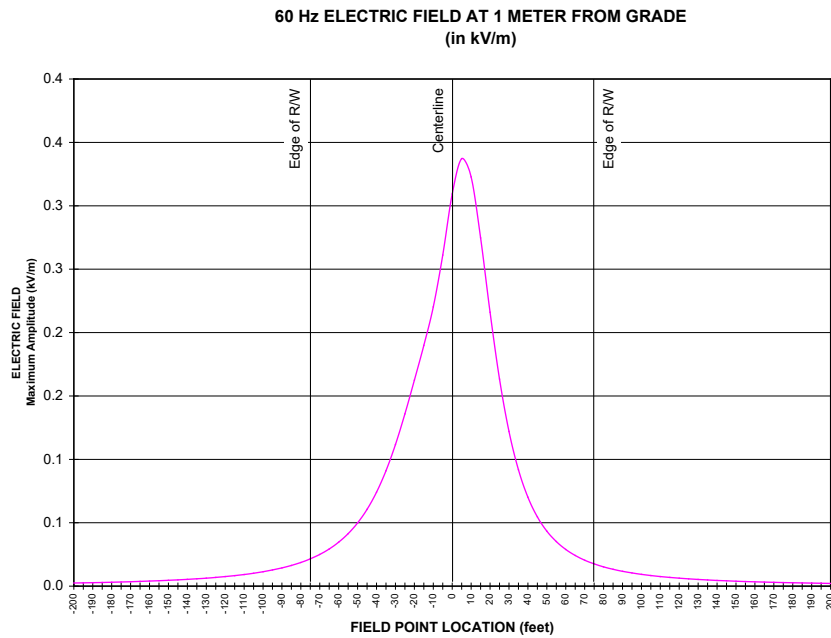


Figure AA-6. Electric Field Profile for 34.5-kV Single-Circuit, Monopole Structure

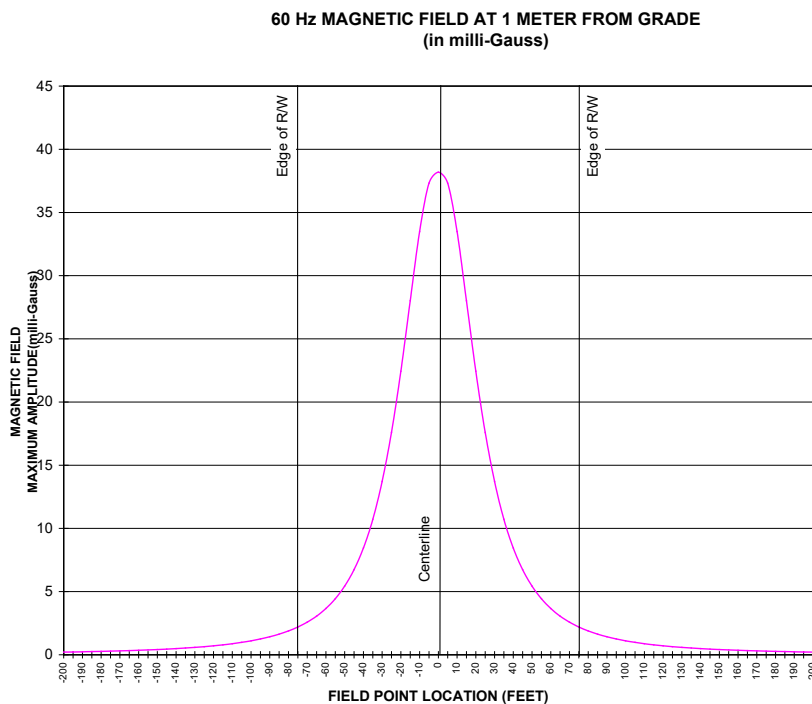


Figure AA-7. Magnetic Field Profile for 34.5-kV Double-Circuit, Monopole Structure

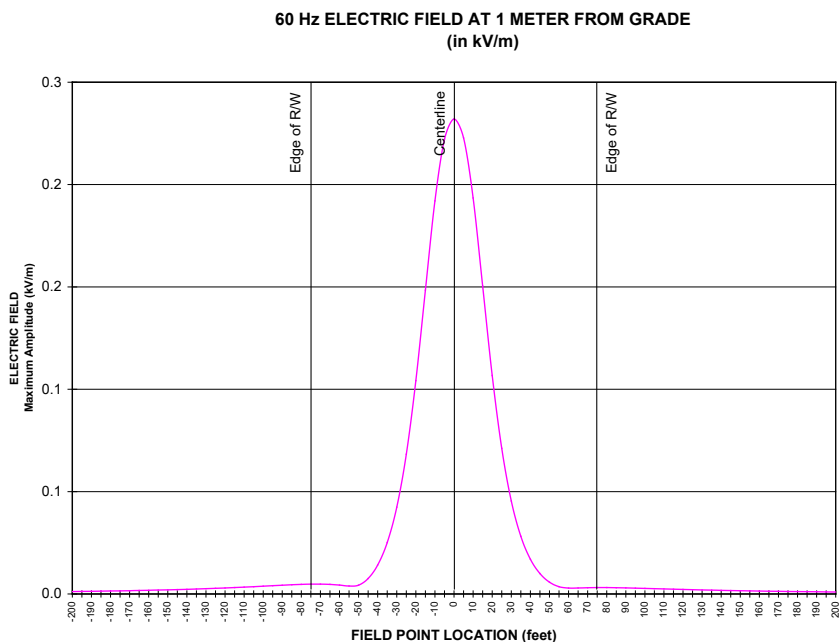


Figure AA-8. Electric Field Profile for 34.5-kV Double-Circuit, Monopole Structure

2.2.3 CAFE Modeling Results

OAR 345-021-0010(1)(aa)(A)(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current in amperes on each proposed transmission line; and

The analysis results of the Bonneville Power Administration CAFE model for the underground collector lines and overhead single- and double-circuit collector line configurations are provided in Attachments AA-1, AA-2 and AA-3, respectively.

The modeling assumptions related to the 34.5-kV collector lines are intentionally conservative, producing worst-case EMF results. EMF levels under normal operating conditions would be lower than indicated by this analysis. The CAFE program default environmental parameters of 1 inch per hour precipitation and 2.0 miles per hour wind speed were used to model wet-weather conditions.

3.0 EMF Mitigation Measures – OAR 345-021-0010(1)(aa)(A)(v)

OAR 345-021-0010(1)(aa)(A)(v) Any measures the applicant proposes to reduce electric or magnetic field levels.

The certificate holder will comply with the following site certificate conditions to limit EMF impacts.

- PRE-TL-01: Prior to construction, the certificate holder shall schedule a time to brief the OPUC Safety, Reliability, and Security Division (Safety) Staff as to how it will comply with OAR Chapter 860, Division 024 during design, construction, operations, and maintenance of the facilities.
- CON-TL-01: During construction, the certificate holder shall take reasonable steps to reduce or manage human exposure to electromagnetic fields, including:
 - a. Constructing all aboveground collector and transmission lines at least 200 feet from any residence or other occupied structure, measured from the centerline of the transmission line.
 - b. Constructing all aboveground 34.5-kV transmission lines with a minimum clearance of 25 feet from the ground.
 - c. Constructing all aboveground 230-kV transmission lines with a minimum clearance of 30 feet from the ground.
 - d. Developing and implementing a program that provides reasonable assurance that all fences, gates, cattle guards, trailers, irrigation systems, or other objects or structures of a permanent nature that could become inadvertently charged with

electricity are grounded or bonded throughout the life of the line (OAR 345-027-0023(4)).

- e. Providing to landowners a map of underground and overhead transmission lines on their property and advising landowners of possible health and safety risks from induced currents caused by electric and magnetic fields.
 - f. Designing and maintaining all transmission lines so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public.
 - g. Increasing the intraconnection transmission line height, shielding the electric field, or installing access barriers, if needed, to prevent induced current and nuisance shock of mobile vehicles.
 - h. Designing and maintaining all transmission lines so that induced voltages during operation are as low as reasonably achievable.
 - i. Designing, constructing and operating the transmission line in accordance with the requirements of the 2012 Edition of the National Electrical Safety Code approved on June 3, 2011 by the American National Standards Institute (OAR 345-027-0023(4)).
 - j. Implement a safety protocol to ensure adherence to NESC grounding requirements.
- OPR-TL-01: During operation, the certificate holder shall:
 - 1. Update the OPUC Safety Staff as to how the operator will comply with OAR Chapter 860, Division 024 on an ongoing basis considering future operations, maintenance, emergency response, and alterations until facility retirement.
 - 2. File the following required information with the Commission:
 - a. 758.013 Operator of electric power line to provide Public Utility Commission with safety information; availability of information to public utilities. (1) Each person who is subject to the Public Utility Commission's authority under ORS 757.035 and who engages in the operation of an electric power line as described in ORS 757.035 must provide the commission with the following information before January 2 of each even-numbered year:
 - i. The name and contact information of the person that is responsible for the operation and maintenance of the electric power line, and for ensuring that the electric power line is safe, on an ongoing basis; and
 - ii. The name and contact information of the person who is responsible for responding to conditions that present an imminent threat to the safety of employees, customers and the public.

