

Exhibit Q

Threatened and Endangered Species

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline 3, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction	1
1.1	Analysis Area.....	1
2.0	Identification of Species – OAR 345-021-0010(1)(q)(A).....	1
2.1	Desktop Review	2
2.1.1	Fish and Wildlife	2
2.1.2	Plants.....	2
2.2	Field Surveys.....	3
3.0	Occurrence and Potential Adverse Effects – OAR 345-021-0010(1)(q)(B)	3
3.1	Washington Ground Squirrel	3
4.0	Avoidance and Minimization – OAR 345-021-0010(1)(q)(C).....	4
4.1	Washington Ground Squirrel	4
5.0	Protection and Conservation Program Compliance/Impacts – OAR 345-021-0010(1)(q)(D).....	4
6.0	Potential Impacts to Plants, Including Mitigation Measures – OAR 345-021-0010(1)(q)(E)	4
7.0	Potential Impacts to Animals, Including Mitigation Measures – OAR 345-021-0010(1)(q)(F)	5
8.0	Monitoring – OAR 345-021-0010(1)(q)(G).....	5
9.0	References	5

List of Figures

Figure Q-1. Analysis Area

List of Attachments

Attachment Q-1. 2018 Washington Ground Squirrel Survey Report

Acronyms and Abbreviations

Certificate Holder	FPL Energy Stateline 3, Inc.
Facility	Stateline Wind Project – Vansycle II
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ORS	Oregon Revised Statutes
ODFW	Oregon Department of Fish and Wildlife
RFA 5	Request for Amendment 5
T&E	threatened and endangered
WAGS	Washington ground squirrels

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit Q is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

As required by Oregon Administrative Rule (OAR) 345-022-0070, the Energy Facility Siting Council issues a site certificate only when the facility is deemed to be in accordance with the threatened and endangered species standard. Exhibit Q addresses plant species listed as threatened and endangered by the Oregon Department of Agriculture (ODA) under Oregon Revised Statutes (ORS) 564.105(2), and fish and wildlife species listed by the Oregon Fish and Wildlife Commission as threatened or endangered under ORS 496.172(2), as required by OAR 345-021-0010(1)(q).

1.1 Analysis Area

The Analysis Area for all species in Exhibit Q corresponds with the study area defined by OAR 345-001-0010(59)(a) for threatened and endangered (T&E) plant and animal species, which is the Site Boundary plus a 5-mile buffer.

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.

In compliance with OAR 345-021-0010(1)(q)(A), FPL Energy Stateline 3, Inc. (the Certificate Holder) identified all T&E species listed under ORS 496.172(2) (state threatened and endangered wildlife species) and ORS 564.105(2) (state threatened and endangered plant species) that may be affected by the Facility. Identification of T&E species occurred through a review of the Oregon Department of Fish and Wildlife (ODFW) threatened and endangered species list (ODFW 2017) and ODA-listed plants by county for Umatilla County (ODA 2018) as well as field surveys.

2.1 Desktop Review

Existing data were utilized to determine the list of T&E species that could potentially occur within the Analysis Area. Review included the following databases and published literature:

- Oregon Biodiversity Information Center (ORBIC) data request (ORBIC 2018);
- ODA listed plants by county for Umatilla County (ODA 2018);
- ODFW Threatened and Endangered Species List (ODFW 2017); and
- Field studies performed in support of Amendment #4.

2.1.1 Fish and Wildlife

ODFW lists 30 fish and wildlife species as T&E under ORS 496.172(2) (ODFW 2017). This includes 26 species associated with aquatic and marine environments (nine fish species, four sea turtles, eight marine mammals, and five seabirds/shorebirds) that are absent from the Analysis Area. The other four T&E species include the northern spotted owl (*Strix occidentalis caurina*), kit fox (*Vulpes macrotis*), Washington ground squirrel (*Uroditellus washingtoni*), and wolverine (*Gulo gulo*) (ODFW 2017). Of those four, only the Washington ground squirrel (WAGS) is listed by the Oregon Conservation Strategy (2016) as occurring in the Columbia Plateau Ecoregion, where the Facility is located. WAGS are the only T&E species with ORBIC occurrences within the Analysis Area (ORBIC 2018). Therefore, the Certificate Holder has determined that the state-endangered WAGS may be affected by the proposed repowering.

2.1.2 Plants

ODA identifies northern wormwood (*Artemisia campestris* var. *wormskioldii*) and Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*) as T&E plants that could be found in Umatilla County. No ODA T&E plants were identified during surveys performed in support of Amendment #4 (NWC 2008).

Northern wormwood is listed as endangered by ODA (2018). The range of northern wormwood historically included portions of Oregon along the Columbia River in Sherman and Wasco counties and a disjunct population in northwestern Umatilla County (ODA 2018). However, the species is now believed to be extirpated in Oregon and currently known from only two locations in Grant and Klickitat counties in Washington State (ODA 2018). Accordingly, there are no ORBIC occurrences of this species within the Analysis Area (ORBIC 2018).

Lawrence's milkvetch is listed as threatened by ODA (2018). The species is known from Gilliam, Morrow, Sherman, and Umatilla counties and is endemic to the Columbia Plateau of northern Oregon (ODA 2018). Known occurrences in Umatilla County are west of the City of Pendleton; accordingly, there are no ORBIC occurrences of this species in the Analysis Area (ORBIC 2018).

Given this information, along with the fact that neither of these plants were identified during field surveys, the Certificate Holder has determined that there are no T&E plants that may be affected by the proposed repowering.

2.2 Field Surveys

The Certificate Holder contacted ODFW on March 23, 2018 to discuss the proposed repowering. ODFW Umatilla District Wildlife Biologist Greg Rimbauch and ODFW State Energy Coordinator Sara Rief recommended that WAGS surveys should be performed as the previous survey data is outdated. Attachment Q-1 is a report on the WAGS surveys that were performed in the spring of 2018 following methods approved by ODFW (Tetra Tech 2018).

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 Washington Ground Squirrel

WAGS have been observed within the Analysis Area for Exhibit Q (Figure Q-1). Previous surveys in support of the Stateline Wind Project identified active WAGS colonies in the Analysis Area and the Certificate Holder avoided impacts to those colonies by modifying the Facility design (see Final Orders on Amendments #2, #3, and #4). No individuals, burrows, or other signs of WAGS activity were observed within the 2018 survey area (Attachment Q-1). The 2018 survey area includes all potential habitat (non-agriculture and non-developed habitat) within 1,000 feet of disturbance areas associated with repowering that are within potential habitat. WAGS colonies identified during previous surveys were adjacent to the transmission line and not re-visited in 2018 because repowering activities do not include any modifications to the transmission line.

The current activity level and current boundaries of the previously identified colonies within the Analysis Area are unknown because they are not within the 2018 survey area. The previously identified colonies collectively cover a total area of approximately 222 acres. Based on their 2008 locations, the largest colony occupies 154 acres and is located approximately 900 feet from the as-built transmission line and 3,900 feet from the nearest disturbance area associated with repowering. The other smaller colonies (27 and 41 acres) are located approximately 1,150 feet and 3,400 feet away from the transmission line and both are over 3,500 feet from the nearest disturbance area associated with repowering. WAGS remain near their colonies year-round, but are only active and visible for part of the year. Above-ground activity begins in January or February when adults emerge from hibernation and ends in June or July when they return underground for estivation.

The 2018 surveys did not identify any WAGS activity within the survey area and as a result, it was determined that repowering will not have any adverse effects on WAGS.

4.0 Avoidance and Minimization – 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 Washington Ground Squirrel

The Certificate Holder performed surveys in 2018 to determine if WAGS activity occurs near the proposed repowering activities. No WAGS activity was observed during 2018 surveys, the results of which are considered by ODFW to be valid for three years. Therefore, development of avoidance and minimization measures is not necessary as the repowering activities will occur within this three-year period.

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 state-listed T&E plant species that may be affected by the proposed repowering of the Facility. Therefore, there are no ODA protection and conservation programs to review for compliance.

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.

There are no state-listed T&E plant species that may be affected by the proposed repowering of the Facility. Therefore, there are no significant potential impacts on the continued existence of any T&E plant species or their habitat.

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.

The Certificate Holder anticipates no significant potential impacts of the proposed repowering on the continued existence of WAGS nor on their habitat. The lack of WAGS activity within 1,000 feet of disturbance areas is evidence that the proposed repowering is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

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.

No monitoring program is proposed because the Certificate Holder anticipates, through literature review and field study, that the repowering of the Facility will have no effects on state-listed T&E species.

9.0 References

NWC (Northwest Wildlife Consultants). 2008. Stateline 3 Wind Power Facility 2008 Biological Investigations. Pendleton, OR.

ODA (Oregon Department of Agriculture). 2018. Oregon Threatened, Endangered, and Candidate Plants. Accessed from:

<http://www.oregon.gov/ODA/programs/PlantConservation/Pages/AboutPlants.aspx>

ODFW (Oregon Department of Fish and Wildlife). 2017. Threatened, Endangered, and Candidate Fish and Wildlife Species in Oregon. Salem, OR. June 2017. Available online at: https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened_and_Endangered_Species.pdf

ORBIC (Oregon Biodiversity Information Center). 2018. Rare, Threatened, and Endangered Species GeoDatabase Request. Received March 5, 2018.

Oregon Conservation Strategy. 2016. Oregon Department of Fish and Wildlife, Salem, Oregon.

Tetra Tech (Tetra Tech, Inc.). 2018. Stateline 3 Washington Ground Squirrel Surveys Technical Memo. May 2018.

Figures

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Stateline Wind Project Request for Amendment 5

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

Figure Q-1 Washington Ground Squirrel Colonies UMATILLA, OR

- Overhead Transmission Lines
- Exhibit Q Analysis Area
- 2008/2009 Washington Ground Squirrel Colony
- Disturbance Boundary



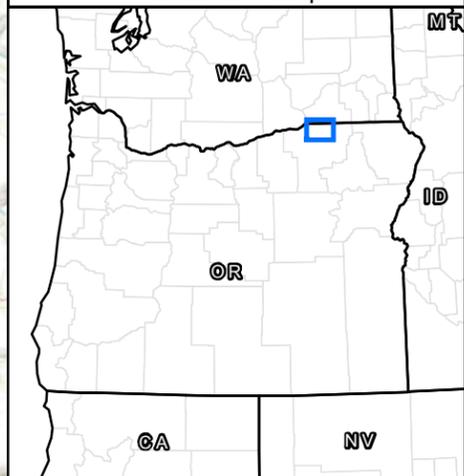
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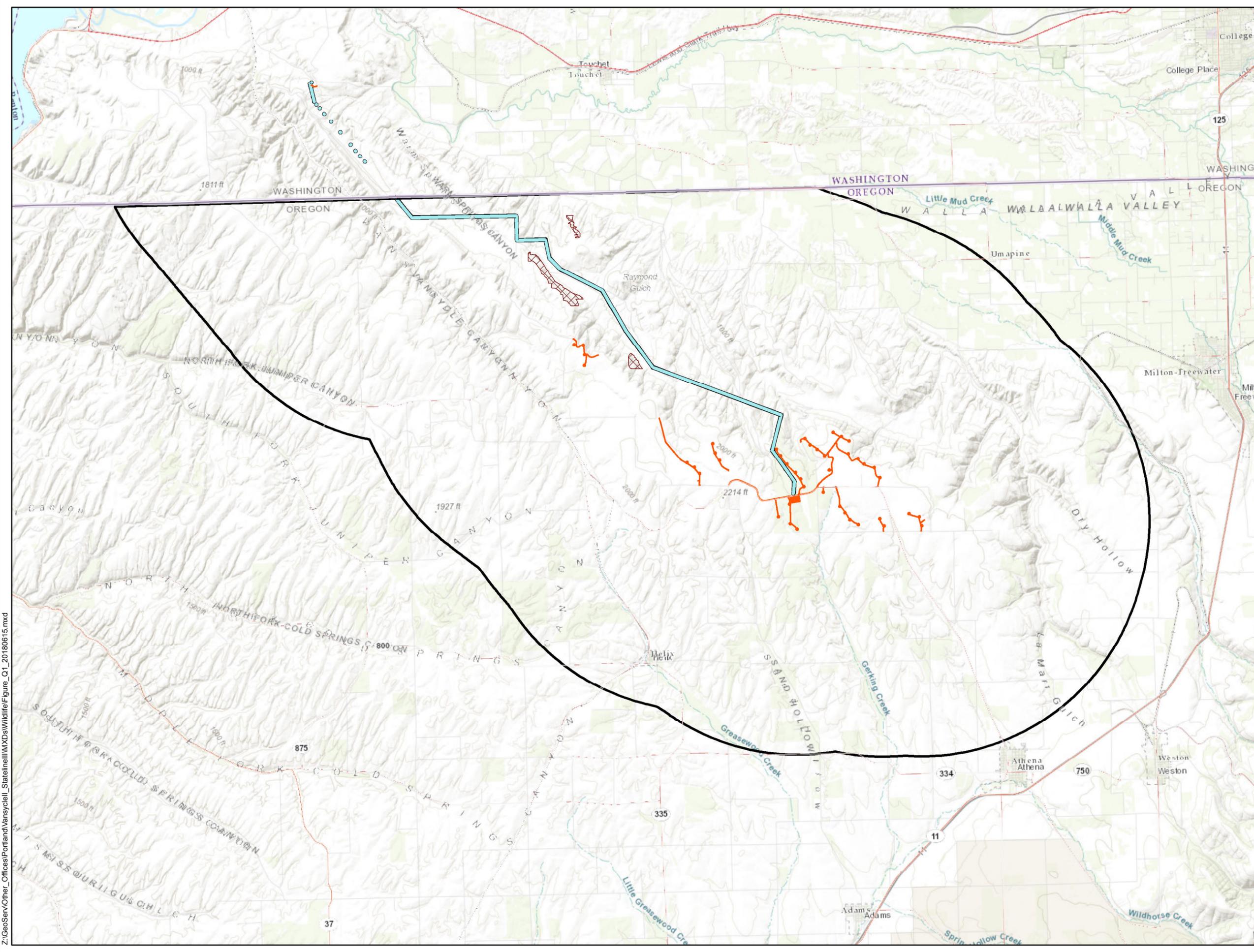
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI World Topographic Map



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Attachments Q-1. 2018 Washington Ground Squirrel Survey Report

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2018 Washington Ground Squirrel Survey Report

**Stateline Wind Project – Vansycle II
Umatilla County, Oregon**

June 2018

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction	1
2.0	Methods.....	1
2.1	Identification of Protocol	1
2.2	Survey Area.....	2
2.3	Habitat Assessment and Delineation	2
2.4	Historical Data Review.....	3
2.5	Field Survey Methods	3
3.0	Results	4
4.0	Conclusions.....	4
5.0	References.....	4

List of Figures

Figure 1: Washington Ground Squirrel Predicted Habitat within Occupied Watersheds in Oregon

Figure 2: Washington Ground Squirrel Survey Area

Acronyms and Abbreviations

CRP	Conservation Reserve Program
ODFW	Oregon Department of Fish and Wildlife
ORBIC	Oregon Biodiversity Information Center
Project	Stateline Wind Project – Vansycle II
Tetra Tech	Tetra Tech, Inc.
USFWS	US Fish and Wildlife Service
WAGS	Washington ground squirrel

1.0 Introduction

This summary report presents the methods and results for the 2018 Washington ground squirrel (WAGS; *Urocitellus washingtoni*) surveys conducted by Tetra Tech, Inc. (Tetra Tech) for Stateline Wind Project – Vansycle II (the Project) in support of Amendment #5 of the Stateline Wind Project Site Certificate through the Oregon Energy Facility Siting Council (EFSC). Under Amendment #5, FPL Energy Stateline II, Inc. (the Certificate Holder) is proposing to repower the Stateline 3 Wind Facility by replacing the existing turbine blades and re-naming the facility Vansycle II.

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. Figure 1 depicts predicted WAGS habitat within watersheds where this species is known to occur in Oregon with respect to the Project (INR 2011). Concern for the long-term viability of WAGS populations led to their listing by the Oregon Department of Fish and Wildlife (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 to inform the habitat categorization process in Exhibit P of the request for amendment and the analysis of effects on state-listed threatened and endangered species in Exhibit Q of the request for amendment. Specifically, surveys will inform the Certificate Holder on how to implement avoidance and minimization measures that may be necessary based on the location of WAGS colonies as well as identify whether any WAGS-specific mitigation will be necessary if disturbances are proposed with WAGS habitat.

2.0 Methods

2.1 Identification of Protocol

The WAGS protocol requires two phases of surveys, which increases the likelihood of detecting the presence of the species. The first phase of surveys begins around April 1, with the next phase spaced at least 2 weeks later; the second survey 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).

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 people walking parallel transects 197 feet apart. Surveyors are allowed to stray from transects to investigate squirrel sign or other evidence of squirrel presence. Prior to commencing surveys, Tetra Tech’s protocol for the Project, as well as

survey dates in April and May of 2018 were reviewed and approved by ODFW (pers. comm. M. Cambier and G. Rimbach/S. Rief, April 6, 2018).

2.2 Survey Area

The Project is located within Umatilla County, approximately 5 miles northeast of Helix, Oregon. To identify areas requiring WAGS surveys, Tetra Tech initially identified which portions of the maximum area of disturbance occur within potential WAGS habitat. The maximum area of disturbance is the area identified by the Certificate Holder as the largest temporary work area needed to access and replace the turbine blades as part of repowering. This includes an area around each turbine and the access roads to the turbines where movement of equipment along the existing road may result in disturbances outside of the existing road width. Only disturbances that originate in potential WAGS habitat (non-developed and non-agriculture habitat) need to be considered for survey. As Figure 2 shows, most of the maximum area of disturbance occurs in Dry Agriculture habitat type and does not require survey. No work will be performed on the transmission line as part of repowering; therefore, no WAGS surveys were considered along the transmission line (Figure 2).

Tetra Tech identified the portions of the maximum area of disturbance that occurred in potential WAGS habitat and then buffered them by 1,000 feet in similar habitat to delineate the Survey Area (Figures 2.1 through 2.4). As ODFW defines WAGS colonies with a 785-foot buffer in suitable habitat as Category 1 habitat per their Habitat Mitigation Policy (OAR 635-415-0025), Tetra Tech included buffers of 1,000 feet from the maximum area of disturbance to allow the Certificate Holder to modify temporary work areas to avoid Category 1 habitat if active WAGS colonies were encountered during surveys. As a result, Tetra Tech conducted protocol-level WAGS surveys on a total of 195.5 acres in 2018 (Figure 2).

2.3 Habitat Assessment and Delineation

Washington ground squirrels are most common in shrub-steppe habitats with sandy or silt-loam soils that are deep and support the creation of burrows (Betts 1990, Yensen and Sherman 2003). Sagebrush habitats and bunchgrass grasslands have been found to contain the highest densities of WAGS, with lower densities in more degraded habitats, such as low shrub habitats with annual grasses, rabbitbrush (*Ericameria* sp. and *Chrysothamnus* sp.), and invasive species (Betts 1990). WAGS eat a broad range of seeds, forbs, leaves, flowers, and roots (Greene 1999) that provide adequate fat stores to survive the long aestivation/hibernation and reproduction periods. Native plants such as Sandberg bluegrass (*Poa secunda*) may play a key role in their diet and survival (Tarifa and Yensen 2004).

Prior to commencing surveys, Tetra Tech identified suitable habitat for WAGS based on the habitat mapping performed during Amendment #4 prior to construction of the Stateline 3 facility and current aerial photography. Although WAGS are found in the highest densities in sagebrush habitats and bunchgrass grasslands that have few invasive species (Betts 1990), ODFW advised Tetra Tech that WAGS colonies can be found in all habitats, regardless of quality, with the exception

of active agricultural fields and developed lands. As a result, suitable habitat included all non-agricultural habitats and non-developed lands within the maximum area of disturbance plus a 1,000-foot buffer in similar non-agriculture and non-developed land. During the first round of surveys, Tetra Tech biologists noted that an area previously mapped as conservation reserve program habitat is currently an active agricultural habitat type (Figure 2). This removed approximately 365 acres from the survey area to leave the total survey area at 195.5 acres.

2.4 Historical Data Review

Tetra Tech reviewed results of WAGS surveys previously conducted for the Project, which indicated the presence of WAGS in the area (NWC 2008). In a formal request to the Oregon Biodiversity Information Center (ORBIC), Tetra Tech received two element occurrence records for WAGS within 5 miles of the Project (ORBIC 2018). These occurrences corresponded with WAGS colonies identified during surveys in support of Amendment #4. The Certificate Holder addressed potential impacts to WAGS through avoidance and mitigation, which EFSC found to meet their Fish and Wildlife Habitat Standard and Threatened and Endangered Species Standard, as described in the Final Order on Amendment #4 (EFSC 2009).

2.5 Field Survey Methods

All field personnel have performed WAGS surveys in the past, have previously viewed active WAGS colonies, and have received training on burrow, scat, alarm call, and squirrel identification, as well as guidance on the natural history, habitat, and survey protocol for WAGS. All field crew members also passed a hearing test to verify they were capable of hearing a frequency of 8 kilohertz, the typical frequency of alarm call vocalizations for ground-dwelling squirrels. The WAGS is the only species of ground squirrel known to occur in the vicinity of the survey area; therefore, confusing this species for similar species such as Belding's ground squirrel is highly unlikely. Additionally, WAGS have scat that can be differentiated from other burrowing animals by its characteristic size and shape.

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. Anemometers were used to measure the wind speeds throughout the day. If the average wind speed exceeded 15 miles per hour, surveys were halted. Surveys were also halted if there was more than a light rain, as it would hinder hearing WAGS, and likely limit WAGS activity.

Surveyors conducted pedestrian surveys by walking transects spaced approximately 165 feet (50 meters) apart. Field personnel walked transects at a similar pace to ensure there were no gaps in coverage. Field personnel searched for signs (burrows, scat, sign of fresh activity, sightings, and vocalizations) of WAGS along meandering transects. A potential WAGS burrow is defined as an appropriately-sized hole that is freshly dug (no vegetation or cobwebs), with no additional WAGS sign (scat, visual, audio), that is structurally sound. A colony is considered active if at least two of the following are identified: positive auditory observation, fresh WAGS burrow(s), positive visual observation, or fresh WAGS scat.

If an active colony is encountered, locations of activity centers and colony boundaries are recorded using a sub-meter accuracy GPS unit. Approximate number of burrows, time, and weather conditions under which the colony was discovered, how the colony was first discovered, and representative photographs of burrows, scat, and habitat is also recorded.

The second phase of surveys followed the same method as the first phase. The second phase of surveys also included transects offset from the first phase transects, to increase coverage by traveling in between the transect paths walked during the first phase of surveys.

3.0 Results

In 2018, Tetra Tech conducted 2 days of WAGS surveys on April 18 and May 15. No WAGS active colonies, sign, or potential burrows were identified during 2018 surveys.

4.0 Conclusions

No WAGS activity or sign was observed during 2018 surveys. Habitat within the survey area was generally degraded by invasive plant species. However, based on Tetra Tech's experience performing WAGS surveys in the Columbia Basin, the habitat was capable of supporting WAGS, as burrowing associated with other fossorial mammals was evident, and adequate forage was available. Based on the 2018 surveys, repowering of the facility as proposed under Amendment #5 would not affect/would not occur in currently occupied WAGS habitat.

5.0 References

- Betts, B.J. 1990. Geographical distribution and habitat preferences of Washington ground squirrels (*Spermophilus washingtoni*). *Northwestern Naturalist* 71:27-37.
- EFSC (Energy Facility Siting Council). 2009. Stateline Wind Project, Final Order on Amendment #4.
- Greene, E. 1999. Abundance and Habitat Associations of Washington Ground Squirrels in North-Central Oregon. M.S. Thesis, Oregon State University, Corvallis, OR. 59 pp.
- INR (Institute for Natural Resources). 2011. Washington Ground Squirrel (*Spermophilus washingtoni*), Predicted habitat within occupied watersheds, 01/2008, updated 07/2011. Oregon Wildlife Explorer, Oregon Explorer, Institute to Natural Resources and Oregon State University. Accessed June 26, 2017. Available online at oe.oregonexplorer.info/Wildlife/ExternalContent/SpeciesDistributionMaps/AMAFB05020.pdf.

