

Exhibit Q

Threatened and Endangered Species

**West End Solar Project
September 2022**

**Prepared for
EE West End Solar LLC**

Prepared by



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Acronyms and Abbreviations

Applicant	EE West End Solar LLC
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
OESA	Oregon Endangered Species Act
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
Project	West End Solar Project
USFWS	U.S. Fish and Wildlife Service
WAGS	Washington Ground Squirrel

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1.0 Introduction

EE West End Solar LLC (Applicant), a subsidiary of Eurus Energy America Corporation, proposes to construct the West End Solar Project (Project), a solar energy generation facility and related or supporting facilities in Umatilla County, Oregon. This Exhibit Q was prepared to meet the submittal requirements in Oregon Administrative Rule (OAR) 345-021-0010(1)(q), related to state-listed threatened and endangered plant and animal species. This exhibit demonstrates that the Project can comply with the Oregon Revised Statutes (ORS) covering threatened and endangered species in the approval standard OAR 345-022-0070.

The Applicant anticipates approximately 300,000 modules, which may vary depending on the final technology and layout selected. The other major components of the Project are the solar arrays (composed of solar modules), collector line system, battery storage system, substation, switchyard, operations and maintenance enclosure, and access roads. There are two existing transmission line rights-of-way that run southeast to northwest through the Site Boundary: Bonneville Power Administration's McNary to Roundup 230-kilovolt (kV) line and PacifiCorp's Pendleton to Hermiston 69-kV line. In addition, there is a Umatilla Electric Cooperative (UEC) 115-kV line that parallels the eastern edge of the Site Boundary. All three existing transmission lines provide interconnection capabilities within or immediately adjacent to the Site Boundary, eliminating the need for a Project transmission line. Although it is anticipated that interconnection will occur at the UEC 115-kV line, the Applicant seeks interconnection micro-siting flexibility for all or part of the Project to the Umatilla Electric Cooperative, Bonneville Power Administration, and PacifiCorp transmission lines.

The Analysis Area for threatened and endangered species in Exhibit Q is the Site Boundary plus a 5-mile buffer, as defined by OAR 345-001-0010(59)(a). The Site Boundary is defined in detail in Exhibits B and C. The threatened and endangered species Analysis Area is shown on Figure Q-1.

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 must 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.

The Applicant identified threatened and endangered plant and animal species that might be affected by the Project through initial desktop review followed by field surveys in 2019 and 2020. The Applicant conducted the desktop review within the Analysis Area and performed field surveys within the Site Boundary for plants and within the Site Boundary and additional portions of the Analysis Area for wildlife, as described below. The Applicant conservatively included candidate

species in this analysis in the event that they become listed during construction or operation of the Project.

2.1 Desktop Review

The Applicant used a variety of desktop sources as well as familiarity with the area to identify state threatened, endangered, and candidate plant and animal species that may be affected by the Project. Initial and ongoing desktop-level review has included a database inquiry letter to the Oregon Biodiversity Information Center (ORBIC; ORBIC 2018), and ongoing coordination with Oregon Department of Fish and Wildlife (ODFW) starting in 2019. Agency consultation is summarized in Section 1.2 of Exhibit P. Field survey data were considered a more accurate indicator of species presence and habitat than the ORBIC data and were substituted as they became available.

In addition to the ORBIC query and coordination with ODFW, the following sources were reviewed for information on threatened, endangered, and candidate fish, wildlife, and plant species:

- ODFW Threatened, Endangered, and Candidate Fish and Wildlife Species in Oregon (ODFW 2021a);
- ODFW Natural Resources Information Management Program (ODFW 2021b);
- ODFW Stream Net Mapper (StreamNet 2021);
- Oregon Listed and Candidate Plants (ODA 2019);
- ORBIC Rare, Threatened and Endangered Species of Oregon (ORBIC 2019);
- Federally Listed, Proposed, Candidate, Delisted Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service which May Occur in Oregon (USFWS 2019a);
- USFWS Species by County Report: Umatilla County (USFWS 2019b);
- Herbarium records (Burke Museum of Natural History and Culture 2019);
- Oregon Flora Project Plant Atlas (OFP 2019a);
- Oregon Flora Project Rare Plant Guide (OFP 2019b); and
- Field Guide to the Rare Plants of Washington (WDNR 2019).