- iii. In the event that the contact information described in subsection (1) of this section changes or that ownership of the electric power line changes, the person who engages in the operation of the electric power line must notify the commission of the change as soon as practicable, but no later than within 90 days.
 - iv. If the person described in subsection (1) of this section is not the public utility, as defined in ORS 757.005, in whose service territory the electric power line is located, the commission shall make the information provided to the commission under subsection (1) of this section available to the public utility in whose service territory the electric power line is located. [2013 c.235 §3]
3. Provide OPUC Safety Staff with:
- a. Maps and Drawings of routes and installation of electrical supply lines showing:
 - Transmission lines and structures (over 50,000 Volts)
 - Distribution lines and structures - differentiating underground and overhead lines (over 600 Volts to 50,000 Volts)
 - Substations, roads and highways
 - Plan and profile drawings of the transmission lines (and name and contact information of responsible professional engineer).

4.0 EMF Monitoring Program – OAR 345-021-0010(1)(aa)(A)(vii)

OAR 345-021-0010(1)(aa)(A)(vii) The applicant's proposed monitoring program, if any, for actual electric and magnetic field levels.

No program for monitoring actual EMF levels before or after construction is proposed at this time.

5.0 Radio and TV Interference – OAR 345-021-0010(1)(aa)(B)

OAR 345-021-0010(1)(aa)(B) An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways.

OAR 345-021-0010(1)(aa)(B) requires “an evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways.”

The lower voltage 34.5-kV overhead collector lines would have much lower electric field strength, and would not exhibit corona activity or generate electromagnetic interference. In addition, there are no occupied buildings or residences within 200 feet on either side of the proposed centerline of the overhead collector lines. Therefore, overhead 34.5-kV collector lines are not expected to generate any radio or TV interference at any occupied building.

Radio noise is measured in units of decibels (dB) based on its field strength referenced to a signal level of 1 microvolt per meter (IEEE 1986). Corona-induced radio noise is calculated to be approximately 47 decibels (dB-1 microvolt per meter) at the edge of the right-of-way. This is considered an acceptable level (IEEE 1971). Radio and TV interference results are included in Attachment AA-2 for 34.5-kV overhead collector lines. The 34.5-kV underground collector lines are located under the soil surface and would not generate radio or television interference.

6.0 Alternating Current Electric Fields

(1) Can design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public;

(2) Can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.

OAR 345-024-0090(2) requires a demonstration that Wheatridge “can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.”

The flow of electricity in a transmission line can induce a small electric charge, or voltage, in nearby conductive objects. An induced electric charge can flow, or become electric current, when a path to ground is presented. Induced current can be observed as a continuous flow of electricity or, under some circumstances as a sudden discharge, commonly known as a ‘nuisance shock.’ The amount of current flow, or the magnitude of the nuisance shock, is determined by the level of charge that can be induced and the nature (conductivity or impedance) of the path to ground. Metallic roofs, vehicles, equipment, or wire fences are examples of metallic objects in the vicinity of the Facility in which a small electric charge could be induced.

Factors to consider when assessing the potential hazards and mitigation measures for induced voltage include the characteristics of nearby objects, and the degree and nature of grounding of those objects. More conductive materials accumulate greater charge than less conductive materials while large objects, such as a tractor-trailer, will accumulate a greater charge than smaller objects such as a pick-up truck (EPRI 2005). A linear object that is parallel to the transmission line would be more greatly affected than one that is perpendicular to the line. An object passing quickly under the transmission line would be minimally affected compared to a stationary object. A grounded or partially grounded object will accumulate charge that could be discharged as a nuisance shock,

while continuous current would occur in a grounded object. The total amount of charge that can be induced in a perfectly non-grounded object is limited by the strength of the magnetic field and the nature of the object; after a time the field and the induced charge in the object will reach equilibrium (steady-state), and the induced charge would stop building.

Continuous induced current may occur if a metallic object is partially grounded or grounded some distance from the transmission line. Continuous induced current may occur in linear objects that are parallel to the transmission line, such as some fences, railroads, pipelines, irrigation piping, or other transmission or power distribution lines.

A sudden discharge can occur if a non-grounded, inductively charged object is presented with a path to ground. The most common example of this is when a vehicle, which is insulated from grounding by its tires, is parked under a transmission line for sufficient time to build up a charge. A person touching such a charged vehicle could become a conducting path for the current and can feel a momentary shock if the available electrical charge is sufficient, generally above 1 milliamperes (Dalziel and Mansfield 1950).

Nuisance shocks and induced currents can be reduced or eliminated by proper grounding of metallic objects near the transmission line, shielding them from the electric field, or positioning the transmission line farther from the objects. Grounding an object will reduce the induced potential to essentially zero and eliminate the object as a source of shocks or currents.

During final engineering and construction of the Facility, Wheatridge will identify wire fences, pipelines, irrigation lines, metal roofs, and other objects near the collector lines in which a current could be induced. Such objects will be properly grounded within or as close as practicable to the right-of-way, in order to prevent induced current and nuisance shocks.

Unlike fences or buildings, mobile equipment such as vehicles and agricultural machinery cannot be permanently grounded. The NESC requires that for high-voltage power lines, sufficient conductor clearance to the ground be maintained to limit the short-circuit current induced in the largest anticipated vehicle under the line to 5 milliamperes or less (NESC 2012).

Wheatridge has used line configurations that provide a reasonable balance of economy and public safety in relation to electric and magnetic field strength and impacts. The predicted electric fields and thus potential induced currents from the collector lines are comparable to those for other similar lines in operation, and comply with the Oregon 9 kV/m siting standard for transmission lines. In addition to line design, induced currents and potentials will be reduced or eliminated by Wheatridge by following proper grounding practices and adherence to the NESC. Wheatridge's use of line designs and proper grounding practices will keep anticipated induced currents and potentials to a safe and reasonable level.

7.0 References

- EU (Council of the European Union). 1999. Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields. Official Journal of the European Communities. 1999/199/59. Available online at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1999:199:0059:0070:EN:PDF>
- EFSC (Oregon Energy Facility Siting Council). 2009. EMF Report: A Review of the Current Scientific Literature on Health Effects of Electric and Magnetic Fields. Oregon Department of Energy, Salem, OR.
- EPRI (Electric Power Research Institute). 2005. AC Transmission Line Reference Book: 200 kV and Above. Third ed. EPRI, Palo Alto, CA. 1011974.
- ICES (International Committee on Electromagnetic Safety). 2002. IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields 0 to 3 kHz C95. 6-2002. Piscataway, NJ: IEEE.
- ICNIRP (International Commission on Non-Ionizing Radiation Protection). 2010. Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz). Health Physics, 2010.
- IEEE (Institute of Electrical and Electronics Engineers). 1971. Radio Noise Design Guide for High Voltage Transmission Lines. IEEE Radio Noise Subcommittee Report-Working Group No. 3. Paper 70TP631-PWR.
- IEEE. 1986. IEEE Standard Procedures for Measurement of Radio Noise from Overhead Power Lines and Substations. ANSI/IEEE Std. 430-1986, New York, NY. (see also)
- NESC (National Electric Safety Code). 2012. National Electrical Safety Code. 2012 ed. Institute of Electrical and Electronics Engineers, Inc., New York, NY.
- NIEHS (National Institute of Environmental Health Sciences). 1999. Health effects from exposure to power line frequency electric and magnetic fields. NIH; National Institute of Health; NIH No. 99-4493; Research Triangle Park, NC.