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- Verts, B.J., and L.N. Carraway. 1998. *Land Mammals of Oregon*. University of California Press, Berkeley, California. 668 pp.
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Figures

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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

**Figure 1
Washington Ground Squirrel
Survey Report - 2018
UMATILLA COUNTY, OR**

- Exhibit P Analysis Area
- WAGS Predicted Habitat Quality¹**
- None
- Poor
- Fair
- Good



0 1.25 2.5 5 Miles

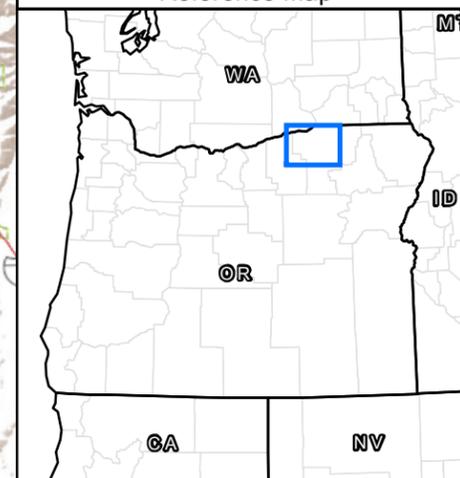
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NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl

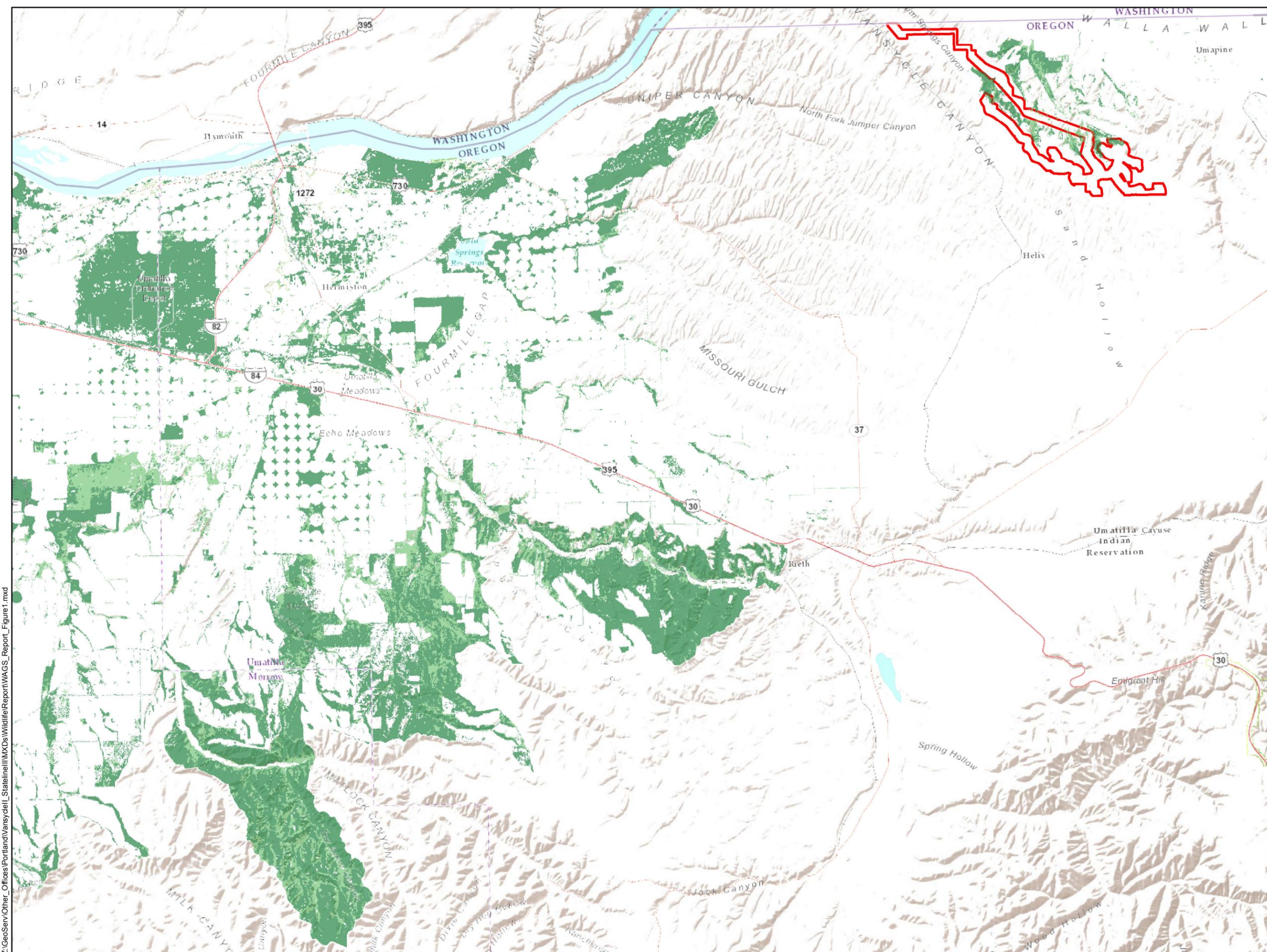


¹Source: Institute for Natural Resources, 2011

Reference Map



Data Sources:
ESRI Streetmap



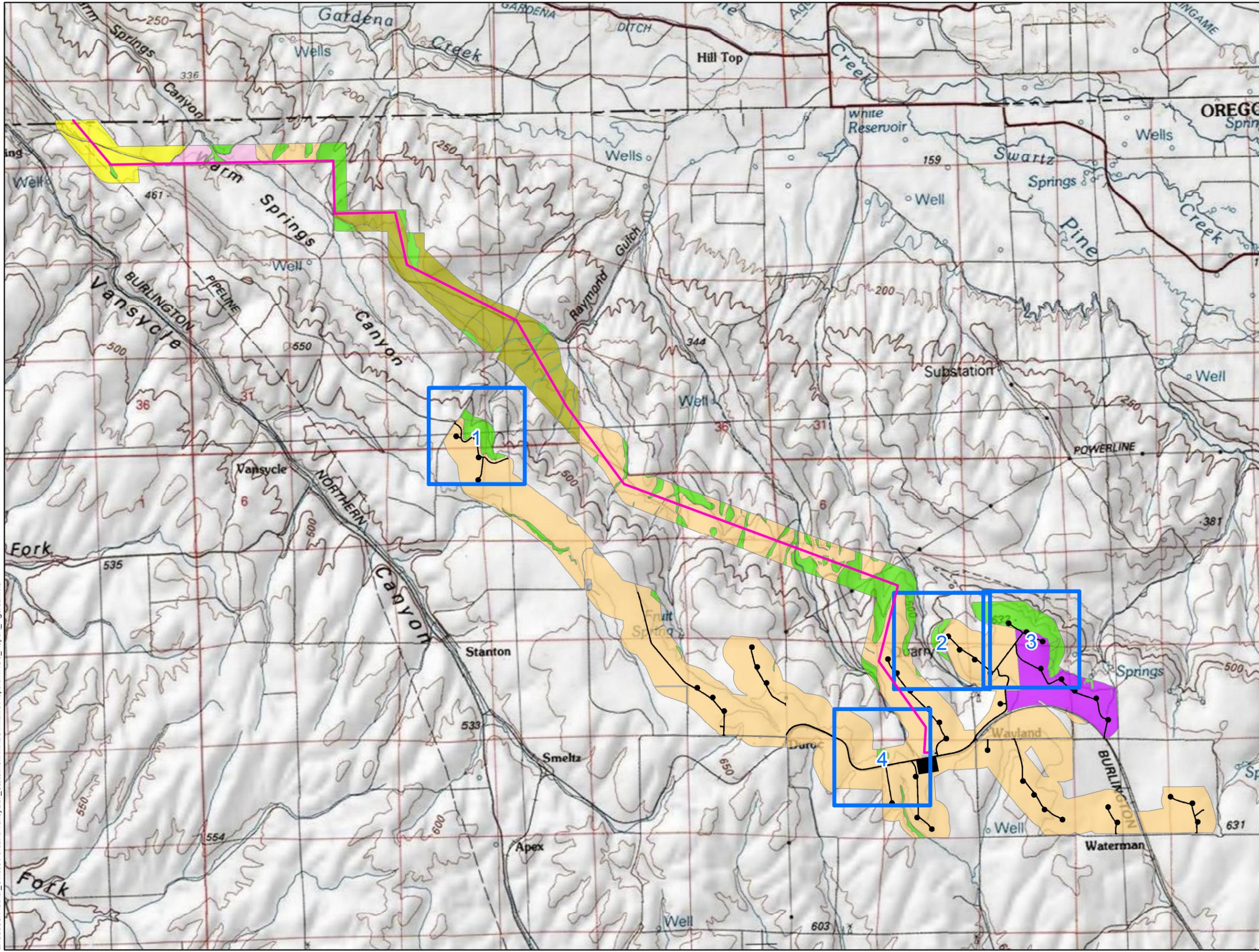
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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

**Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.*

**Figure 2.0
Washington Ground Squirrel
Survey Report - 2018
UMATILLA COUNTY, OR**



- Map Tiles
- Transmission Line
- Maximum Area of Disturbance
- Exhibit P Analysis Area Habitat**
- Change from CRP (2008) to Dry Agriculture (2018)
- Conservation Reserve Program or Revegetated
- Developed
- Dry Agriculture
- Grassland Steppe
- Grassland Steppe - Shrub Steppe
- Riparian or Riparian Trees
- Shrub Steppe



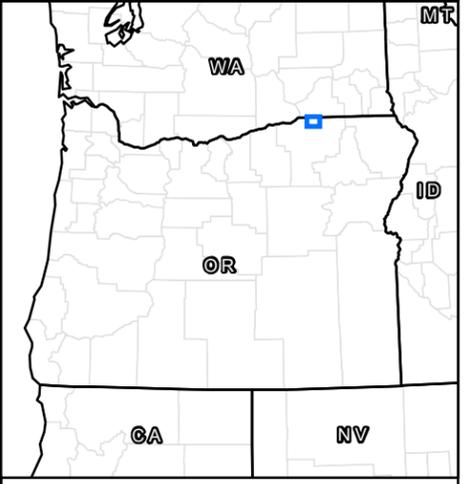
0 0.25 0.5 1 Miles
1:60,000

NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Source: Institute for Natural Resources, 2011

Reference Map



Data Sources:
ESRI Streetmap

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Stateline Wind Project
Request for Amendment 5

Vansycle II*

*Stateline 3 is being renamed Vansycle II
as part of Request for Amendment 5.

Figure 2.1
Washington Ground Squirrel
Survey Report - 2018
UMATILLA COUNTY, OR

-  WAGS Survey Area
-  Maximum Area of Disturbance
- Exhibit P Analysis Area Habitat Mapping**
-  Change from CRP (2008) to Dry Agriculture (2018)
-  Conservation Reserve Program (CRP) or Revegetated
-  Developed
-  Dry Agriculture
-  Grassland Steppe
-  Grassland Steppe - Shrub Steppe
-  Riparian or Riparian Trees
-  Shrub Steppe



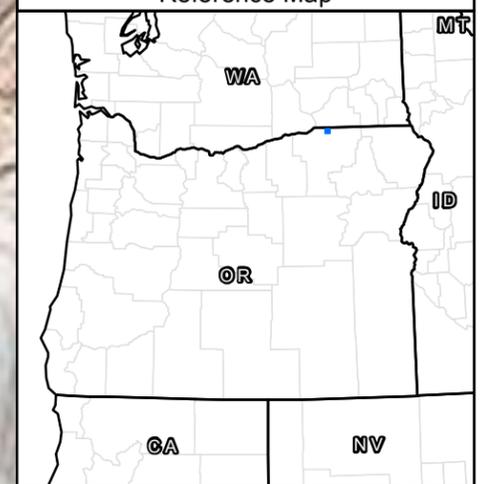
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NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Source: Institute for Natural Resources, 2011

Reference Map



Data Sources:
ESRI Streetmap

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Stateline Wind Project
Request for Amendment 5

Vansycle II*

*Stateline 3 is being renamed Vansycle II
as part of Request for Amendment 5.

Figure 2.2
Washington Ground Squirrel
Survey Report - 2018
UMATILLA COUNTY, OR

- WAGS Survey Area
- Maximum Area of Disturbance
- Exhibit P Analysis Area Habitat Mapping
 - Change from CRP (2008) to Dry Agriculture (2018)
 - Conservation Reserve Program (CRP) or Revegetated
 - Developed
 - Dry Agriculture
 - Grassland Steppe
 - Grassland Steppe - Shrub Steppe
 - Riparian or Riparian Trees
 - Shrub Steppe



0 250 500 1,000 Feet

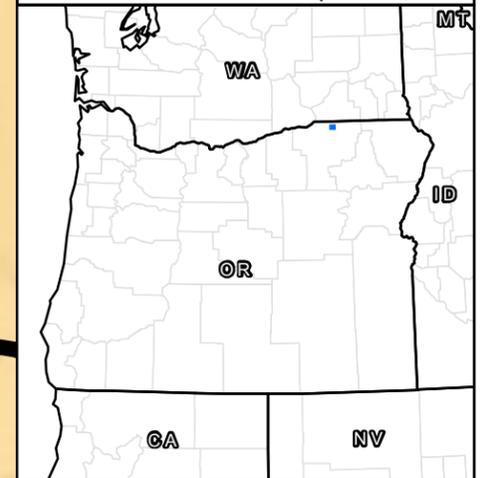
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NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Source: Institute for Natural Resources, 2011

Reference Map



Data Sources:
ESRI Streetmap

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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

**Stateline 3 is being renamed Vansycle II
as part of Request for Amendment 5.*

**Figure 2.3
Washington Ground Squirrel
Survey Report - 2018
UMATILLA COUNTY, OR**

-  WAGS Survey Area
-  Maximum Area of Disturbance
- Exhibit P Analysis Area Habitat Mapping**
-  Change from CRP (2008) to Dry Agriculture (2018)
-  Conservation Reserve Program (CRP) or Revegetated
-  Developed
-  Dry Agriculture
-  Grassland Steppe
-  Grassland Steppe - Shrub Steppe
-  Riparian or Riparian Trees
-  Shrub Steppe



0 250 500 1,000 Feet

1:6,100

NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



¹Source: Institute for Natural Resources, 2011

Reference Map



Data Sources:
ESRI Streetmap

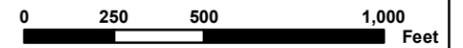
**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II
as part of Request for Amendment 5.

**Figure 2.4
Washington Ground Squirrel
Survey Report - 2018
UMATILLA COUNTY, OR**

-  WAGS Survey Area
-  Maximum Area of Disturbance
- Exhibit P Analysis Area Habitat Mapping**
-  Change from CRP (2008) to Dry Agriculture (2018)
-  Conservation Reserve Program (CRP) or Revegetated
-  Developed
-  Dry Agriculture
-  Grassland Steppe
-  Grassland Steppe - Shrub Steppe
-  Riparian or Riparian Trees
-  Shrub Steppe



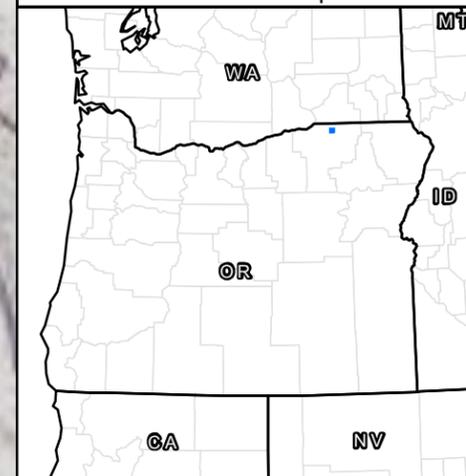
1:6,100

NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Source: Institute for Natural Resources, 2011

Reference Map



Data Sources:
ESRI Streetmap

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Exhibit R

Scenic Resources

**Stateline Wind Project - Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0 Introduction..... 1

2.0 Identification of Significant or Important Scenic Resources – OAR 345-021-0010(1)(r)(A)(B)(E)..... 1

2.1 Plans Assessed in Further Detail 2

2.1.1 Local Plans for Helix, Athena, and Weston, Oregon 2

2.1.2 McDonald Bridge Wildlife Area 2

3.0 Impact Assessment – OAR 345-021-0010(1)(r)(C) 5

3.1 Loss of Vegetation or Alteration of Landscape – OAR 345-021-0010(1)(r)(C)(i) 5

3.2 Visual Impacts from Structures or Plumes – OAR 345-021-0010(1)(r)(C)(ii) 5

3.2.1 The Cities of Helix, Athena, and Weston, Oregon 6

3.2.2 McDonald Bridge Wildlife Area 6

4.0 Avoidance and Mitigation – OAR 345-021-0010(1)(r)(D) 7

5.0 Monitoring – OAR 345-021-0010(1)(r)(F) 7

6.0 Conclusion 7

7.0 References 8

List of Tables

Table R-1. Applicable Federal Land Management Plans and Local Land Use Plans and Number of Turbines Visible..... 3

List of Figures

- Figure R-1. Scenic Areas
- Figure R-2. Zone of Visual Influence
- Figure R-3. ZVI Comparison

Acronyms and Abbreviations

EFSC	Energy Facility Siting Council
Facility	Stateline Wind Project – Vansycle II
OAR	Oregon Administrative Rule
RFA 5	Request for Amendment 5
ZVI	Zone of Visual Influence

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit R is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

Pursuant to Oregon Administrative Rule (OAR) 345-022-0080(1), the Energy Facility Siting Council (EFSC) must find that the design, construction, operation, and retirement of the modified facility, taking into account mitigation, are not likely to result in significant adverse impacts to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in local land use plans within the Analysis Area.

In the Final Order on Amendment 4, EFSC found that “the design, construction, and operation of the proposed Stateline 3 components, taking mitigation into account, are not likely to result in a significant adverse impact to scenic resources and values 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.”

Vansycle II, as modified by this amendment request, is in the same location as the Stateline 3 facility approved in the Fourth Amended Site Certificate. The Facility will continue to comply with all visual impact conditions in the site certificate, except for the height limitation that will change from 416 feet to 440 feet. While scenic resources within the 10-mile Analysis Area have largely remained the same, the visibility of the turbines will increase slightly in some areas due to this height change (Figure R-2 and R-3). This Exhibit provides an updated analysis of this information below.

2.0 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).

Table R-1 lists all applicable federal land management plans and local land use plans within the Facility's 10-mile Analysis Area, and to what extent the Facility, as modified through RFA 5, would be visible from each area based on the Zone of Visual Influence (ZVI) results. The plans for the Whitman Mission and Cities of Athena, Adams, and Weston have been updated since Amendment 4, and one plan—the Blue Mountains Wildlife Area Complex Management Plan—is new for RFA 5. Figure R-1 shows scenic areas identified in the plans, including those outside of the 10-mile Analysis Area. Figure R-2 shows the results of the ZVI. Figure R-3 provides a comparative ZVI with the existing 416-foot height and proposed 440-foot turbine height.

The ZVI indicates that the portions of the Facility could be visible from each of the cities within the 10-mile Analysis Area. It should be noted that Touchet, Washington is identified on Figure R-2, but that it is not an incorporated town or city and therefore, the community falls under the comprehensive plan of Walla Walla County.

2.1 Plans Assessed in Further Detail

As indicated in Table R-1 below, the following areas would either experience and increase in visibility of the Facility, or were not previously assessed under the Final Order on Amendment 4.

2.1.1 Local Plans for Helix, Athena, and Weston, Oregon

The local comprehensive plans for the cities of Helix, Athena, and Weston, Oregon do not identify any specific scenic resources as significant or important (City of Helix 2006; City of Athena 1998; City of Weston 2015). These comprehensive plans set the planning policy goals for each community, including zoning, transportation, parks and recreation, design, and other local regulation and program areas. Changes in turbine visibility from these cities are discussed in Section 3.

2.1.2 McDonald Bridge Wildlife Area

The McDonald Bridge Wildlife Area is a unit of the larger W.T. Wooten Wildlife Area, added to the Blue Mountains Wildlife Area Complex Management Plan in 2013 (WDFW 2014). This is a small, primarily fishing recreation area along 1 mile of the Walla Walla River, about 1 mile east of Lowden and just south of Highway 12. There are no developed facilities, and while scenic values are not identified in the management plan, there are wildlife viewing opportunities for birds of prey, songbirds, upland birds, waterfowl, deer, and reptiles/amphibians (WDFW 2018).

Table R-1. Applicable Federal Land Management Plans and Local Land Use Plans and Number of Turbines Visible.

Identified Plans in Analysis Area	Vansycle II Not Visible	Number of Turbines Visible with RFA 5 Modification					Change from Existing Conditions
		1 to 10	11 to 20	21 to 30	31 to 40	41 to 43	
Federal Land Management Plans							
Superintendent's Compendium, Whitman Mission National Historic Site, 2018.	-	-	-	-	-	X	None
Local Land Use Plans							
Umatilla County and Inclusive Cities and Towns							
Comprehensive Plan for Umatilla County; Open Space, Scenic and Historic Areas, and Natural Resources Element; Amended 1987	X	-	-	-	-	-	None
Comprehensive Plan for the City of Helix, Amended 2006	-	-	-	-	-	X	+30 to 40 turbines
Comprehensive Plan for the City of Athena, Amended 1998	-	-	-	-	-	X	+1 to 12 turbines
Comprehensive Plan for the City of Adams, Amended 2003	-	-	-	-	-	X	None
Comprehensive Plan for the City of Weston, Amended 2015	-	-	-	-	-	X	+30 to 40 turbines
Comprehensive Plan for the City of Milton-Freewater, Amended 1999	-	-	-	-	-	X	None
Walla Walla County, Oregon							
2007 Integrated Comprehensive Plan and FEIS for Walla Walla County, Updated 2009	-	-	-	-	-	X	None

Identified Plans in Analysis Area	Vansycle II Not Visible	Number of Turbines Visible with RFA 5 Modification					Change from Existing Conditions
		1 to 10	11 to 20	21 to 30	31 to 40	41 to 43	
Blue Mountains Wildlife Area Complex 2014 Management Plan Update (McDonald Bridge Wildlife Area)	-	-	-	-	-	X	None ^{1/}
<p>Note: All management plans are included even if no scenic or aesthetic areas or plan elements are identified.</p> <p>1/ While there no change in the number of turbines visible from existing conditions, this plan is newly identified for RFA 5 and was not previously evaluated under the Final Order on Amendment 4.</p>							

3.0 Impact Assessment – OAR 345-021-0010(1)(r)(C)

3.1 Loss of Vegetation or Alteration of Landscape – OAR 345-021-0010(1)(r)(C)(i)

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*

RFA 5 will only redevelop previously disturbed areas, including temporary access roads and laydown areas. Turbines will remain in their current locations. Therefore, the repower and operation of the Facility is not anticipated to result in the removal of aesthetically important natural vegetation or constitute substantial alteration of the landscape.

3.2 Visual Impacts from Structures or Plumes – OAR 345-021-0010(1)(r)(C)(ii)

(ii) Visual impacts of facility structures or plumes.

The Facility's visible structures will consist of the existing 43 turbines, with new blades that will change the maximum height from 416 feet to 440 feet. Figure R-1 shows the 10-mile Analysis Area around the Facility Site Boundary. To narrow the area that would require a more detailed scenic resources analysis, an updated ZVI analysis was conducted using ArcGIS Spatial Analyst software to identify those areas within the Analysis Area where the Vansycle II wind turbines might be more visible, or even newly visible. The ZVI analysis presents a highly conservative visibility pattern. First, in some areas where the model indicates visibility, the only visible parts of the Facility might be the tips of the turbine blades, which will be hardly noticeable at some locations. In addition, the analysis does not include the screening role of vegetation, trees, and other structures, so in some areas where visibility is indicated, views of the turbines will be screened in the foreground. Finally, the ZVI model is a line-of-sight model that extends from an approximate eye height of 6 feet and does not account for attenuating factors, such as distance, haze, humidity, background landscape, or weather, which will make the Facility invisible or barely visible from certain locations under many atmospheric or weather conditions.

Figure R-2 shows the ZVI results for the Facility with the proposed larger turbine blades. The ZVI data was overlaid on the map showing the identified scenic areas. From Figure R-2, it was possible to identify those scenic and aesthetic areas identified in federal and local management/land use plans where the Facility might be visible, including how many turbines would be seen (see Table R-1 above).

Figure R-3 provides a comparative ZVI with the existing 416-foot turbines and with the proposed 440-foot turbine height. This analysis indicates there will be very little difference overall in visibility from scenic areas.

Taken together, the ZVI results indicate that turbine visibility will remain the same for the Facility as the current conditions for the Whitman Mission National Historic Site, Walla Walla County, Umatilla County Comprehensive Plan scenic and historic areas, and the cities of Adams and Milton-Freewater, Oregon. As noted above, In the Final Order on Amendment 4, EFSC found that “the design, construction, and operation of the proposed Stateline 3 components, taking mitigation into account, are not likely to result in a significant adverse impact to scenic resources and values 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.” Therefore, no significant adverse impact will occur to these scenic resources where turbine visibility will not change.

The following subsections address visual impacts for those areas where visibility of the Facility will change with the proposed turbine modification, or where it was not previously assessed under the Final Order on Amendment 4.

3.2.1 The Cities of Helix, Athena, and Weston, Oregon

The number of turbines visible under clear conditions from the cities of Helix, Athena, and Weston, Oregon will increase with the proposed larger turbine blades at the Facility. This will be least noticeable in Athena, with a shift from 31 to 40 visible turbines (depending on specific location) to 41 to 43 visible turbines. In Helix and Weston, portions of the cities will change from being able to see 1 to 10 turbines to being able to see 41 to 43 turbines. However, in Weston the core of the city will remain at 10 or fewer visible turbines, with the increase occurring around the edge of the city limits (Figure R-2). The closest town, Helix, is approximately 4 miles away (following a straight line), and the turbines will not dominate the landscape due to the distance and intervening manmade and natural features in the fore- and middleground. Figure R-3 demonstrates that the area where the Facility will be newly visible in each of the cities is very small. The views from all three cities are already altered by wind turbines; therefore, views from Helix, Athena, and Weston will not be significantly impacted by installation of larger turbine blades at the Facility.

3.2.2 McDonald Bridge Wildlife Area

Under clear atmospheric conditions, a visitor will see portions of the Facility on the horizon to the south of the wildlife area. However, because the Facility is over 8 miles away from the McDonald Bridge Wildlife Area, the turbines will not dominate the landscape. This is consistent with EFSC’s finding for the nearby Whitman Mission National Historic Site under the Final Order on Amendment 4. The view from the wildlife area towards the Facility is already altered by the existing wind turbines, and Figure R-3 demonstrates that the Facility will not add anything newly visible to any area within the McDonald Bridge site. Therefore, views from the McDonald Bridge

Wildlife Area will not be significantly impacted by installation of larger turbine blades at the Facility.

4.0 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.

Although potential visual impacts will be minimal for identified scenic resources, the Certificate Holder proposes best management practices to minimize the Facility's possible visual impacts. These will include:

- Implementation of active dust suppression measures during the repowering period to minimize the creation of dust clouds;
- Use of wind turbine blades that are locally uniform and conform to high standards of industrial design to present a trim, uncluttered, aesthetic appearance;
- Use of low-reflectivity, neutral gray, white, off-white, or earth-tone finishes for the new turbine blades to minimize contrast with the sky backdrop, and to minimize reflections that could call attention to structures within the landscape; and
- Restriction of exterior lighting on the turbines to the aviation warning lights required by the Federal Aviation Administration, which will be kept to the minimum required number and intensity to meet the agency's standards.

The Certificate Holder will continue to comply with all of the visual impact conditions in the current site certificate, with the exception of the 416-foot height limitation. EFSC's approval of RFA 5 will revise that condition to be a height limit of 440 feet.

5.0 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.

As there will be no significant adverse effect to scenic resources in the Analysis Area, NextEra does not propose an active monitoring program specific to impacts on scenic resources.

6.0 Conclusion

The Certificate Holder will comply with all applicable regulatory guidelines concerning scenic resources, as discussed in the responses found in this Exhibit to the criteria contained in OAR 345-021-0010(1)(r). Based on the provided information, the requirements in OAR 345-021-0010(1)(r)

are satisfied, and EFSC may find that the standards contained in OAR 345-022-0080 have been satisfied.

7.0 References

City of Adams. 2003. Comprehensive Plan, as amended 2003.

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http://www.co.umatilla.or.us/planning/pdf/Technical_Report.pdf.

