Exhibit P

Fish and Wildlife Habitats and Species

Biglow Canyon Wind Farm
December 2025

Prepared for

Portland General Electric Company

Prepared by

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Acronyms and Abbreviations

AC	alternating current
APLIC	Avian Powerline Interaction Committee
BCWF or Existing Facility	Biglow Canyon Wind Farm
BGEPA	Bald and Golden Eagle Protection Act
BIGL or Project Developer	BIGL bn, LLC
Certificate Holder or PGE	Portland General Electric Company
Council or EFSC	Oregon Energy Facility Siting Council
gen-tie	generation tie
HMP	Habitat Mitigation Plan
kV	kilovolt
MW	megawatt
NHD	National Hydrography Dataset
NWI	National Wetlands Inventory
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ORBIC	Oregon Biodiversity Information Center
PWCA	Priority Wildlife Connectivity Area
PV	photovoltaic
RFA	Request for Amendment
Site Certificate	Site Certificate for Amendment 3
Solar Components	photovoltaic solar energy generation and battery storage
WMMP	Wildlife Monitoring and Mitigation Plan

1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) submits this Request for Amendment (RFA) 4 to the Site Certificate on Amendment 3, issued October 31, 2008 (Site Certificate) for the Biglow Canyon Wind Farm (BCWF or Existing Facility) to add photovoltaic (PV) solar energy generation and battery storage (Solar Components) to the operating BCWF.

BCWF, owned and operated by PGE, is located within an approved site boundary comprising approximately 25,000 acres, approximately 4.5 miles northeast of the town of Wasco in Sherman County, Oregon. The BCWF operates under the Site Certificate from the Oregon Energy Facility Siting Council (Council or EFSC) as administered by the Oregon Department of Energy (ODOE). BCWF currently consists of 217 wind turbines, with a maximum blade tip height of 445 feet, and a peak generating capacity of 450 megawatts (MW).

In RFA 4, PGE proposes to add up to 125 MW alternating current (AC) generating capacity from PV solar arrays and 125 MW in battery storage capacity (Solar Components) in approximately 1,445 acres of land (Solar Area) sited within the existing BCWF site boundary Solar Micrositing Area (RFA 4 Site Boundary[1]).

The Solar Micrositing Area is approximately 1,924 acres and provides a conservative estimate of the maximum area needed for development, micrositing, and temporary disturbances from the Solar Components during construction, rather than the anticipated temporary and permanent disturbance footprint. Within the Solar Micrositing Area, the Certificate Holder has identified a reduced footprint where Solar Components will be concentrated (Solar Area; 1,445 acres). Solar Components will include solar arrays, inverters, battery energy storage system facilities and their subcomponents (i.e., inverters), a collector substation, approximately 600 feet of a new 230-kilovolt (kV) generation tie (gen-tie) transmission line, medium voltage collector lines, operations and maintenance structures, site access roads, internal roads, perimeter fencing, facility entry gates, and temporary laydown areas. The maximum generating capacity from the Solar Components will be 125 MW AC, and the infrastructure will be fenced within the Solar Micrositing Area and will cover up to 1,445 acres (Solar Area).

PGE will own and operate the Solar Components as a part of the BCWF (together, Amended Facility or Facility), which, to date, have been developed by BIGL bn, LLC (BIGL or Project Developer). BIGL, in its capacity as the project developer, supports PGE in this RFA 4 and may construct and temporarily operate the Solar Components on behalf of PGE under a Build-Transfer Agreement.

Exhibit P was prepared to meet the submittal requirements in Oregon Administrative Rules (OAR) 345-001-0010(1)(p) to provide information about the fish and wildlife habitats and species that

[2] ODOE concurred with excluding the remaining BCWF site boundary that does not overlap with the Solar Micrositing Area from analysis in RFA 4 because no changes are proposed to any BCWF components in the remaining BCWF site boundary as part of RFA 4.

could be affected by the Solar Components. State threatened, endangered, and candidate species are exclusively addressed in Exhibit Q.

2.0 Analysis Area

Consistent with OAR 345-027-0360(3), ODOE concurred with the Certificate Holder's use of a defined portion of the approved BCWF site boundary (i.e., Solar Micrositing Area/RFA 4 Site Boundary) to establish study area boundaries for RFA 4 under OAR 345-001-0010(35). The RFA 4 Site Boundary reflects the Solar Micrositing Area, and all study areas within the meaning of ORS 345-001-0010(35) are measured from the RFA 4 Site Boundary. The analysis area for fish and wildlife habitat and species identified in Exhibit P includes the Solar Micrositing Area[2] plus a 0.5-mile buffer, in accordance with OAR 345-001-0010(35)(c). The Exhibit P analysis area is shown on Figure P-1.

3.0 Agency Consultation

PGE has consulted with the Oregon Department of Fish and Wildlife (ODFW) regarding the appropriate protocols for documenting the presence of state sensitive species as required in OAR 345-021-0010(1)(p)(D) and the classification of fish and wildlife habitat as required in OAR 345-021-0010(1)(p)(B). An email was sent to ODFW on May 22, 2024, by PGE with a biological study plan associated with the Solar Components as understood at the time of surveys. ODFW responded on June 6, 2024, approving of the biological study plan and providing additional recommendations for siting of the Solar Components. The background review and field survey methods specific to botanical surveys were submitted to Oregon Department of Agriculture (ODA) for review on June 10, 2024. ODA provided concurrence with the methods on June 13, 2024, prior to conducting field surveys. ODFW and ODOE visited the Solar Micrositing Area with PGE, the Project Developer, and Tetra Tech on January 10, 2025, to discuss habitat impacts and assess habitat categorization in the field.