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Attachment AA-1:

Results of the BPA CAFE Modeling Program for 34.5 kV Underground Collector Lines

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*****WHEATRIDGE WIND FARM*****

FIGURE AA-2 34.5 kV UG 1000 KCMIL 50 MW-700A

1,0, 3, 3,0.0, 2.00, 1.00, .00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 3 CONDUCTORS, OF WHICH 3 ARE ENERGIZED PHASES

OPTIONS: 'COMB'

| | | | | | | | | | | |
|--------|---------|---------|-------|--------|---------|---------|------------------|-------|-------|------|
| 5.000, | 5.000, | 10.000, | .000, | 1.000, | 75.000, | -3.280, | 2.000, | 3.280 | | |
| 'PHA-1 | ', 'A', | -.10, | .10, | 1, | 1.453, | .000, | 19.900, | .000, | .700, | .000 |
| 'PHB-1 | ', 'A', | .00, | .10, | 1, | 1.453, | .000, | 19.900,-120.000, | | .700, | .000 |
| 'PHC-1 | ', 'A', | .10, | .10, | 1, | 1.453, | .000, | 19.900, 120.000, | | .700, | .000 |
| 40 | -200.0 | 5.0 | | | | | | | | |
| 41 | .0 | 5.0 | | | | | | | | |
| 0 | .0 | .0 | | | | | | | | |

1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD

*****WHEATRIDGE WIND FARM*****

FIGURE AA-2 34.5 kV UG 1000 KCMIL 50 MW-700A

| | DIST. FROM CENTER OF TOWER (FEET) | HEIGHT (FEET) | MAXIMUM GRADIENT (KV/CM) | SUBCON DIAM. (IN) | NO. OF SUBCON | SUBCON SPACING (IN) | VOLTAGE L-N (KV) | PHASE ANGLE (DEGREES) | CURRENT (kAmps) | CORONA LOSSES (KW/MI) |
|-------|---|------------------|--------------------------------|-------------------------|------------------|---------------------------|------------------------|-----------------------------|--------------------|-----------------------------|
| PHA-1 | - .10 | .10 | 29.76 | 1.45 | 1 | .00 | 19.90 | .00 | .70 | 715.020 |
| PHB-1 | .00 | .10 | 46.26 | 1.45 | 1 | .00 | 19.90 | -120.00 | .70 | ***** |
| PHC-1 | .10 | .10 | 29.76 | 1.45 | 1 | .00 | 19.90 | 120.00 | .70 | 715.019 |

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 5.0 FT, TV ANT. HT.= 10.0 FT, ALTITUDE=.0 FT

RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 2.000 MPH, GROUND CONDUCTIVITY = 2.0 MMHOS/M

E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= -3.3FT

| LATERAL DIST | AUDIBLE NOISE | | RADIO INTERFERENCE | | TVI | OZONE | | | |
|--------------|---------------|--------|--------------------|--------|--------|------------------|----------------------|----------|----------|
| FROM | (RAIN) | (FAIR) | (RAIN) | (FAIR) | TOTAL | FOR RAIN RATE OF | | ELECTRIC | MAGNETIC |
| REFERENCE | L50 | L50 | L50 | L50 | RAIN | 1.00 | IN/HR AT 0. FT LEVEL | FIELD | FIELD |
| (FEET) | DBA | DBA | DBUV/M | DBUV/M | DBUV/M | | PPB | KV/M | GAUSS |
| -200.0 | 95.3 | 70.3 | 47.6 | 30.6 | 67.7 | | .000000 | .000 | .00002 |
| -195.0 | 95.4 | 70.4 | 47.9 | 30.9 | 68.2 | | .000000 | .000 | .00002 |
| -190.0 | 95.6 | 70.6 | 48.2 | 31.2 | 68.6 | | .000000 | .000 | .00002 |
| -185.0 | 95.7 | 70.7 | 48.5 | 31.5 | 69.1 | | .000000 | .000 | .00002 |
| -180.0 | 95.8 | 70.8 | 48.8 | 31.8 | 69.5 | | .000000 | .000 | .00002 |

| | | | | | | | | |
|--------|-------|------|-------|------|-------|---------|-------|--------|
| -175.0 | 96.0 | 71.0 | 49.2 | 32.2 | 70.0 | .000000 | .000 | .00003 |
| -170.0 | 96.1 | 71.1 | 49.6 | 32.6 | 70.5 | .000000 | .000 | .00003 |
| -165.0 | 96.3 | 71.3 | 49.9 | 32.9 | 71.1 | .000000 | .000 | .00003 |
| -160.0 | 96.4 | 71.4 | 50.3 | 33.3 | 71.6 | .000000 | .000 | .00003 |
| -155.0 | 96.6 | 71.6 | 50.8 | 33.8 | 72.1 | .000000 | .000 | .00003 |
| -150.0 | 96.7 | 71.7 | 51.2 | 34.2 | 72.7 | .000000 | .000 | .00004 |
| -145.0 | 96.9 | 71.9 | 51.6 | 34.6 | 73.3 | .000000 | .001 | .00004 |
| -140.0 | 97.1 | 72.1 | 52.1 | 35.1 | 73.9 | .000000 | .001 | .00004 |
| -135.0 | 97.2 | 72.2 | 52.6 | 35.6 | 74.5 | .000000 | .001 | .00004 |
| -130.0 | 97.4 | 72.4 | 53.1 | 36.1 | 75.2 | .000000 | .001 | .00005 |
| -125.0 | 97.6 | 72.6 | 53.7 | 36.7 | 75.8 | .000000 | .001 | .00005 |
| -120.0 | 97.8 | 72.8 | 54.2 | 37.2 | 76.6 | .000000 | .001 | .00006 |
| -115.0 | 98.0 | 73.0 | 54.9 | 37.9 | 77.3 | .000000 | .001 | .00006 |
| -110.0 | 98.3 | 73.3 | 55.5 | 38.5 | 78.1 | .000000 | .001 | .00007 |
| -105.0 | 98.5 | 73.5 | 56.2 | 39.2 | 78.9 | .000000 | .001 | .00007 |
| -100.0 | 98.7 | 73.7 | 56.9 | 39.9 | 79.7 | .000000 | .001 | .00008 |
| -95.0 | 99.0 | 74.0 | 57.7 | 40.7 | 80.6 | .000000 | .001 | .00009 |
| -90.0 | 99.3 | 74.3 | 58.5 | 41.5 | 81.5 | .000000 | .001 | .00010 |
| -85.0 | 99.5 | 74.5 | 59.3 | 42.3 | 82.5 | .000000 | .002 | .00011 |
| -80.0 | 99.8 | 74.8 | 60.3 | 43.3 | 83.5 | .000000 | .002 | .00012 |
| -75.0 | 100.2 | 75.2 | 61.3 | 44.3 | 84.6 | .000000 | .002 | .00014 |
| -70.0 | 100.5 | 75.5 | 62.4 | 45.4 | 85.8 | .000000 | .002 | .00016 |
| -65.0 | 100.9 | 75.9 | 63.6 | 46.6 | 87.1 | .000000 | .003 | .00019 |
| -60.0 | 101.3 | 76.3 | 64.8 | 47.8 | 88.4 | .000000 | .003 | .00022 |
| -55.0 | 101.7 | 76.7 | 66.3 | 49.3 | 89.9 | .000000 | .004 | .00026 |
| -50.0 | 102.1 | 77.1 | 67.8 | 50.8 | 91.5 | .000000 | .004 | .00032 |
| -45.0 | 102.7 | 77.7 | 69.6 | 52.6 | 93.2 | .000000 | .005 | .00039 |
| -40.0 | 103.2 | 78.2 | 71.5 | 54.5 | 95.2 | .000000 | .007 | .00049 |
| -35.0 | 103.9 | 78.9 | 73.7 | 56.7 | 97.3 | .000000 | .009 | .00064 |
| -30.0 | 104.6 | 79.6 | 76.3 | 59.3 | 99.8 | .000000 | .012 | .00087 |
| -25.0 | 105.5 | 80.5 | 79.3 | 62.3 | 102.6 | .000000 | .017 | .00125 |
| -20.0 | 106.6 | 81.6 | 83.0 | 66.0 | 105.8 | .000000 | .027 | .00193 |
| -15.0 | 107.9 | 82.9 | 87.6 | 70.6 | 109.6 | .000000 | .046 | .00337 |
| -10.0 | 109.6 | 84.6 | 93.6 | 76.6 | 113.8 | .000000 | .099 | .00714 |
| -5.0 | 111.9 | 86.9 | 101.6 | 84.6 | 118.0 | .000000 | .307 | .02184 |
| .0 | 113.7 | 88.7 | 107.8 | 90.8 | 120.0 | .000000 | 1.000 | .06958 |
| 5.0 | 111.9 | 86.9 | 101.6 | 84.6 | 118.0 | ***** | .307 | .02184 |
| 10.0 | 109.6 | 84.6 | 93.6 | 76.6 | 113.8 | ***** | .099 | .00714 |
| 15.0 | 107.9 | 82.9 | 87.6 | 70.6 | 109.6 | ***** | .046 | .00337 |
| 20.0 | 106.6 | 81.6 | 83.0 | 66.0 | 105.8 | ***** | .027 | .00193 |
| 25.0 | 105.5 | 80.5 | 79.3 | 62.3 | 102.6 | ***** | .017 | .00125 |
| 30.0 | 104.6 | 79.6 | 76.3 | 59.3 | 99.8 | ***** | .012 | .00087 |
| 35.0 | 103.9 | 78.9 | 73.7 | 56.7 | 97.3 | ***** | .009 | .00064 |
| 40.0 | 103.2 | 78.2 | 71.5 | 54.5 | 95.2 | ***** | .007 | .00049 |
| 45.0 | 102.7 | 77.7 | 69.6 | 52.6 | 93.2 | ***** | .005 | .00039 |
| 50.0 | 102.1 | 77.1 | 67.8 | 50.8 | 91.5 | ***** | .004 | .00032 |
| 55.0 | 101.7 | 76.7 | 66.3 | 49.3 | 89.9 | ***** | .004 | .00026 |
| 60.0 | 101.3 | 76.3 | 64.8 | 47.8 | 88.4 | ***** | .003 | .00022 |
| 65.0 | 100.9 | 75.9 | 63.6 | 46.6 | 87.1 | ***** | .003 | .00019 |
| 70.0 | 100.5 | 75.5 | 62.4 | 45.4 | 85.8 | ***** | .002 | .00016 |
| 75.0 | 100.2 | 75.2 | 61.3 | 44.3 | 84.6 | ***** | .002 | .00014 |
| 80.0 | 99.8 | 74.8 | 60.3 | 43.3 | 83.5 | ***** | .002 | .00012 |
| 85.0 | 99.5 | 74.5 | 59.3 | 42.3 | 82.5 | ***** | .002 | .00011 |
| 90.0 | 99.3 | 74.3 | 58.5 | 41.5 | 81.5 | ***** | .001 | .00010 |
| 95.0 | 99.0 | 74.0 | 57.7 | 40.7 | 80.6 | ***** | .001 | .00009 |
| 100.0 | 98.7 | 73.7 | 56.9 | 39.9 | 79.7 | ***** | .001 | .00008 |
| 105.0 | 98.5 | 73.5 | 56.2 | 39.2 | 78.9 | ***** | .001 | .00007 |
| 110.0 | 98.3 | 73.3 | 55.5 | 38.5 | 78.1 | ***** | .001 | .00007 |