Figures

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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

**Figure R-1
Scenic Areas**

UMATILLA, OR

- Scenic Area
- Scenic Area - 10 Mile Boundary
- Site Boundary
- Interstates
- Highways
- Major Roads



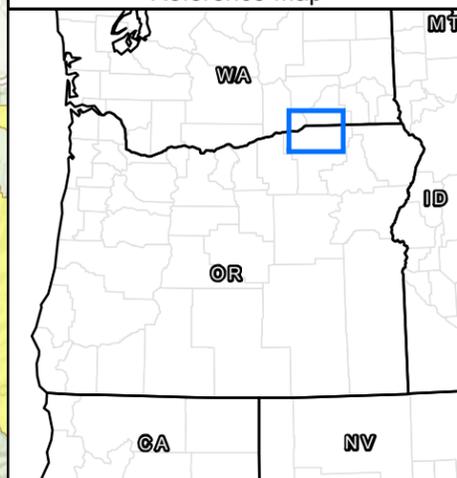
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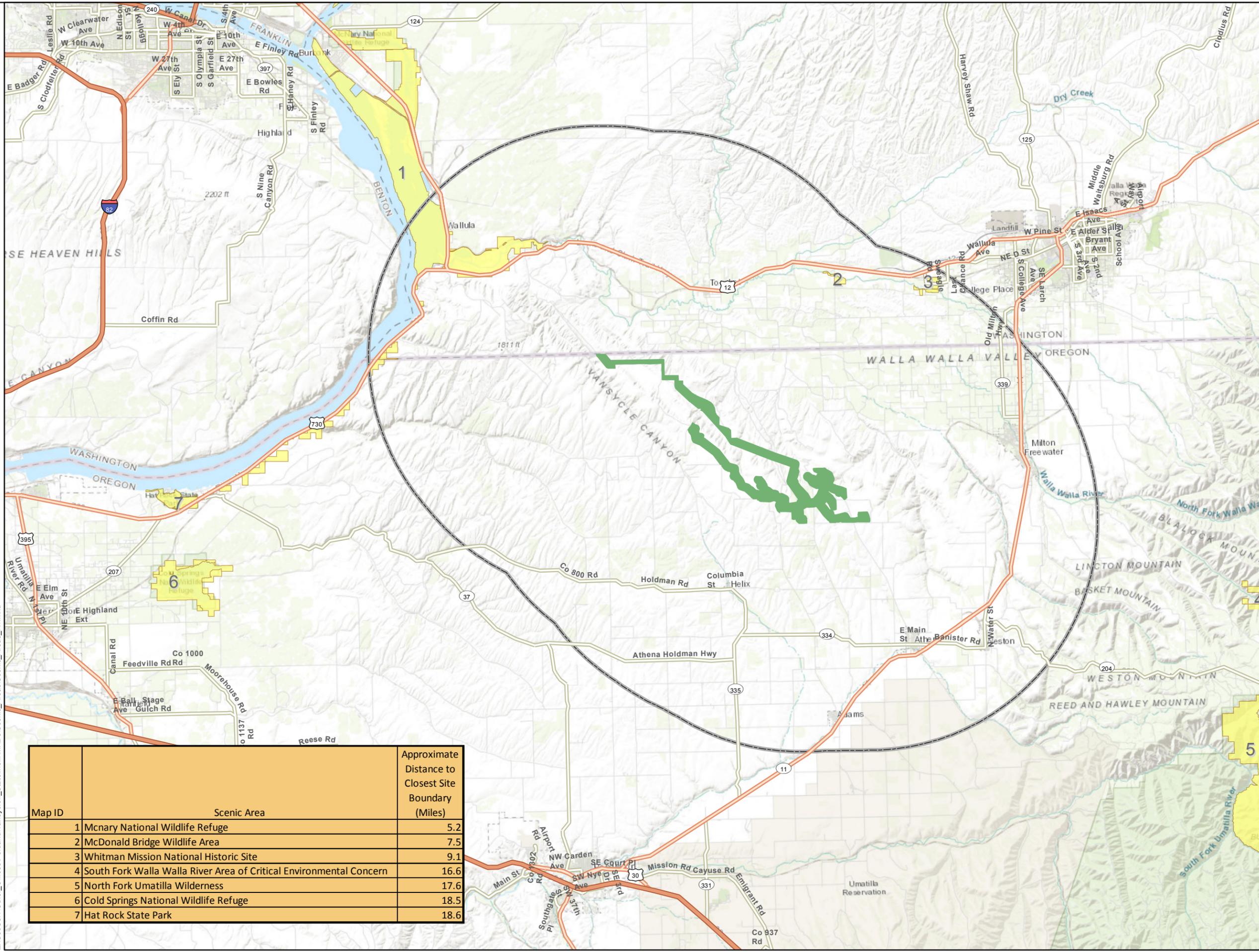
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI Streetmap



Map ID	Scenic Area	Approximate Distance to Closest Site Boundary (Miles)
1	McNary National Wildlife Refuge	5.2
2	McDonald Bridge Wildlife Area	7.5
3	Whitman Mission National Historic Site	9.1
4	South Fork Walla Walla River Area of Critical Environmental Concern	16.6
5	North Fork Umatilla Wilderness	17.6
6	Cold Springs National Wildlife Refuge	18.5
7	Hat Rock State Park	18.6

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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

Figure R-2

Zone of Visual Influence

UMATILLA, OR

- ▲ Replacing Turbine Blades
 - ▭ Scenic Area - 10 Mile Boundary
 - ▭ City Limits
 - ▭ Scenic Area
- Zone of Visual Influence**
Number of Turbines Visible
- 0
 - 1 - 10
 - 11 - 20
 - 21 - 30
 - 31 - 40
 - 41 - 43

Analysis Area: 10 Miles from Turbines
Assumed Viewer Height: 6-foot tall person

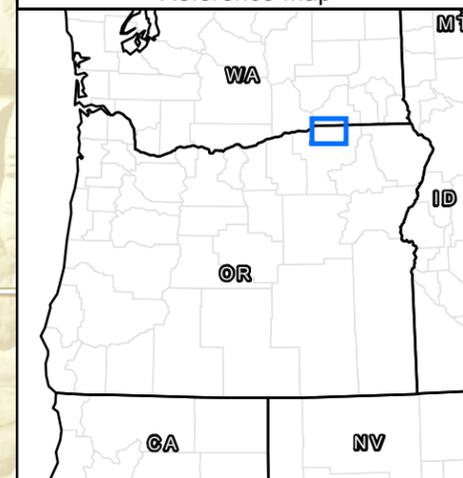


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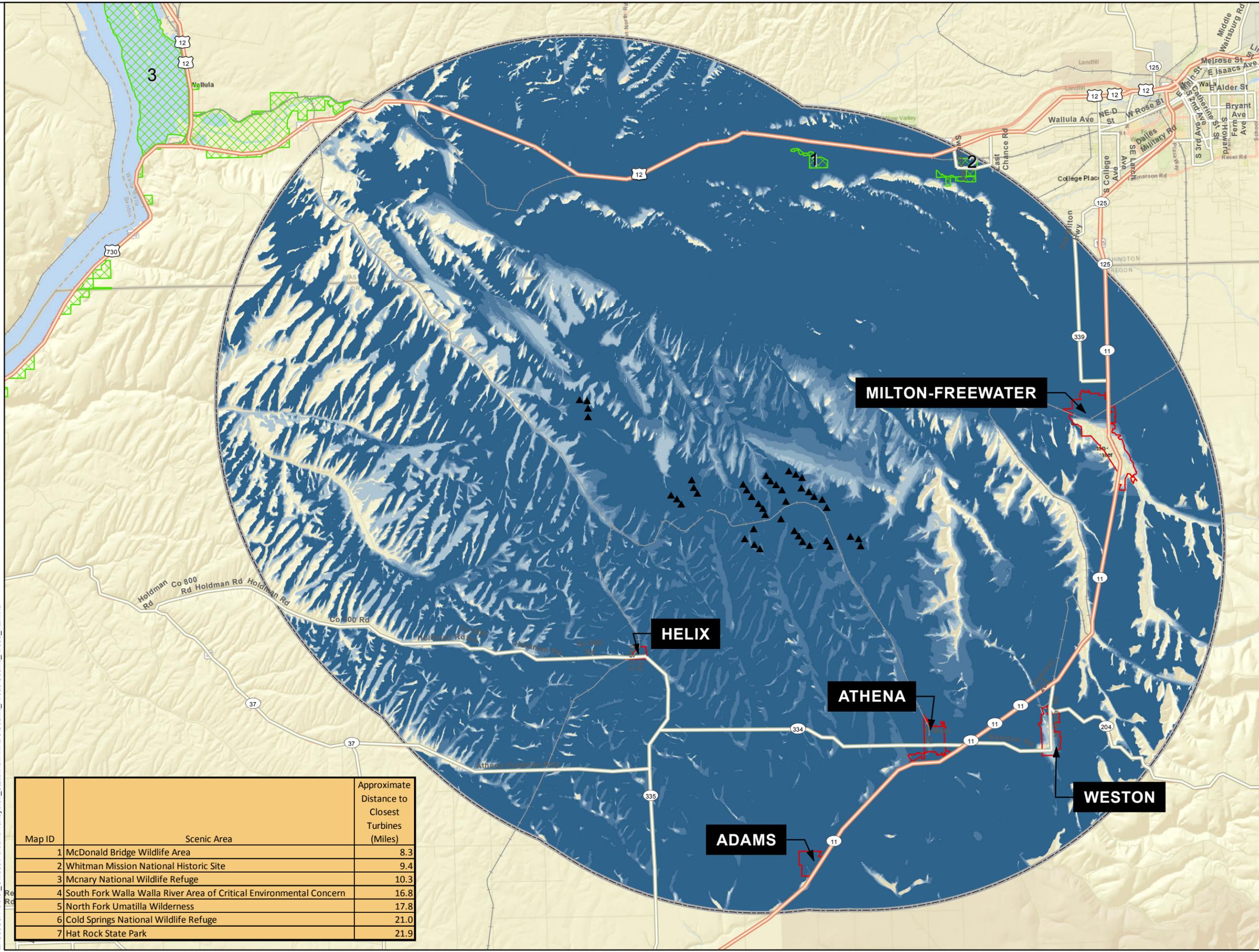
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI Streetmap



Map ID	Scenic Area	Approximate Distance to Closest Turbines (Miles)
1	McDonald Bridge Wildlife Area	8.3
2	Whitman Mission National Historic Site	9.4
3	Mcnary National Wildlife Refuge	10.3
4	South Fork Walla Walla River Area of Critical Environmental Concern	16.8
5	North Fork Umatilla Wilderness	17.8
6	Cold Springs National Wildlife Refuge	21.0
7	Hat Rock State Park	21.9

**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

Figure R-3

ZVI Comparison

UMATILLA, OR

- ▲ Replacing Turbine Blades
- ▭ Scenic Area - 10 Mile Boundary
- ▭ City Limits
- ▭ Scenic Area
- ▭ Area of Turbine Visibility (Existing Turbine Height 416')
- ▭ Additional Visible Areas with RFA 5 Modifications (Proposed Turbine Height 440')

Analysis Area: 10 Miles from Turbines
Assumed Viewer Height: 6-foot tall person



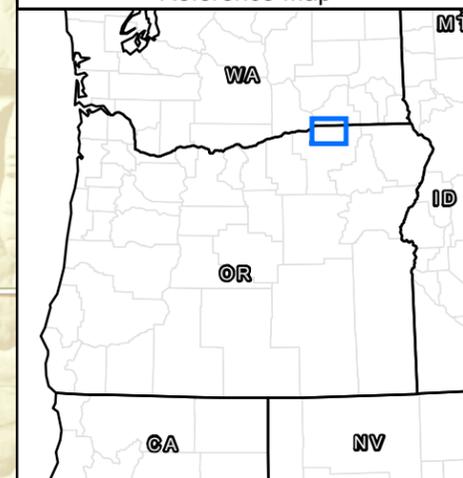
0 1.25 2.5 5 Miles

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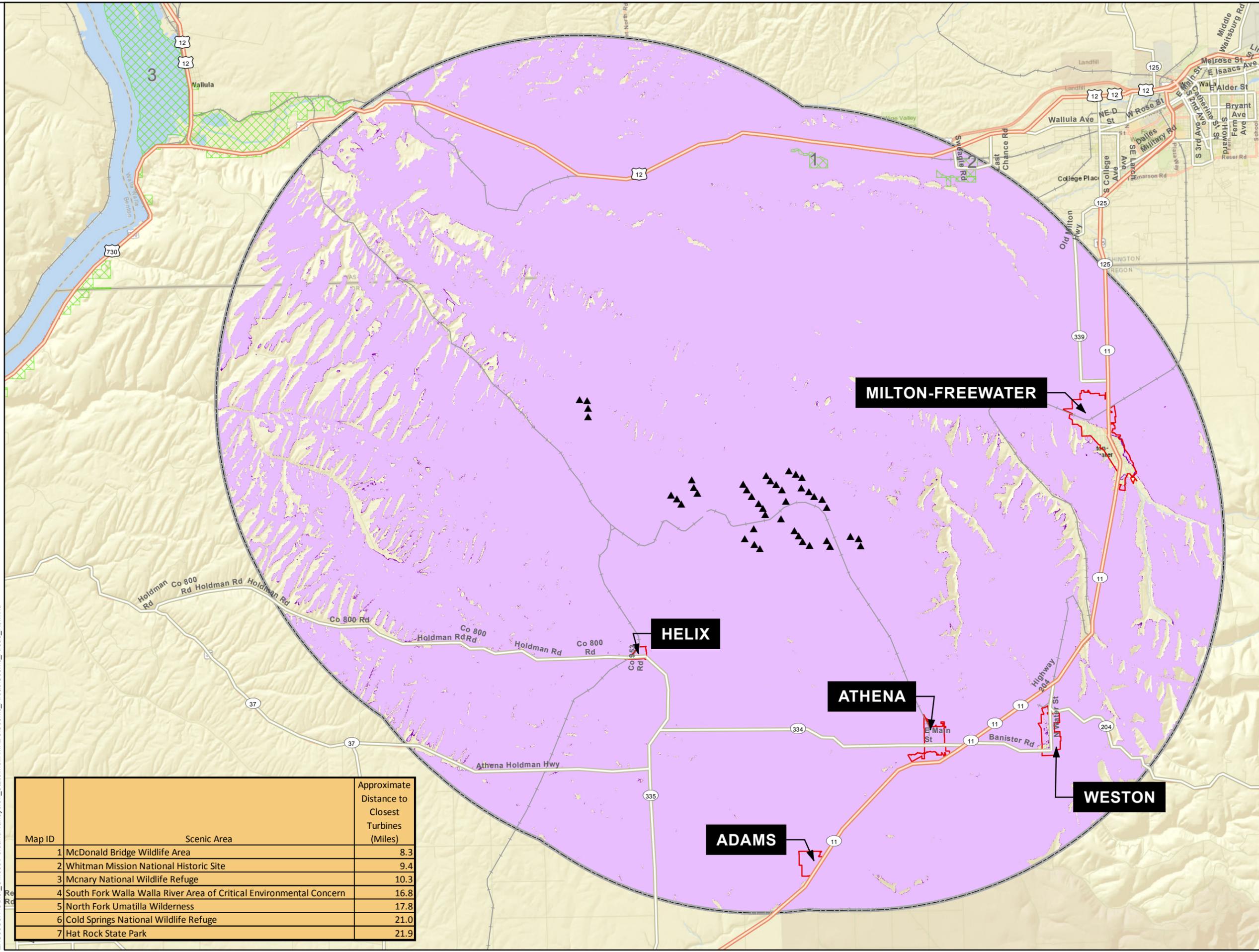
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI Streetmap



Map ID	Scenic Area	Approximate Distance to Closest Turbines (Miles)
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3	Mcnary National Wildlife Refuge	10.3
4	South Fork Walla Walla River Area of Critical Environmental Concern	16.8
5	North Fork Umatilla Wilderness	17.8
6	Cold Springs National Wildlife Refuge	21.0
7	Hat Rock State Park	21.9

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Exhibit S

Historic, Cultural, and Archaeological Resources

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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EXECUTIVE SUMMARY

Several pre-construction cultural surveys were conducted for the existing Vansycle/Stateline projects from 1997 to 2009. A few small portions of the Stateline Wind Project – Vansycle II (the Facility) Request for Amendment 5 (RFA 5) potential disturbance area were found to extend beyond previously surveyed areas, as indicated in the Oregon State Historic Preservation Office’s (SHPO) Oregon Archaeological Records Remote Access (OARRA) and Historic Sites databases (see Figure S-2).

These areas are in several places along existing access roads and around two of the existing turbine pads. These areas were disturbed during construction of Stateline III and were monitored by the Confederated Tribes of the Umatilla Indian Reservation’s (CTUIR) Professional Archaeologists for archaeological resources at that time (Steinmetz 2009, Senn 2010). No cultural resources were identified in these areas during construction monitoring. Although RFA 5 assumes a worst-case scenario, disturbances during repowering will likely be less deep and wide than during construction in 2009 because the Facility is already constructed and the road prisms are established. Monitoring during construction grubbing and excavation activities provides the opportunity for Professional Archaeologists to view and identify more potential resources than does a standard pedestrian surface survey at typical 20 to 30-meter transects. As a result, the monitoring report (Senn 2010), which found no new archaeological sites or isolated finds, including in the previously unsurveyed areas, provides sufficient evidence to conclude that the likelihood of encountering cultural resources in these areas is low to minimal (see Section 3.0). Therefore, the Certificate Holder asserts that all areas have been fully field surveyed previously, including monitoring during all intrusive construction activities at Vansycle II/Stateline III in 2009, and that the desktop report serves simply to compile the previous survey results.

Temporary Disturbance Activities

RFA 5 proposes temporary improvements for repowering within the same approved temporary disturbance areas as part of Request for Amendment 4. Temporary access road widening will be no greater than the temporary widening that occurred during the original construction of the Facility. The widening would be to the same design specifications used during the original Facility construction activities (e.g., graded level to the current road profile) as the existing road. Temporary widening of the access roads prior to construction will generally consist of clearing vegetation by mowing and minor grading of the road to extents similar what was previously done during the original road construction activities in 2009.

Gravel is typically not applied along graded road shoulders; however, consistent to the original construction, the Facility will use gravel as needed after clearing the laydown area, on specific locations to improve any required turning radii within the road network, and on certain turnouts that transition off county or state roads. Any construction of road approaches from public rights-of-way will be permitted as appropriate and in accordance with, conditions stipulated within the

Umatilla County Construction of Road Approaches and Private Road Crossings Permit and the Oregon Department of Transportation State Highway Approach Permit.

Typical equipment for this type of construction includes the following:

- Pickup trucks;
- Dump trucks;
- Front-end loaders;
- Graders; and
- Tractors.

Most of the disturbed areas will be reclaimed as agricultural use in coordination with the landowner. The remaining areas (two or less acres) will be reseeded, most likely either by broadcast seeding or drill seeding, per the approved Revegetation Plan (see Exhibit P, Attachment P-4). All work will be in accordance with an approved 1200-C permit.

Avoidance, Minimization, and Mitigation for Impacts

ODOE notes in an email from Sarah Esterson of the Oregon Department of Energy to Carrie Konkol of Tetra Tech, Inc., dated September 5, 2018, that Exhibit S of RFA 5 identifies the potential for subsurface deposits within the Study Area. As is the case with any project, unless the area has previously been fully excavated, there is always the potential for subsurface deposits. However, the entire area that will be disturbed during repowering was previously disturbed (and monitored by a Professional Archaeologist) during the 2009 construction of Stateline III, and no new archaeological sites or isolated finds were observed. This provides important evidence that subsurface deposits are unlikely to be identified during the current effort. Section 7.0 does not identify monitoring as a mitigation measure; in fact, Section 6.0 states that “construction monitoring is not recommended for activities proposed under RFA 5 due to the low to minimal potential for cultural resources in the Analysis Area.” However, the Certificate Holder shall have a qualified cultural resource expert chosen by the CTUIR to monitor ground disturbing activities in compliance with Condition 75 of the Site Certificate. In addition, worker awareness training and inadvertent discovery protocols will help to avoid or minimize impacts to historic, cultural, and archaeological resources (Condition 76). In the unlikely event that a subsurface resource is identified, the Certificate Holder will notify the Oregon State Archaeologist to determine whether the resource is significant and whether any data recovery or mitigation measures are necessary, as described in the Unanticipated Discovery Plan.

Table of Contents

1.0 Introduction..... 1

 1.1 Study Area..... 2

2.0 Site Certificate Condition Compliance..... 2

3.0 Cultural Resources Discovery Measures and Results - OAR 345-021-0010(1)(s)(D)(i) and (ii)..... 2

4.0 Significant Potential Impacts of Construction and Operation, and Retirement of the Facility on Historic, Cultural, and Archaeological Resources 4

 4.1 Historic and Cultural Resources Listed, or Likely Eligible for Listing, on the National Register of Historic Places – OAR 345-021-0010(1)(s)(A) 5

 4.2 Archaeological Objects and Sites on Private Lands within the Analysis Area – OAR 345-021-0010(1)(s)(B) 5

 4.3 Archaeological Objects and Sites on Public Lands within the Analysis Area – OAR 345-021-0010(1)(s)(C) 5

5.0 Measures Designed to Prevent the Destruction of Historic, Cultural, and Archaeological Resources – OAR 345-021-0010(1)(s)(D)(iii)..... 5

6.0 Monitoring Plan – OAR 345-021-0010(1)(s)(E)..... 6

7.0 Conclusion 6

8.0 References 6

List of Tables

Table S-1. Previously Conducted Cultural Resource Surveys Covering the Analysis Area..... 3

List of Figures

Figure S-1. Cultural Survey Analysis Area

Figure S-2. Cultural Resource Locations and Survey Coverage within Study Area (CONFIDENTIAL)

List of Attachments

Attachment S-1. Cultural Resources Inventory and Monitoring Reports (CONFIDENTIAL)

Acronyms and Abbreviations

CRMMP	Cultural Resources Mitigation and Monitoring Plan
CRPP	Cultural Resource Protection Program
CTUIR	Confederated Tribes of the Umatilla Reservation
EFSC	Energy Facility Siting Council
Facility	Stateline Wind Project – Vansycle II
IDP	Inadvertent Discovery Plan
OAR	Oregon Administrative Rule
ODOE	Oregon Department of Energy
ORS	Oregon Revised Statute
NRHP	National Register of Historic Places
RFA 5	Request for Amendment 5
SHPO	Oregon State Historic Preservation Office

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit S is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

Exhibit S provides an analysis of potential significant adverse impacts of RFA 5 to historic, cultural, and archaeological resources. This exhibit provides the necessary information to determine compliance with the approval standards in OAR 345-022-0090. Section (1) of the Historic, Cultural and Archaeological Resources standard generally requires the Energy Facility Siting Council (EFSC) to find that the Facility is not likely to result in significant, adverse impacts to historic, cultural or archaeological resources. Under Section (2), EFSC may issue a site certificate for a wind power facility without making findings of compliance with this standard. However, EFSC may impose site certificate conditions based on the requirements of this standard.

Exhibit S provides an analysis of potential, significant, adverse impacts of the Facility to historic, cultural, and archaeological resources. This exhibit demonstrates that the Facility complies with the approval standards in 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;

(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.

1.1 Study Area

This Exhibit summarizes information collected about historic, cultural, and archaeological resources within the Study Area for the Facility. The Study Area for cultural resources is the area that could be temporarily disturbed during repowering (Figure S-1) as described in the Written Request for Amendment. Site Certificate Condition Compliance

Site Certificate condition #76 applies to this resource:

If previously unidentified cultural resources are encountered during construction, the certificate holder shall halt earth-disturbing activities in the immediate vicinity of the find, in accordance with Oregon state law (ORS 97.745 and 358.920), and shall notify the Department of Energy, the Oregon State Historic Preservation Officer (SHPO) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). The certificate holder shall have a qualified archaeologist evaluate the discovery and recommend subsequent courses of action in consultation with the CTUIR and the SHPO. If human remains are discovered, the certificate holder shall halt all construction activities in the immediate area and shall notify the Department, SHPO, CTUIR, the County Medical Examiner and the State Police.

[Amendment#4]

Site Certificate condition #75, which addresses posting of barriers around recorded cultural and archaeological sites, is also applicable to cultural resources, but is not applicable to the Exhibit S Analysis Area for RFA 5. Although there is one archaeological site within the Analysis Area that cannot be avoided (see below), the Facility will not have a significant impact on the resource and therefore barriers around this site will not be posted during repowering.

2.0 Cultural Resources Discovery Measures and Results - OAR 345-021-0010(1)(s)(D)(i) and (ii)

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:

(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).

(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.

Several pre-construction surveys were conducted for the existing Vansycle/Stateline projects, and archaeological monitoring was conducted during construction. No additional cultural resources survey was conducted of the Analysis Area for RFA 5. However, an updated desktop review via Oregon SHPO’s Oregon Archaeological Records Remote Access (OARRA) and Historic Sites databases was conducted to confirm the continued validity of surveys conducted for previous applications and amendments associated with the previous Stateline/Vansycle projects. Five cultural resource surveys and one archaeological monitoring report were identified in OARRA as covering the Analysis Area. One archaeological resource, identified by surveys and monitoring conducted for the previous Vansycle/Stateline projects, is within the Analysis Area. Previous project-related surveys and studies are listed in Tables S-1, and are included in Attachment S-1. A discussion of the previously recorded cultural resource in the Analysis Area follows.

Table S-1. Previously Conducted Cultural Resource Surveys Covering the Analysis Area

OARRA Survey #	Author/Date	Report Title	Associated Project Name and Phase
16315	James C. Bard & Robin McClintock (CH2M Hill) and Thomas Bailor and Jeff Van Pelt (CTUIR) 1997	<i>Cultural Resources Assessment, Vansycle Wind Project, Umatilla County, Oregon (Draft)</i>	Vansycle I (pre-construction survey)
18489	James C. Bard & Robin McClintock (CH2M Hill) 2000	<i>Cultural Resources Assessment, Stateline Wind Project, Umatilla County, Oregon, Walla Walla County, Washington</i>	Stateline 1 (pre-construction survey)
18475	Shawn Steinmetz (CTUIR) 2003	<i>Stateline Wind Project Phase 2a and 3 Cultural Resource Inventory, Walla Walla County, Washington and Umatilla County, Oregon</i>	Stateline 2a and 3 (pre-construction survey)
22383	James J. Sharpe, James C. Bard, and Robin McClintock (CH2M Hill) 2008	<i>Cultural Resources Survey for the Helix Wind Power Facility, Umatilla County, Oregon</i>	Helix (pre-construction survey)
22471	Shawn Steinmetz (CTUIR) 2009	<i>Archaeological Investigation for the Stateline 3 Wind Project, Umatilla County, Oregon and Walla Walla County, Washington</i>	Stateline 3 (pre-construction survey)
23367	Amy K. Senn (CTUIR) 2010	<i>Results of the Vansycle II Wind Project, Umatilla County, Oregon, and Walla Walla County, Washington</i>	Vansycle II (construction monitoring)
CTUIR = Confederated Tribes of the Umatilla Indian Reservation			

During the desktop review for RFA 5, small portions of the potential disturbance area were found to extend beyond previously surveyed areas, as indicated in OARRA (Figure S-2). These areas are primarily along existing access roads associated with the existing project. Additionally, the potential disturbance area around two of the existing turbine pads extends beyond previous archaeological survey coverage. These areas were disturbed during construction of the previous

projects and were monitored by CTUIR Professional Archaeologists for archaeological resources at that time (Steinmetz 2009). No cultural resources were identified in these areas during monitoring. Since the areas were subjected to monitoring and no resources were identified, the likelihood of encountering cultural resources in these areas is considered low to minimal.

One archaeological site, 35UM 00343, is within the Analysis Area of RFA 5 (Figure S-2). The site is unevaluated for NRHP-eligibility. The resource is the historic railroad grade of the Oregon and Washington Territory Railroad. The railroad is decommissioned and portions incorporated into existing agricultural fields and area roads. In the study area, it is a graded road. The site was monitored during the 2009 construction phase of the Stateline 3 project, when a minor amount of associated historic artifacts (brick fragment, railroad spike, bolt, and miscellaneous metal) were identified within the road/former railroad grade immediately outside the Analysis Area. CTUIR recommended that alterations to 35UM 00343 consistent with its current use at the time (a road) would not be a significant impact (Steinmetz 2009). The Final Order on Amendment 4 (EFSC 2009) documented Certificate Holder agreement to implement the measures recommended by CTUIR, along with modified Conditions 75 and 76. Temporary disturbances to the site planned as part of RFA 5 would remain consistent with its current use as a road. As such, consistent with Amendment 4, RFA 5 would not have a significant impact on 35UM 00343.

The visual effects of the Facility to historic properties in the study area and surrounding area were not addressed in the original approved application or past amendments. RFA 5 includes a minor 24-foot height increase due to larger turbine blades. Viewshed analyses conducted for RFA 5 show that the viewshed expansion as a result is very minimal and no historic properties are located in the study area. The minor height difference is not anticipated to have a significant impact on any cultural resources within the Analysis Area or viewshed.

3.0 Significant Potential Impacts of Construction and Operation, and Retirement of the Facility on Historic, Cultural, and Archaeological Resources

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 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:

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.

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.

OAR 345-021-0010(1)(s) (C) For public lands, archaeological sites, as defined in ORS 358.905(1)(c), within the analysis area.

3.1 Historic and Cultural Resources Listed, or Likely Eligible for Listing, on the National Register of Historic Places – OAR 345-021-0010(1)(s)(A)

No historic or cultural resources listed, or likely eligible for listing, on the NRHP are within the study area. The only cultural resource in the study area (35UM 00343) is unevaluated for NRHP eligibility.