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

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

[2] ODOE concurred with excluding the remaining BCWF site boundary that does not overlap with the Solar Micrositing Area from analysis in RFA 4 because no changes are proposed to any BCWF components in the remaining BCWF site boundary as part of RFA 4.

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

Response: The Certificate Holder provides the result of the appropriate desktop reviews and field surveys below.

4.1 Desktop Review

Tetra Tech conducted a desktop assessment including a review of existing information regarding habitat types and special status species with the potential to occur within the Solar Micrositing Area. The term "special status species" includes federal and state endangered, threatened, proposed, and candidate fish, wildlife, and plant species, as well as state sensitive wildlife species with distribution in Sherman County. Special status species also include eagles. While surveys were performed with an emphasis on special status species, this exhibit focuses on a subset of that group which is just state sensitive species.

Tetra Tech reviewed ODFW's sensitive species list to identify state sensitive species with the potential to occur within the analysis area based on the ecoregion (ODFW 2021) and then removed any not listed in Sherman County (OSULP and INR 2021). Species were further excluded for consideration if no potential habitat was present within the analysis area (OSC 2016). Oregon Biodiversity Information Center (ORBIC) data (ORBIC 2024) were then reviewed to determine known species occurrence locations within the analysis area. The results of this desktop review and the results from field surveys that verified available habitat for wildlife species and provided further documentation of sensitive species within the analysis area are discussed in Section 6.1.

Other resources consulted during the desktop review included the National Land Cover Database, aerial photography, the ODFW Compass mapping tool (ODFW 2024), as well as results from pre- and post-construction surveys performed for the BCWF (Orion Sherman County Wind Farm 2005, WEST 2005, WEST 2009, WEST 2010, WEST 2012a, WEST 2012b, WEST 2012c, WEST 2013, PGE 2023). Exhibit K addresses the Sherman County Comprehensive Plan (Goal 5), which includes the potential for natural resources to occur within the Solar Micrositing Area.

4.2 Field Surveys

Table P-1 provides a summary of biological field surveys conducted at the Solar Components in 2024 within portions of the analysis area (Figure P-1). The survey reports are included in Attachment P-1, except for the wetlands and waters survey report, which is included in Exhibit J, Attachment J-1.

Table P-1. Summary of Field Surveys Conducted in 2024

Survey	Survey Timing	Reference	Extent
Habitat Categorization and Special Status Wildlife Surveys	June	Attachment P-1	Habitat Characterization Survey Area (Solar Micrositing Area and additional lands that have since been omitted from this RFA 4)

Survey	Survey Timing	Reference	Extent
Botanical Surveys	July		Botanical Survey Area (Solar Micrositing Area and additional lands that have since been omitted from this RFA 4)
Raptor Nest Surveys	June		1/2-mile buffer of Solar Micrositing Area and additional lands that have since been omitted from this RFA 4
Wetlands and Waters Surveys	April and May	Exhibit J, Attachment J-1	Wetland Study Area (approximately 1,167 acres)

4.2.1 Habitat Categorization and Special Status Wildlife Surveys

Habitat categorization and special status wildlife surveys were performed in June by Tetra Tech within the Solar Micrositing Area and additional lands that have since been omitted (Attachment P-1). The Survey Area covered 4,636 acres including the entire Solar Micrositing Area and some additional lands that have since been omitted from the Solar Micrositing Area. The objective of the surveys was to categorize habitats per the habitat categories set forth in ODFW's Fish and Wildlife Mitigation Policy (OAR 635-415-0025), consistent with the habitat categorization developed during permitting of the BCWF, and to document the presence of special status wildlife species.

During the habitat categorization survey, habitat categories established by the ODFW Fish and Wildlife Habitat Mitigation Policy were used to rank the habitat subtypes present within the Solar Micrositing Area. Habitat mapping was performed using a minimum of 1-acre mapping unit (except for specialized habitat such as cliffs or rock outcrops). These surveys were conducted by a biologist familiar with vegetation of the Columbia Plateau Ecoregion and were scheduled during the growing season to aid in identification of vegetative species. Meandering transects were walked by a biologist to categorize the composition and structure of habitat by noting the dominant vegetation, presence of large trees, existing disturbance, or other habitat features such as shrub and grass composition and density. Each polygon was then assigned a habitat type, subtype, and habitat quality category that was guided by the habitat categorization for the BCWF.

For the portions of the analysis area that were not covered by the survey, habitat mapping is based on a desktop analysis using aerial photography interpretation and the Certificate Holder's familiarity with the site acquired through operation of the BCWF.

Special status wildlife surveys were conducted concurrently with habitat categorization surveys. The objective of the special status wildlife survey was to document the presence of any special status species within the Survey Area, as well as general wildlife species. During surveys, the biologist walked meandering transects through nonagricultural areas, scanning and listening for wildlife species and recognizable signs of wildlife (e.g., scat, tracks, burrows and nests). Agricultural areas were surveyed by visually scanning and listening for wildlife from accessible roads or bordering nonagricultural lands. The biologist documented the location of special status species, or recognizable sign, and recorded the number of individuals and their behavior, if observed. Special habitats and unique features (i.e., cliffs, ponds, talus slopes, rock outcrops, raptor nests, and big

game) were also documented if encountered. Following the survey, the digitized data were downloaded and processed using geographic information system software and reviewed for quality control and assurance.

4.2.2 Botanical Surveys

Botanical surveys were conducted on July 9 and 10, 2024 (Attachment P-1). The purpose of the botanical surveys was to document the presence of federally or state listed endangered, threatened, and candidate vascular plant species and state and county-designated noxious weeds within the Solar Micrositing Area. The surveys were designed in accordance with Council standards set forth in OAR 345-021-0010 (1)(p) and (q), OAR 345-022-0070, and in coordination with the ODA.