| | | | | | | | | |
|-------|------|------|------|------|------|-------|------|--------|
| 115.0 | 98.0 | 73.0 | 54.9 | 37.9 | 77.3 | ***** | .001 | .00006 |
| 120.0 | 97.8 | 72.8 | 54.2 | 37.2 | 76.6 | ***** | .001 | .00006 |
| 125.0 | 97.6 | 72.6 | 53.7 | 36.7 | 75.8 | ***** | .001 | .00005 |
| 130.0 | 97.4 | 72.4 | 53.1 | 36.1 | 75.2 | ***** | .001 | .00005 |
| 135.0 | 97.2 | 72.2 | 52.6 | 35.6 | 74.5 | ***** | .001 | .00004 |
| 140.0 | 97.1 | 72.1 | 52.1 | 35.1 | 73.9 | ***** | .001 | .00004 |
| 145.0 | 96.9 | 71.9 | 51.6 | 34.6 | 73.3 | ***** | .001 | .00004 |
| 150.0 | 96.7 | 71.7 | 51.2 | 34.2 | 72.7 | ***** | .000 | .00004 |
| 155.0 | 96.6 | 71.6 | 50.8 | 33.8 | 72.1 | ***** | .000 | .00003 |
| 160.0 | 96.4 | 71.4 | 50.3 | 33.3 | 71.6 | ***** | .000 | .00003 |
| 165.0 | 96.3 | 71.3 | 49.9 | 32.9 | 71.1 | ***** | .000 | .00003 |
| 170.0 | 96.1 | 71.1 | 49.6 | 32.6 | 70.5 | ***** | .000 | .00003 |
| 175.0 | 96.0 | 71.0 | 49.2 | 32.2 | 70.0 | ***** | .000 | .00003 |
| 180.0 | 95.8 | 70.8 | 48.8 | 31.8 | 69.5 | ***** | .000 | .00002 |
| 185.0 | 95.7 | 70.7 | 48.5 | 31.5 | 69.1 | ***** | .000 | .00002 |
| 190.0 | 95.6 | 70.6 | 48.2 | 31.2 | 68.6 | ***** | .000 | .00002 |
| 195.0 | 95.4 | 70.4 | 47.9 | 30.9 | 68.2 | ***** | .000 | .00002 |
| 200.0 | 95.3 | 70.3 | 47.6 | 30.6 | 67.7 | ***** | .000 | .00002 |

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Attachment AA-2:

**Results of the BPA CAFE Modeling
Program for 34.5 kV Overhead Single-
Circuit Collector Lines**

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*****WHEATRIDGE WIND FARM*****

FIGURE AA-3 34.5 kV (1) 1590 KCMIL 60 MW-1000A

1,0, 3, 4,0.0, 2.00, 1.00, .00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 4 CONDUCTORS, OF WHICH 3 ARE ENERGIZED PHASES

OPTIONS: 'COMB'

| | | | | | | | | | | |
|---------|---------|---------|--------|--------|---------|--------|------------------|----------|--------|------|
| 5.000, | 5.000, | 10.000, | .000, | 1.000, | 75.000, | 3.280, | 2.000, | 3.280 | | |
| ' PHA-1 | ', 'A', | 2.50, | 32.00, | 1, | 1.453, | .000, | 23.000, | .000, | 1.000, | .000 |
| ' PHB-1 | ', 'A', | -2.50, | 28.50, | 1, | 1.453, | .000, | 23.000,-120.000, | | 1.000, | .000 |
| ' PHC-1 | ', 'A', | 3.50, | 25.00, | 1, | 1.453, | .000, | 23.000, | 120.000, | 1.000, | .000 |
| ' GND1 | ', 'A', | 1.00, | 36.00, | 1, | .360, | .000, | .000, | .000, | .000, | .000 |
| 40 | -200.0 | 5.0 | | | | | | | | |
| 41 | .0 | 5.0 | | | | | | | | |
| 0 | .0 | .0 | | | | | | | | |

1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD

*****WHEATRIDGE WIND FARM*****

FIGURE AA-3 34.5 kV (1) 1590 KCMIL 60 MW-1000A

| | DIST. FROM CENTER OF TOWER (FEET) | HEIGHT (FEET) | MAXIMUM GRADIENT (KV/CM) | SUBCON DIAM. (IN) | NO. OF SUBCON | SUBCON SPACING (IN) | VOLTAGE L-N (KV) | PHASE ANGLE (DEGREES) | CURRENT (kAmps) | CORONA LOSSES (KW/MI) |
|-------|---|------------------|--------------------------------|-------------------------|------------------|---------------------------|------------------------|-----------------------------|--------------------|-----------------------------|
| PHA-1 | 2.50 | 32.00 | 2.75 | 1.45 | 1 | .00 | 23.00 | .00 | 1.00 | .000 |
| PHB-1 | -2.50 | 28.50 | 2.67 | 1.45 | 1 | .00 | 23.00 | -120.00 | 1.00 | .000 |
| PHC-1 | 3.50 | 25.00 | 2.61 | 1.45 | 1 | .00 | 23.00 | 120.00 | 1.00 | .000 |
| GND1 | 1.00 | 36.00 | 1.31 | .36 | 1 | .00 | .00 | .00 | .00 | .000 |

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 5.0 FT, TV ANT. HT.= 10.0 FT, ALTITUDE=.0 FT

RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 2.000 MPH, GROUND CONDUCTIVITY = 2.0 MMHOS/M

E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

| LATERAL DIST | AUDIBLE NOISE | | RADIO INTERFERENCE | | TVI | OZONE | | | |
|--------------|---------------|--------|--------------------|--------|--------|---------------------------|----------|----------|--|
| FROM | (RAIN) | (FAIR) | (RAIN) | (FAIR) | TOTAL | FOR RAIN RATE OF | ELECTRIC | MAGNETIC | |
| REFERENCE | L50 | L50 | L50 | L50 | RAIN | 1.00 IN/HR AT 0. FT LEVEL | FIELD | FIELD | |
| (FEET) | DBA | DBA | DBUV/M | DBUV/M | DBUV/M | PPB | KV/M | GAUSS | |
| -200.0 | -48.4 | -73.4 | -49.7 | -66.7 | -79.6 | .000000 | .002 | .00100 | |
| -195.0 | -48.3 | -73.3 | -49.5 | -66.5 | -79.4 | .000000 | .003 | .00105 | |
| -190.0 | -48.2 | -73.2 | -49.1 | -66.1 | -79.1 | .000000 | .003 | .00110 | |
| -185.0 | -48.1 | -73.1 | -48.8 | -65.8 | -78.9 | .000000 | .003 | .00116 | |
| -180.0 | -47.9 | -72.9 | -48.5 | -65.5 | -78.7 | .000000 | .003 | .00123 | |