3.2 Archaeological Objects and Sites on Private Lands within the Analysis Area – OAR 345-021-0010(1)(s)(B)

Private lands comprise the entire land base of the Facility. As noted above, there is one historic-era archaeological site, 35UM 00343, is within the study area.

Additional unidentified cultural resources or areas with increased potential for subsurface deposits may exist in the study area. Disturbance of cultural resources in these areas could result in significant impacts. As discussed below in Section 5.0, the conditions listed in Section 2 of this exhibit will be implemented to reduce the potential for significant impacts on inadvertent discoveries.

3.3 Archaeological Objects and Sites on Public Lands within the Analysis Area – OAR 345-021-0010(1)(s)(C)

No public lands are proposed for repowering activities associated with the Facility.

4.0 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 Certificate Holder will minimize impacts to historic, cultural, and archaeological sites by adhering to the following protocol:

- An inadvertent discovery protocol will be maintained in the temporary construction trailer and at the O&M building (Condition 76).

5.0 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.

To meet obligations under Conditions (75) and (76), the Certificate Holder prepared a cultural resources monitoring plan which it submitted to ODOE in May 2009 as part of RFA 4. The plan contains three basic components that will reduce potential impacts to cultural resources identified and those not discovered during previous field surveys: Cultural Resources Awareness Training for Construction Crews; Unanticipated Discovery Protocol; and Monitoring. Although construction monitoring is not recommended for activities proposed under RFA 5, due to the low to minimal potential for cultural resources in the Analysis Area (as described above in Section 3.0 of this exhibit), the awareness training and unanticipated discovery protocols from the monitoring plan will be implemented to meet the same conditions as part of RFA 5.

6.0 Conclusion

The information provided herein demonstrates that with recommended mitigation measures in place, the Facility will have no significant impact on historic, cultural, and archaeological resources, and that EFSC's standard for historic, cultural, and archaeological resource protection has been met. Measures designed to minimize impacts, including worker awareness training and inadvertent discovery protocols should preclude impacts to historic, cultural, and archaeological resources.

7.0 References

- Bard, James C., and Robin McClintock. 2000. Cultural Resources Assessment, Stateline Wind Project, Umatilla County, Oregon, Walla Walla County, Washington. CH2M Hill, Portland, Oregon. Submitted to FPL Energy, Inc., Juno Beach, Florida, and Bonneville Power Administration, Portland, Oregon. Oregon SHPO Report #18489.
- Bard, James C., Robin McClintock, Thomas Bailor, and Jeff Van Pelt. 1997. *Cultural Resources Assessment, Vansycle Wind Project, Umatilla County, Oregon* (Draft). CH2M Hill, Portland, Oregon, and Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon. Submitted to ESI Energy, Inc. North Palm Beach, Florida. Oregon SHPO Report #16315.
- Senn, Amy K. 2010. *Results of the Vansycle II Wind Project, Umatilla County, Oregon, and Walla Walla County, Washington*. Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon. Submitted to NextEra Energy Resources, Eugene, Oregon. CTUIR Contract #328-009. Oregon SHPO Report #23367.

- Sharpe, James J., James C. Bard, and Robin McClintock. 2008. *Cultural Resources Survey for the Helix Wind Power Facility, Umatilla County, Oregon*. CH2M Hill, Portland, Oregon. Submitted to Iberdrola Renewables, Inc., Portland, Oregon. Oregon SHPO Report #22383.
- Steinmetz, Shawn. 2003. *Stateline Wind Project Phase 2a and 3 Cultural Resource Inventory, Walla Walla County, Washington and Umatilla County, Oregon*. Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon. Submitted to FPL Energy, Inc., Juno Beach, Florida. CTUIR Contract #344-02. Oregon SHPO report #18475.
- . 2009. *Archaeological Investigation for the Stateline 3 Wind Project, Umatilla County, Oregon and Walla Walla County, Washington*. Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon. Submitted to Tetra Tech, Inc., Rancho Cordova, California. CTUIR Contract #330-08. Oregon SHPO report #22471.

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Figures

Note that Figure S-2 (Cultural Resource Locations and Survey Coverage within Study Area) is confidential and provided under separate cover.

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Project Continues
into Washington

Walla Walla County
Umatilla County

Washington

Oregon

Stateline Wind Project Request for Amendment 5

Vansycle II*

*Stateline 3 is being renamed Vansycle II
as part of Request for Amendment 5.

Figure S-1 Analysis Area

UMATILLA COUNTY, OR
AND WALLA WALLA COUNTY, WA

-  Project Boundary
-  Study Area/Potential
Disturbance Area
-  State Boundary



Reference Map



1:60,000 NAD 1983 StatePlane Oregon North FIPS 3601 Feet

0 0.5 1 2 3 4 5 Miles

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**Attachment S-1: Cultural Resources
Inventory and Monitoring Reports**
**(CONFIDENTIAL – PROVIDED UNDER
SEPARATE COVER)**

Exhibit T

Recreational Opportunities

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction.....	1
2.0	Recreational Opportunities in the Analysis Area – OAR 345-021-0010(1)(t)(A)(D)	1
2.1	Inventory Methods	2
2.2	General Resource Descriptions	2
3.0	Impact Assessment – OAR 345-021-0010(1)(t)(B)	2
3.1	Direct or Indirect Loss of Recreational Opportunities – OAR 345-021-0010(1)(t)(B)(i)	2
3.2	Facility Noise – OAR 345-021-0010(1)(t)(B)(ii).....	3
3.3	Traffic – OAR 345-021-0010(1)(t)(B)(iii)	3
3.4	Visual – OAR 345-021-0010(1)(t)(B)(iv).....	3
4.0	Minimization and Mitigation Measures – OAR 345-021-0010(1)(t)(C)	3
5.0	Monitoring Program – OAR 345-021-0010(1)(t).....	3
6.0	Conclusion	4
7.0	References	4

List of Figures

Figure T-1. Recreational Areas

Acronyms and Abbreviations

EFSC	Energy Facility Siting Council
Facility	Stateline Wind Project – Vansycle II
OAR	Oregon Administrative Rules
OPRD	Oregon Parks and Recreation Department
RFA 5	Request for Amendment 5

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit E is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

In the Final Order on Amendment 4, the Energy Facility Siting Council (EFSC) found that “the design, construction, and operation of the proposed Stateline 3 components are not likely to result in a significant adverse impact to any important recreational opportunities in the analysis area.” There will be no locational changes as part of RFA 5 and there are no new recreational opportunities within the 5-mile Analysis Area (Figure T-1). Exhibit T provides evidence to support a finding by EFSC, as required by OAR 345-022-0100, that the Facility as modified can comply with the Recreation Standard.

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).

As noted in the Final Order for Amendment 4¹, the analysis area for the Recreation Standard is the area within the Site Boundary and 5 miles from the Site Boundary, including areas outside the state. The Recreational Analysis Area is shown on Figure T-1.

¹ Energy facility Siting Council of the State of Oregon, *Final Order on Amendment #4 Certificate for Stateline Wind Project. March 2009.*

2.1 Inventory Methods

The Analysis Area was assessed for recreation opportunities through the collection and review of existing information available from desktop research sources, including the following types of sources:

- Geographic Information System files and web maps documenting recreational resources obtained from key recreation provider agencies, including the Bureau of Land Management (BLM 2018), Oregon Parks and Recreation Department (OPRD; OPRD 2018), and Oregon Department of Fish and Wildlife (ODFW 2016).
- Comprehensive plans, park and recreation plans, and internet sites prepared by OPRD and by counties and municipal governments within the Analysis Area (ORBIC 2015; Umatilla County 2017; Walla Walla County 2009).

2.2 General Resource Descriptions

As described in the Final Order on Amendment 4, the Analysis Area does not contain any designated recreational lands other than local park and recreational facilities in the unincorporated community of Touchet, approximately 4 miles north of the Facility's transmission line corridor. In addition, pheasant hunting is allowed seasonally within the Analysis Area in some areas by landowner permission, within and outside of the site boundary. The Analysis Area for the Facility does not contain additional local, county, state, or federal recreational facilities than were included in Amendment 4, and is composed primarily of private agricultural land.

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:

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.

There would be no direct or indirect loss of recreation opportunities as a result of the Facility. In the Final Order on Amendment 4, the Council found that “the design, construction, and operation of the proposed Stateline 3 components are not likely to result in a significant adverse impact to any important recreational opportunities in the analysis area.” The Facility, as modified in this request, is in the same location as the currently operating facility, and there will be no changes to facility operations as a result of the proposed modifications. No new recreational opportunities are within the 5-mile Analysis Area (Figure T-1). Therefore, there will be no direct or indirect loss of recreational opportunity as a result of the modifications proposed under RFA 5.

3.2 Facility Noise – OAR 345-021-0010(1)(t)(B)(ii)

(ii) Noise resulting from facility construction or operation.

No new recreational opportunities are found within the 5-mile Analysis Area. In addition, the Council found no adverse noise impacts to recreational resources in the Final Order on Amendment 4. Therefore, there are no impacts from noise. See Exhibit X for a detailed noise analysis of the proposed modifications to the Facility.

3.3 Traffic – OAR 345-021-0010(1)(t)(B)(iii)

(iii) Increased traffic resulting from facility construction or operation.

No new recreational opportunities are found within the 5-mile Analysis Area. In addition, the Council found no adverse traffic impacts to recreational resources in the Final Order on Amendment 4. As described in Exhibit U, traffic resulting from repowering will be similar to or less than traffic that was analyzed for facility construction. Therefore, there are no impacts to recreational resources from traffic. See Exhibit U for further analysis regarding Facility traffic during repowering and operations.

3.4 Visual – OAR 345-021-0010(1)(t)(B)(iv)

(iv) Visual impacts of facility structures or plumes.

No new recreational opportunities are found within the 5-mile Analysis Area. In addition, the Council found no adverse visual impacts to recreational resources in the Final Order on Amendment 4. As described in Exhibit R, the change in visibility from the proposed turbine modifications would be minimal. Therefore, there are no visual impacts to recreational resources from structures. See Exhibit R for an updated visual analysis for the Facility.

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).

No mitigation is proposed specifically in response to the Council's recreational standard because the Facility would not result in significant adverse impacts to important recreational opportunities.

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 no significant impacts have been identified and because no mitigation is warranted or proposed, a monitoring program is not proposed.

6.0 Conclusion

Based on the preceding analysis, which was conducted in accordance with the requirements of OAR 345-021-0010(l)(t), the Facility will not result in significant adverse impacts to important recreational opportunities or facilities.

7.0 References

- BLM (U.S. Bureau of Land Management). 2018. BLM Recreation Web Map.
<https://www.blm.gov/visit>
- ODFW (Oregon Department of Fish and Wildlife). 2016. ODFW Wildlife Areas June 2016.
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<http://spatialdata.oregonexplorer.info/geoportal/details?id=d2e844f814c34b4f97dc2ffe0eab7fd2>
- Umatilla County. 2017. Umatilla County Comprehensive Plan. Originally adopted May 1983. Last revised June 2017.
http://www.co.umatilla.or.us/planning/pdf/Umatilla_County_Ccomp_Plan.pdf
- Walla Walla County. 2009. Walla Walla County Comprehensive Plan. Walla Walla County Community Development Department. Amended December 2009. <http://www.co.walla-walla.wa.us/departments/comdev/Planning.shtml#compplan>

Figures

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Stateline Wind Project Request for Amendment 5 Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

Figure T-1 Recreational Areas UMATILLA, OR

-  Recreational Area - 5 Mile Boundary
-  Site Boundary



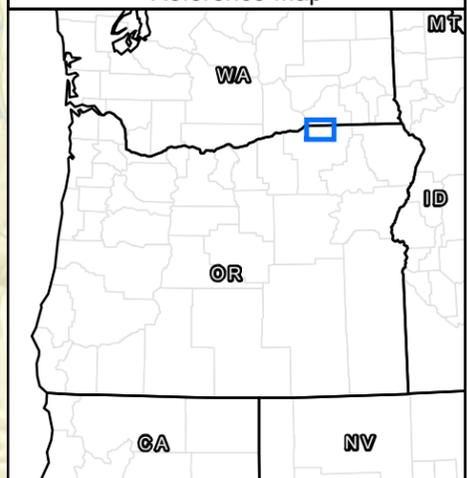
0 0.5 1 2 Miles

1:126,720

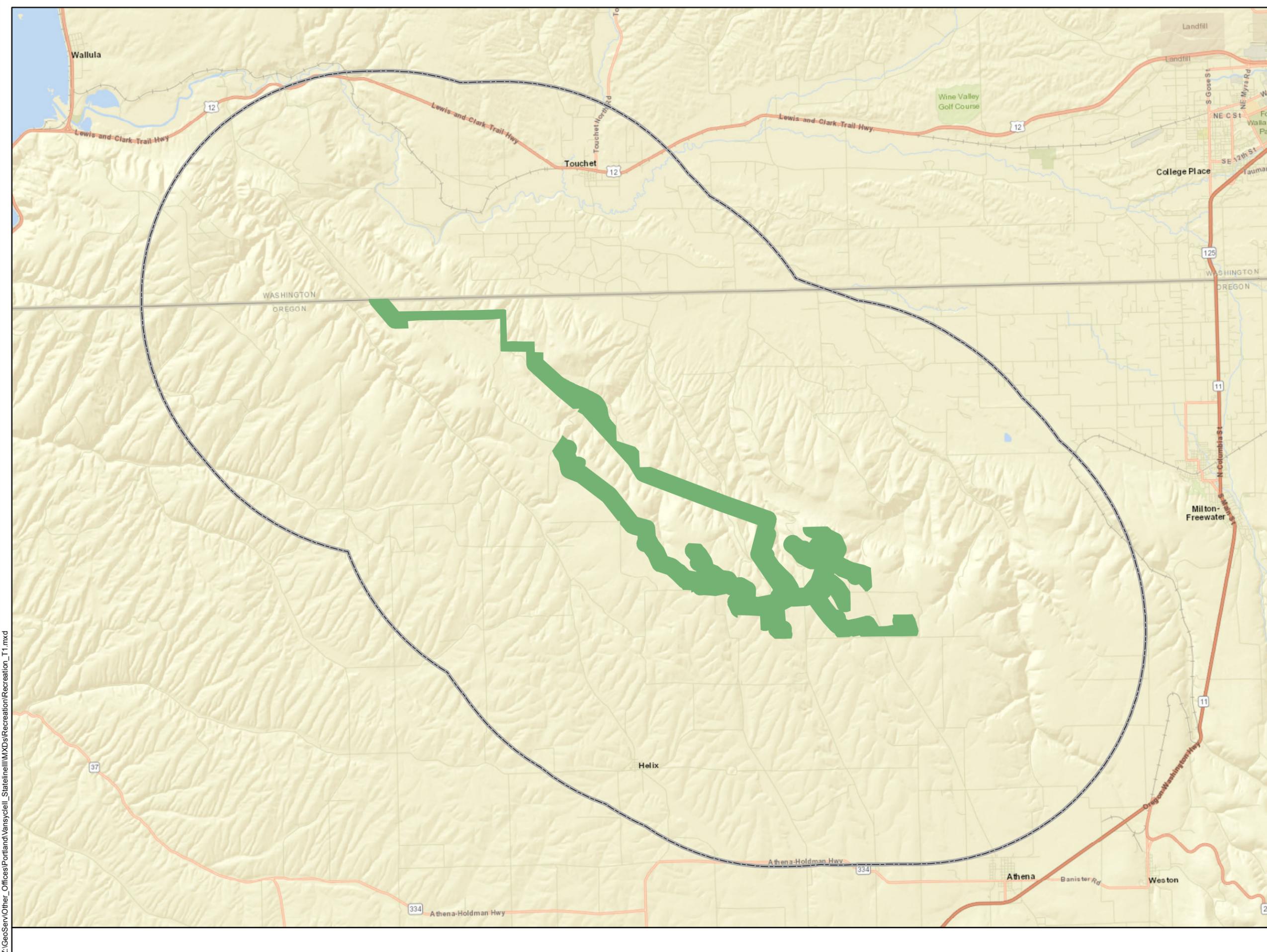
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI Streetmap



Z:\GeoServ\Other_Offices\Portland\VansycleII_StateLine\MXDs\Recreation\Recreation_T1.mxd

Exhibit U

Availability of Public and Private Providers to Provide Services

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction.....	1
2.0	Applicable Rules and Standards.....	1
3.0	Analysis.....	1
3.1	Methods.....	1
3.2	Assumptions Used to Evaluate Potential Impacts – OAR 345-001-0010(1)(u)(A).....	2
3.2.1	Construction.....	2
3.2.2	Operations and Maintenance.....	3
3.3	Affected Public and Private Service Providers – OAR 345-021-0010(1)(u)(B).....	3
3.3.1	Population.....	3
3.3.2	Sewer and Water Services.....	5
3.3.3	Stormwater Drainage.....	5
3.3.4	Solid Waste Management.....	6
3.3.5	Housing.....	6
3.3.6	Traffic Safety and Operations.....	7
3.3.7	Police and Fire Protection.....	7
3.3.8	Health Care.....	8
3.3.9	Schools.....	8
3.4	Potential Impacts on Public and Private Providers – OAR 345-001-0010(1)(u)(C)(D).....	9
3.4.1	Population.....	9
3.4.2	Sewer and Water Services.....	10
3.4.3	Stormwater Drainage.....	10
3.4.4	Solid Waste Management.....	10
3.4.5	Housing.....	11
3.4.6	Traffic Safety and Operations.....	12
3.4.7	Police and Fire Protection.....	19
3.4.8	Health Care.....	19
3.4.9	Schools.....	20
4.0	Proposed Monitoring Programs – OAR 345-001-0010(1)(u)(E).....	20
5.0	Conclusion.....	20
6.0	References.....	20

List of Tables

Table U-1. Population by State, County, and Community in the Area of Influence 4
Table U-2. Housing Supply in Counties and Communities within the Area of Influence 6
Table U-3. Oregon State Highway Annual Average Daily Traffic Volumes 13
Table U-4. Oregon State Highway Pavement Conditions 16

List of Figures

Figure U-1. Transportation Routes and Socioeconomic Area
Figure U-2. Area of Influence

Acronyms and Abbreviations

Certificate Holder	FPL Energy Stateline II, Inc.
Facility	Stateline Wind Project – Vansycle II
mph	miles per hour
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rule
ODOT	Oregon Department of Transportation

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1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit U is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

Exhibit U was prepared to meet the submittal requirements for RFA 5 related to public services, per Oregon Administrative Rule (OAR) 345-021-0010(1)(u). Exhibit U demonstrates that the repowering and operation of the Facility, considering mitigation, is not likely to result in significant adverse impacts to the public services listed in OAR 345-022-0110.

2.0 Applicable Rules and Standards

Under OAR 345-022-0110, the Energy Facility Siting Council must find that through appropriate study:

(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.

To demonstrate compliance with this standard, Exhibit U must include information about significant potential adverse impacts resulting from the construction (repowering) and operation of the facility on the ability of public and private providers in the Analysis Area to provide the listed services. As stated in OAR 345-022-0110 (2), this is not an applicable approval criterion for wind energy facilities; however, because it may be a source of site certificate conditions, this Exhibit provides the information listed in OAR 345-021-0010(1)(u).

3.0 Analysis

3.1 Methods

The following analysis was primarily based on secondary data compiled from federal, state, and local government agencies. State and local governments were also contacted directly, as needed, for data on potentially affected public services. The potential effects of the Facility were evaluated with respect to the ability of public and private providers within the Analysis Area to provide sewers and

sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care, and schools. Key Facility-related variables used in this analysis include projected repowering and operations employment, traffic volumes, and waste generation.

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.

Potential impacts were evaluated based on the assumptions described in the following subsections. As specified in OAR 345-001-0010 (59)(b) for impacts to public services, the Analysis Area extends 10 miles from the Facility Site Boundary to areas in both Oregon and Washington. This area is shown in Figure U-1.

3.2.1 Construction

Repowering the Facility is estimated to require 3 to 4 months, beginning in spring or early summer 2019. During repowering, an estimated maximum of 150 workers will be employed at the Facility. Most workers will be employees of construction and equipment manufacturing companies under contract to FPL Energy Stateline II, Inc. (Certificate Holder).

Workers will include a mix of locally hired workers who will be located within the 10-mile Analysis Area in Umatilla County, but also possibly from as far away as Morrow and southern Union counties in Oregon, or Benton and Franklin counties in Washington. Local workers will most likely originate from Pendleton, and other larger communities such as Milton-Freewater, Oregon and Walla Walla, Washington.

For purposes of this analysis, the conservative assumption was made that only 33 percent of workers for repowering will be hired locally, and the remainder will be hired from outside of the Analysis Area. Workers residing in the 10-mile Analysis Area or 30-mile Area of Influence (described in Section 3.3.1) are considered local and within a commutable distance from the Facility. The Certificate Holder assumes that the average household size for non-local workers will be two people (assuming most workers will not be accompanied by family members other than a spouse or partner). Local hiring may be greater, and will depend on the availability of qualified workers. Additional workers may commute daily from communities outside of the Analysis Area (e.g., Baker City area of Oregon, or even the Yakima area of Washington, about 85 miles southeast and 110 miles west-northwest of the Analysis Area, respectively), which would lessen the potential

impacts associated with temporary relocation of outside workers. It is the Certificate Holder's intent to hire and train locally to the greatest degree possible.

A designated transportation route will be used to provide access to the Facility via either east or westbound Interstate 84 (I-84), to State Route (SR) 11, north onto Havana-Helix Highway, which becomes Vansycle Canyon Road to the north of the town of Helix, then northeast on Butler Grade Road, which accesses the Analysis Area. This primary route will be used to bring in equipment, materials, and worker crews from outside of the Analysis Area to the Facility, and includes federal, state, county, and private roadways. Figure U-1 provides a map detailing major roads in the area.

During the repowering period, an estimated total of 1,950 trucks will be accessing the site on the transportation route. Heavy-duty trucks will be carrying gravel and other materials required to improve turbine access roads from existing roadways, as well as carry out old turbine blades and deliver the new blades for installation. In addition, lighter-duty trucks will be required for delivering water for dust control, electrical equipment, and other equipment necessary to repower the Facility.

3.2.2 Operations and Maintenance

Operations personnel are not expected to change from the existing Facility staff, which includes 32 employees. As for the existing Facility, some specialized outside contractors may be required on occasion (e.g., for repair of nacelles or meteorological services). The Certificate Holder assumes that operations will resume by the end of 2019, with a design life of 30 years.

When the Facility is retired, operational jobs will be eliminated. Retirement of the Facility will require removal of all Facility components and restoration of disturbed areas. These activities will result in temporary employment levels similar to the Facility's employment during initial construction; this is the same as the level previously evaluated and approved for the existing Facility. Exhibit W has additional details on Facility retirement.

3.3 Affected Public and Private Service Providers – OAR 345-021-0010(1)(u)(B)

OAR 345-021-0010(1)(u)(B) Identification of the public and private providers in the analysis area that would likely be affected.

3.3.1 Population

The Facility is located in Umatilla County, but the 10-mile Analysis Area also includes a small portion of southern Walla Walla County in Washington, as well as the cities and towns of Adams, Athena, Helix, Milton-Freewater, and Weston in Umatilla County, and College Place in Walla Walla County (Figure U-1).

Because the 10-mile Analysis Area does not encompass all of the communities that could be affected by the Facility, a larger area, extending roughly 30 miles from the Site Boundary—the Area

of Influence—was also considered for the purposes of Exhibit U (see Figure U-2). This Area of Influence includes portions of Benton and Franklin counties in Washington, but no additional Oregon counties. It also includes the cities and towns of Echo, Hermiston, Pendleton, Pilot Rock and Stanfield in Oregon; and Prescott, Walla Walla, Richland, Kennewick, and Pasco in Washington. Table U-1 presents population statistics for both states and each of the counties and incorporates communities within the 30-mile Area of Influence.

According to the U.S. Census Bureau (2013) residence to workplace data for 2009 to 2013, nearly 85 percent of workers commute within Umatilla County (26,313 commuters per day). Walla Walla County, Washington receives 1,984 Umatilla commuters per day (6.4 percent), Morrow County, Oregon receives 1,068 commuters per day (3.4 percent), and Benton County, Washington receives 998 commuters per day (3.2 percent). The remaining 2 percent of Umatilla County commuters travel to multiple other more distant counties and an ‘other’ category.

The four-county area of influence had an estimated total population of 411,720 in 2016, with county populations ranging from 59,809 in Walla Walla County to 187,519 in Benton County. The higher populations of Benton and Franklin Counties reflect the presence of the Tri-Cities metropolitan area, which includes the cities of Richland, Kennewick, and Pasco. The proposed wind energy Facility will be located in rural Umatilla County, whose nearest large communities within commutable distance are Pendleton and Hermiston, with a 2016 population of 16,861 and 17,150, respectively. Other nearby communities are included in Table U-1, below.

The population of the four-county area of influence increased by 29.7 percent between 2000 and 2016 (estimate), compared to a statewide increase of 16.4 percent in Oregon and 20.0 percent in Washington. The population increased in all four counties in the study area, primarily in the 2000-2010 period with slower growth between 2010 and 2016. Increases from 2000-2010 ranged from nearly 6.5 percent in Walla Walla County to 58.4 percent in Franklin County, with the largest absolute increase (32,720) occurring in Benton County. Umatilla County, where the Facility is located, had its population increase by 7.6 percent between 2000 and 2010, slowing to a slightly less than 1 percent increase between 2010 and 2016 (estimated). Population estimates for 2016 indicate that the population has continued to increase in most of the study area communities, though generally more slowly than in the previous decade, as noted (Table U-1).

Table U-1. Population by State, County, and Community in the Area of Influence

Location	Population			2000-2010		2010 -2016	
	Census 2000	Census 2010	Estimated 2016	Absolute Change	Percent Change	Absolute Change	Percent Change
OREGON	3,421,399	3,831,074	3,982,267	409,675	12.0%	151,193	3.9%
Umatilla County	70,548	75,889	76,582	5,341	7.6%	693	0.9%
Adams	297	350	353	53	17.8%	3	0.9%
Athena	1,221	1,126	1,134	-95	-7.8%	8	0.7%
Echo	650	699	751	49	7.5%	52	7.4%
Helix	183	184	177	1	0.5%	-7	-3.8%

EXHIBIT U: AVAILABILITY OF PUBLIC AND PRIVATE PROVIDERS TO PROVIDE SERVICES

Location	Population			2000-2010		2010 -2016	
	Census 2000	Census 2010	Estimated 2016	Absolute Change	Percent Change	Absolute Change	Percent Change
Hermiston	13,154	16,745	17,150	3,591	27.3%	405	2.4%
Milton-Freewater	6,470	7,050	7,059	580	9.0%	9	0.1%
Pendleton	16,354	16,612	16,861	258	1.6%	249	1.5%
Pilot Rock	1,532	1,502	1,336	-30	-2.0%	-166	-11.1%
Stanfield	1,979	2,043	2,395	64	3.2%	352	17.2%
Weston	717	667	751	-50	-7.0%	84	12.6%
WASHINGTON	5,894,143	6,724,540	7,073,146	830,397	14.1%	348,606	5.2%
Walla Walla County	55,180	58,781	59,809	3,601	6.5%	1,028	1.7%
College Place	7,818	8,765	8,996	947	12.1%	231	2.6%
Prescott	314	318	386	4	1.3%	68	21.4%
Walla Walla	29,686	31,731	31,952	2,045	6.9%	221	0.7%
Benton County	142,457	175,177	187,519	32,720	23.0%	12,342	7.0%
Richland	38,708	48,058	53,227	9,350	24.2%	5,169	10.8%
Kennewick	54,693	73,917	77,975	19,224	35.1%	4,058	5.5%
Franklin County	49,347	78,163	87,810	28,816	58.4%	9,647	12.3%
Pasco	32,066	59,781	68,567	27,715	86.4%	8,786	14.7%

Sources: U.S. Census Bureau 2010; U.S. Census Bureau 2017.