Prior to field surveys, Tetra Tech conducted a review of existing information to identify federal and state endangered, threatened, proposed, and candidate plant species with the potential to occur. No federally listed, proposed, or candidate plant species have the potential to occur within or near the Solar Micrositing Area; however, one state listed threatened and three state candidate vascular plant species have potential to occur.

Tetra Tech reviewed lists of species designated as noxious weeds in Oregon and Sherman County (ODA 2022; SCNWD 2024). Existing literature and other sources were also reviewed to familiarize surveyors with identification of designated noxious weeds that would potentially be encountered within the Survey Area.

Tetra Tech conducted botanical field surveys 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 survey area and targets the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. While en route, the surveyors searched for target species, and when the surveyors arrived at an area of high potential habitat, they conducted a complete survey for the target species. The botanist maintained a running list of vascular plant species encountered and made informal collections of unknown species for later identification. Data collected for any rare plant population, if encountered, would include species phenology, number of plants observed, habitat information and associated species, and any visible threats such as development, grazing, erosion, or noxious weeds.

4.2.3 Raptor Nest Surveys

PGE has performed raptor nest surveys at regular intervals during operation of the BCWF, with the most recent survey being from 2022 (PGE 2023). Prior to conducting surveys, Tetra Tech reviewed available raptor nest data from the most recent 2022 raptor nest survey, which extended out 2 miles from the BCWF and encompassed the entire Solar Micrositing Area and Exhibit P analysis area. The Survey Area of the 2024 raptor nest survey covered the Solar Micrositing Area and a 0.5-mile buffer, plus additional areas not addressed in this RFA 4 (Attachment P-1).

The 2024 survey was performed from the ground in mid-June. The biologist checked the status of all known nests documented during the 2022 PGE survey that occurred within the Survey Area and

searched for new nests. Data recorded for each raptor nest included the date; time; unique nest identification; Universal Transverse Mercator coordinates; species occupying the nest; nest status; and nest condition. Nest status (active or inactive) was determined using a combination of cues such as adult behavior (e.g., diving, calling, nest building/repair, incubation, brooding, or feeding of young), presence of eggs or young, or whitewash.

4.2.4 Wetlands and Waters Surveys

Tetra Tech conducted pedestrian surveys to delineate wetlands and other waters on July 9 to 12, 2024 (Attachment J-1). The Survey Area covered the entirety of the Solar Micrositing Area and additional lands that have since been omitted. Prior to the surveys, Tetra Tech reviewed National Wetlands Inventory (NWI), National Hydrography Dataset (NHD), hydric soils data, and historical aerial photographs in Google Earth to identify potential wetlands and other waters prior to performing field work. Wetlands and surface water data were obtained from the U.S. Fish and Wildlife Service NWI (USFWS 2024), which includes NWI and miscellaneous wetland mapping by state and federal agencies, non-governmental organizations, academia and consultants, and from the U.S. Geological Survey NHD (USGS 2024). Soils data were also obtained from the National Resources Conservation Service Web Soil Survey (NRCS 2024). Tetra Tech used aerial imagery from Google Earth because a wide variety of imagery was available.

The desktop wetland data were used to focus the wetland delineation's field effort while the desktop surface water data were used to focus the non-wetlands water evaluation as necessary.

Data collected during wetlands and waters surveys informed habitat categorization and helped with the determination of state sensitive species presence described in this exhibit. Results from the 2024 wetlands and waters surveys are summarized in Exhibit J and presented in the corresponding survey report (Attachment J-1).

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

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

Response: Application provides information requested under OAR 345-021-0010(1)(p)(B) below.

5.1 ODFW Habitat Categorization

The ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0015) provides a framework for assigning one of six category types to habitats based on the relative importance of these habitats to fish and wildlife species. The definition of each category type, as well as an example of each category type within the analysis area, is shown in Table P-2. The Solar Components will not be located in sage-grouse habitat, and therefore the Greater Sage-Grouse Conservation Strategy for Oregon does not apply.

Table P-2. ODFW Habitat Categorization

ODFW Habitat Category	Definition[1]	Examples of ODFW Habitat Categories within Analysis Area
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population, or unique assemblage.	• None identified in the Analysis Area
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population, or unique assemblage.	• Fairly undisturbed sagebrush shrub-steppe with old growth shrub structure and low disturbance from grazing, fire, or annual invasive vegetation. • Riparian trees with documented nests of non-sensitive raptor species. • Areas of non-agricultural and non-developed habitat that falls within a Priority Wildlife Connectivity Area (PWCA; ODFW 2023) or big game winter range (ODFW 2013).
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.	• Intermittent streams • Ponds • Freshwater emergent wetland • Fairly undisturbed sagebrush shrub-steppe with moderate disturbance from grazing, fire, or annual invasive vegetation.
4	Important habitat for fish and wildlife species.	• Ephemeral streams • Grasslands with moderate-heavy disturbance from grazing, fire, or annual invasive vegetation.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.	• No Category 5 habitat is presented in this exhibit.

ODFW Habitat Category	Definition[1]	Examples of ODFW Habitat Categories within Analysis Area
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.	• Agricultural Areas – These areas include irrigated and non-irrigated cropland. • Developed Areas – These areas include existing infrastructure and developed areas.