The results of the ORBIC query and the literature review were used to generate the list of species for Exhibit Q with the potential to occur in the Analysis Area. Based on the review of existing data, four species listed as state threatened, or candidate for listing were identified as having the potential to occur within the Analysis Area (Table Q-1). No state-listed threatened, endangered, or candidate fish have the potential to occur within the Analysis Area (Stream Net 2021, ODFW 2021b).

Table Q-1. State-Listed Threatened, Endangered, and Candidate Species with the Potential to Occur within the Analysis Area

Common Name <i>Scientific Name</i>	State Status ¹	Potential Occurrence within Analysis Area ²	Expected Habitat
Wildlife			
Washington ground squirrel <i>Urocitellus washingtoni</i>	E	Yes	Marginal within the Analysis Area. Shrub-steppe and grassland habitats in parts of the Columbia Plateau ecoregion.
Vascular Plants			
Laurence’s milkvetch <i>Astragalus collinus</i> var. <i>laurentii</i>	T	Yes	Limited within the Analysis Area. Sandy or rocky soils overlying basalt on dry slopes of the Columbia Plateau in northern Oregon.
Dwarf evening-primrose <i>Eremothera (Camissonia) pygmaea</i>	C	No	Very limited within the Analysis Area. Talus slopes and erosional areas between approximately 500 and 2,000 feet in elevation, from eastern Washington to eastern California and Nevada
Sessile mousetail <i>Myosurus sessilis</i>	C	No	Very limited within the Analysis Area. Vernal pools, wetlands, and alkali flats in Oregon and California
<p>1. T = Threatened, E = Endangered, C = Candidate</p> <p>2. Wildlife and plant occurrence is based on ORBIC occurrence query data (ORBIC 2018) and Project surveys (Attachments P-2 and P-3). Species shown include only those that are listed as threatened endangered or candidate species on Oregon lists. Oregon sensitive species are addressed in Exhibit P.</p>			

Several species initially considered for inclusion in Exhibit Q (based on range overlap with Umatilla County) were excluded as they are not known or expected to occur within the Analysis Area; these species include:

- Northern wormwood (*Artemisia campestris* var. *wormskioldii*; state endangered). No suitable habitat. Grows on banks of Columbia River and believed to be extirpated in Oregon.
- Northern false coolwort (*Bolandra oregana*; state candidate). No suitable habitat. Grows on moist, mossy rocks, usually near waterfalls. Occurs along the lower Columbia River Gorge and along the Snake River and its tributaries in Oregon and Idaho.
- Scalloped moonwort (*Botrychium crenulatum*; state candidate). No suitable habitat. Grows at higher elevations than the Project, in marshy and springy areas at elevations of 3,937 to 8,200 feet.
- Liverwort monkeyflower (*Erythranthe [Mimulus] jungermannioides*; state candidate). No suitable habitat. Grows on moss mats on cliffs.

- Columbian yellowcress (*Rorippa columbiae*; state candidate). No suitable habitat. Occurs along Columbia River, seeps, drainage ditches, etc.
- Wolverine (*Gulo gulo*; state threatened). No suitable habitat. Species is limited to high elevations where there is deep, persistent, and reliable spring snow cover (April 15 to May 14).

A description of the desktop review conducted for those threatened, endangered, and candidate species with potential to occur in the Analysis Area is provided below.

2.1.1 Washington Ground Squirrel

The Applicant conducted a desktop review of potential Washington ground squirrel (WAGS) habitat in areas that were outside the Site Boundary that were within 1,000 feet and contiguous with potential ground disturbing activities, but were not accessible (no access granted) during field surveys in 2019 or 2020 (Attachment P-1 to Exhibit P). Based on coordination with ODFW, the Applicant reviewed aerial photographs, Natural Resources Conservation Service soil data, and the results of a records query to ORBIC in the Project vicinity. The Applicant additionally viewed these areas from within accessible portions of the Analysis Area and public roads to identify the likely habitat type and habitat suitability for WAGS. The results of this review are included in Exhibit P of this Application for Site Certificate as Attachment P-1 to Exhibit P.