1. It should be noted that while Touchet, Washington is within the Analysis Area on Figure U-1 and it is a census designated place, it does not have a consistent record of census data, and is therefore not included in this or other tables in Exhibit U.

3.3.2 Sewer and Water Services

Most communities in the 10-mile Analysis Area have sewer systems and treatment facilities. Rural residences in the area generally use on-site private septic systems for sewage disposal, as does the existing Facility. No community in the Analysis Area currently provides sewers or sewage treatment to the Facility site.

Exhibit O contains a description of Facility-related water requirements. Most communities in the 10-mile Analysis Area have public water systems that serve their respective incorporated areas, but those systems are not used or affected by the Facility. During repowering, water will be obtained from the City of Helix, which is a permitted source that has sufficient supply to serve the construction contractor’s needs. There will be no changes to the Facility’s operational sewer or water use.

3.3.3 Stormwater Drainage

Larger communities in the Area of Influence provide stormwater drainage facilities in urban areas. Other stormwater drainage facilities, such as ditches, grading, and detention ponds, are provided in

rural areas (e.g., for roads). Currently, no community in the Analysis Area provides stormwater drainage service to the Facility site.

3.3.4 Solid Waste Management

See Exhibits G and V for a description of solid waste management. Incorporated communities in the Analysis Area provide solid waste management services to their respective incorporated areas. Currently, no community in the Analysis Area provides solid waste management services to the Facility. The Finley Buttes Regional Landfill, near Pendleton, is closest to the Facility, and is owned by Waste Connections, Inc. Solid waste disposal for the Facility during repowering and operation will be provided by private contract with a local commercial hauler.

3.3.5 Housing

Table U-2 presents housing supply and availability data for counties and communities within the Area of Influence. Housing vacancy rates for the year 2016 ranged from about 3 percent in Stanfield, Oregon to over 15 percent in the small community of Prescott, Washington. The four-county average vacancy rate of 7.2 percent is lower than Oregon and Washington’s estimated vacancy rates of 9.4 and 9.1 percent, respectively.

Typical housing options for temporary workers include campgrounds and other areas where workers can park trailers. Other typical options include mobile housing, motels and hotels, and apartments, or other short-term rental homes. These types of temporary housing will be most available in larger communities within a commutable distance, such as Milton-Freewater, Hermiston, and Pendleton.

Table U-2. Housing Supply in Counties and Communities within the Area of Influence

Location	Total Housing Units		Average Annual Growth Rate	Estimated Vacancy Rate
	2010	Estimated 2016	2010-2016	2016
OREGON	1,675,562	1,706,290	0.3%	9.4%
Umatilla	29,693	29,791	0.1%	10.5%
Adams	141	146	0.6%	8.9%
Athena	484	470	-0.5%	11.9%
Echo	256	286	2.0%	7.7%
Helix	68	63	-1.2%	6.3%
Hermiston	6,373	6,662	0.8%	5.8%
Milton-Freewater	2,742	2,705	-0.2%	10.1%
Pendleton	6,800	6,609	-0.5%	8.1%
Pilot Rock	649	590	-1.5%	9.0%

Location	Total Housing Units		Average Annual Growth Rate	Estimated Vacancy Rate
	2010	Estimated 2016	2010-2016	2016
Stanfield	735	872	3.1%	3.0%
Weston	271	300	1.8%	14.7%
WASHINGTON	2,885,677	2,966,814	0.5%	9.1%
Walla Walla	23,451	23,883	0.3%	8.5%
College Place	3,764	3,754	0.0%	7.1%
Prescott	156	184	3.0%	15.2%
Walla Walla	12,514	12,938	0.6%	9.7%
Benton	68,618	72,262	0.9%	5.3%
Richland	20,876	22,196	1.1%	5.5%
Kennewick	28,507	29,572	0.6%	5.9%
Franklin	24,423	26,386	1.3%	4.7%
Pasco	18,782	20,661	1.7%	3.6%
Sources: U.S. Census Bureau 2010; U.S. Census Bureau 2017.				

3.3.6 Traffic Safety and Operations

The providers of transportation services in Umatilla County include the Umatilla County Public Works Department and the Oregon Department of Transportation (ODOT). State, county, or local roadways may be temporarily affected by traffic increases resulting from vehicles accessing the site. Potential repowering and operational impacts to traffic safety or maintenance on state highways from the Facility are anticipated to be inconsequential, because the state highway system, including I-84, is constructed to comply with design, safety, and load-bearing standards. I-84 is able to accommodate vehicles at the legal load limit, thereby reducing the potential for significant traffic safety and maintenance impacts. Other major roads that may be used to access the site include: SR 11; SR 37, Athena-Waterman Road, Havana-Helix Highway, Athena-Holdman Highway, Holdman-Helix Road, Vansycle Canyon Road, Butler Grade Road, and Sand Hollow-Duroc Road.

3.3.7 Police and Fire Protection

3.3.7.1 Police

Local police service is provided by most of the incorporated communities in the Analysis Area. The Certificate Holder would seek assistance from the Umatilla County Sheriff's Office in Pendleton for police service when required. Backup law enforcement service is available from the Oregon State Police, through the Southern Command Center Dispatch that supports 15 counties, including Umatilla County (Oregon State Police 2018).

3.3.7.2 Fire

Fire protection services for the Analysis Area will include, in order of nearest proximity: the Athena Volunteer Fire Department, the East Umatilla County Rural Fire Department in Weston, and the Milton-Freewater Rural Fire Department. The Certificate Holder will notify these agencies of repowering plans and phasing, and identify the location and access to the Facility structures. The Milton-Freewater rural fire department will provide fire protection for the Facility, continuing a contract that is automatically renewed for the Facility upon annual payment (FPL Energy Vansycle LLC 2017). The site will be equipped with fire protection equipment in accordance with the Oregon Fire Code (OAR Chapter 837 Division 40).

3.3.8 Health Care

Because population density in the Analysis Area is relatively low, hospitals and health care services tend to be regional. The hospital nearest to the Facility is CHI St. Anthony Hospital (Level IV trauma facility) located in Pendleton, Oregon (Oregon Health Authority 2018a)¹. There are also two Level III hospitals in Walla Walla, Washington, one Level III hospital in Hermiston, and two Level III hospitals in the Tri-Cities area (Oregon Health Authority 2018a). There are additional daytime clinics that provide non-urgent health care services in each of these areas.

Emergency medical services for the Facility will include, in order of nearest proximity: East Umatilla County Health District in Athena, Milton-Freewater Emergency Medical Service in Milton-Freewater, and Pendleton Fire and Ambulance in Pendleton. These agencies will provide ambulance service for the Facility (Oregon Health Authority 2018b).

3.3.9 Schools

In Oregon, eight school districts are within the Area of Influence, either wholly or in part: Helix School District (SD) 1, Athena-Weston SD29RJ, Milton-Freewater SD 7, Pendleton SD 16, Pilot Rock SD2, Echo SD 5, Stanfield SD 61, and Hermiston SD 8. The schools closest to the Facility are operated by the Helix and Athena-Weston SDs. Helix has one school building that includes K-12 grade levels, and Athena-Weston includes one elementary school, one middle school, and one high school (Oregon Department of Education 2017).

In Washington, 11 school districts are within the Area of Influence, either wholly or in part: Columbia SD 400, College Place SD250, Dixie SD 101, Prescott SD 402, Touchet SD 300, Walla Walla SD 140, Kennewick SD 17, Finley SD 53, Richland SD 400, Pasco SD 001, and Star SD 54. More than 20 individual schools are located within the Area of Influence (OSPI 2018).

¹ Trauma facilities are designated as Level I, II, III, or IV, with Level I and II centers providing the most intensive, comprehensive level of care. Severely injured patients needing more advanced care after being stabilized at a Level III or IV facility would be transferred to a Level I or II facility in the region as needed. All trauma hospitals have medical staff and equipment available 24-hours-a-day.

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.

The public and private service providers in the Analysis Area are not anticipated to experience adverse impacts due to the proposed repower of the Facility. An analysis by topic is provided in each of the following sections.

3.4.1 Population

3.4.1.1 Construction

The population in the 10-mile Analysis Area and 30-mile Area of Influence will change very little as a result of repowering the Facility. Temporary repowering-related jobs filled from outside of the Analysis Area will last no more than 3 to 4 months, but during that time workers will most likely stay at area hotels and motels, eat at local restaurants, and purchase other amenities, such as gas and groceries, all having a beneficial impact on the local economy. Assuming that only 50 of the workers (one-third) will be local residents from the four-county Analysis Area, potentially 100 workers will temporarily relocate to the area. If an average household size is two people (assuming that many workers will not be accompanied by children), an estimated maximum of 200 temporary new residents might be associated with repowering the Facility. The actual number of temporary residents likely will be less due to a combination of greater local hiring and fewer workers bringing partners or others with them. Temporary workers will likely settle in hotels, motels, campgrounds, recreational vehicle (RV) parks, and temporary rental housing, located within a commutable distance to the Facility.

The number of new temporary jobs and continuation of permanent full- and part-time jobs created from repowering the Facility and operations will represent less than 1 percent of total employment in the four-county Analysis Area. Though a relatively small number, jobs created by the Facility will result in short- and long-term benefits to overall county employment. No mitigation is proposed regarding population and economy.

3.4.1.2 Operations

No changes to operations staff are expected at the Facility following installation of the new turbine blades. The current staffing will remain the same for the foreseeable future; therefore, no change to the population is expected from the Facility operations.

3.4.2 Sewer and Water Services

3.4.2.1 Construction

See Exhibit V for a description of wastewater treatment. The Facility is not located within any wastewater facility treatment area; therefore, it will not have impacts on existing wastewater treatment facilities or collection systems. The only sewage services required by the Facility during the repower will be related to the handling of sewage from contract portable toilets. Because the sewage demands of repowering the Facility will be minimal and temporary, no adverse impacts are anticipated. No mitigation is proposed.

See Exhibit O for a description of water use for the Facility. Water needed for repowering activities will be obtained from the City of Helix, a permitted third-party water source. An estimated total of 3.5 million gallons of water will be used for road watering and laydown areas during the repowering process for road compaction and dust reduction. The expected demand will not affect an existing water right or exceed the amount of water available to existing customers. No mitigation is proposed.

3.4.2.2 Operations

Sewer and water use during operations will not change from existing conditions. Therefore, no adverse impacts are anticipated and no mitigation is proposed.

3.4.3 Stormwater Drainage

Municipal or quasi-municipal stormwater drainages are not provided in the Facility's area. The Facility will be constructed and operated with its own stormwater management systems, consistent during the repower with a National Pollutant Discharge Elimination System (NPDES) 1200-C permit issued by the Oregon Department of Environmental Quality (Exhibit I). No significant adverse impacts are anticipated.

The Facility is not located within any jurisdiction's stormwater system and will not impact existing stormwater systems or providers; therefore, no mitigation is necessary.

3.4.4 Solid Waste Management

See Exhibits V and G for a description of solid waste management activities. It is expected that solid waste management needs during repowering and operating the Facility will be met through existing facilities and will not interfere with the ability of service providers to meet other community waste management needs (i.e., if local landfill capacity were inadequate to handle the needs of the Facility). The old turbine blades will be handled by the manufacturer (Siemens) for removal from the site. The removed turbine blades and nacelles will be reused or sold for scrap, or otherwise lawfully disposed of as determined by the manufacturer (Siemens), who is under agreement to remove all old components. The Finley Buttes Regional Landfill confirmed capacity to

receive old turbine blades, preferably cut in pieces, for landfill disposal (pers. comm., Kevin Green, District Manager with Finley Buttes Regional Landfill with Rachael Katz, Tetra Tech, on July 26, 2018). The landfill also has capacity for gear boxes after fluid removal. Electronic components of the gear box may need to be disposed of separately, following hazardous waste procedures, as determined by the manufacturer. Other waste will be removed from the site and either re-used, recycled, sold for scrap, or disposed of at the Finley Buttes Regional Landfill, if necessary. No waste will be disposed on site.

The Finley Buttes Regional Landfill, near Pendleton, is closest to the Facility and is owned by Waste Connections, Inc. It accepts construction debris, household waste, contaminated soil, and asbestos materials (Finley Buttes Landfill 2018). The Facility is not expected to have any significant adverse impact on the ability of any community in the area to provide solid waste management services.

Because of the minimal quantity and inert nature of most of the potential waste, there is no anticipated adverse impact on surrounding or adjacent areas from wastes generated at the Facility during the re-power, operation (which will stay the same as existing conditions), or retirement. Therefore, no mitigation is proposed.

3.4.5 Housing

3.4.5.1 Construction

Potential impacts on housing could result if there were an inadequate supply of housing in relation to the demand from the new temporary residents associated with the Facility. At this time, it is unknown where the new temporary residents associated with the Facility will settle and what type of housing they will select. Most relocating employees will likely settle in Adams or Milton-Freewater, where the housing vacancy rate is approximately 9 and 10 percent, respectively (Table U-2).

An estimated 50 workers will travel from within 30 miles of the Facility site and will not require temporary housing. The remaining 100 workers will require temporary housing in the Facility's vicinity. Assuming up to double occupancy (with a spouse or partner), these workers will require an average 100 motel rooms, camping spaces, or rental units per month. Based on the above housing information and vacancy rate (Table U-2), there is an adequate supply of local housing and temporary accommodations in the four-county Analysis Area for the expected Facility demand.

No significant adverse impacts on the ability of communities to provide housing are anticipated; therefore, no mitigation is proposed.

3.4.5.2 Operations and Maintenance

No new permanent housing will be required for the Facility operations. As noted above, no operations staff changes are expected following installation of the new turbine blades. As no significant adverse impacts on the ability of communities to provide housing are anticipated from re-powering the Facility or operations, no mitigation is proposed.

3.4.6 Traffic Safety and Operations

3.4.6.1 Construction

The expected transport route during repowering will follow I-84 and SR 11. Traffic volumes were obtained to evaluate potential impacts resulting from traffic associated with the Facility for each milepost segment of I-84 and SR 11 within the 10-mile Analysis Area. The ODOT Web site was consulted for traffic volumes, which are available for all state routes, including the segments within the 10-mile Analysis Area.

Table U-3 presents annual average daily traffic volumes from 2012 through 2016 on I-84 and SR 11. Each of the mileposts corresponding to I-84 represent the distance from that location on I-84 to its intersection with I-5 in Portland, and each of the mileposts corresponding to SR 11 represent the distance from that location on SR 11 to its intersection with I-84 in Pendleton.

Within the Analysis Area, I-84 is known as the Old Oregon Trail Highway, or Highway Number 6 according to the Oregon State Highway System. This segment of I-84 is classified as an Interstate on the National Highway System and is designated a State Freight Route and federally designated Truck Route by the Oregon Highway Plan (2015). I-84 includes two paved lanes in each direction as well as a vegetated median strip that separates eastbound and westbound traffic. Paved shoulders generally vary from 4 to 10 feet and the posted speed is 65 miles per hour (mph) for general traffic and 55 mph for trucks.

Within the Analysis Area, SR 11 is known as the Oregon-Washington Highway, or Highway Number 8 according to the Oregon State Highway System. This segment of SR 11 is classified as a State Freight Route and federally designated Truck Route by the Oregon Highway Plan (2015). SR 11 includes a single lane in each direction and is almost entirely without a physical barrier separating northbound and southbound traffic. The posted speed is 55 mph for general and truck traffic.

Table U-3 shows that traffic on I-84 roadway segments within the Analysis Area has increased over the past five years, with the change ranging from 12 to 23 percent. On average, traffic on the roadway segments of SR 11 has increased slightly (5 percent) over the past 5 years, but some segments have seen decreases of 1 to 13 percent, and others have seen increases of 2 to 23 percent.

Table U-3. Oregon State Highway Annual Average Daily Traffic Volumes

Highway	Location	Milepost	2012	2013	2014	2015	2016	Percent Change 2012-2016
I-84 (No. 6)	0.30 miles east of Pendleton-John Day Highway (US 395), Emigrant Avenue Interchange	209.84	14,100	14,300	14,600	15,900	16,600	18%
I-84 (No. 6)	0.40 miles east of Oregon-Washington Highway (OR 11), South Pendleton Interchange	211.36	12,500	12,700	12,200	13,500	14,000	12%
I-84 (No. 6)	0.40 miles southeast of Pendleton Highway (US 30), East Pendleton Interchange	213.45	13,800	14,000	13,700	15,000	15,500	12%
I-84 (No. 6)	Mission Jct. Automatic Traffic Recorder, Sta. 30-026, 0.76 miles southeast of Umatilla-Mission Highway No. 331 Interchange	216.81	9,500	9,700	10,300	11,000	11,500	21%
I-84 (No. 6)	0.50 miles west of Deadman's Pass Interchange	228.44	9,400	9,600	10,100	10,900	11,300	20%
I-84 (No. 6)	0.50 miles west of West Emigrant Park Interchange	233.45	9,200	9,400	9,900	10,700	11,100	21%
I-84 (No. 6)	0.50 miles west of East Emigrant Park Interchange	234.55	9,000	9,200	9,700	10,500	10,900	21%
I-84 (No. 6)	0.50 miles west of Meacham Interchange	238.27	9,100	9,300	9,800	10,600	10,900	20%
I-84 (No. 6)	0.50 miles east of Meacham Interchange	239.27	9,000	9,200	9,900	10,700	11,100	23%
I-84 (No. 6)	0.30 miles east of Kamela-Mt. Emily Road Interchange	244.12	9,100	9,300	9,800	10,600	10,900	20%
SR 11 (No. 8)	0.40 miles north of Old Oregon Trail (I-84)	-1.37	5,900	5,900	5,800	6,100	6,200	5%
SR 11 (No. 8)	0.10 miles north of Isaac Avenue	-1.09	4,600	4,600	4,600	4,800	4,000	-13%
SR 11 (No. 8)	0.02 miles east of 9th street	-0.75	4,300	4,300	4,300	4,500	4,700	9%

**EXHIBIT U: AVAILABILITY OF PUBLIC AND PRIVATE
PROVIDERS TO PROVIDE SERVICES**

Highway	Location	Milepost	2012	2013	2014	2015	2016	Percent Change 2012-2016
SR 11 (No. 8)	0.01 miles south of Emigrant Avenue, Pendleton-John Day Highway (OR 37)	-0.71	5,700	5700	5,600	5,900	5,700	0%
SR 11 (No. 8)	0.25 miles northeast of Pendleton Highway (US 30)	0.25	6,400	6,400	5,800	6,000	6,800	6%
SR 11 (No. 8)	0.02 miles northeast of Riverside Drive	0.35	4,200	4,200	4,200	4,400	4,600	10%
SR 11 (No. 8)	0.02 miles northeast of Lindell Lane	0.48	4,200	4,200	4,100	4,300	4,500	7%
SR 11 (No. 8)	0.06 miles northeast of Riverside School Road	0.77	3,400	3,300	3,400	3,500	3,700	9%
SR 11 (No. 8)	0.10 miles southwest of Havana-Helix Highway	6.09	4,400	4,400	4,700	4,900	5,200	18%
SR 11 (No. 8)	0.02 miles northeast of Havana-Helix Highway	6.21	3,900	3,900	4,300	4,500	4,800	23%
SR 11 (No. 8)	0.08 miles south of Mann Road	11.56	4,300	4,300	4,100	4,300	4,400	2%
SR 11 (No. 8)	East city limits of Adams	12.14	3,800	3,700	4,000	4,200	4,200	11%
SR 11 (No. 8)	0.02 miles west of Pamburn Road	16.05	3,800	3,700	4,200	4,400	4,300	13%
SR 11 (No. 8)	0.05 miles south of Athena-Holdman Highway	17.27	3,200	3,100	3,400	3,600	3,300	3%
SR 11 (No. 8)	0.05 miles north of Athena-Holdman Highway	17.37	3,600	3,500	3,700	3,900	4,100	14%
SR 11 (No. 8)	0.22 miles southwest of Weston-Elgin Highway (OR 204)	20.23	3,900	3,900	3,600	3,800	4,000	3%
SR 11 (No. 8)	0.20 miles northeast of Weston-Elgin Highway (OR 204)	20.65	4,200	4,200	4,200	4,400	4,600	10%
SR 11 (No. 8)	0.02 miles northeast of Steen Road (old highway alignment)	21.77	4,600	4,600	4,800	5,100	5,100	11%

**EXHIBIT U: AVAILABILITY OF PUBLIC AND PRIVATE
PROVIDERS TO PROVIDE SERVICES**

Highway	Location	Milepost	2012	2013	2014	2015	2016	Percent Change 2012-2016
SR 11 (No. 8)	0.02 miles north of Blue Mt. Station Road	23.47	5,300	5,300	4,700	5,000	4,900	-8%
SR 11 (No. 8)	0.39 miles north of Steen Road	26.59	5,800	5,800	4,900	5,100	5,500	-5%
SR 11 (No. 8)	0.02 miles north of S.E. 14th Avenue	26.9	8,300	8,200	8,100	8,500	8,100	-2%
SR 11 (No. 8)	0.02 miles south of Freewater Highway (S. Main Street)	30.57	12,800	12,700	12,600	13,300	12,200	-5%
SR 11 (No. 8)	0.03 miles north of Freewater Highway (S. Main Street)	30.65	10,200	10,100	10,000	10,500	11,000	8%
SR 11 (No. 8)	0.02 miles south of N.E. 5th Avenue	31.18	11,700	11,600	11,400	11,900	11,500	-2%
SR 11 (No. 8)	0.02 miles north of N.E. 5th Avenue	31.22	11,500	11,300	11,100	11,700	10,700	-7%
SR 11 (No. 8)	0.28 miles south of Elizabeth Street	31.64	10,200	10,100	11,800	12,400	11,900	17%
SR 11 (No. 8)	0.02 miles south of Sunnyside-Umapine Highway	32.62	13,400	13,300	13,000	13,600	13,200	-1%
SR 11 (No. 8)	0.02 miles north of Sunnyside-Umapine Highway	32.66	13,100	13,000	11,600	12,200	12,700	-3%
SR 11 (No. 8)	Milton Automatic Traffic Recorder, Sta. 30-021, 0.86 miles south of Oregon-Washington State	34.46	14,300	14,200	14,100	14,800	15,400	8%
SR 11 (No. 8)	0.02 miles south of State Line Road, Oregon-Washington State Line	35.3	14,000	13,900	13,100	13,700	13,600	-3%

Source: ODOT 2012, 2013, 2014, 2015, 2016

Pavement Conditions

Pavement conditions may relate to traffic safety issues. Poor pavement with potholes could cause vehicles to swerve, resulting in unsafe vehicle operation; therefore, trucks should use caution. The ODOT Pavement Condition report was consulted to determine the pavement conditions of the portions of I-84 and SR 11 that are within the 30-mile Area of Influence (ODOT 2017). Table U-4 shows pavement conditions for the roadways that could be used as a transport route.

Table U-4. Oregon State Highway Pavement Conditions

Roadway	Approximate Milepost	Pavement Condition
I-84 (No. 6)	180 to 188	Good
I-84 (No. 6)	188 to 204	Fair
I-84 (No. 6)	204 to 218	Under Construction ¹
I-84 (No. 6)	218 to 238	Good
SR 11 (No. 8)	0 to 35	Good
Source: ODOT 2017 1. As of March 2018 this section of I-84 is no longer under construction and open without restriction (ODOT 2018). An updated pavement condition report is expected in 2018. The 2016 construction project included repaving a portion of the roadway.		

A review of roadway conditions indicates that I-84 is generally in good condition for truck travel. One 16-mile-long segment is in fair condition. Within the Analysis Area, SR 11 is in good condition, surfaced almost entirely by concrete. Regardless of existing pavement conditions, roadway segments will be reviewed by NextEra prior to any traffic being added.

Pavement conditions on local county roadways vary from newly paved to unimproved gravel. The primary route will continue from SR 11 towards the town of Helix along Helix Highway. At Helix, the route will continue northwards on Vansycle Canyon Road which leads to local paved and gravel roadways that will provide access to the individual turbine string roads. Following repowering local roadways will be repaired to existing conditions or better.

Construction Traffic Volumes

Potential traffic safety impacts are not anticipated as a result of repowering the Facility. Although vehicle and truck traffic will be added to the roadways in Umatilla County, safety and traffic flow will be monitored to avoid adverse effects.

An estimated 75 heavy duty trucks will be used during mobilization/demobilization of repowering. About 10 heavy trucks per day will be needed during the repower period to transport materials to the site, as well as about 25 utility trucks each day for miscellaneous equipment, machinery, water, and personnel. Oversize trucks will be required to transport the new turbine blades. Additional oversize vehicles will be required for transport of large construction operating equipment (e.g., cranes, bulldozers).

Assuming 4 months of repowering activities at 20 workdays per month (possibly more workdays during the peak period of the repower), about 2,800 total truck trips—35 round-trips per day—will be added to background traffic patterns.

As shown in Table U-3, I-84 currently carries an ADT volume ranging from 10,900 to 15,500 vehicles in the Analysis Area. The Facility will cause an increase in traffic of less than 0.35 percent through all segments of I-84, and effects will be inconsequential. I-84 can accommodate this low additional volume. Delivery vehicles will be advised to avoid peak traffic hours (i.e., morning and evening commuting periods) of the surrounding communities to minimize effects of repowering.

In summary, the volumes of traffic generated by the Facility are minimal in comparison to the Oregon State Highway System ADT volumes. Repowering the Facility is not expected to have any traffic safety impacts to the state highway system.

Existing county roadways included as part of the Facility transporter routes will experience an increase in traffic volumes during repowering, but roadway function is anticipated to remain acceptable. Because of the rural nature of the area, the roadways planned for use currently support a small number of trips and have ample capacity.

Construction Traffic and Design Standards

It is anticipated that county and local roadways will safely accommodate Facility traffic. In the initial construction of the Facility in 2009, NextEra worked with local transportation officials to conduct improvements where necessary to accommodate construction traffic. For this proposed repower, only improvements to previously disturbed temporary access roads are anticipated.

Oregon State highways are designed and constructed to accommodate legal loads of 80,000 pounds without a permit. During repowering, it will be necessary for trucks exceeding the legal load limit to access the site via state highways. These trucks will be delivering turbine blades and other heavy construction equipment. Before repowering, the transportation contractor will consult ODOT to determine if any segments of roadway or bridges are restricted for travel. The transportation contractor must obtain any heavy haul permits required to allow transport of these loads. Because the state highways are built to accommodate overweight vehicles with permits, impacts to safety or roadway pavement conditions are not anticipated.

The contractor will obtain authorization from Umatilla County before proceeding with oversize and overweight loads on county-maintained roadways. Umatilla County roadways may be constructed to lower standards than the state highway system, and will be rated before repowering to determine any special requirements or conditions for transport of overweight and/or oversize vehicles. These requirements or conditions will be imposed to maintain traffic safety and roadway integrity. The Certificate Holder will adhere to all travel conditions and transportation equipment requirements set forth by either Umatilla County or ODOT. In 2009 ODOT found, as documented in the Final Order on Amendment #4, that no significant alterations or improvements will be needed to State roadways or to areas outside of the right-of-way for Facility construction. Given ODOT's prior finding and the requirement for obtaining county approval for oversize and overweight loads

on county-maintained roadways, no adverse impacts from the Facility to traffic safety or roadway integrity are anticipated.