1. Source: OAR 635-415-0025.

5.2 Description of Fish and Wildlife Habitat in the Analysis Area

The analysis area covers approximately 5,198 acres in northern Sherman County, Oregon, in the Columbia Plateau. The analysis area comprises primarily agricultural lands with small areas of remnant grassland and shrub-steppe habitat with elevations ranging from approximately 420 to 1,600 feet above sea level. Vegetation within much of the analysis area has been modified due to historic and current agricultural activity, construction and management of the Existing Facility, and historic and current grazing activity. Non-native, invasive grasses and forbs are common throughout the analysis area due to these land uses. Only limited areas of native habitat types occur, and even in those areas, non-native, invasive grasses and forbs, including cheatgrass (*Bromus tectorum*), bulbous bluegrass (*Poa bulbosa*), cereal rye (*Secale* cereale), and prickly lettuce (*Lactuca serriola*), are abundant.

Priority Wildlife Connectivity Areas (PWCAs) provide non-regulatory information on the parts of the landscape expected to have the highest overall value for facilitating wildlife movement. PWCAs include areas of good quality habitat (intact, relatively undisturbed parts of the landscape), as well as the best remaining marginal habitat to help wildlife navigate through developed or degraded areas. The PWCA mapping tool (ODFW 2023) is intended to support planning for restoration, conservation, land-use, transportation, and development projects. Planning units are 40-acre hexagons. A portion of PWCA CP-R23 that includes Biglow Canyon overlaps the northern portion of the analysis area (Figure P-1), with a small portion of the PWCA overlapping the Solar Micrositing Area (ODFW 2023). Areas where the PWCA overlaps with non-agricultural and non-developed habitat were identified as Category 2 habitat.

Big game winter habitat includes areas identified and mapped as providing essential and limited function and values (e.g. thermal cover, security from predation and harassment, forage quantity, adequate nutritional quality, escape from disturbance, etc.) for certain big game species from December through April. Winter habitat includes mapped areas of "Winter Range" use by predominately migratory mule deer (*Odocoileus hemionus*) and Rocky Mountain elk (*Cervus canadensis nelsoni*) and mapped areas of "Occupied Habitat" use by predominately non-migratory bighorn sheep (ODFW 2013). The northern portion of the analysis area overlaps big game winter range associated with the John Day River canyon (Figure P-1). Areas where big game winter range overlaps with non-agricultural and non-developed habitat were identified as Category 2 habitat.

Habitat types and subtypes within the analysis area are described in Table P-3 and displayed in Figure P-2.

Table P-3. Description of Habitat Types within Analysis Area

Habitat Type	Habitat Sub-Type	Dominant Vegetation
Agriculture	Irrigate Cropland	Cultivated crops and associated disturbed areas. Mostly non-irrigated dryland wheat with a few irrigated circles.
	Non-Irrigated Cropland	
Developed	Developed	Paved and gravel roads, gravel quarries, residences, equipment staging, permanent footprint of existing wind facility.
Grassland-steppe	Grasslands	Weedy grasslands with minimal shrub component and trace forbs. Dominated by cheatgrass (*Bromus tectorum*) and cereal rye (*Secale cereale*). Minimal shrub component dominated by grey rabbitbrush (*Ericameria nauseosa*). Trace amounts of yarrow (*Achillea millefolium*), tumble mustard (*Sisymbrium altissimum*), prickly lettuce (*Lactuca serriola*), salsify (*Tragopogon dubius*), and arrowleaf balsam root (*Balsamorhiza sagittata*). Small areas of native grasslands exist, dominated by bluebunch wheatgrass (*Pseudoroegneria spicata*) with bulbous bluegrass (*Poa bulbosa*) and cheatgrass also occurring.
Riparian	Riparian Trees	Silver maple, walnut, and black locust.
Shrub-steppe	Sagebrush Shrub-steppe	Sagebrush shrubland with understory dominated by annual/non-native vegetation. Dominant shrubs include basin big sagebrush (*Artemesia tridentata*) and grey rabbitbrush. Understory is dominated by cheatgrass and cereal rye, with trace amounts of tumble mustard, yarrow, squirreltail (*Elymus elymoides*), snow buckwheat (*Eriogonum niveum*), and arrowleaf balsam root.
Surface Water	Ephemeral Streams	National Hydrography Dataset (NHD) data.
	Intermittent Streams	NHD data. Includes one delineated palustrine scrub-shrub wetland associated with an intermittent waterway along upper Biglow Canyon. Vegetation includes reed canary grass (*Phalaris arundinacea*) and speedwell (*Veronica americana*).
Wetland	Freshwater Emergent Wetland	National Wetlands Inventory data.

5.3 Quantity of Habitat Types by Habitat Category within the Analysis Area

Table P-4 shows the acreages within the analysis area of each habitat type with the assigned habitat category. The locations of each habitat type by category within the analysis area are shown on Figures P-2 and P-3, as directed by OAR 345-021-0010(1)(p)(C).

The most prominent habitat category in the analysis area is Category 6 (83 percent). Category 6 includes Agriculture and Developed habitat types, which are dominated by Non-irrigated Cropland subtypes but also include Irrigated Cropland and Developed subtypes. The remaining 17 percent of the analysis area is Category 4 Grassland-steppe and Surface Water habitat types (totaling 6 percent); Category 3 Grassland-steppe, Surface Water, and Wetland habitat types (totaling 1 percent); and Category 2 Grassland-steppe, Riparian, Shrub-steppe, Surface Water, and Wetland habitat types (totaling 11 percent). Representative photos of the analysis area are included in the Habitat Categorization and Special Status Wildlife Survey Report (Attachment P-1).

Presence of a particular habitat category within the analysis area does not indicate that this habitat will necessarily be impacted by the Solar Components. Section 8.1 presents the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and habitat type with discussion on potential impacts to fish and wildlife habitat.