2.1.2 Plants

Prior to conducting field surveys, the Applicant completed a review of existing literature, herbarium records, and other sources (Burke Museum of Natural History and Culture 2019, ODA 2019, OFP 2019a, OFP 2019b, WDNR 2019) to generate fact sheets for target plant species identified as having potential to occur within the Analysis Area. Primary target plant species included all vascular plant species listed as endangered, threatened, or candidates for listing by the USFWS under the federal Endangered Species Act, or by the Oregon Department of Agriculture (ODA) under the Oregon Endangered Species Act (OESA).

2.2 Field Surveys

The Applicant conducted field surveys in 2019 and 2020 to evaluate the potential presence of state-listed and candidate species. Survey reports including findings from field surveys conducted in 2019 and 2020 detail the methods and findings of WAGS surveys and botanical surveys, respectively, that are summarized in this exhibit. Field survey reports are included in Attachment P-2 and P-3 of Exhibit P. No field studies were conducted for fish because construction and operation of the Project will not affect intermittent or perennial fish-bearing streams, or their tributaries. Moreover, there is no historical evidence of the occurrence of any Oregon state listed or candidate fish species within the Site Boundary (ORBIC 2018; StreamNet 2021).

2.2.1 Washington Ground Squirrel Surveys

The Applicant conducted surveys for WAGS on April 22 and 23, May 21 and 22, 2019, and March 22, May 9 and 10, 2020. The WAGS surveys encompassed the Site Boundary plus an approximately 1,000-foot in suitable habitat, but excluded suitable habitat that was separated from proposed ground disturbance by a habitat barrier such as a paved road (WAGS Survey Area; Exhibit P, Figure P-2). WAGS field surveys involved a team of surveyors walking linear transects spaced 165 to 230 feet apart within suitable habitat within the WAGS Survey Area, documenting and mapping WAGS and their sign. Suitable habitat included non-agricultural habitats and non-developed lands.

The surveys generally followed methodology developed in the *Status and Habitat Use of the WAGS on State of Oregon Lands* (Morgan and Nugent 1999). Potential habitat was surveyed twice during the survey period; surveys were conducted at least 2 weeks apart. The WAGS protocol requires two phases of surveys to increase the likelihood of detecting their presence. The first phase of surveys begins as early as late March or early April, with the next phase following at least 2 weeks later and completed by the end of May or early June, to assure surveys are conducted prior to WAGS going into aestivation. For details on the WAGS survey methods and results, see the 2019-2020 Wildlife and Habitat Survey Report (Exhibit P, Attachment P-3).

2.2.2 Botanical Surveys

The Applicant conducted surveys for botanical resources on July 3, 2019, and June 22, 2020. The survey schedule was chosen to cover the identification period for Laurence's milkvetch (*Astragalus collinus* var. *laurentii*) and Dwarf evening-primrose (*Eremothera* [*Camissonia*] *pygmaea*). Although the survey period was out of the recommended identification period for sessile mousetail (*Myosurus sessilis*), this species' vernal pool habitat was considered unlikely to occur in the Site Boundary, and no vernal pools were observed within the Site Boundary during field surveys. Additionally, depending on the year, sessile mousetail is sometimes identifiable through early July.

Botanical field surveys were conducted using the Intuitive Controlled survey method, a standard and commonly accepted survey protocol (USFS and BLM 1998). This method incorporates meandering transects that traverse the Site Boundary, and that target the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. While en route, the surveyors search for target species, and when the surveyors arrive at an area of high potential habitat (that was defined in the pre-field review or encountered during the field visit), they conduct a complete survey for the target species. Complete surveys include an examination of 100 percent of the habitat.