| | | | | | | | | |
|--------|-------|-------|-------|-------|-------|---------|------|--------|
| -175.0 | -47.8 | -72.8 | -48.2 | -65.2 | -78.4 | .000000 | .003 | .00130 |
| -170.0 | -47.7 | -72.7 | -47.8 | -64.8 | -78.2 | .000000 | .003 | .00137 |
| -165.0 | -47.5 | -72.5 | -47.5 | -64.5 | -78.0 | .000000 | .004 | .00145 |
| -160.0 | -47.4 | -72.4 | -47.1 | -64.1 | -77.7 | .000000 | .004 | .00154 |
| -155.0 | -47.2 | -72.2 | -46.7 | -63.7 | -77.4 | .000000 | .004 | .00164 |
| -150.0 | -47.1 | -72.1 | -46.3 | -63.3 | -77.2 | .000000 | .005 | .00175 |
| -145.0 | -46.9 | -71.9 | -45.8 | -62.8 | -76.9 | .000000 | .005 | .00186 |
| -140.0 | -46.7 | -71.7 | -45.4 | -62.4 | -76.6 | .000000 | .005 | .00199 |
| -135.0 | -46.6 | -71.6 | -44.9 | -61.9 | -76.3 | .000000 | .006 | .00214 |
| -130.0 | -46.4 | -71.4 | -44.5 | -61.5 | -76.0 | .000000 | .006 | .00230 |
| -125.0 | -46.2 | -71.2 | -43.9 | -60.9 | -75.6 | .000000 | .007 | .00248 |
| -120.0 | -46.0 | -71.0 | -43.4 | -60.4 | -75.3 | .000000 | .008 | .00268 |
| -115.0 | -45.8 | -70.8 | -42.9 | -59.9 | -75.0 | .000000 | .008 | .00290 |
| -110.0 | -45.6 | -70.6 | -42.3 | -59.3 | -74.6 | .000000 | .009 | .00316 |
| -105.0 | -45.4 | -70.4 | -41.7 | -58.7 | -74.2 | .000000 | .010 | .00345 |
| -100.0 | -45.1 | -70.1 | -41.0 | -58.0 | -73.8 | .000000 | .011 | .00377 |
| -95.0 | -44.9 | -69.9 | -40.3 | -57.3 | -73.4 | .000000 | .013 | .00415 |
| -90.0 | -44.7 | -69.7 | -39.6 | -56.6 | -73.0 | .000000 | .014 | .00459 |
| -85.0 | -44.4 | -69.4 | -38.8 | -55.8 | -72.5 | .000000 | .016 | .00510 |
| -80.0 | -44.1 | -69.1 | -38.0 | -55.0 | -72.0 | .000000 | .019 | .00569 |
| -75.0 | -43.8 | -68.8 | -37.1 | -54.1 | -71.5 | .000000 | .022 | .00640 |
| -70.0 | -43.5 | -68.5 | -36.2 | -53.2 | -71.0 | .000000 | .025 | .00723 |
| -65.0 | -43.2 | -68.2 | -35.2 | -52.2 | -70.4 | .000000 | .029 | .00824 |
| -60.0 | -42.9 | -67.9 | -34.2 | -51.2 | -69.8 | .000000 | .035 | .00946 |
| -55.0 | -42.5 | -67.5 | -33.1 | -50.1 | -69.2 | .000000 | .041 | .01095 |
| -50.0 | -42.1 | -67.1 | -31.9 | -48.9 | -68.5 | .000000 | .050 | .01281 |
| -45.0 | -41.7 | -66.7 | -30.6 | -47.6 | -67.8 | .000000 | .061 | .01513 |
| -40.0 | -41.3 | -66.3 | -29.3 | -46.3 | -67.0 | .000000 | .074 | .01807 |
| -35.0 | -40.8 | -65.8 | -27.8 | -44.8 | -66.2 | .000000 | .091 | .02182 |
| -30.0 | -40.3 | -65.3 | -26.3 | -43.3 | -65.3 | .000000 | .112 | .02664 |
| -25.0 | -39.8 | -64.8 | -24.5 | -41.5 | -64.3 | .000000 | .136 | .03278 |
| -20.0 | -39.3 | -64.3 | -22.7 | -39.7 | -63.1 | .000000 | .162 | .04047 |
| -15.0 | -38.8 | -63.8 | -21.1 | -38.1 | -62.0 | .000000 | .190 | .04963 |
| -10.0 | -38.4 | -63.4 | -19.8 | -36.8 | -61.0 | .000000 | .220 | .05952 |
| -5.0 | -38.1 | -63.1 | -19.0 | -36.0 | -60.4 | .000000 | .261 | .06831 |
| .0 | -37.9 | -62.9 | -18.6 | -35.6 | -59.8 | .000000 | .309 | .07330 |
| 5.0 | -37.9 | -62.9 | -18.4 | -35.4 | -59.6 | .000000 | .337 | .07242 |
| 10.0 | -38.2 | -63.2 | -19.2 | -36.2 | -60.3 | .000001 | .323 | .06604 |
| 15.0 | -38.6 | -63.6 | -20.4 | -37.4 | -61.5 | .000003 | .275 | .05664 |
| 20.0 | -39.1 | -64.1 | -21.7 | -38.7 | -62.4 | .000006 | .216 | .04683 |
| 25.0 | -39.6 | -64.6 | -23.2 | -40.2 | -63.4 | .000008 | .163 | .03811 |
| 30.0 | -40.1 | -65.1 | -24.8 | -41.8 | -64.3 | .000010 | .122 | .03095 |
| 35.0 | -40.6 | -65.6 | -26.3 | -43.3 | -65.3 | .000010 | .092 | .02526 |
| 40.0 | -41.1 | -66.1 | -27.8 | -44.8 | -66.2 | .000010 | .070 | .02081 |
| 45.0 | -41.5 | -66.5 | -29.3 | -46.3 | -67.0 | .000010 | .055 | .01733 |
| 50.0 | -41.9 | -66.9 | -30.6 | -47.6 | -67.8 | .000010 | .043 | .01458 |
| 55.0 | -42.3 | -67.3 | -31.9 | -48.9 | -68.5 | .000010 | .035 | .01240 |
| 60.0 | -42.7 | -67.7 | -33.1 | -50.1 | -69.2 | .000009 | .029 | .01064 |
| 65.0 | -43.1 | -68.1 | -34.2 | -51.2 | -69.8 | .000009 | .024 | .00922 |
| 70.0 | -43.4 | -68.4 | -35.2 | -52.2 | -70.4 | .000009 | .020 | .00806 |
| 75.0 | -43.7 | -68.7 | -36.2 | -53.2 | -71.0 | .000008 | .018 | .00709 |
| 80.0 | -44.0 | -69.0 | -37.1 | -54.1 | -71.5 | .000008 | .015 | .00628 |
| 85.0 | -44.3 | -69.3 | -38.0 | -55.0 | -72.0 | .000008 | .013 | .00560 |
| 90.0 | -44.5 | -69.5 | -38.8 | -55.8 | -72.5 | .000007 | .012 | .00503 |
| 95.0 | -44.8 | -69.8 | -39.6 | -56.6 | -73.0 | .000007 | .010 | .00453 |
| 100.0 | -45.0 | -70.0 | -40.3 | -57.3 | -73.4 | .000007 | .009 | .00410 |
| 105.0 | -45.3 | -70.3 | -41.0 | -58.0 | -73.8 | .000007 | .008 | .00373 |
| 110.0 | -45.5 | -70.5 | -41.7 | -58.7 | -74.2 | .000006 | .008 | .00341 |

| | | | | | | | | |
|-------|-------|-------|-------|-------|-------|---------|------|--------|
| 115.0 | -45.7 | -70.7 | -42.3 | -59.3 | -74.6 | .000006 | .007 | .00313 |
| 120.0 | -45.9 | -70.9 | -42.9 | -59.9 | -75.0 | .000006 | .006 | .00288 |
| 125.0 | -46.1 | -71.1 | -43.4 | -60.4 | -75.3 | .000006 | .006 | .00266 |
| 130.0 | -46.3 | -71.3 | -43.9 | -60.9 | -75.6 | .000006 | .005 | .00246 |
| 135.0 | -46.5 | -71.5 | -44.5 | -61.5 | -76.0 | .000005 | .005 | .00228 |
| 140.0 | -46.6 | -71.6 | -44.9 | -61.9 | -76.3 | .000005 | .005 | .00212 |
| 145.0 | -46.8 | -71.8 | -45.4 | -62.4 | -76.6 | .000005 | .004 | .00198 |
| 150.0 | -47.0 | -72.0 | -45.8 | -62.8 | -76.9 | .000005 | .004 | .00185 |
| 155.0 | -47.1 | -72.1 | -46.3 | -63.3 | -77.2 | .000005 | .004 | .00174 |
| 160.0 | -47.3 | -72.3 | -46.7 | -63.7 | -77.4 | .000005 | .003 | .00163 |
| 165.0 | -47.4 | -72.4 | -47.1 | -64.1 | -77.7 | .000005 | .003 | .00153 |
| 170.0 | -47.6 | -72.6 | -47.5 | -64.5 | -78.0 | .000005 | .003 | .00145 |
| 175.0 | -47.7 | -72.7 | -47.8 | -64.8 | -78.2 | .000004 | .003 | .00136 |
| 180.0 | -47.9 | -72.9 | -48.2 | -65.2 | -78.4 | .000004 | .003 | .00129 |
| 185.0 | -48.0 | -73.0 | -48.5 | -65.5 | -78.7 | .000004 | .003 | .00122 |
| 190.0 | -48.1 | -73.1 | -48.8 | -65.8 | -78.9 | .000004 | .002 | .00116 |
| 195.0 | -48.3 | -73.3 | -49.1 | -66.1 | -79.1 | .000004 | .002 | .00110 |
| 200.0 | -48.4 | -73.4 | -49.5 | -66.5 | -79.4 | .000004 | .002 | .00105 |