Table P-4. Acres of Habitat Type by ODFW Habitat Categories in the Analysis Area

Habitat Type	Habitat Sub-Type	Acres by Habitat Category within Analysis Area[1]						Total Acres within Analysis Area[1]
		1	2	3	4	5	6	
Agriculture	Irrigated Cropland	-	-	-	-	-	170.3	**170.3**
	Non-Irrigated Cropland	-	-	-	-	-	4,033.6	**4,033.6**
Developed	Developed	-	-	-	-	-	97.4	**97.4**
Grassland-steppe	Grasslands	-	278.9	13.3	288.0	-	-	**580.2**
Riparian	Riparian Trees	-	37.1	-	-	-	-	**37.1**
Shrub-steppe	Sagebrush Shrub-steppe	-	228.6	-	-	-	-	**228.6**
Surface Water	Ephemeral Streams	-	-	-	0.1	-	-	**0.1**
	Intermittent Streams	-	12.7	36.9	-	-	-	**49.6**
Wetland	Freshwater Emergent Wetland	-	1.3	0.2	-	-	-	**1.5**
Totals		**0**	**558.6**	**50.4**	**288.1**	**0**	**4,301.3**	**5,198.4**

1. Acres within analysis area do not total the acres of potential impact. Impacts are discussed in Section 8.

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

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

Response: The Certificate Holder identifies all state sensitive species below in compliance with OAR 345-021-0010(1)(p)(D).

6.1 Identification of State Sensitive Species

Based on the desktop analysis and field surveys, 16 state sensitive species and 2 eagle species have potential to occur in the analysis area (Table P-5). Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are addressed in Exhibit P as species of concern protected under the Bald and Golden Eagle Protection Act (BGEPA). Of the 16 state sensitive species that have potential to occur in the analysis area, 6 are sensitive-critical and 10 are sensitive in the Columbia Plateau Ecoregion (ODFW 2021). These species include 2 reptiles, 9 birds, and 5 mammal species. A query of the StreamNet database (StreamNet 2024) and the Certificate Holder's request for information from ORBIC (ORBIC 2024) did not identify any state sensitive fish species with potential to occur in the analysis area. Therefore, no fish are included in Table P-5 below or addressed in this Exhibit P. State threatened and endangered species are addressed in Exhibit Q.

6.2 Site-Specific Issues Identified by ODFW

The only site-specific issue for the Solar Components identified by ODFW was to avoid residual grassland habitats where possible, to leave cover for the sensitive birds in the area (J.L. Thompson, personal communication, June 6, 2024). Impacts to grassland habitats have been minimized through micrositing. Approximately 580 acres of grassland-steppe habitat were identified within the analysis area (Table P-4). Construction of the Solar Components is expected to result in 3 acres of permanent disturbance and 0.1 acre of temporary disturbance to grassland-steppe habitat (Table P-6).

Table P-5. ODFW State Sensitive Species and Eagles with Potential to Occur in the Analysis Area

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Reptiles					
Northern sagebrush lizard	*Sceloporus graciosus graciosus*	Sensitive	Closely associated with steppe habitat with sandy soils and sparse vegetation in the grass/forb layer. Also occurs in chaparral, juniper woodlands, and coniferous forests.	Moderate. Recorded in Sherman County but limited suitable habitat within the analysis area. Not detected during the 2024 surveys, nor during pre- or post-construction surveys at the BCWF.	Shrub-steppe habitats with sandy soils
Western painted turtle	*Chrysemys picta bellii*	Sensitive-Critical	Marshy ponds, small lakes, slow-moving streams, and quiet, off-channel portions of rivers. Prefer waters with muddy bottoms and aquatic vegetation.	Low. Recorded in Sherman County but limited suitable habitat within the Analysis Area. Not detected during the 2024 surveys, nor during pre- or post-construction surveys at the BCWF.	Riparian, surface water, and wetland habitats

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Birds					
Bald eagle	*Haliaeetus leucocephalus*	None[9]	Typically builds its nest in tall, sturdy trees near water sources, such as rivers, lakes, and coastlines where it can find fish, its primary food source. Known to scavenge opportunistically on carcasses in otherwise unsuitable habitat particularly during winter and migration.	High. Bald eagles are known to nest along the John Day River, but no suitable nesting habitat for bald eagles exists within the Analysis Area. No bald eagles or bald eagle nests detected during the 2024 surveys (Attachment P-1). No bald eagle nests found during raptor nests surveys for the BCWF but bald eagles regularly detected during avian use surveys for the BCWF. Use of the Solar Components is expected to be mostly limited to migration and winter, when the species sometimes feeds on carrion.	All terrestrial habitats
Brewer's sparrow	*Spizella breweri*	Sensitive	Migrant and summer resident that uses sagebrush shrublands, generally with a canopy height greater than 5 feet. Typically nests in brush or in clumps of grass.	Moderate. Not detected during the 2024 surveys. Also not detected during avian use surveys for the BCWF, but one individual found during fatality monitoring for the BCWF. Limited suitable habitat within the analysis area.	Sagebrush and other shrublands

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Burrowing owl (Western)	*Athene cunicularia hypugaea*	Sensitive-Critical	Occurs in open grassland and shrub-steppe habitats as well as highly disturbed habitats such as agricultural areas. Typically nests in burrows excavated by burrowing mammals. Spring and summer resident that travels south for warmer climates during the winter.	Moderate. Suitable habitat within the analysis area, and eBird sightings documented in the vicinity of the analysis area. This species was detected during pre-construction surveys for the BCWF.	Shrub-steppe, grassland agricultural, and developed habitats
Common nighthawk	*Chordeiles minor*	Sensitive	Long-distance migrant present in Oregon during its breeding season, from May to August. Inhabits any kind of open or semi-open terrain. Nesting habitat is characterized by open landscapes with little ground cover and is most abundant in sagebrush and rocky scablands and rimrock habitats of eastern Oregon. Tends to roost and nest on bare ground, including gravel roads.	Moderate. Suitable habitat within the analysis area, and eBird sightings documented in the vicinity of the Analysis Area. Not detected during the 2024 surveys or during avian use surveys, but one individual found during fatality monitoring for the BCWF.	All terrestrial habitats
Ferruginous hawk	*Buteo regalis*	Sensitive-Critical	Found in open, arid landscapes. Species often uses grasslands and shrub-steppe with scattered shrubs or trees for perching and nesting. Also nests on cliffs, rimrock, and hillsides.	High. Suitable nesting and foraging habitat within the Analysis Area. Not detected during the 2024 surveys. Low numbers have been detected during avian use surveys but no nests detected during raptor nest surveys for the BCWF.	Shrub-steppe, grassland, and riparian habitats