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 Surveys

WAGS are listed as a state endangered species under the OESA. They are small, diurnal ground squirrels that spends much of the year (on average, July through February) underground (Sherman and Shellman Sherman 2005). Occurrence of WAGS is limited primarily to shrub-steppe and grassland habitats in parts of the Columbia Plateau ecoregion. In Oregon, occurrences are limited to the Columbia Basin south of the Columbia River, east of the John Day River, and west of Milton-Freewater (Morgan and Nugent 1999). More information on the life history of WAGS is provided in Attachment P-3 of Exhibit P.

Current and potential threats to the continued survival of the species include habitat loss from the conversion of habitat to agricultural use, residential use, infrastructure project development and other forms of development; as well as habitat fragmentation, recreational shooting, genetic isolation and drift, predation, disease, drought and invasive weeds on forage quality and quantity (USFWS 2010).

The desktop review identified two element occurrence records for WAGS within the Analysis Area, including one that overlaps with the Site Boundary (ORBIC 2018). ORBIC occurrences are buffered to protect the location of the rare plant or animal, so the exact location and extent of the colonies are unknown. Both occurrences are historic, most recently recorded in 1979 (ORBIC 2018).

No active WAGS colonies were observed within the WAGS Survey Area during surveys for the Project. A total of 22 small burrows appropriate for use by small mammals and beetles were identified at five locations; however, no WAGS were detected calling, nor was any scat found during either phase of both 2019 and 2020 WAGS surveys. The inaccessible areas of potentially suitable WAGS habitat within the WAGS Survey Area are composed of smaller areas of highly disturbed habitat situated along paved and graveled roads, between and alongside fields in active cultivation (Attachment P-1). The vegetative communities in these areas are primarily composed of non-native plant species, and the quality of habitat for WAGS was determined to be poor (Exhibit P, Attachment P-1).

As WAGS were not observed during Project surveys, and are not known to currently occur within the Analysis Area, no potential adverse effects to this species are anticipated as a result of the Project.

3.2 Plants

During field surveys conducted in 2019 and 2020, no target species were observed within the Site Boundary (Table Q-2; Exhibit P, Attachment P-2). No potential adverse effects to these species are anticipated as a result of the Project (Table Q-2).

Table Q-2. Plant Blooming Period, Occurrence, and Likelihood of Adverse Effects

Species	Identification Period ¹	Potential for Occurrence within Analysis Area ¹				Potential Adverse Effects
		Habitat	Elevational Range	ORBIC Records	Observed during Surveys?	
Laurence's milkvetch <i>Astragalus collinus</i> var. <i>laurentii</i>	Late May - August	Yes	Yes	Yes	No	No
Dwarf evening-primrose <i>Eremothera [Camissonia] pygmaea</i>	June - August	Yes	Yes	No	No	No
Sessile mousetail <i>Myosurus sessilis</i>	March - May	Yes	Yes	No	No	No

Sources: Burke Museum of Natural History and Culture 2019, ODA 2019, ORBIC 2018, ORBIC 2019, OFP 2019a, OFP 2019b, WDNR 2019.

1. Identification period includes blooming and/or fruiting periods as needed for identification.

3.2.1 Laurence's Milkvetch

Laurence's milkvetch is listed as a state threatened species under OESA. This 4- to 20-inch-tall taprooted perennial is in the pea (*Fabaceae*) family and occupies sandy or rocky soils overlying basalt on dry slopes of the Columbia Plateau in northern Oregon (ODA 2019). Laurence's milkvetch blooms from May through July and develops pendulant seed pods from late May to August that are required for identification (ODA 2019). Threats to Laurence's milkvetch include habitat loss due to agricultural development, grazing, road maintenance activities, competition from exotic weeds, and seed predation by insects (ODA 2019).

The desktop review identified one element occurrence record for Laurence's milkvetch within the Analysis Area, approximately 3 miles south of the Site Boundary (ORBIC 2018). However, the occurrence is historic, last recorded in 1958, and the specific occurrence location, described as southeast of Echo, is likely outside the Analysis Area. As this species was not observed during

Project surveys and is not known to currently occur within the Analysis Area, no potential adverse effects to this species are anticipated as a result of the Project.