Adverse impacts to travel times from the Facility are not anticipated. While repower-related traffic may cause short-term traffic delays because of large delivery trucks, this is temporary and will be mitigated with measures that further minimize impacts. These measures may include:

- Providing notices to adjacent landowners when repowering takes place to help minimize access disruptions;
- Providing proper road signs and warnings, including “Oversized Load,” “Truck Access,” or “Road Crossings;”
- Implementing traffic diversion equipment, such as advance signs and pilot cars whenever possible when slow or oversized loads are being hauled;
- Encouraging carpooling for the workforce to reduce traffic volume;
- Employing flag persons as necessary to direct traffic when large equipment is exiting or entering public roads to minimize risk of accidents; and
- Maintaining at least one travel lane so that roadways will not be closed to traffic because of vehicles entering or exiting public roads.

Advance warning, such as signs and notices to landowners may reduce the effect vehicles for repowering have on county roadways. By providing notices to landowners ahead of time, nearby residents will be aware of temporary access disruptions and potential delays, and may be able to adjust their travel accordingly. To further reduce the effect of vehicles used for repowering, flag persons will efficiently guide large or oversize vehicles as they enter or exit any public roadway.

Although short-term delays may occur, traffic operations will be maintained by keeping at least one travel lane of the transporter route open at all times. This will be important on county roads because transport vehicles will access turbine string roads via these county roads. Flag persons may facilitate two-way traffic on one lane by alternately restricting travel directions. This method will not require lane closures, detours, or reroutes. Flag persons will also monitor through traffic on public roadways as necessary so that they are not in conflict with Facility vehicles.

Unlike large construction vehicles, the workforce will most likely travel during the morning and afternoon peaks of a typical workday. Although local Umatilla County traffic volumes are low, by encouraging carpooling among workers, fewer vehicles can be anticipated on the roadway during this time, therefore reducing the effect of repowering on typical commuters.

3.4.6.2 Operations and Maintenance

Operational traffic for the Facility will not change from existing conditions. Therefore, no adverse impacts to the transportation network are anticipated.

3.4.7 Police and Fire Protection

3.4.7.1 Police

The Facility's repowering and operations will not have an adverse impact on the ability of communities in the Analysis Area to provide police protection or law enforcement services. No increased need for police services (e.g., protection from vandalism or other crime during repowering or operations) is expected from the Facility. If required for an emergency, backup law enforcement will be available from the Pendleton Area Command Oregon State Police, and from local police in the surrounding jurisdictions (Milton-Freewater and Hermiston).

3.4.7.2 Fire

NextEra has an ongoing contract with Milton-Freewater Fire and Rescue to provide fire and ambulance services in the Facility area and no adverse impacts are anticipated (FPL Energy Vansycle LLC 2017). Neither repowering nor operations, or the workforce associated with either, is expected to result in an increase in fires or in other needs for fire protection services beyond the ability of the local fire departments to provide those services. During the Facility repowering, there could be some risk of accidental grass fires on the site; however, using previously disturbed access roads and laydown areas, and implementing the Facility's fire protection measures will minimize the risk of such fires.

For the preceding reasons, the Facility will have no impacts on the ability of surrounding communities to provide fire protection during construction or operations.

3.4.8 Health Care

Impacts on health care are not expected to occur from the Facility repowering activities or increases in temporary residents (during the repower) and permanent residents (during operations). Any potential increase in the use of routine and emergency health care services is not expected to exceed the capacity of local providers. To reduce the potential for health and safety risks, NextEra will require all major on-site construction contractors to prepare site health and safety plans before they start repower activities. Each plan will provide instruction to employees and others on what to do in case of emergencies. Plans will include locations of fire extinguishers, important telephone numbers, and first aid techniques. Names of the nearest hospitals, their addresses, and their contact information will be listed. The plans will be maintained during repowering and operations. Additional preventive measures could be included, such as briefings with local hospitals and emergency service providers, identification of an emergency helicopter or aircraft landing area, and coordination with local fire officials.

Careful management of site health and safety risks will minimize impacts on local health care services. The small number of new temporary and permanent residents is not expected to place significant new demands on the health care facilities that serve the area.

3.4.9 Schools

Because repowering work for the Facility will be short-term and temporary, and because it is anticipated that repowering phase workers will either be hired locally or, when hired from out of the area, will not likely be accompanied by their families, no new students are anticipated in association with the Facility repowering. Therefore, no impacts on schools will result.

As no operations staff changes are expected following the repower, no new permanent households will result from the Facility. Therefore, no significant adverse impacts on schools are anticipated.

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.

Because no significant impacts have been identified and because no mitigation is warranted or proposed, a monitoring program is not proposed. NextEra will contact the Umatilla County Public Works Department throughout the process regarding transportation issues.

5.0 Conclusion

Repowering and operating the Facility are not likely to result in any significant adverse impact to the ability of public or private providers to provide the services listed in OAR 345-022-0110.

6.0 References

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Figures

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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

**Figure U-1 Transportation
Routes and
Socioeconomic Area**

UMATILLA, OR

-  Replacing Turbine Blades
-  10 Mile Boundary
-  Rural Fire Protection District
-  Interstates
-  Highways
-  Major Roads
-  Main Rail Line



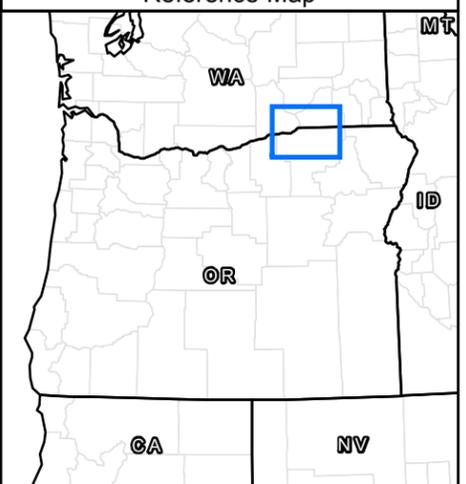
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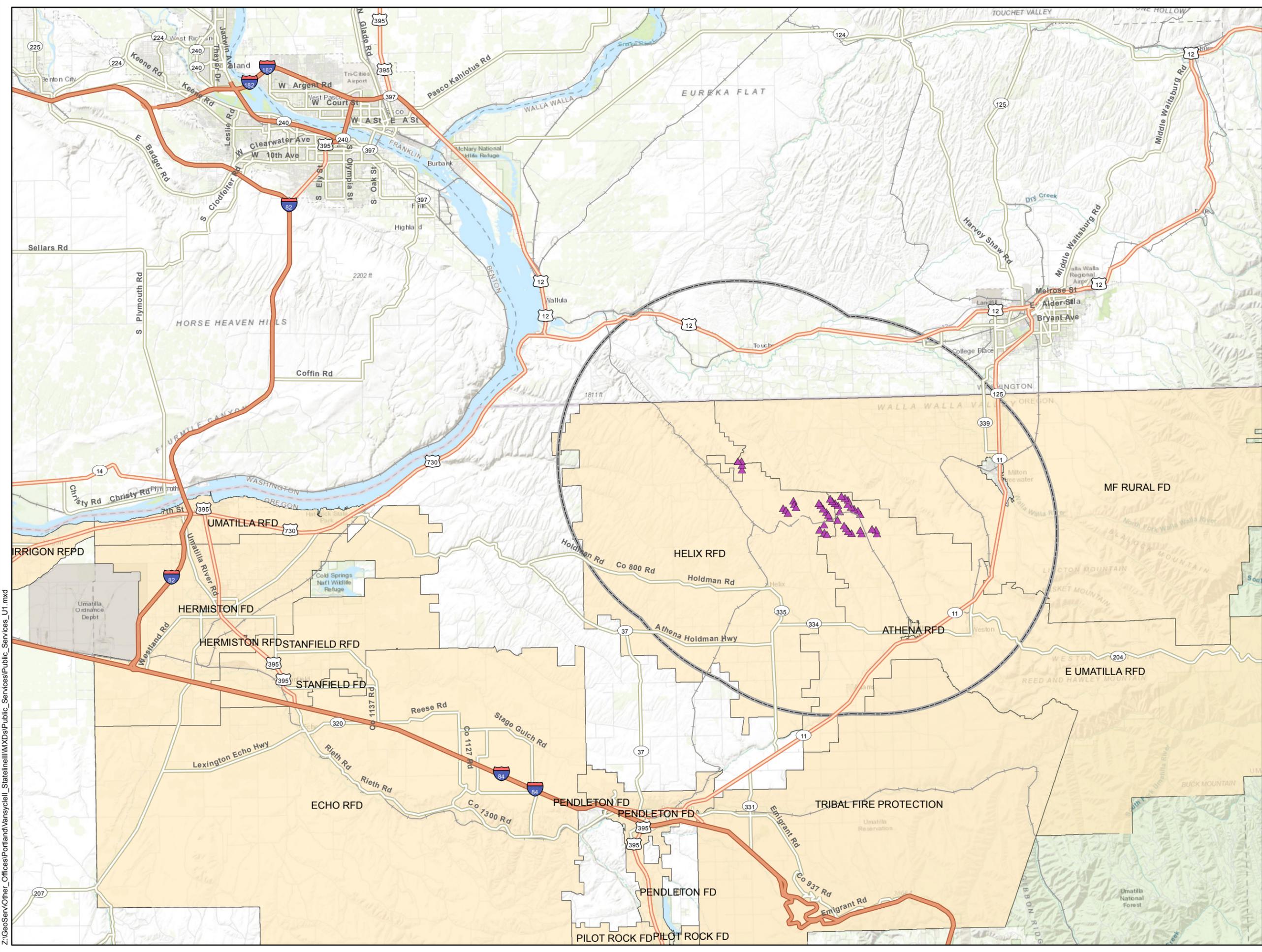
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI Streetmap



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**Stateline Wind Project
Request for Amendment 5**

Vansycle II*

*Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5.

**Figure U-2
Area of Influence**

UMATILLA, OR

-  Replacing Turbine Blades
-  City Limits
-  State Boundary
-  County Boundary
-  Interstates
-  Highways
-  Major Roads
-  Main Rail Line



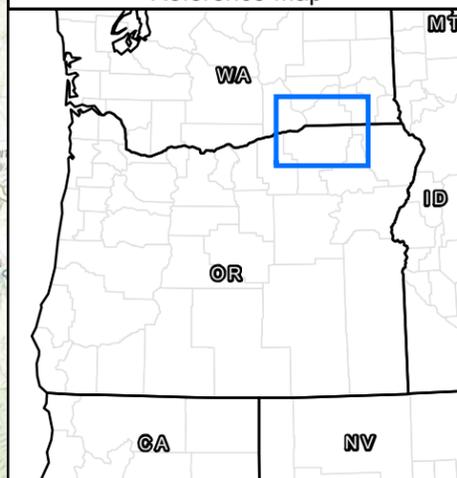
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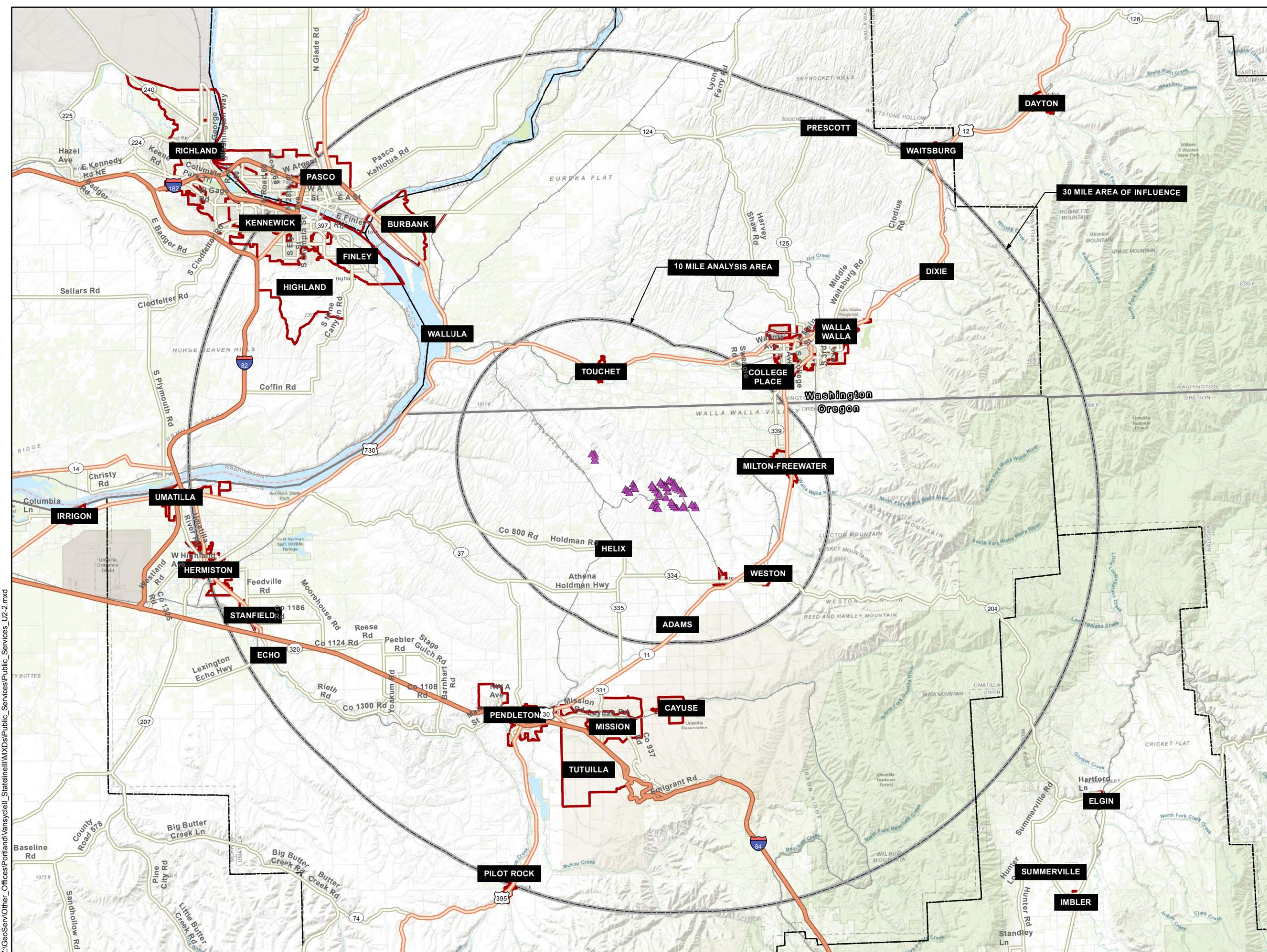
NAD 1983 StatePlane Oregon
North FIPS 3601 Feet Intl



Reference Map



Data Sources:
ESRI Streetmap



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Exhibit V

Generation of Solid Waste and Wastewater

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction.....	1
2.0	Description of Solid Waste and Wastewater Generation – OAR 345-021-0010(1)(v)(A)	1
2.1	Construction.....	1
2.2	Operation.....	2
2.3	Decommissioning.....	2
3.0	Description of Waste Management and Disposal Structures, Systems and Equipment – OAR 345-021-0010(1)(v)(B)	3
4.0	Actions or Restrictions to Reduce Consumptive Water Use – OAR 345-021-0010(1)(v)(C)...	3
5.0	Minimization and Recycling Plans – OAR 345-021-0010(1)(v)(D).....	4
5.1	Recycling and Waste Disposal During Construction	4
5.2	Recycling and Waste Disposal During Operation	4
5.3	Recycling and Waste Disposal During Retirement.....	4
6.0	Waste-Related Impacts	4
6.1	Description of Impacts – OAR 345-021-0010(1)(v)(E)	4
6.2	Evidence that Impacts are Minimal – OAR 345-021-0010(1)(v)(F).....	5
6.3	Proposed Monitoring Plan – OAR 345-021-0010(1)(v)(G).....	6
7.0	Conclusion	6

Acronyms and Abbreviations

Certificate Holder	FPL Energy Stateline II, Inc.
Facility	Stateline Wind Project – Vansycle II
O&M	Operations and Maintenance
OAR	Oregon Administrative Rules
RFA 5	Request for Amendment 5

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit V is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

Exhibit V provides evidence that RFA 5 meets the standards for Oregon Administrative Rules (OAR) 345-021-0010(1)(v) because FPL Energy Stateline II, Inc. (the Certificate Holder) will minimize the generation of solid waste and wastewater and re-use and recycle materials to the extent feasible. In addition, the Certificate Holder has outlined a strategy to manage generated wastes that will result in minimal adverse impact on surrounding and adjacent areas.

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.

2.1 Construction

A variety of non-hazardous, inert wastes will be generated during repowering. The major solid waste types will be packaging associated with equipment installed at the Facility, the old wind turbine blades, as well as erosion control materials, such as straw bales and silt fencing.

Portable toilets will be provided for onsite sewage handling during repowering. Portable toilets will be provided by a subcontractor, who will be responsible for servicing the facilities at regular intervals and disposing of wastewater in accordance with local jurisdictional regulations. The construction contractor will ensure that a sufficient number of toilets is provided and that the portable restroom company complies with applicable regulations; uses holding tanks for biological waste that conform to Oregon Department of Environmental Quality regulations at OAR Chapter 340, Division 71; and transports waste in accordance with Oregon Revised Statutes Chapters 465 and 466.

Generation of wastes from repowering will be minimized through detailed estimating of materials needed and through efficient repowering practices. The removed turbine blades will be reused or sold for scrap, or otherwise lawfully disposed of, as determined by the manufacturer (Siemens) who is under agreement to remove all old components. Other wastes generated during repowering will be recycled to the extent practicable. Electrical cable scrap will be collected and transported to a recycling facility. Wood waste will be recycled to the greatest extent practicable. Packaging wastes (such as paper and cardboard) will be segregated and recycled as feasible. Any non-recyclable wastes will be collected and transported to a local landfill. The Finley Buttes Regional Landfill, near Pendleton, is closest to the Facility (see Exhibit U for a discussion of public service providers). As of 2015, the Finley Buttes Landfill has 510 acres permitted to receive waste but has used only 90 acres.

Stormwater is not considered to be wastewater. Stormwater management will be in conformance to State of Oregon stormwater management rules. Precipitation that falls on the Facility site will be managed as stormwater in accordance with a National Pollution Discharge Elimination System construction stormwater 1200-C permit and an Erosion and Sediment Control Plan (see Exhibit I).

The Certificate Holder will rent dumpsters from a local sanitation company to collect and dispose of waste materials that cannot be re-used or recycled. A final site cleanup will be made before shifting responsibilities to Operations and Maintenance (O&M) crews.

2.2 Operation

Solid waste from Facility operations will not change from the existing amount of solid waste generated from the Facility.

2.3 Decommissioning

Decommissioning the Facility will be the same as previously approved in the Final Order on Amendment 4¹. At the time of Facility's retirement and decommissioning, the turbine towers and other aboveground electrical equipment will be removed from the site and the materials reused or sold for scrap. Turbine blades will be disposed of by the manufacturer, per above. With landowner permission, inert underground electrical cables and underground concrete turbine pads will be left in place; however, no such equipment will be left within 3 feet of the soil surface. It is anticipated that landowners will choose to leave some of the improved roads in place. No wastewater will be generated during retirement.

¹ Energy Facility Siting Council of the State of Oregon, *Fourth Amended Site Certificate for Stateline Wind Project*. March 2009.

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.

As approved for the operating Facility, the O&M building will hold any small materials for recycling or disposal. Waste receptacles will be located at the O&M building and will serve as the location for disposing of litter. All repowering personnel will be responsible for ‘policing’ the area and collecting and disposing of litter.

Materials being held in the O&M building such as lubricants, oils, greases, antifreeze, cleaners, degreasers, and hydraulic fluids, which are being held for delivery to a certified recycling transporter, will be stored in approved containers above ground.

Management and disposal of waste will be the same as during Facility construction and operation. All other waste material associated with the Facility will be hauled off site or stored in designated aboveground areas as appropriate until the time of disposal. The Finley Buttes Regional Landfill, the second largest Landfill in the State of Oregon, is closest to the proposed Facility, and is owned by Waste Connections, Inc. The site accepts municipal solid waste, construction/demolition waste, and special waste (including liquids) with proper approval. Solid waste disposal for the Facility during construction and operation phases would be provided by a private contract with a local commercial hauler. Other repowering wastes from replacing the turbine blades will be handled as described above in response to OAR 345-021-0010(1)(v)(A).

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.

Because of the cost and time involved in transporting water by tank truck to the work site, water used for road and earthwork compaction and dust suppression during repowering will be applied at the minimum rate needed to perform these functions. An estimated total of 3.5 million gallons of water will be applied to roads and laydown areas during repowering for compaction and dust suppression. This water is expected to evaporate or infiltrate into the soil. After construction, water use during Facility operation will remain the same as current operational use. Water conservation practices by employees are always encouraged.

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).

5.1 Recycling and Waste Disposal During Construction

Waste minimization and recycling will be implemented during repowering activities. Generation of wastes will be minimized through detailed estimating of materials needed and efficient repowering practices. Wastes generated during repowering will be recycled to the extent feasible. For example, packaging wastes, such as paper and cardboard, will be separated and recycled. Removed wind turbine blades will be reused or sold as scrap metal, or otherwise lawfully disposed of, as determined by the turbine manufacturer. Wood waste will be recycled or re-processed depending on size and quantity of scrap or leftover materials. Any non-recyclable wastes will be collected and transported routinely and regularly via truck to a local landfill.

5.2 Recycling and Waste Disposal During Operation

There will be no change to Facility operations. Therefore, recycling and waste disposal will remain the same as existing recycling and waste disposal.

5.3 Recycling and Waste Disposal During Retirement

At decommissioning, as for the approved Facility, most of the aboveground waste will be removed and re-used, as described in Section 2. Underground waste such as concrete pads and underground cables more than 3 feet below ground surface will likely be left in place. During retirement, computers and controls will be recycled, to the extent feasible, in order to minimize the amount of E-wastes (computer monitors with cathode-ray tubes, circuit boards, processing units, etc.) requiring disposal.

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.

Because waste generation will be minimal, there is little anticipated adverse impact on surrounding or adjacent areas from waste associated with repowering, operation, or decommissioning. As noted above, all personnel will be responsible for 'policing' the area and collecting and disposing of any litter. As discussed above, most waste will either be re-used or recycled, or when necessary,

disposed of at a permitted disposal facility. If recycling is not possible, all computers and controls containing E-wastes (computer monitors with cathode-ray tubes, circuit boards, processing units, etc.) will be disposed of by a licensed and permitted disposal contractor. For inert repowering and demolition wastes, the preference for disposal will be in a permitted construction and demolition landfill in order to minimize municipal landfill capacity for inert wastes. Any waste disposed of on site (e.g., wood chippings from necessary clearing operations) will be inert, disposed of in a manner consistent with applicable regulations, and protective of human health and the environment.

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.

As discussed in Section 5, taking into account avoidance, minimization, and mitigation, adverse impacts caused by waste will be minimal. The certificate holder's proposed measures to avoid, reduce, and mitigate any possible impacts on site or to adjacent land are discussed above and in Exhibit G. They include storing all petroleum products, hazardous materials, and paint in containers that meet all federal, state, and local requirements for storage and containment. All hazardous or petroleum wastes will be removed from the Facility for recycling or disposal by a licensed contractor. In addition, spill kits containing items such as absorbent pads will be located on equipment and in on-site temporary storage to ensure a quick response to spills.

Any packing materials, paper, and refuse will be separated, accumulated in dumpsters, and periodically removed for recycling or disposal by a licensed waste hauler. Portable toilets will be provided for on-site sewage handling during repowering and will be pumped and cleaned regularly by the construction contractor.

Transportation of wastes to landfills or recycling facilities will involve periodic truck trips over public and private roads between the Facility and the nearest landfill or recycling facilities. Given the number and frequency of these trips and the anticipated volume of waste materials, these trips are not anticipated to have adverse effects on the adjacent or surrounding area.

6.3 Proposed Monitoring Plan – OAR 345-021-0010(1)(v)(G)

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 on 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.

7.0 Conclusion

The modifications proposed under RFA 5 do not alter the Facility's waste management approach. The Facility continues to meet the waste minimization standard because project-related wastes (including wastewater) are minimized, re-used, or recycled to the greatest extent feasible; wastes are disposed of in the appropriate waste disposal facility when necessary; and no significant, adverse impacts on surrounding or adjacent areas result from the management of wastes related to the Facility.

Exhibit W

Facility Retirement and Site Restoration

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction.....	1
2.0	Estimated Useful Life of the Project – OAR 345-021-0010(1)(w)(A).....	1
3.0	Actions to Restore the Site – OAR 345-021-0010(1)(w)(B).....	2
4.0	Total Costs, Estimating Methods, and Assumptions	3
4.1	Estimate of Cost – OAR 345-021-0010(1)(w)(C)	3
4.2	Estimating Methods and Assumptions – OAR 345-021-0010(1)(w)(D)	3
5.0	Monitoring Plan – OAR 345-021-0010(1)(w)(E).....	3
6.0	Conclusion	4

List of Attachments

Attachment W-1. Cost Estimate for Facility Site Restoration

Acronyms and Abbreviations

Blattner	D. H. Blattner & Sons, Inc.
Facility	Stateline Wind Project – Vansycle II
OAR	Oregon Administrative Rule
EFSC	Energy Facility Siting Council
RFA 5	Request for Amendment 5

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit W is provided in support of Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

Exhibit W was prepared to demonstrate that the Facility as modified by RFA 5 complies with the approval standard in Oregon Administrative Rule (OAR) 345-022-0050(1) based on information provided pursuant to OAR 345-021-0010(1)(w), paragraphs (A) through (E).

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.

In the Final Order on Amendment 4¹, the Energy Facility Siting Council (EFSC) found that Facility, taking into account mitigation, could be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation. Given that only the nacelles and blades are being replaced, EFSC may find that the Facility, as modified, meets the retirement standard.

2.0 Estimated Useful Life of the Project – 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.

In RFA 4, it was assumed the Facility would have a useful life of 25 to 30 years, but would be upgraded when newer technology becomes available and thus could have a useful life for more than 30 years. It is anticipated that after repowering, the Facility's useful life would be 30 years. The

¹ Energy Facility Siting Council of the State of Oregon, Fourth Amended Site Certificate for Stateline Wind Project. March 2009.

Facility has been operational since 2009, so repowering the Facility increases the Facility's useful to 40 years from initial construction.

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 Facility footprint will not change as part of RFA 5. Therefore, the specific actions and tasks to restore the site to a useful, non-hazardous condition are the same as was approved for RFA 4. Prior to the start of decommissioning, FPL Energy Stateline II, Inc. (the Certificate Holder) will submit a final retirement plan for EFSC approval, which will satisfy Condition (19) by describing the activities required to retire the site. After EFSC approves the retirement plan, the Certificate Holder will obtain the necessary authorization from the appropriate regulatory agencies to proceed with restoration. The retirement plan would 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).

Major components of site restoration include removing roads, turbines, and associated structures and restoring the soil to a condition consistent with farm use or wildlife habitat. Concrete turbine pads would be removed to a depth of at least 3 feet below the soil surface; underground collection lines and communication cables would not have to be removed because they are at a depth of 3 feet or greater (Condition (62)). The substation and associated structures would be removed and the concrete pad for the substation would be removed to a depth of at least 3 feet. The overhead transmission line would be removed and pole holes would be filled to match the surrounding contours.