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Golden eagle	*Aquila chrysaetos*	None[9]	Inhabits a variety of habitats including forests, canyons, shrub lands, grasslands, and oak woodlands. Nests on cliffs, utility towers, or in large trees. Forages in open habitats.	High. Known historical nest territories along the nearby cliffs of the John Day River. Analysis Area lacks nesting habitat but provides foraging habitat. Not detected during the 2024 surveys. Species regularly detected during BCWF avian use surveys but no nests detected within survey area during raptor nest surveys for the BCWF.	All mapped habitats within analysis area
Grasshopper Sparrow	*Ammodramus savannarum*	Sensitive	Migrant and summer resident east of the Cascades. Occurs is dry grassland habitat, generally with low to moderate grass height and low percent shrub cover.	Moderate. Suitable habitat within the Analysis Area and eBird sightings documented in the vicinity of the Analysis Area. Not detected during the 2024 surveys, but regularly detected during avian use surveys for the BCWF.	Grassland habitats
Lewis's woodpecker	*Melanerpes lewis*	Sensitive-Critical	Ponderosa pine forests, oak woodlands, oak-pine woodlands, cottonwood riparian forests, and areas burned by wildfires.	Low. Recorded in Sherman County but limited suitable habitat within the analysis area. Not detected during the 2024 surveys, or during pre- or post-construction surveys at the BCWF.	Riparian habitats

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Loggerhead shrike	*Lanius ludovicianus*	Sensitive	Found in a variety of open, brushy habitats, including agricultural areas. In Oregon, often uses tall sagebrush for nesting and roosting and open areas with grasses and significant bare ground for foraging.	High. Detected within the Solar Micrositing Area during 2024 special status wildlife surveys. Also detected during avian use surveys for the BCWF. Suitable nesting and foraging habitat within the analysis area.	All terrestrial habitats
Long-billed curlew	*Numenius americanus*	Sensitive-Critical	Prefers open habitat with relatively short grass and little woody vegetation but can occur in dryland wheat.	High. Suitable nesting and foraging habitat within the analysis area. Not detected during the 2024 surveys but detected during avian use surveys for the BCWF.	Grassland habitats, agriculture
Swainson's hawk	*Buteo swainsoni*	Sensitive	Open-country specialists that hunt and forage in grassland, shrubsteppe, and agricultural areas. Nests are frequently in lone trees or isolated shrubs in open country.	High. Suitable nesting and foraging habitat within the analysis area. Not detected during the 2024 surveys but detected during avian use surveys for the BCWF and active Swainson's hawk nests detected during raptor nest surveys for the BCWF.	All mapped habitats within analysis area

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Mammals					
Hoary bat	*Lasiurus cinereus*	Sensitive	Generally associated with forested habitat. Often found in coniferous forests east of the Cascade Range. Species prefers late-successional conifer forests for roosting. Often forages along riparian corridors and forest openings or forest borders, where it can easily fly. Sometimes found in open cover types like grasslands and meadows, especially when migrating or foraging.	High, during migration. Recorded in Sherman County and predicted habitat within analysis area.Frequently found during fatality monitoring at the BCWF.	Riparian and open water habitat
Pallid bat	*Antrozous pallidus*	Sensitive	Lives in dry, open habitat such as grasslands, shrub-steppe, and dry forest ecotones. Uses crevices in cliffs, caves, mines, or bridges (and sometimes, buildings) for day, night, or maternity roosts, or hibernacula.	Moderate. Recorded in Sherman County and predicted habitat within analysis area. Not detected during fatality monitoring at the BCWF.	Shrub-steppe grassland, riparian, and open water habitat
Silver-haired bat	*Lasionycteris noctivagans*	Sensitive	Relies on late-successional conifer forests but may be found in other habitat types during migration.	High, during migration. Recorded in Sherman County and predicted habitat within analysis area. Frequently found during fatality monitoring at the BCWF.	Riparian and open water habitat
Spotted bat	*Euderma maculatum*	Sensitive	Roosts in caves, cliffs, canyon walls, and trees near meadows. Forages in meadows, shrub-steppe, and along water sources.	Low. Recorded in Sherman County but no predicted habitat within analysis area. Not detected during fatality monitoring at the BCWF.	Riparian, open water and shrub-steppe habitat

Common Name	Scientific Name	State Status[1]	Expected Habitats[2]	Probability of Occurrence within Analysis Area [3, 4, 5, 6, 7, 8]	Potential Use of Habitat Within the Analysis Area
Townsend's big-eared bat	*Corynorhinus townsendii*	Sensitive-Critical	Occurs in a variety of habitats but most likely to be found near caves, mines, or other roosting areas such as hollow trees, bridges and isolated buildings. Forages in a variety of habitats, including arid pine forests, sage-steppe, and stream corridors.	Moderate. Recorded in Sherman County and predicted habitat within analysis area. Not detected during fatality monitoring at the BCWF.	Riparian, open water and shrub-steppe habitat