3.2.2 Dwarf Evening-Primrose

Dwarf evening-primrose is a state candidate species and therefore receives no formal protection under the State of Oregon. It is a branched, glandular-hairy annual that grows to approximately 16 inches tall (OFP 2019a). This plant flowers and fruits between June and August and has a white to pink inflorescence composed of several flower spikes. Dwarf evening-primrose can be found on talus slopes and erosional areas between approximately 500 and 2,000 feet in elevation, from eastern Washington to eastern California and Nevada (OFP 2019b). The primary threats to this species include resource extraction and development, roadside herbicide application and drift, and invasion by exotic plant species.

No dwarf evening-primrose plants were documented during surveys for the Project, and no populations are known to occur within the Analysis Area (Exhibit P, Attachment P-2; ORBIC 2018). Therefore, no potential adverse effects to this species are anticipated as a result of the Project.

3.2.3 Sessile Mousetail

Sessile mousetail is also a state candidate species and therefore receives no formal protection under the State of Oregon. Sessile mousetail is a tiny annual herb less than 4 inches tall that occurs in vernal pools, wetlands, and alkali flats in Oregon and California (Hitchcock and Cronquist 2018; OFP 2019a). It blooms from March to May, and is found in Jefferson, Umatilla, and Gilliam counties in Oregon (ORBIC 2019). Vernal pools are threatened by residential, industrial, and agricultural pressures (OFP 2019b).

No sessile mousetail plants were documented during surveys for the Project, and no populations are known to occur within the Analysis Area (Exhibit P, Attachment P-2; ORBIC 2018). Therefore, no potential adverse effects to this species are anticipated as a result of the Project.

4.0 Avoidance and Mitigation – OAR 345-021-0010(1)(q)(C)

OAR 345-021-0010(1)(q)(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.

Based on the results of desktop review and field surveys, no state listed or candidate species are expected to be affected by the Project and therefore the Applicant does not propose avoidance and mitigation measures for threatened and endangered species. Potential impacts to state listed and candidate species were avoided by siting the Project on moderately to highly disturbed habitat in a relatively developed landscape with access to existing transmission lines and away from known existing threatened and endangered species locations.

4.1 Wildlife

No state threatened, endangered, or candidate wildlife species were found or are expected to occur within the Analysis Area. Therefore, no mitigation measures are planned or required for the Project.

4.2 Plants

No state-listed or candidate species were observed within the Site Boundary. Additionally, due to the abundance of non-native invasive species and noxious weeds, very little potential suitable habitat for target species was observed within the Site Boundary. Therefore, because no state listed or candidate species were found within the Analysis Area, no mitigation measures are planned or required for the Project.

5.0 Protection and Conservation Program Compliance/Impacts – OAR 345-021-0010(1)(q)(D)

OAR 345-021-0010(1)(q)(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).

There are no species with the potential to occur within the Analysis Area for which ODA has adopted a protection and conservation program. As a result, the Project is not likely to impact any of ODA's recovery efforts, nor is the Project likely to cause a significant reduction in the likelihood of survival or recovery of plants with a protection or conservation program under ORS 564.105(3).

6.0 Potential Impacts to Plants, Including Mitigation Measures – OAR 345-021-0010(1)(q)(E)

OAR 345-021-0010(1)(q)(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

No state listed or candidate plant species are known or expected to occur within the Analysis Area; therefore, the Project is not likely to cause a significant reduction in the likelihood of survival or recovery of any state listed or candidate plant species, and no mitigation measures are proposed by the Applicant.

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.

No state listed or candidate fish or wildlife species are known or expected to occur within the Analysis Area; therefore, the Project is not likely to cause a significant reduction in the likelihood of survival or recovery of any state listed or candidate animal species, and no mitigation measures are proposed by the Applicant.

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.

As no impacts to threatened and endangered species are anticipated from the Project, no monitoring program for threatened and endangered species is planned or required.

9.0 Conclusion

Based on the information provided above, the Energy Facility Siting Council may conclude that the Project will not cause a significant reduction in the likelihood of survival or recovery of listed threatened or endangered plant and animal species and therefore meets the Threatened and Endangered Species standard under OAR 345-022-0070.

10.0 References

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Figures

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