In the Final Order on Amendment 2, EFSC found that "Revegetation would include reseeding with native plant seed mixes or agricultural crops, as appropriate, and would be consistent with a weed control plan approved by the county." Retirement of the proposed Facility would follow the Stateline Wind Project Revegetation Plan (Exhibit P, Attachment P-4).

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.

A site restoration estimate was obtained from D. H. Blattner & Sons, Inc. (Blattner) for the Facility as submitted in RFA 4. On June 9, 2009, the Certificate Holder, in consultation with the Oregon Department of Energy, obtained a Site Certificate bond in the amount of \$4,014,000.00. The renewal of the bond occurs annually as documented in the annual report and in compliance with Condition 109 of the Site Certificate. Most recently, as submitted in the annual report in Spring of 2018, a bond in the amount of \$4,474,000 was issued based on a dollar amount determined in accordance with Condition #109. The estimated retirement cost for the repowered turbines, in Q3 2018 dollars, is \$4,961,000 (see Attachment W-1).

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 justification and methods used to estimate site restoration costs was based on unit rates from the Site Certificate (updated by Request for Amendment 4) adjusted to match quantities for the number of turbines installed. According to the Final Order on Amendment 4, the retirement cost estimate for towers and nacelles is based on tons of steel. The total was then escalated to current dollars using Oregon’s Economic Forecast information². In accordance with Condition 109, the estimated retirement cost for the repowered turbines provided above will be reflected in the next annual bond renewal after RFA 5 approval.

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 Final Order on the Fourth Amendment, EFSC found that:

The facility would not have any underground storage tanks or other 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 on the site, significant soil contamination is unlikely.

² <https://www.oregon.gov/das/OEA/Pages/forecastcorev.aspx>

There will be no changes as part of RFA 5 that alters this finding.

6.0 Conclusion

Based on the above information, the Certificate Holder has satisfied the required OAR 345-021-0010(1)(w), and EFSC may find the standard contained in OAR 345-022-0050 is satisfied.

Attachment W-1. Cost Estimate for Facility Site Restoration

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Vansycle II Repowering
COST ESTIMATE FOR FACILITY SITE RESTORATION
(Unit Costs in 1st Quarter 2009 Dollars)

Adjustment Factor: 1.160123

Current Quarter: **Q3 2018**

GDP Index 1st Quarter 2009: **100**

<https://www.oregon.gov/das/OEA/Pages/forecastecorev.aspx>

GDP Index Current Quarter: **116.0123**

Cost Estimate Component	Quantity	Unit Cost	Extension
Turbines and Towers			
Disconnect electrical, ready for disassembly (per turbine)	43	\$1,051	\$45,193
Remove turbine blades and hubs (per tower)	43	\$4,112	\$176,816
Remove turbine nacelles and towers (per net ton of steel)	9,460	\$78.45	\$742,137
Transport and unload scrap (per net ton of steel)	9,460	\$26.48	\$250,501
Foundation and Pad Areas			
Remove and load pad transformers (per tower)	43	\$2,430	\$104,490
Remove turbine foundations (per cubic yard of concrete)	1,217	\$35.24	\$42,884
Restore turbine turnouts (per tower)	43	\$102	\$4,386
Substations			
Dismantle and dispose of substation (per unit)	1	\$58,635	\$58,635
Met Towers			
Dismantle and dispose of met towers (per tower)	2	\$7,816	\$15,632
Collector System			
Remove junction boxes	9	\$1,418	\$12,762
O&M Facility			
Dismantle and dispose of O&M facility (per unit)	1	\$12,726	\$12,726
Transmission Lines			
Remove 230-kV transmission line (per mile)	13	\$18,261	\$237,393
Access Roads			
Road removal, grading and seeding (per mile)	23	\$17,547	\$403,581
Temporary Areas			
Restore areas disturbed during restoration work (per acre)	321	\$2,978	\$955,938
General Costs			
Permits, mobilization, engineering, overhead, utility disconnects		\$465,536	\$465,536
Subtotal			\$3,528,609
Subtotal Adjusted to Current Dollars	Q3 2018		\$4,093,621
Performance Bond @ 1%			\$40,936
Gross Cost (Adjusted)			\$4,134,557
Administration and Project Management @ 10%			\$413,456
Future Developments Contingency @ 10%			\$413,456
Total Site Restoration Cost (current dollars)			\$4,961,468
Total Site Restoration Cost (rounded to nearest \$1,000)			\$4,961,000

Exhibit X

Noise

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0 Introduction..... 1

 1.1 Acoustic Terminology..... 1

 1.2 Acoustic Metrics..... 4

2.0 Regulatory Environment 5

 2.1 Federal Noise Regulations..... 5

 2.2 State Noise Regulations 5

 2.2.1 Exemptions to State Noise Regulations..... 7

 2.3 County and Municipal Noise Regulations..... 8

3.0 Existing Conditions 8

4.0 Predicted Noise Levels – OAR 345-021-0010(1)(x)(A)..... 8

 4.1 Construction Noise Assessment..... 9

 4.2 Operational Noise Assessment 10

 4.2.1 Acoustic Modeling Software and Calculation Methods..... 10

 4.2.2 Acoustic Modeling Input Parameters..... 12

5.0 Assessment of Compliance with Applicable Noise Regulations – OAR 345-021-0010(1)(x)(B) 14

6.0 Measures to Reduce Noise Levels or Impacts to Address Public Complaints – OAR 345-021-0010(1)(x)(C)..... 18

7.0 Monitoring – OAR 345-021-0010(1)(x)(D) 18

8.0 Owners of Noise Sensitive Property– OAR 345-021-0010(1)(x)(E)..... 18

9.0 References 19

List of Tables

Table X-1. Sound Pressure Levels (L_p) and Relative Loudness 3

Table X-2. New Industrial and Commercial Noise Standards 6

Table X-3. Estimated L_{max} Sound Pressure Levels from Construction Equipment..... 9

Table X-4. SG 2.3-108 Broadband Sound Power Levels (dBA) Correlated with Wind Speed..... 12

Table X-5. SG 2.3-108 Sound Power Level by Octave Band Center Frequency..... 12

Table X-6. Transformer Sound Power Level (dB) by Frequency (Hz)..... 13

Table X-7. Acoustic Modeling Results Summary – Facility Generated Sound Levels 14

Table X-8. Modeled Facility Sound Levels Plus Existing Ambient and Ambient Degradation..... 16

List of Figures

- Figure X-1. Received Sound Levels - Wind Turbines at Cut-in Wind Speed
- Figure X-2. Received Sound Levels - Wind Turbines at Maximum Rotational Speed

List of Attachments

- Attachment X-1. Landowners of Noise Sensitive Properties within 1 Mile of the Site Boundary
(CONFIDENTIAL – NOT FOR PUBLIC DISTRIBUTION)

Acronyms and Abbreviations

CadnaA	Computer-Aided Noise Abatement Program
dB	decibel
dBA	A-weighted decibel
dB L	Linear or unweighted decibel
Facility	Stateline Wind Project – Vansycle II
G	Ground absorption coefficient
Hz	Hertz
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_n	statistical sound level
L_p	sound pressure level
L_w	sound power level
mph	miles per hour
m/s	velocity in meters per second
MVA	megavolt ampere
MW	megawatt
NEMA	National Electrical Manufacturers Association
NSR	Noise Sensitive Receptor
OAR	Oregon Administrative Rule
ODEQ	Oregon Department of Environmental Quality
MVA	megavolt ampere
MW	megawatt
NEMA	National Electrical Manufacturers Association
RFA 5	Request for Amendment 5
SG	Siemens Gamesa
μ Pa	microPascal
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator

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1.0 Introduction

The Stateline Wind Project (SWP) consists of three wind farm developments (phases), all of which are operational wind farms: Stateline 1, Stateline 2, and Stateline 3. Per the Final Order on Amendment #4, SWP is divided into two separate parts (Stateline 1 & 2 and Stateline 3) with separate Site Boundaries. The Certificate Holder for Stateline 1 and 2 is FPL Energy Vansycle, LLC (FPL Vansycle), and the Certificate Holder for Stateline 3 is FPL Energy Stateline II, Inc. (FPL Stateline).

FPL Stateline (the Certificate Holder) is submitting this Request for Amendment 5 (RFA 5), to rename the Stateline 3 to Vansycle II (the Facility), allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described herein. The changes to the turbines will not change the megawatt (MW) output of the wind turbines (2.3 MW) or peak generating capacity (98.9 MW) of the Facility.

While the Project area and its residents have experienced sound generated by the Stateline 3 since it began operating in December 2009, since all turbines are being upgraded to current technology, a reanalysis of potential noise impacts and compliance assessment is provided. Operational and construction noise was analyzed for the 43 wind turbines that are being repowered using Siemens Gamesa (SG) 2.3-108 wind turbine components, which have a rotor diameter of 108 meters and are individually rated at 2.3 MW. The results of the acoustic analysis will be assessed relative to the applicable Oregon Administrative Rule (OAR), Division 35 Noise Control Regulations, instituted by the Oregon Department of Environmental Quality (ODEQ). The primary objective of this exhibit is to demonstrate the Facility, as modified, can operate in compliance with the noise limits promulgated under the OAR. Prior to the discussion on the acoustic assessment of the Facility, an introduction to the terms and language that is used within Exhibit X has been provided.

1.1 Acoustic Terminology

Sound is what we hear. Sound is defined as a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure creating a sound wave and reaching our ears to exert tiny pressures on our eardrums. Sound energy is characterized by the properties of sound waves, which are frequency, wavelength, period, amplitude, and velocity. When sound becomes noise is a highly subjective determination, largely dependent on the following factors (not provided in order of any importance):

- Magnitude or intensity of noise with a frequency weighting to human hearing response;
- Duration of the intruding noise;
- Time of year (windows open or closed – outdoor exposure and location of outdoor activities);

- Time of day (higher sensitivities may occur at night);
- Existing ambient sound levels in the community when the noise is not present, including effects of wind generated noise (eolian) and masking by foliage in areas with established tree stands during elevated wind conditions;
- History of prior exposure to the same or similar noise sources;
- Existence of a pure tone, tonal, or impulsive character in the sound;
- Level of community outreach and notification of schedule of potential noisy periods (i.e., construction activities);
- Predetermined attitudes towards a proposed project or activity; and
- Facility benefits including private and public economic incentives.

The unit of sound pressure is the decibel (dB). The decibel scale is logarithmic to accommodate the huge dynamics of sound intensities to which the human ear is subjected. A logarithmic scale formed by taking 20 times the base logarithm (base 10) of the ratio of two sound pressures¹: the measured sound pressure divided by a reference sound pressure. The reference sound pressure is 20 micro-Pascals (μPa), the approximate threshold of human perception to sound at a frequency of 1,000 Hertz (Hz; 0 dB). The loudness of a sound is determined by the source sound power level (L_W), the total acoustic power radiated by an object or structure measured in decibels referenced to 10^{-12} watts and is independent of environmental conditions. The received sound pressure level (L_P) includes the effects of propagation and attenuation that occur between source and receptor location.

Sound is typically composed of acoustic energy spanning across a wide range of frequencies, referred to as the frequency spectra; however, the human ear does not interpret the sound level from each frequency as equally loud. To compensate for the physical response of the human ear, the A-weighting filter is commonly used for describing environmental sound levels. A-weighting filters the frequency spectrum of sound levels to correspond to the human ear frequency response (attenuating low and high frequency energy like the way people hear sound). Sound levels that are A-weighted to reflect human response are presented as dBA. The A-weighted sound level is the most widely accepted descriptor for community noise assessments. Table X-1 shows how this scale related to some common noise sources and environment. Unweighted sound levels are referred to as linear, or dBL.

¹ Or alternatively, ten times the base-10 logarithm of the ratio of two powers.

Table X-1. 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 ft.)	140	Threshold of pain	64 times as loud
50-hp siren (100 ft.)	130		32 times as loud
Loud rock concert near stage Jet takeoff (200 ft.)	120	Uncomfortably loud	16 times as loud
Float plane takeoff (100 ft.)	110		8 times as loud
Jet takeoff (2,000 ft.)	100	Very loud	4 times as loud
Heavy truck or motorcycle (25 ft.)	90		2 times as loud
Garbage disposal Food blender (2 ft.) Pneumatic drill (50 ft.)	80	Loud	Reference loudness
Vacuum cleaner (10 ft.)	70	Moderate	1/2 as loud
Passenger car at 65 mph (25 ft.)	65		
Large store air-conditioning unit (20 ft.)	60		1/4 as loud
Light auto traffic (100 ft.)	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 ft.)	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	
	0	Threshold of hearing	

Adapted from: Beranek 1988, EPA 1971.

An inherent property of the logarithmic decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is a 3-dBL increase (or 53 dB), not an arithmetic doubling to 100 dB. The human ear does not hear changes in the sound pressure level as equal changes in perceived loudness.

Scientific research demonstrates the following general relationships between sound level and human perception for two broadband sound levels with identical (or very similar) frequency characteristics are valid:

- **1 dBA** is the practically achievable limit of the accuracy of noise measurement systems and corresponds to approximately 10 percent variation in sound pressure. A 1 dBA increase or decrease is a non-perceptible change in an environmental sound level.
- **3 dBA** increase or decrease is a doubling (or halving) of acoustic energy, and it corresponds to the threshold of perceptibility of change in a laboratory environment. In practice, the average person may or may not be able to distinguish a 3 dBA differential in environmental sound levels outdoors.
- **5 dBA** increase or decrease is described as a perceptible change in an environmental sound level and is a clearly discernable change in an outdoor environment.
- **10 dBA** increase is a tenfold increase in acoustic energy but is perceived as only a doubling in loudness (i.e., the average person will judge a 10 dBA change in sound level to be twice or half as loud, depending on if it is a 10 dBA increase or decrease).

1.2 Acoustic Metrics

Noise can be measured, modeled and presented in various formats. The most common sound metrics used in community sound surveys are the equivalent sound level (L_{eq}), the maximum sound level (L_{max}), and percentile distributions of sound levels (L_n). The sound metrics that were employed in the Facility acoustic assessment are the following:

The L_{eq} value is the energy averaged sound level and is defined as the steady, continuous sound level, over a specified time, which has the same acoustic energy as the actual varying sound levels over the same time. The L_{eq} has been shown to provide both an effective and uniform method for comparing time varying sound levels that typically occur and have been used routinely in assessing construction and transportation noise studies.

The L_n descriptor identifies the sound level that is exceeded “n” percent of the time over a measurement period. The L_{10} is often referred to as the intrusive noise level and is the A-weighted sound level that is exceeded for 10 percent of the time during a specified measurement period. During a 100-minute period, the L_{10} would be the sound level that was exceeded by other sound levels for 10 minutes of the 100-minute measurement period. It is often referred to as the intrusive sound level. The L_{50} is referred to as the median sound level. During an average day, the measured sound levels are greater than the L_{50} half of the time, and less than the L_{50} half of the time. This sound metric is also cited in OAR 340-035-0035((1)(b)(B)(iii)(I), which states that a background L_{50} ambient noise level of 26 dBA can be applied when assessing noise related to wind energy facilities.

The L_{max} is the maximum instantaneous sound level as measured during a specified time period. It can also be used to quantify the maximum sound pressure level generated by a piece of equipment

or an activity that normally varies with time or the maximum allowable noise sound pressure level as set as a regulatory criteria or manufacturers maximum source level emission level.

These sound metrics are broadband, i.e., they include sounds at all audible frequencies. In addition to broadband, sound level data typically include an analysis of the various frequency components of the sound spectrum to determine tonal characteristics. The unit of frequency is the Hertz, measuring the cycles per second of the sound pressure waves, and typically the frequency analysis includes 10 octave bands from 31 Hz (low frequency) to 16,000 Hz (high frequency).

2.0 Regulatory Environment

This section described the noise-related requirements that may be applicable to the Facility at the federal, state, county and local levels. The acoustic assessment described in Exhibit X is limited to anticipated noise levels at off-site receptors and not potential on-site noise exposure as regulated by the United States Occupational Health and Safety Administration.

2.1 Federal Noise Regulations

There are no federal regulatory requirements in the United States that are directly applicable to Facility.

2.2 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-2 gives statistical noise limits as summarized below. All limits are presented in terms of 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.” 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:

² OAR 340-035-0035(3)(b).

- 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 in OAR 340-035-0035 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-2. 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: Table 8 in OAR 340-035-0035.

As stated above, OAR 340-035-0035(1)(b)(B)(iii) specifically applies to sound generated by a wind energy facility. The increase in ambient statistical noise levels is based on an assumed background L₅₀ ambient sound level of 26 dBA or the actual ambient background level. Compliance for wind energy facilities is determined based on:

OAR 340-035-0035(1)(b)(B)(iii) The noise levels from a wind energy facility may increase the ambient statistical noise levels L₁₀ and L₅₀ by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L₁₀ or L₅₀ on the sensitive property by more than 10 dBA at the appropriate measurement point.

For the purposes of assessing compliance in situations where the landowner has not waived the standard, noise levels at the appropriate measurement point are predicted, assuming that all the Facility’s turbines are operating between cut-in speed and the wind speed corresponding to the maximum sound power level established by International Electrotechnical Commission (IEC) standard 61400-11 (version 2002-12). These predictions must be compared to the highest of either the assumed ambient noise level of 26 dBA or to the actual ambient background L₁₀ and L₅₀ noise level, if measured. The Facility complies with the noise ambient background standard if this comparison shows that the increase in noise is not more than 10 dBA over this entire range of wind speeds. Compliance assessment with the maximum permissible statistical sound levels given in Table X-2 is determined based on a similar methodology, assuming all the Facility’s turbines are operating at the maximum sound power level.

2.2.1 Exemptions to State Noise Regulations

OAR 340-035-0035(5) specifically exempts construction activity from the state noise standards and regulations, as indicated below. This section also provides an exemption for maintenance of capital equipment, the operation of aircraft (such as helicopters used in Facility construction), and sounds created by activities related to timber harvest.

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.

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.

2.3 County and Municipal Noise Regulations

The Facility is located within Umatilla County in Oregon. Within the Umatilla County Development Code, which was revised on April 13, 2016, there is guidance provided for conditional uses and land use decisions pertaining to commercial wind power generation facilities (§152.616 (HHH)). Within that section the following direction is given regarding noise:

The turbine/towers shall be of a size and design to help reduce noise or other detrimental effects. At a minimum, the Wind Power Generation Facility shall be designed and operated within the limits of noise standard(s) established by the State of Oregon. A credible noise study may be required to verify that noise impacts in all wind directions are in compliance with the State noise standard.

Therefore, for the purposes of assessing Facility compliance, the ODEQ noise regulations will be used.

3.0 Existing Conditions

The Facility acoustic study area is subject to a wide range of sound sources including the existing operational Stateline 3 Wind Project. Predicted noise impacts associated with Stateline 3 at nearby noise sensitive receptors (NSRs; i.e., residences) were previously documented in support of the Facility site certificate; however, since the proposed repowering involves effectively eliminating all Stateline 3 wind turbines, it is assumed that ambient sound levels within the acoustic study area will effectively return to conditions prior to Stateline 3 operation. Per OAR 340-035-0035(1)(b)(B)(iii), and for the purposes of evaluating potential noise impacts associated with the repowered Facility, the background L₅₀ ambient sound level of 26 dBA was assumed.

4.0 Predicted Noise Levels – OAR 345-021-0010(1)(x)(A)

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.

The analysis was completed using the latest Facility as-builts with the repowering specifications. As permitted under the ODEQ, an assumed background level of 26 dBA was used as the baseline to represent the existing ambient acoustic environment.

4.1 Construction Noise Assessment

Potential noise impacts associated with Facility construction are reviewed; however, according to OAR 340-035-0035(5)(g) sound originating from construction sites is exempt from state noise regulations.

Repowering of the Facility will require the use of heavy construction equipment that may be periodically audible at off-site NSRs. Repowering of the Facility may cause short-term increases in the ambient sound levels. Work is estimated to be completed within 4 months duration divided into phases consisting of: 1) minor site clearing and grading; 2) materials delivery; 3) repowering 4) site restoration. Work on these activities will likely overlap. The list of construction equipment that may be used on the Facility and estimates of construction sound levels are presented in Table X-3 at a reference distance of 50 feet and far field distance of 2,000 feet.

Table X-3. Estimated L_{max} Sound Pressure Levels from Construction Equipment

Equipment	Lmax Sound Pressure Level at 50 feet (dBA)	Estimated Sound Pressure Level at 2000 feet (dBA)
Crane	85	53
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	85	52
Welder	73	41
Compressor	80	48
Concrete Pump	77	45

Note: Data compiled in part from the following sources: Bolt Beranek and Newman, Inc. 1977; FHA 2006.

The construction of the Facility may cause short-term but unavoidable noise impacts. 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.

All reasonable efforts will be made to minimize the impact of noise resulting from construction activities. As the design of the Facility progresses and construction scheduling is finalized, the construction engineer normally notifies the community via public notice or alternative method of the expected Facility construction commencement and duration to help minimize the effects of construction noise. In addition, the location of stationary equipment and the siting of construction

laydown areas will be carefully selected to be as far removed from existing NSRs as is practical. Candidate construction noise mitigation measures include scheduling louder construction activities during daytime hours and equipping internal combustion engines with appropriate sized muffler systems to minimize noise excessive emissions.

4.2 Operational Noise Assessment

Sound generated by an operating wind turbine is comprised of both aerodynamic and mechanical sound with the dominant sound component from modern utility scale wind turbine generators being largely aerodynamic. Aerodynamic sound refers to the sound produced from air flow and the interaction with the wind turbine tower structure and moving rotor blades. Mechanical sound is generated at the gearbox, generator, and cooling fan, and is radiated from the surfaces of the nacelle and machinery enclosure and by openings in the nacelle casing. Due to the improved design of wind turbine mechanical components and the use of improved noise damping materials within the nacelle, including elastomeric elements supporting the generator and gearbox, mechanical noise emissions have been minimized. Sound reduction elements designed as a part of the wind turbines include impact noise insulation of the gearbox and generator, sound reduced gearbox, sound reduced nacelle, and rotor blades designed to minimize noise generation.

Wind energy facilities, in comparison to other energy-related facilities, are somewhat unique in that the sound generated by each individual wind turbine will increase as the wind speed across the site increases. Wind turbine sound is negligible when the rotor is at rest, increases as the rotor tip speed increases, and is generally constant once rated power output and maximum rotational speed are achieved. Under this condition, the wind turbine maximum sound power level will be reached at approximately 7 to 9 meters per second [m/s] according to the wind turbine manufacturer specifications. It is important to recognize as wind speeds increase, the background ambient sound level will generally increase as well, resulting in acoustic masking effects; however, this trend is also affected by local contributing sound sources. The net result is that during periods of elevated wind speeds when higher wind turbine sound emissions occur, the sound produced from a wind turbine operating at maximum rotational speed may be largely or fully masked due to wind generated sound in foliage or vegetation. In practical terms, this means a nearby receptor would tend to hear leaves or vegetation rustling rather than turbine noise. This relationship is expected to further minimize the potential for any adverse noise effects of the Facility. Conversely, these acoustic masking effects may be limited during periods of unusually high wind shear or at receiver locations that are sheltered from the prevailing wind direction.

4.2.1 Acoustic Modeling Software and Calculation Methods

The operational acoustic assessment was performed using the 43 as-built wind turbine locations and wind turbine manufacturer sound specification information corresponding to the SG 2.3-108 wind turbine components being used to repower those locations. In addition to the wind turbines, the Facility will also include a collection substation, which was incorporated in the acoustic assessment.

The acoustic modeling analysis was conducted using the most recent version of DataKustik GmbH's computer-aided noise abatement program or CadnaA (v 2018 MR1) (DataKustik GmbH 2018). CadnaA is a comprehensive 3-dimensional acoustic software model that conforms to the International Organization for Standardization (ISO) standard ISO 9613-2 "Attenuation of Sound during Propagation Outdoors." The engineering methods specified in this standard consist of full (1/1) octave band algorithms that incorporate geometric spreading due to wave divergence, reflection from surfaces, atmospheric absorption, screening by topography and obstacles, ground effects, source directivity, heights of both sources and receptors, seasonal foliage effects, and meteorological conditions. Topographical information was imported into the acoustic model using the official U.S. Geological Survey (USGS) digital elevation dataset to accurately represent terrain in three dimensions. Terrain conditions, vegetation type, ground cover, and the density and height of foliage can also 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 $G=0$ for acoustically hard, reflective surfaces and $G=1$ for absorptive surfaces and soft ground. If the ground is hard-packed dirt, typically found in industrial complexes, pavement, bare rock or for sound traveling over water, the absorption coefficient is defined as $G=0$ to account for reduced sound attenuation and higher reflectivity. In contrast, ground covered in 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., $G=1.0$). A mixed (semi-reflective) ground factor of $G=0.5$ was used in the Facility acoustic modeling analysis. In addition to geometrical divergence, attenuation factors include topographical features, terrain coverage, and/or other natural or anthropogenic obstacles that can affect sound attenuation and result in acoustical screening. To be conservative, sound attenuation through foliage and diffraction around and over existing anthropogenic structures such as buildings was ignored.

Sound attenuation by the atmosphere is not strongly dependent on temperature and humidity; however, the temperature of 50° Fahrenheit and 70 percent relative humidity parameters were selected. Atmospheric absorption depends on temperature and humidity and is most important at higher frequencies. Over short distances, the effects of atmospheric absorption are minimal. The ISO 9613-2 standard calculates attenuation for meteorological conditions favorable to propagation, i.e., downwind sound propagation or what might occur typically during a moderate atmospheric ground level inversion. Though a physical impracticality, the ISO 9613-2 standard simulates omnidirectional downwind propagation. For receivers located between discrete wind turbine locations or wind turbine groupings, the acoustic model may result in over-prediction. In addition, the acoustic modeling algorithms essentially assume laminar atmospheric conditions, in which neighboring layers of air do not mix. This conservative assumption does not take into consideration turbulent eddies and micrometeorological inhomogeneities that may form when winds change speed or direction, which can interfere with the sound wave propagation path and resulting in increased attenuation.

4.2.2 Acoustic Modeling Input Parameters

To assist project developers and acoustical engineers, wind turbine manufacturers report wind turbine sound power data at integer wind speeds referenced to the effective hub height, ranging from cut-in to full-rated power per IEC standard IEC 61400-11:2006 Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques. This accepted IEC standard was developed to ensure consistent and comparable sound emission data of utility-scale wind turbines between manufacturers. Table X-4 presents a summary of sound power data correlated to wind speeds 10 meter above ground level using a roughness length coefficient of 0.05 meter. The roughness length describes the vertical wind profile per IEC specification in a neutral atmosphere with the wind profile following a logarithmic curve.

Table X-4. SG 2.3-108 Broadband Sound Power Levels (dBA) Correlated with Wind Speed

Turbine	Wind Turbine L_{max} Sound Power Level (L_w) at Reference Wind Speed (m/s)								
	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
SG 2.3-108	90.5	93.4	96.6	99.9	103.7	106.8	107.0	107.0	107.0

Wind turbines can be somewhat directional, radiating more sound in some directions than others. The IEC test measurement protocol requires that sound measurements are made for the maximum downwind directional location when reporting apparent sound power levels. Thus, it is assumed that wind turbine directivity and sound generating efficiencies are inherently incorporated in the sound source data and used in acoustic model development. A summary of sound power data by octave band center frequency for wind turbines operating at maximum rotation are presented in Table X-5 (1/1 octave band frequency data provided with stated intended use limited for informational purposes only).