1. State Sensitive Species Status Definitions (ODFW 2021):
   Sensitive = Fish and wildlife species that are facing one or more threats to their populations and/or habitat; are defined as having small or declining populations, are at-risk, and/or are of management concern. Implementation of appropriate conservation measures to address existing or potential threats may prevent them from declining to the point of qualifying for threatened or endangered status.
   Sensitive-Critical = Sensitive species of particular conservation concern; have current or legacy threats that are significantly impacting their abundance, distribution, diversity, and/or habitat. They may decline to the point of qualifying for threatened or endangered status if conservation actions are not taken.
2. Expected Habitats (OCS 2016).
3. Oregon Explorer species by county and species predicted habitats (OSULP and INR 2021).
4. ORBIC (2024) occurrence locations are from a variety of sources that vary in accuracy and precision. Because some ORBIC records, particularly older records, have a high level of uncertainty, some occurrence locations are represented by large polygons in order to reflect this lack of precision. These polygons are sometimes more than 1 mile in diameter around a single occurrence location, and do not necessarily reflect the actual location of the sensitive species. As a result, the ORBIC occurrence information was used as a rough approximation of occurrence.
5. eBird 2024
6. Oregon Breeding Bird Atlas (Adamus and Scalf 2021)
7. ODFW Compass mapping tool (ODFW 2024)
8. Results from pre- and post-construction surveys performed for the BCWF (Orion Sherman County Wind Farm 2005, WEST 2005, WEST 2009, WEST 2010, WEST 2012a, WEST 2012b, WEST 2012c, WEST 2013, PGE 2023).
9. Protected by the Bald and Golden Eagle Protection Act.

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

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

The desktop analysis described in Section 4.1 was performed to determine which sensitive species may be using the habitats available within the analysis area for breeding, foraging, or stop-over habitat during migration. Baseline field surveys, including habitat categorization and special status wildlife surveys, botanical surveys, raptor nest surveys, and wetland and waters surveys, were completed in 2024 within portions of the analysis areas described in Section 4.2. Biologists observed one sensitive wildlife species, the loggerhead shrike, during the 2024 surveys. Results of the surveys are described below. Additional details on the field survey methods and results are provided in Attachment P-1. The use of habitats within the analysis area by state sensitive species are summarized in Table P-5.

7.1 Results of Field Surveys

7.1.1 2024 Habitat Categorization and Special Status Wildlife Surveys

Habitat types were identified within the Habitat Categorization Survey Area, which covered 4,636 acres including the entire Solar Micrositing Area and some additional lands that have since been omitted. All habitat types were then categorized according to ODFW's Fish and Wildlife Habitat Mitigation Policy Habitat Categorization flowchart (ODFW 2008). The most prominent habitat category in the Habitat Categorization Survey Area was Category 6, Agriculture habitat type, which included both Irrigated and Non-irrigated Croplands, and Developed habitat subtypes. Additional habitat types included Category 4 Grasslands habitat subtype, Category 3 Sagebrush Shrub-steppe and Upland Trees habitat subtypes, as well as Category 2 Intermittent and Riparian Tree habitat subtype (Table P-2; Attachment P-1). The Solar Micrositing Area does not have Upland Trees habitat. The survey results did not consider overlap with PWCAs and big game winter range. Overlap with PWCAs and big game winter range are considered in this exhibit and modify some of the habitat categories identified during this survey to a Category 2 habitat, as presented in Tables P-4 and P-6.

Eighteen bird species, five mammal species, and two invertebrate species were observed during the surveys. One special status species, the loggerhead shrike, was documented during surveys. (Attachment P-1).

7.1.2 2024 Botanical Surveys

Botanical surveys were conducted to document the presence of federally or state listed endangered, threatened, and candidate vascular plant species and state and county-designated noxious weeds

within the Botanical Survey Area, which covered 3,980 acres including the entire Solar Micrositing Area and some additional lands that have since been omitted from this RFA 4 (Attachment P-1). The botanist observed that vegetation within much of the Survey Area has been modified due to historic and current agricultural activity, construction and management of the Existing Facility, and historic and current grazing activity. No threatened, endangered, proposed, or candidate vascular plant species were observed within the Survey Area. In addition, no suitable habitat for Henderson's ricegrass (*Eriocoma* [*Achnatherum*] *hendersonii*), hepatic monkeyflower (*Erythranthe jungermannioides*), and sessile mousetail (*Myosurus sessilis*) was observed within the Survey Area. Limited suitable habitat for Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*) was observed within the Survey Area, but historic and current anthropogenic activities have resulted in degradation of the limited suitable habitat for Lawrence's milkvetch within the Survey Area. Twelve noxious weed species were identified within the Survey Area.

7.1.3 2024 Raptor Nest Surveys

No state sensitive species were observed nesting within the Survey Area during the 2024 raptor nest surveys (Attachment P-1). A total of five nests were observed within the Survey Area, including one in-use great horned owl (*Bubo virginianus*) nest, one inactive great horned owl nest, and three inactive nests with unknown species determinations.

7.1.4 Wetlands and Waters Surveys

The 2024 wetland and waters surveys covered the entirety of the Solar Micrositing Area and some additional lands that have since been omitted (Attachment P-1). A total of two palustrine emergent wetlands, one riverine wetland, three ephemeral waterways, and one desktop delineated intermittent waterway were found within the RFA 4 Site Boundary.

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

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

This section describes potential impacts to habitat and state sensitive species that are known to occur or have the potential to occur within the analysis area. Permanent impacts to fish and wildlife habitat are discussed as well as disturbance impacts to mammals, birds, and reptiles. As described in detail in Section 4.1.5 of the RFA 4 Division 27 document, the Certificate Holder proposes to construct the Solar Components over a period of 17 to 19 months.