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Attachment AA-3:

Results of the BPA CAFE Modeling Program for 34.5 kV Overhead Double- Circuit Collector Lines

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INPUT DATA LIST

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*****WHEATRIDGE WIND FARM*****

FIGURE AA-4 34.5 kV (1) 1590 KCMIL 60 MW-1000A

1,0, 6, 7,0.0, 2.00, 1.00, .00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 7 CONDUCTORS, OF WHICH 6 ARE ENERGIZED PHASES

OPTIONS: 'COMB'

| | | | | | | | | | | |
|---------|---------|---------|--------|--------|---------|--------|------------------|----------|--------|------|
| 5.000, | 5.000, | 10.000, | .000, | 1.000, | 75.000, | 3.280, | 2.000, | 3.280 | | |
| ' PHA-1 | ', 'A', | -2.50, | 39.00, | 1, | 1.453, | .000, | 23.000, | .000, | 1.000, | .000 |
| ' PHB-1 | ', 'A', | -3.50, | 32.50, | 1, | 1.453, | .000, | 23.000,-120.000, | | 1.000, | .000 |
| ' PHC-1 | ', 'A', | -2.50, | 25.00, | 1, | 1.453, | .000, | 23.000, | 120.000, | 1.000, | .000 |
| ' PHA-2 | ', 'A', | 2.50, | 25.00, | 1, | 1.453, | .000, | 23.000, | .000, | 1.000, | .000 |
| ' PHB-2 | ', 'A', | 3.50, | 32.50, | 1, | 1.453, | .000, | 23.000,-120.000, | | 1.000, | .000 |
| ' PHC-2 | ', 'A', | 2.50, | 39.00, | 1, | 1.453, | .000, | 23.000, | 120.000, | 1.000, | .000 |
| ' GND1 | ', 'A', | 1.00, | 45.00, | 1, | .360, | .000, | .000, | .000, | .000, | .000 |
| 40 | -200.0 | 5.0 | | | | | | | | |
| 41 | .0 | 5.0 | | | | | | | | |
| 0 | .0 | .0 | | | | | | | | |

1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD

*****WHEATRIDGE WIND FARM*****

FIGURE AA-4 34.5 kV (1) 1590 KCMIL 60 MW-1000A

| | DIST. FROM CENTER OF TOWER (FEET) | HEIGHT (FEET) | MAXIMUM GRADIENT (KV/CM) | SUBCON DIAM. (IN) | NO. OF SUBCON | SUBCON SPACING (IN) | VOLTAGE L-N (KV) | PHASE ANGLE (DEGREES) | CURRENT (kAmps) | CORONA LOSSES (KW/MI) |
|-------|---|------------------|--------------------------------|-------------------------|------------------|---------------------------|------------------------|-----------------------------|--------------------|-----------------------------|
| PHA-1 | -2.50 | 39.00 | 2.86 | 1.45 | 1 | .00 | 23.00 | .00 | 1.00 | .000 |
| PHB-1 | -3.50 | 32.50 | 2.57 | 1.45 | 1 | .00 | 23.00 | -120.00 | 1.00 | .000 |
| PHC-1 | -2.50 | 25.00 | 2.81 | 1.45 | 1 | .00 | 23.00 | 120.00 | 1.00 | .000 |
| PHA-2 | 2.50 | 25.00 | 2.81 | 1.45 | 1 | .00 | 23.00 | .00 | 1.00 | .000 |
| PHB-2 | 3.50 | 32.50 | 2.57 | 1.45 | 1 | .00 | 23.00 | -120.00 | 1.00 | .000 |
| PHC-2 | 2.50 | 39.00 | 2.87 | 1.45 | 1 | .00 | 23.00 | 120.00 | 1.00 | .000 |
| GND1 | 1.00 | 45.00 | .69 | .36 | 1 | .00 | .00 | .00 | .00 | .000 |

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 5.0 FT, TV ANT. HT.= 10.0 FT, ALTITUDE=.0 FT

RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 2.000 MPH, GROUND CONDUCTIVITY = 2.0 MMHOS/M

E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

| LATERAL DIST | AUDIBLE NOISE | | RADIO INTERFERENCE | | TVI | OZONE | | | |
|--------------|---------------|--------|--------------------|--------|-------|----------|----------------------|----------|----------|
| FROM | (RAIN) | (FAIR) | (RAIN) | (FAIR) | TOTAL | FOR RAIN | RATE OF | ELECTRIC | MAGNETIC |
| REFERENCE | L50 | L50 | L50 | L50 | RAIN | 1.00 | IN/HR AT 0. FT LEVEL | FIELD | FIELD |