Table X-5. SG 2.3-108 Sound Power Level by Octave Band Center Frequency

Turbine	Octave Band Sound Power Level (dBA) by Frequency (Hz)								Broadband (dBA)
	63	125	250	500	1000	2000	4000	8000	
SG 2.3-108	85.5	93.0	98.1	102.1	102.1	98.4	91.2	87.2	107.0

In addition to the Facility wind turbines, the onsite collection substation was also incorporated into the acoustic modeling analysis. Substations have switching, protection and control equipment and typically one or more transformers, which generate the sound generally described as a low humming. There are three main sound sources associated with a transformer: core noise, load noise and noise generated by the operation of the cooling equipment. The core vibrational noise is the principal noise source and does not vary significantly with electrical load. Transformers are designed and catalogued by megavolt ampere (MVA) ratings. Just as horsepower ratings designate the power capacity of an electric motor, a transformer's MVA rating indicates its maximum power output capacity. The National Electrical Manufacturers Association (NEMA) published NEMA

Standards TR1-1993 (R2000), which establish the maximum noise level allowed for transformers, voltage regulators, and shunt reactors based on the equipment’s method of cooling its dielectric fluid (air-cooled vs. oil-cooled) and the electric power rating. Measurements involve taking reference sound level measurements using microphones positioned 1 foot from a tautly drawn string that encircles the device at a height above grade set at one-half the overall height of the device. The transformer noise output is the average of all measurements taken around the perimeter, incorporating contributions from both cooling fans and auxiliary equipment. The sound power radiated is calculated from the NEMA sound rating with total sound energy integrated over the total surface area of the transformer’s four sides.

Transformer noise is generated and will attenuate with distance at different rates depending on the transformer dimensions, voltage rating, and design. The noise produced by substation transformers is primarily caused by the load current in the transformer’s conducting coils (or windings) and consequently the main frequency of this sound is twice the supply frequency.

The characteristic humming sound consists of tonal components generated at harmonics of 120 Hz. Most of the acoustical energy resides in the fundamental tone (120 Hz) and the first 3 or 4 harmonics (240, 360, 480, 600 Hz). In addition to core vibration noise, transformer cooling fans may generate broadband noise, limited to periods when high heat loads require additional cooling capacity. The resulting audible sound is a combination of core noise and the broadband fan noise. Circuit-breaker operations may also cause audible noise, particularly the operation of air-blast breakers which is characterized as an impulsive sound event of very short duration. This is expected to occur only a few times throughout the year and was therefore not considered in this analysis.

The transformer at the Facility substation was modeled using standard acoustical engineering calculation methods. The transformer is expected to have a NEMA sound rating of 82 dBA or less and a calculated overall sound power level of 108 dBA. Table X-6 presents the transformer sound power level by octave band center frequency and overall broadband dBA level.

Table X-6. Transformer Sound Power Level (dB) by Frequency (Hz)

Equipment	Octave Band Sound Power Level (dB)								Broadband (dBA)
	63	125	250	500	1000	2000	4000	8000	
Transformer	111	113	108	108	102	97	92	85	108

5.0 Assessment of Compliance with Applicable Noise Regulations – OAR 345-021-0010(1)(x)(B)

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.

Construction activities are categorically exempted under OAR 340-35-0035(5)(g). Construction noise is short term and not expected to result in any significant long-term impacts at any NSRs.

Acoustic modeling was completed for wind turbine cut-in and maximum rotational operating conditions, thereby describing resultant sound pressure levels over the entire operational range of the Facility. In addition, sound energy contribution from the Facility substation was included in the acoustic modeling analysis. When calculating received sound levels, it was assumed that the Facility substation and all wind turbines were operating concurrently at the given operating condition. Sound contour plots displaying Facility operational sound levels in color-coded isopleths are provided in Figures X-1 and X-2. Figure X-1 shows received sound levels resulting from all wind turbines operating under lower level wind speeds sufficient for wind turbines to operate at initial cut-in rotational speeds. Figure X-2 shows received sound levels resulting from wind turbines operating concurrently at their maximum rotational speeds. All Figures include the operation of the onsite collection substation. The resultant noise contour plots are independent of the existing acoustic environment, i.e., are Facility-generated sound levels only. Values presented in the contour isopleths and table are downwind of the WTGs; lower sound levels would occur in other directions.

Table X-7 presents the results of the Facility acoustic modeling analysis and includes the ID, Universal Transverse Mercator (UTM) coordinates, NSR status and the received sound levels at each NSR under cut-in and maximum rotational speeds including the onsite collection substation noise contribution. Table X-8 presents modeled Facility sound levels cumulatively with the ODOE default ambient level of 26 dBA and the estimated net increase in environmental sound levels as a result of the Facility. Received sound levels are rounded to the nearest whole decimal for consistency with the ODEQ noise regulations.

Table X-7. Acoustic Modeling Results Summary – Facility Generated Sound Levels

Noise Sensitive Property ID	Participation Status	UTM Coordinates (meters)		Received Sound Levels (dBA)	
		Easting	Northing	Cut-in	Maximum Rotation
1	Non-participant	378145	5090872	22	26
2	Non-participant	378372	5090898	20	24
5	Non-participant	381005	5090103	19	23
6	Non-participant	381006	5090677	18	22

Table X-7. Acoustic Modeling Results Summary – Facility Generated Sound Levels

Noise Sensitive Property ID	Participation Status	UTM Coordinates (meters)		Received Sound Levels (dBA)	
		Easting	Northing	Cut-in	Maximum Rotation
7	Non-participant	381083	5090255	20	24
8	Non-participant	382193	5089865	18	22
9	Non-participant	368019	5088201	24	28
10	Non-participant	368255	5088453	30	34
11	Non-participant	371226	5087527	28	32
13	Non-participant	368800	5086811	21	25
15	Non-participant	369056	5085958	22	26
16	Non-participant	369601	5085198	20	24
18	Non-participant	369274	5084451	20	24
19	Non-participant	370805	5084030	22	26
20	Non-participant	371444	5083342	24	28
21	Participant	377482	5083925	43	47
23	Participant	380292	5082683	40	44
26	Non-participant	369609	5082023	15	19
27	Non-participant	369729	5081718	15	19
28	Non-participant	369886	5081385	16	20
29	Non-participant	370298	5081005	15	19
30	Non-participant	371063	5080221	15	19
33	Participant	377264	5082302	36	40
35	Participant	377462	5081965	32	36
37	Non-participant	377579	5081507	31	35
40	Non-participant	377877	5080518	27	31
41	Non-participant	370474	5084213	21	25
42	Non-participant	369891	5081541	15	19
43	Non-participant	368862	5086051	22	26
44	Non-participant	371687	5094609	16	20
45	Non-participant	371987	5094202	16	20
46	Non-participant	372459	5094260	16	20
47	Non-participant	374036	5095410	11	15
48	Non-participant	373428	5095446	12	16
49	Non-participant	380719	5091268	19	23
50	Non-participant	382103	5091577	17	21

Table X-7. Acoustic Modeling Results Summary – Facility Generated Sound Levels

Noise Sensitive Property ID	Participation Status	UTM Coordinates (meters)		Received Sound Levels (dBA)	
		Easting	Northing	Cut-in	Maximum Rotation
51	Non-participant	367870	5085244	18	22

Numbers in red exceed the noise standard.

Table X-8. Modeled Facility Sound Levels Plus Existing Ambient and Ambient Degradation

Noise Sensitive Receptor ID	Participation Status	UTM Coordinates (meters)		Facility Sound Levels Plus 26 dBA Existing Ambient (dBA)		Increase Above Existing Ambient (dBA)	
		Easting	Northing	Cut-in	Max	Cut-in	Max
1	Non-participant	378145	5090872	27	29	1	3
2	Non-participant	378372	5090898	27	28	1	2
5	Non-participant	381005	5090103	27	28	1	2
6	Non-participant	381006	5090677	27	27	1	1
7	Non-participant	381083	5090255	27	28	1	2
8	Non-participant	382193	5089865	27	27	1	1
9	Non-participant	368019	5088201	28	30	2	4
10	Non-participant	368255	5088453	32	35	6	9
11	Non-participant	371226	5087527	30	33	4	7
13	Non-participant	368800	5086811	27	28	1	2
15	Non-participant	369056	5085958	27	29	1	3
16	Non-participant	369601	5085198	27	28	1	2
18	Non-participant	369274	5084451	27	28	1	2
19	Non-participant	370805	5084030	27	29	1	3
20	Non-participant	371444	5083342	28	30	2	4
21	Participant	377482	5083925	43	47	17	21
23	Participant	380292	5082683	40	44	14	18
26	Non-participant	369609	5082023	26	27	<1	1
27	Non-participant	369729	5081718	26	27	<1	1
28	Non-participant	369886	5081385	26	27	<1	1
29	Non-participant	370298	5081005	26	27	<1	1
30	Non-participant	371063	5080221	26	27	<1	1
33	Participant	377264	5082302	37	40	11	14

Table X-8. Modeled Facility Sound Levels Plus Existing Ambient and Ambient Degradation

Noise Sensitive Receptor ID	Participation Status	UTM Coordinates (meters)		Facility Sound Levels Plus 26 dBA Existing Ambient (dBA)		Increase Above Existing Ambient (dBA)	
		Easting	Northing	Cut-in	Max	Cut-in	Max
35	Participant	377462	5081965	33	37	7	11
37	Non-participant	377579	5081507	32	36 ¹	6	10 ¹
40	Non-participant	377877	5080518	30	32	4	6
41	Non-participant	370474	5084213	27	29	1	3
42	Non-participant	369891	5081541	26	27	<1	1
43	Non-participant	368862	5086051	27	29	1	3
44	Non-participant	371687	5094609	26	27	<1	1
45	Non-participant	371987	5094202	26	27	<1	1
46	Non-participant	372459	5094260	26	27	<1	1
47	Non-participant	374036	5095410	26	26	<1	<1
48	Non-participant	373428	5095446	26	26	<1	<1
49	Non-participant	380719	5091268	27	28	1	2
50	Non-participant	382103	5091577	27	27	1	1
51	Non-participant	367870	5085244	27	28	1	2

Numbers in red exceed the noise standard.
1. Due to rounding, this does not actually exceed the standard.

As shown in Table X-7, modeling results demonstrate compliance with the ODEQ 50 dBA L₅₀ limit at all NSRs. However, as shown in Table X-8, there are four potential exceedances of the OAR ambient degradation standard (IDs 21, 23, 33, and 35). All four of the potential exceedances are participating landowners. In accordance with the Site Certificate, the Certificate Holder will provide documentation of compliance with Condition 133(d) prior to the repowering.

In conclusion, this noise analysis demonstrates that the applicable ODEQ noise regulations will be met for construction and operation of the Facility. The Certificate Holder has provided information about the predicted noise levels during the Facility's construction and operation in accordance with OAR 345-021-0010(1)(x)(A) and has included an analysis of the Facility's compliance with applicable DEQ noise regulations per OAR 345-021-0010(1)(x)(B). In addition, pursuant to OAR 345-021-0010(1)(x)(C) and (D), the Certificate Holder has provided information demonstrating that it will secure noise waivers where necessary and will submit to ODOE evidence once obtained. Accordingly, the Certificate Holder has provided sufficient evidence to support the Energy Facility Siting Council's finding that the Facility complies with applicable ODEQ noise control standards in OAR 340-035-0035.

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.

Construction noise is exempt from OAR regulations. Thus, no construction noise mitigation is planned beyond restricting noisy construction activities to daytime periods. Because the Certificate Holder can comply with the Table 8 limits and can comply with the ambient degradation standard in part using waivers, no further mitigation measures are required for Facility operations.

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.

No significant noise impacts have been identified; therefore, an operational monitoring program is not being proposed at this time. At the written request of state and local authorities as may be made in response to reoccurring noise complaints; an operational noise survey will be completed to determine compliance with ODEQ regulations within 120 days of receipt by the Certificate Holder. However, the Facility is not expected to result in a noise nuisance condition, and the vast majority of people in nearby NSRs with sound levels shown to below the stringent regulatory limits are expected to regard Facility operational sound as generally acceptable, as defined per the ODEQ noise standards contained in OAR-340-35-035.

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.

Attachment X-1 has a list of the names and addresses of all owners of noise sensitive property within 1 mile from the Facility Site Boundary, as defined in OAR 340-035-0015.

9.0 References

- ANSI S1.4-1983 American National Standard Specification for Sound Level Meters, (R2006), 1819 L Street, N.W., Sixth Floor, Washington D.C. 20036.
- Beranek, L. 1988. Noise and Vibration Control, Chapter 7 - Sound Propagation Outdoors. Institute of Noise Control Engineering, Washington, DC.
- Bolt, Beranek and Newman, Inc. 1977. Power Plant Construction Noise Guide, prepared for the Empire State Electric Energy Research Corporation, Report No. 3321.
- DataKustik GmbH. 2018. Computer-Aided Noise Abatement Model CadnaA, Version MR 1 Munich, Germany.
- EPA (U.S. Environmental Protection Agency). 1971. Community Noise. NTID300.3 (N-96-01 IIA-231). Prepared by Wylie Laboratories.
- FHA (Federal Highway Administration). 2006. FHWA Roadway Construction Noise Model User's Guide, FHWA-HEP-05-054, January.
- IEC (International Electromechanical Commission). 61400-11:2002(E) Wind Turbine Generator Systems—Part 11: Acoustic Noise Measurement Techniques, Third Edition 2006-12.
- ISO (International Organization for Standardization). 1996. Standard ISO 9613-2 Acoustics – Attenuation of Sound during Propagation Outdoors. Part 2 General Method of Calculation. Geneva, Switzerland.
- National Electrical Manufacturers Association. 1993., NEMA Standards Publication No. TR 1-1993 (R2000) Transformers, Regulators and Reactors.
- NEMA TR1:1993 (R2000). Transformers, Regulators, and Reactors.
- NIST 2012. Calibration Uncertainty for the NIST PM/AM Noise Standards. National Institute of Standards and Technology Special Publication 250-90. July 2012.

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Figures

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**Stateline Wind Project
Request for Amendment 5**

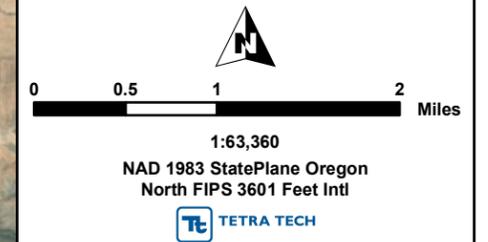
Vansycle II*

**Stateline 3 is being renamed Vansycle II as part of Request for Amendment 5*

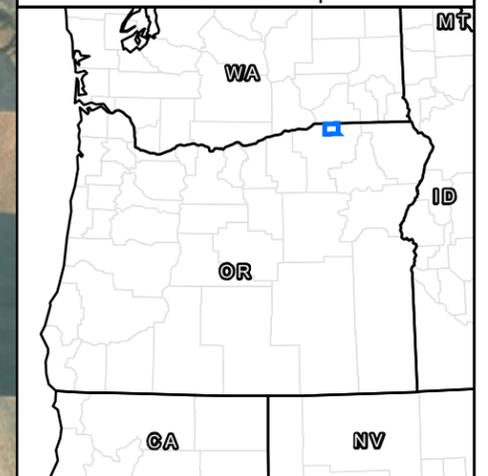
**Figure X-1
Received Sound Levels -
Wind Turbines at Cut-in
Wind Speed**

UMATILLA, OR

-  Project Boundary
 -  Noise Sensitive Receptor – Participant
 -  Noise Sensitive Receptor – Non-participant
 -  Sound Level Exceeding 36 dBA ODOE Noise Criterion
 -  Sound Level Exceeding 50 dBA ODOE Noise Criterion
 -  As-built Wind Turbines (SG 2.3-108)
 -  Substation
- dBA Output**
-  30 - 35 dBA
 -  35 - 40 dBA
 -  40 - 45 dBA
 -  45 - 50 dBA
 -  50 - 55 dBA
 -  > 55 dBA

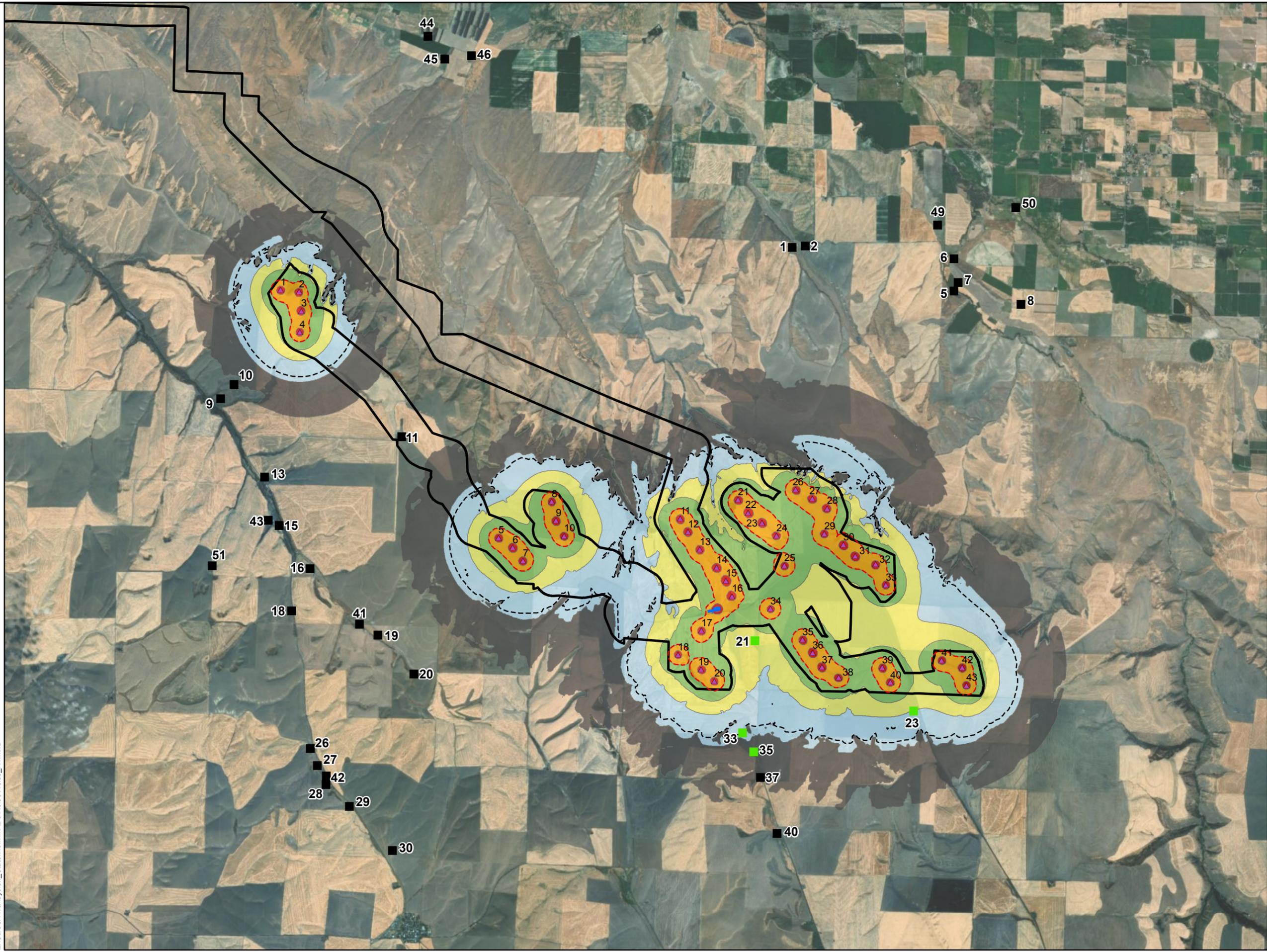


Reference Map



Data Sources:
ESRI Streetmap

Z:\Util\Serv\VansycleII_State\In\IMXD\S\Noise\Noise_X1.mxd



Stateline Wind Project
Request for Amendment 5

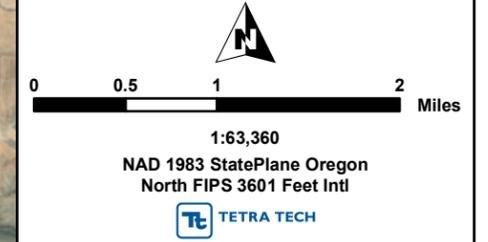
Vansycle II*

*Stateline 3 is being renamed Vansycle II
as part of Request for Amendment 5

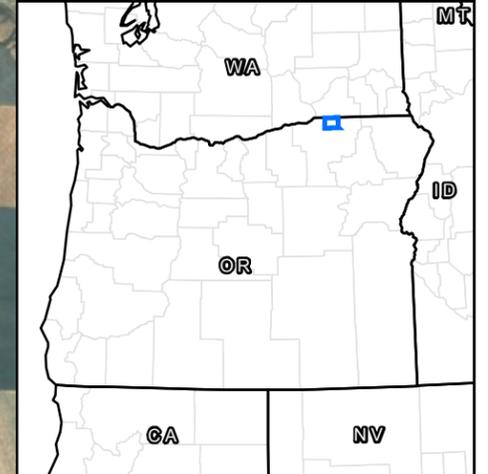
Figure X-2
Received Sound Levels -
Wind Turbines at Maximum
Rotational Speed

UMATILLA, OR

-  Project Boundary
 -  Noise Sensitive Receptor – Participant
 -  Noise Sensitive Receptor – Non-participant
 -  Sound Level Exceeding 36 dBA ODOE Noise Criterion
 -  Sound Level Exceeding 50 dBA ODOE Noise Criterion
 -  As-built Wind Turbines (SG 2.3-108)
 -  Substation
- Sound Level Contour Ranges (dBA):**
-  30 - 35 dBA
 -  45 - 50 dBA
 -  35 - 40 dBA
 -  40 - 45 dBA
 -  50 - 55 dBA
 -  > 55 dBA



Reference Map



Data Sources:
ESRI World Imagery

Z:\Util\Serv\VansycleII_StateInelliMXDs\NoiseNoise_X2.mxd

**Attachment X-1. Landowners of Noise
Sensitive Properties within 1 Mile of the
Site Boundary**

**Confidential – Submitted under separate
cover**

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Exhibit CC

Applicable Statutes, Rules, and Local Government Ordinances

**Stateline Wind Project – Vansycle II
January 2019**

**Prepared for
FPL Energy Stateline II, Inc.**

Prepared by



Tetra Tech, Inc.

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Table of Contents

1.0	Introduction.....	1
2.0	Additional Statutes and Administrative Rules – OAR 345-021-0010(cc).....	1
3.0	Conclusion	3

List of Tables

Table CC-1. Statutes, Rules, and Local Ordinances Referenced in Other Exhibits.....	2
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Acronyms and Abbreviations

EFSC	Energy Facility Siting Council
Facility	Stateline Wind Project – Vansycle II
OAR	Oregon Administrative Rule
ORS	Oregon Revised Statutes
RFA 5	Request for Amendment 5

1.0 Introduction

The Stateline Wind Project – Vansycle II (the Facility) is an existing and operational wind energy facility currently named Stateline 3. The current site certificate for the Facility was last amended in 2009. The information in Exhibit CC is provided in support of a Request for Amendment 5 (RFA 5), to rename the Facility to Vansycle II, allow the operating turbines to be upgraded to current technology by replacing the nacelles and turbine blades on existing turbine towers, and for repowering-related impacts as described in the Written Request for Amendment.

Per Oregon Administrative Rule (OAR) 345-021-0010(cc), Exhibit CC identifies state statutes and administrative rules and local government ordinances containing approval criteria that RFA 5 must meet for the Energy Facility Siting Council (EFSC) to issue a site certificate for the Project, other than those statutes, rules, or ordinances identified in Exhibit E.

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.

Table CC-1 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 proposed modifications to the Facility must meet for EFSC to amend the site certificate.

Table CC-1. Statutes, Rules, and Local Ordinances Referenced in Other Exhibits

Administering Agency	Agency Address	Program Description Legal Citation	Relevant Exhibit
Oregon Department of Geology and Mineral Industries	Geologic Survey and Services Program 800 NE Oregon Street, Suite 965 Portland, OR 97232 (971) 673-1551	Department of Geology and Mineral Industries Administrative Rules OAR Chapter 632	Exhibits H, I
Oregon Department of Agriculture	Native Plant Conservation 635 Capitol Street NE Salem, OR 97301 (541) 737-2317	Native Plant Conservation Program (Oregon Revised Statutes) ORS Chapter 564 (Wildflowers, Threatened or Endangered Plants); OAR Chapter 603, Division 73 (Plants: Wildflowers and Endangered, Threatened and Candidate Species)	Exhibit Q
Oregon Department of Environmental Quality	Pendleton Administrative Office 800 SE Emigrant Ave., Suite 330 Pendleton, OR 97801 (541) 276-4063	Hazardous Materials Management ORS Chapters 465 and 466 (Hazardous Waste and Hazardous Materials I and II); and OAR Chapter 340, Divisions 45, 47, 108, 100 through 122, 150, and 160 (Hazardous Waste Management); 40 CFR Parts 110, 122, 262, 265, 280, 302, 355, and 761	Exhibits G, V
		Solid Waste Management ORS Chapter 459 (Solid Waste Management) and OAR Chapter 340, Division 71 (Onsite Wastewater Treatment Systems) and 93 (Solid Waste General Provisions)	Exhibit V
	Portland Administrative Office 700 NE Multnomah Street, Suite 600 Portland, Oregon 97232 (503) 229-5696	Noise Regulations ORS 467 (Noise Control) and OAR Chapter 340, Division 35 (Noise Control Regulations)	Exhibit X
Oregon Department of State Lands	775 Summer St. NE, Suite 100 Salem, OR 97301 (503) 986-5200	Wetland Regulations ORS 196.800 (Waters of the State [WOS]) and 390.605 (Ocean Shores) OAR Chapter 141 Division 85 (Wetland Definition) and Division 90 (Wetland Delineation Requirements)	Exhibit J

Table CC-1. Statutes, Rules, and Local Ordinances Referenced in Other Exhibits

Administering Agency	Agency Address	Program Description Legal Citation	Relevant Exhibit
Oregon Department of Fish and Wildlife	Salem Headquarters Office 4034 Fairview Industrial Dr. SE Salem, OR 97302 (503) 947-6000	Fish and Wildlife Habitat Mitigation Policy ORS 496 and ORS 564	Exhibits P, Q
			Exhibit Q
Oregon Department of Land Conservation and Development	635 Capital Street NE, Suite 150 Salem, OR 97301 (503) 373-0050	ORS Chapter 195 (Local Government Planning Coordination); ORS Chapter 197 (Comprehensive Land Use Planning Coordination); ORS Chapter 215 (County Planning, Zoning, Housing Codes); ORS Chapter 469 (Energy, Conservation Program, Energy Facilities); OAR 660-033-0130	Exhibit K
Office of State Fire Marshal; Oregon State Police	Emergency Response Services 3565 Trelstad Ave. SE Salem, OR 97317 (503) 934-8030	Oregon Fire Code OAR Chapter 837, Division 40	Exhibit U
State Historic Preservation Office	Oregon State Historic Preservation Officer 725 Summer St NE Suite C Salem, OR 97301 (503) 986-0690	Historic, Cultural and Archaeological Resources Standard ORS 358.920 (Prohibited Conduct); ORS 390.235 (Archaeological Sites and Historical Material); and OAR 736 Division 51 (Archaeological Permits)	Exhibit S

3.0 Conclusion

Based on this Exhibit, which was prepared in accordance with the requirements of OAR 345-021-0010(1)(cc), the modifications proposed under RFA 5 do not alter the Facility’s compliance with the applicable state statutes, administrative rules, and local ordinances containing standards or criteria.

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