| (FEET) | DBA | DBA | DBUV/M | DBUV/M | DBUV/M | PPB | KV/M | GAUSS |
|--------|-------|-------|--------|--------|--------|---------|------|--------|
| -200.0 | -43.6 | -68.6 | -45.7 | -62.7 | -77.3 | .000000 | .001 | .00021 |
| -195.0 | -43.5 | -68.5 | -45.4 | -62.4 | -77.1 | .000000 | .001 | .00022 |
| -190.0 | -43.3 | -68.3 | -45.1 | -62.1 | -76.9 | .000000 | .001 | .00024 |
| -185.0 | -43.2 | -68.2 | -44.8 | -61.8 | -76.6 | .000000 | .001 | .00025 |
| -180.0 | -43.1 | -68.1 | -44.5 | -61.5 | -76.4 | .000000 | .001 | .00027 |
| -175.0 | -42.9 | -67.9 | -44.1 | -61.1 | -76.2 | .000000 | .002 | .00029 |
| -170.0 | -42.8 | -67.8 | -43.8 | -60.8 | -75.9 | .000000 | .002 | .00031 |
| -165.0 | -42.7 | -67.7 | -43.4 | -60.4 | -75.7 | .000000 | .002 | .00033 |
| -160.0 | -42.5 | -67.5 | -43.0 | -60.0 | -75.4 | .000000 | .002 | .00036 |
| -155.0 | -42.4 | -67.4 | -42.6 | -59.6 | -75.2 | .000000 | .002 | .00038 |
| -150.0 | -42.2 | -67.2 | -42.2 | -59.2 | -74.9 | .000000 | .002 | .00042 |
| -145.0 | -42.0 | -67.0 | -41.8 | -58.8 | -74.6 | .000000 | .002 | .00045 |
| -140.0 | -41.9 | -66.9 | -41.3 | -58.3 | -74.3 | .000000 | .002 | .00049 |
| -135.0 | -41.7 | -66.7 | -40.8 | -57.8 | -74.0 | .000000 | .002 | .00053 |
| -130.0 | -41.5 | -66.5 | -40.3 | -57.3 | -73.7 | .000000 | .003 | .00059 |
| -125.0 | -41.3 | -66.3 | -39.8 | -56.8 | -73.3 | .000000 | .003 | .00064 |
| -120.0 | -41.1 | -66.1 | -39.3 | -56.3 | -73.0 | .000000 | .003 | .00071 |
| -115.0 | -40.9 | -65.9 | -38.7 | -55.7 | -72.6 | .000000 | .003 | .00079 |
| -110.0 | -40.7 | -65.7 | -38.1 | -55.1 | -72.3 | .000000 | .003 | .00088 |
| -105.0 | -40.5 | -65.5 | -37.5 | -54.5 | -71.9 | .000000 | .004 | .00098 |
| -100.0 | -40.3 | -65.3 | -36.8 | -53.8 | -71.5 | .000000 | .004 | .00111 |
| -95.0 | -40.1 | -65.1 | -36.2 | -53.2 | -71.1 | .000000 | .004 | .00125 |
| -90.0 | -39.8 | -64.8 | -35.4 | -52.4 | -70.6 | .000000 | .004 | .00142 |
| -85.0 | -39.6 | -64.6 | -34.7 | -51.7 | -70.2 | .000000 | .004 | .00163 |
| -80.0 | -39.3 | -64.3 | -33.8 | -50.8 | -69.7 | .000000 | .005 | .00189 |
| -75.0 | -39.0 | -64.0 | -33.0 | -50.0 | -69.2 | .000000 | .005 | .00220 |
| -70.0 | -38.7 | -63.7 | -32.1 | -49.1 | -68.7 | .000000 | .005 | .00258 |
| -65.0 | -38.4 | -63.4 | -31.1 | -48.1 | -68.1 | .000000 | .005 | .00306 |
| -60.0 | -38.1 | -63.1 | -30.1 | -47.1 | -67.5 | .000000 | .004 | .00367 |
| -55.0 | -37.7 | -62.7 | -29.1 | -46.1 | -66.9 | .000000 | .004 | .00444 |
| -50.0 | -37.3 | -62.3 | -27.9 | -44.9 | -66.1 | .000000 | .004 | .00544 |
| -45.0 | -36.9 | -61.9 | -26.8 | -43.8 | -65.2 | .000000 | .008 | .00674 |
| -40.0 | -36.5 | -61.5 | -25.6 | -42.6 | -64.3 | .000000 | .014 | .00845 |
| -35.0 | -36.1 | -61.1 | -24.4 | -41.4 | -63.2 | .000000 | .025 | .01072 |
| -30.0 | -35.6 | -60.6 | -23.2 | -40.2 | -62.1 | .000000 | .042 | .01371 |
| -25.0 | -35.2 | -60.2 | -21.5 | -38.5 | -60.8 | .000000 | .068 | .01759 |
| -20.0 | -34.7 | -59.7 | -19.4 | -36.4 | -59.4 | .000000 | .104 | .02244 |
| -15.0 | -34.2 | -59.2 | -17.3 | -34.3 | -58.0 | .000000 | .148 | .02802 |
| -10.0 | -33.8 | -58.8 | -15.6 | -32.6 | -56.7 | .000000 | .192 | .03350 |
| -5.0 | -33.6 | -58.6 | -14.6 | -31.6 | -55.8 | .000000 | .222 | .03732 |
| .0 | -33.5 | -58.5 | -14.6 | -31.6 | -55.8 | .000000 | .232 | .03819 |
| 5.0 | -33.6 | -58.6 | -14.7 | -31.7 | -55.8 | .000000 | .223 | .03732 |
| 10.0 | -33.8 | -58.8 | -15.7 | -32.7 | -56.7 | .000002 | .193 | .03350 |
| 15.0 | -34.2 | -59.2 | -17.4 | -34.4 | -58.0 | .000008 | .150 | .02802 |
| 20.0 | -34.7 | -59.7 | -19.4 | -36.4 | -59.5 | .000014 | .107 | .02244 |
| 25.0 | -35.2 | -60.2 | -21.6 | -38.6 | -60.8 | .000019 | .071 | .01759 |
| 30.0 | -35.6 | -60.6 | -22.9 | -39.9 | -62.1 | .000022 | .045 | .01371 |
| 35.0 | -36.1 | -61.1 | -24.1 | -41.1 | -63.3 | .000024 | .028 | .01072 |
| 40.0 | -36.5 | -61.5 | -25.3 | -42.3 | -64.3 | .000024 | .017 | .00845 |
| 45.0 | -36.9 | -61.9 | -26.5 | -43.5 | -65.3 | .000024 | .010 | .00674 |
| 50.0 | -37.3 | -62.3 | -27.7 | -44.7 | -66.0 | .000024 | .006 | .00544 |
| 55.0 | -37.7 | -62.7 | -28.8 | -45.8 | -66.6 | .000024 | .004 | .00444 |
| 60.0 | -38.1 | -63.1 | -29.8 | -46.8 | -67.2 | .000023 | .003 | .00367 |
| 65.0 | -38.4 | -63.4 | -30.8 | -47.8 | -67.8 | .000022 | .003 | .00306 |
| 70.0 | -38.7 | -63.7 | -31.8 | -48.8 | -68.4 | .000021 | .003 | .00258 |
| 75.0 | -39.0 | -64.0 | -32.7 | -49.7 | -68.9 | .000021 | .003 | .00220 |
| 80.0 | -39.3 | -64.3 | -33.6 | -50.6 | -69.4 | .000020 | .003 | .00189 |

| | | | | | | | | |
|-------|-------|-------|-------|-------|-------|---------|------|--------|
| 85.0 | -39.6 | -64.6 | -34.4 | -51.4 | -69.9 | .000019 | .003 | .00163 |
| 90.0 | -39.8 | -64.8 | -35.1 | -52.1 | -70.4 | .000019 | .003 | .00142 |
| 95.0 | -40.1 | -65.1 | -35.9 | -52.9 | -70.8 | .000018 | .003 | .00125 |
| 100.0 | -40.3 | -65.3 | -36.6 | -53.6 | -71.2 | .000017 | .003 | .00111 |
| 105.0 | -40.5 | -65.5 | -37.2 | -54.2 | -71.6 | .000017 | .003 | .00098 |
| 110.0 | -40.7 | -65.7 | -37.9 | -54.9 | -72.0 | .000016 | .002 | .00088 |
| 115.0 | -40.9 | -65.9 | -38.4 | -55.4 | -72.4 | .000016 | .002 | .00079 |
| 120.0 | -41.1 | -66.1 | -39.0 | -56.0 | -72.7 | .000015 | .002 | .00071 |
| 125.0 | -41.3 | -66.3 | -39.6 | -56.6 | -73.1 | .000015 | .002 | .00064 |
| 130.0 | -41.5 | -66.5 | -40.1 | -57.1 | -73.4 | .000015 | .002 | .00059 |
| 135.0 | -41.7 | -66.7 | -40.6 | -57.6 | -73.7 | .000014 | .002 | .00053 |
| 140.0 | -41.9 | -66.9 | -41.0 | -58.0 | -74.0 | .000014 | .002 | .00049 |
| 145.0 | -42.0 | -67.0 | -41.5 | -58.5 | -74.3 | .000013 | .002 | .00045 |
| 150.0 | -42.2 | -67.2 | -41.9 | -58.9 | -74.6 | .000013 | .002 | .00042 |
| 155.0 | -42.4 | -67.4 | -42.3 | -59.3 | -74.9 | .000013 | .002 | .00038 |
| 160.0 | -42.5 | -67.5 | -42.7 | -59.7 | -75.2 | .000012 | .001 | .00036 |
| 165.0 | -42.7 | -67.7 | -43.1 | -60.1 | -75.4 | .000012 | .001 | .00033 |
| 170.0 | -42.8 | -67.8 | -43.5 | -60.5 | -75.7 | .000012 | .001 | .00031 |
| 175.0 | -42.9 | -67.9 | -43.9 | -60.9 | -75.9 | .000012 | .001 | .00029 |
| 180.0 | -43.1 | -68.1 | -44.2 | -61.2 | -76.2 | .000011 | .001 | .00027 |
| 185.0 | -43.2 | -68.2 | -44.5 | -61.5 | -76.4 | .000011 | .001 | .00025 |
| 190.0 | -43.3 | -68.3 | -44.9 | -61.9 | -76.6 | .000011 | .001 | .00024 |
| 195.0 | -43.5 | -68.5 | -45.2 | -62.2 | -76.9 | .000011 | .001 | .00022 |
| 200.0 | -43.6 | -68.6 | -45.5 | -62.5 | -77.1 | .000010 | .001 | .00021 |

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Exhibit CC

Applicable Statutes, Rules, and Local Government Ordinances

**Wheatridge Wind Energy Facility
June 2019**

Prepared for



Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

| | |
|--------------------|---------------------------------------|
| Certificate Holder | Wheatridge Wind Energy, LLC |
| Council | Oregon Energy Facility Siting Council |
| Facility | Wheatridge Wind Energy Facility |
| MW | megawatts |
| OAR | Oregon Administrative Rule |
| ORS | Oregon Revised Statutes |

1.0 Introduction

The Wheatridge Wind Energy Facility (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 292 turbines with a peak generating capacity of up to 500 megawatts (MW), to be located in an Approved Site Boundary of approximately 13,097 acres in Morrow and Umatilla counties, Oregon. As part of Request for Amendment 4 to the Facility's Site Certificate, Wheatridge Wind Energy, LLC (Certificate Holder) is proposing to add photovoltaic solar energy generation to the Facility to provide the opportunity for an integrated, renewable energy facility with both wind and solar energy generation and energy storage. In the Request for Amendment 4, the Certificate Holder is proposing five changes to the approved Facility:

1. Amend the description of the Facility to include photovoltaic solar energy generation equipment to leverage the complementary nature of wind and solar generation to provide more reliable renewable energy generation.
2. Amend the Site Boundary to provide for solar micrositing corridors¹ for the photovoltaic solar energy system.
3. Increase the maximum peak generating capacity for the Facility by up to 150 MW of solar energy generation, for a total Facility maximum peak generating capacity of 650 MW.
4. Add distributed energy storage as a related or supporting facility for solar energy generation, along with new collector lines connecting the solar arrays, and an expansion of an approved substation.
5. Amend four existing site certificate conditions and increase the approved MW of the turbines by approximately 12 percent, from 2.5 MW to 2.8 MW.

The Energy Facility Siting Council (Council) previously found the Certificate Holder has demonstrated an ability to construct, operate, and retire the Facility in compliance with Council standards and all other laws and conditions of the Site Certificate. This exhibit, Exhibit CC, provides information about permits needed for construction and operation of the Facility, as proposed, to meet the submittal requirements of Oregon Administrative Rule (OAR) 345-021-0010(1)(cc). While OAR 345 Division 22 does not provide an approval standard specific to Exhibit CC, permits identified in this exhibit are identified in each applicable exhibit and incorporated into the Site Certificate Conditions, as necessary, to meet Council standards and other laws governed by the Site Certificate.

¹ Per OAR 345-001-0010(32) "micrositing corridor" means a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

2.0 Additional Statutes and Administrative Rules – OAR 345-021-0010(cc)

OAR 345-021-0010(cc) Identification, by legal citation, of all state statutes and administrative rules and local government ordinances containing standards or criteria that the proposed facility must meet for the Council to issue a site certificate, other than statutes, rules and ordinances identified in Exhibit E, and identification of the agencies administering those statutes, administrative rules and ordinances. The applicant shall identify all statutes, administrative rules and ordinances that the applicant knows to be applicable to the proposed facility, whether or not identified in the project order. To the extent not addressed by other materials in the application, the applicant shall include a discussion of how the proposed facility meets the requirements of the applicable statutes, administrative rules and ordinances.

This section identifies by legal citation and relevant administering agency the state statutes and administrative rules and local government ordinances referenced in other Exhibits, with the exception of those presented in Exhibit E. The identified statutes, rules, and ordinances contain standards or criteria that the Facility, as proposed, must meet for the Council to amend the Facility's Site Certificate.

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| Responsible Agency: Oregon Department of Agriculture |
| Authority: Plant Conservation Biology Program - Oregon Revised Statutes (ORS) 564; OAR Chapter 603, Division 73 |
| Location of Discussion: Exhibit Q |
| Agency Address: Department of Botany and Plant Pathology Cordley Hall, Oregon State University Corvallis, OR 97331 Administrative address: 635 Capitol Street NE Salem, OR 97301 |

Responsible Agency: Oregon Department of Fish and Wildlife

Authority: Habitat Conservation - ORS 496.171-192, OAR 635-100-0080-0170, OAR Chapter 635, Divisions 44, 100

Location of Discussion: Exhibit Q

Agency Address:

Oregon Department of Fish and Wildlife
2042 SE Paulina Road
Prineville, OR 97754

Responsible Agency: Oregon Department of Fish and Wildlife

Authority: Habitat Conservation - OAR Chapter 635 Division 415

Location of Discussion: Exhibit P

Agency Address:

Oregon Department of Fish and Wildlife
2042 SE Paulina Road
Prineville, OR 97754

Responsible Agency: Oregon Department of Fish and Wildlife

Authority: Habitat Conservation - ORS 496 and 506; OAR Chapter 635, Divisions 100 and 415

Location of Discussion: Exhibit K

Agency Address:

Oregon Department of Fish and Wildlife
2042 SE Paulina Road
Prineville, OR 97754

Responsible Agency: Oregon Department of Geology and Mineral Industries

Authority: Department of Geology and Mineral Industries Administrative Rules - OAR Chapter 632

Location of Discussion: Exhibits H and I

Agency Address:

Oregon Department of Geology and Mineral Industries
800 NE Oregon Street, Suite 965
Portland, OR 97232

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|---|
| Responsible Agency: Oregon Department of Parks and Recreation - Archaeological |
| Authority: Native American Graves and Protected Objects - ORS 97.740-97.760; Archaeological Objects and Sites - ORS 358.905-358.955; Archaeological Permits - OAR 736-051-0090 |
| Location of Discussion: Exhibit S |
| Agency Address: State Historic Preservation Office 725 Summer Street NE, Suite C Salem, OR 97301 |

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|---|
| Responsible Agency: Oregon Office of State Fire Marshal - Emergency Planning and Community Right-to-Know Act |
| Authority: Radiation Sources; Hazardous Substances - ORS 453; OAR Chapter 837, Divisions 85 and 95 |
| Location of Discussion: Exhibits B, C, and U |
| Agency Address: Oregon Office of State Fire Marshall 4760 Portland Road NE Salem, OR 97305 |

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| Responsible Agency: Oregon Office of State Fire Marshal |
| Authority: Fire and Life Safety Regulations - OAR Chapter 837, Division 40 |
| Location of Discussion: Exhibits B, C, and U |
| Agency Address: Oregon Office of State Fire Marshall 4760 Portland Road NE Salem, OR 97305 |

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|--|
| Responsible Agency: Oregon Department of Environmental Quality |
| Authority: Noise Control Regulations - ORS 467; OAR Chapter 340, Division 35 |
| Location of Discussion: Exhibit X |
| Contact Information: No contacts. The Oregon Department of Environmental Quality Noise Control Program was terminated in 1991. |

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| Responsible Agency: Oregon Department of Environmental Quality |
| Authority: Water Quality - ORS 468 and 468B; OAR Chapter 340, Divisions 14, 40,41, 45, 52 and 55 |
| Location of Discussion: Exhibit V |
| Agency Address: Oregon Department of Environmental Quality – Water Quality 475 NE Bellevue Drive, Suite 110 Bend, OR 97701 |

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|--|
| Responsible Agency: Oregon Department of Environmental Quality |
| Authority: Solid Waste - ORS 459; OAR Chapter 340, Division 93 |
| Location of Discussion: Exhibits G and V |
| Agency Address: Oregon Department of Environmental Quality – Solid Waste 475 NE Bellevue Drive, Suite 110 Bend, OR 97701 |

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|---|
| Responsible Agency: Oregon Department of Environmental Quality |
| Authority: Hazardous Waste Management - ORS 465 and 466, OAR Chapter 340, Divisions 100 through 122 |
| Location of Discussion: Exhibit V |
| Agency Address: Oregon Department of Environmental Quality – Hazardous Waste Management 475 NE Bellevue Drive, Suite 110 Bend, OR 97701 |

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| Responsible Agency: Morrow County Planning Department – Land Use |
| Authority: Morrow County Zoning Ordinance Articles 1 – 10 |
| Location of Discussion: Exhibit K |
| Agency Address: Morrow County 205 NE 3 rd Street Irrigon, OR 97844 |

| |
|--|
| Responsible Agency: Oregon Biodiversity Information Center |
| Authority: ORS 564.105; OAR 603-73-070 and 345-022-0070 |
| Location of Discussion: Exhibits P and Q |
| Agency Address: Oregon Biodiversity Center Oregon State University Institute for Natural Resources University Center Building 527 SW Hall Street, Suite 335 Portland, OR 97201 |

| |
|---|
| Responsible Agency: Oregon Water Resources Department – Water Rights Division |
| Authority: Appropriation of Water Generally - ORS Chapter 537; Distribution of Water Watermasters; Change in Use; Transfer or Forfeiture of Water Rights - ORS Chapter 540; Water Resources Administrative Rules - OAR Chapter 690 |
| Location of Discussion: Exhibit O |
| Agency Address: Department of Water Resources Commerce Building 158 12 th Avenue NE Salem, OR 97301 |

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|--|
| Responsible Agency: Oregon Department of State Lands |
| Authority: Department of State Lands - OAR Chapter 141 and ORS 196.795-196.990 |
| Location of Discussion: Exhibit J |
| Agency Address: Oregon Department of State Lands 775 Summer Street NE, Suite 100 Salem, OR 97301 |

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|---|
| Responsible Agency: Oregon Department of Land Conservation and Development |
| Authority: Comprehensive Land Use Planning Coordination - ORS Chapter 197; Oregon Department of Land Conservation and Development Administrative Rules - OAR Chapter 660 |
| Location of Discussion: Exhibit K |
| Agency Address: Department of Land Conservation and Development 635 Capitol Street NE, Suite 150 Salem, OR 97301 |

Exhibit K identifies state statutes, administrative rules, and local government ordinances containing land use standards or criteria that the Certificate Holder believes may be applicable to the Facility as modified by RFA 4.

3.0 Spill Response Statutes

In regards to reporting and responding to spills or the release of hazardous materials, the following rules and statutes contain state and federal release reporting requirements:

- ORS 466.635;
- OAR Chapter 340, Divisions 45, 47, 108, 122, 150, 160;
- 33 Code of Federal Regulations part 153; and
- 40 Code of Federal Regulations parts 110, 122, 262, 265, 280, 302, 355, 761.

Oregon Agencies that may be required to be notified in the event of spill or the release of hazardous materials include:

- Oregon Emergency Management Division;
- Oregon Department of Environmental Quality; and
- Oregon Department of State Police.

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