Construction and operation of the Solar Components will result in both permanent and temporary impacts to wildlife and their habitats (Table P-6). Due to the multi-year construction schedule of the Solar Components, both permanent and temporary impacts to fish and wildlife habitat will occur in

phases over this time period. Permanent impact areas are those that will be converted from the existing condition to a different condition for the life of the Solar Components.

Direct impacts to habitat include permanent loss of some specific habitat types; indirect impacts may include increased potential for the invasion of noxious weeds, particularly along fence lines and roads. These habitats are identified and described in Section 5.0, and Table P-6 provides the number of acres that will be permanently and temporarily impacted by the Solar Components, organized by habitat type and sub-type. The entire area within the fenceline is considered permanently disturbed; all temporary disturbance areas are outside the fenceline. The support poles associated with generation tie connections from the proposed collector substation to the existing Biglow Canyon Substation are also categorized as a permanent impact. These components are described in detail in Section 4.0 of the RFA 4 Division 27 document (RFA 4 for the BCWF).

Construction of the Solar Components is expected to involve up to 11 acres of temporary impacts (Table P-6). The specific extent of each component's temporary impact is detailed in Section 4.4.3 of the RFA 4 Division 27 document and described in terms of a total, worst-case scenario impact for the full duration of construction. The RFA 4 Division 27 document presents temporary and permanent impacts of the Solar Components. Restoration of temporary impact areas will occur following construction per the Comprehensive Solar Revegetation and Soil Management Plan (Exhibit I, Attachment I-2).

8.1 Potential Impacts to Fish and Wildlife Habitat

Potential impacts on fish and wildlife habitat include the temporary and permanent disturbance to habitat associated with the construction and operation of the Solar Components. The acres of temporary and permanent disturbances are summarized in Table P-6. Some impacts will be avoided or minimized as described in Section 9.0. Impacts that cannot be avoided will be mitigated as described in the Biglow Solar Habitat Mitigation Plan (HMP; Attachment P-2). Impacts to state sensitive species are described in Section 8.2. While big game winter range is present within the analysis area, it is outside of any proposed temporary or permanent disturbance areas.

Table P-6. Acres of Temporary and Permanent Disturbance

ODFW Habitat Category	Habitat Type	Habitat Sub-Type	Temporary Disturbance (acres)	Permanent Disturbance (acres)
1	N/A	N/A	-	-
2	Riparian	Riparian Trees	<0.1	<0.1
	Shrub-steppe	Sagebrush Shrub-Steppe	0.3	20.7
	Category 2 Subtotal		**0.3**	**20.7**
3	N/A	N/A	-	-
4	Grassland-steppe	Grasslands	0.1	3.0
	Surface Water	Ephemeral Streams	<0.1	<0.1
	Category 4 Subtotal		**0.1**	**3.0**
5	N/A	N/A	-	-
6	Agriculture	Irrigated Cropland	0.1	52.0
	Agriculture	Non-Irrigated Cropland	9.4	1,365.0
	Developed	Developed	1.0	3.9
	Category 6 Subtotal		**10.5**	**1,420.9**
Total			**10.9**	**1,444.6**

Note: Totals in this table may not sum correctly due to rounding; "-" = no impact; <0.1 = greater than zero but less than 0.05 acre.

1. There are not any disturbances in surface water habitat types. Refer to Exhibit J for detailed analysis of impacts on wetlands and waters.

8.2 Potential Impacts to State Sensitive Species

This section addresses potential adverse impacts to state sensitive species identified in Section 6.0. Habitat loss and modification resulting from construction activities will occur in permanent impact areas and temporary construction areas, and the associated impacts on wildlife will vary by species. In addition to these habitat-related impacts, potential adverse impacts to sensitive species due to construction and operation activities may include potential nesting and breeding disturbance, collision with solar arrays, security perimeter fencing, overhead collector lines, vehicles and heavy equipment, and disturbance related to artificial lighting.

8.2.1 Reptiles

No state sensitive reptiles were documented during the 2024 surveys (Attachment P-1) or during pre- or post-construction surveys at the BCWF, but two state sensitive reptile species have the potential to occur within the analysis area: northern sagebrush lizard (*Sceloporus graciosus graciosus*) and western painted turtle (*Chrysemys picta bellii*; Table P-5). Potential impacts to these species and other reptiles include habitat loss and direct mortality. There is limited suitable habitat for the northern sagebrush lizard (shrub-steppe) and western painted turtle (riparian, surface

water, and wetland habitats) within the Solar Micrositing Area. Best management practices employed on-site in accordance with the Erosion and Sediment Control Plan (Exhibit I, Attachment I-1) are expected to result in minimal impacts to aquatic reptiles such as the western painted turtle. Per Site Certificate Conditions 130 and 131, implementation of a Hazardous Materials Management and Monitoring Plan and Spill Prevention, Control, and Countermeasure Plan will ensure measures are in place to avoid and minimize environmental effects of spills and hazardous materials. Use of machinery for clearing, grading, and trenching the Solar Components may cause some mortality of non-aquatic reptiles, such as northern sagebrush lizard. Impacts during operation will probably be limited to direct mortality caused by vehicles and are expected to be low.

8.2.2 Birds

Nine state sensitive bird species and two protected eagle species have the potential to occur within the analysis area and could be potentially impacted by the Solar Components (Table P-5). Other, non-sensitive bird species potentially occurring within the Solar Micrositing Area could also be impacted by the Solar Components. Direct habitat loss will occur from the development of the Solar Micrositing Area, and habitat fragmentation may reduce the functionality of this area for birds. However, most of the Solar Components will be located in disturbed habitat and an abundance of similar agricultural lands in the vicinity of the Solar Micrositing Area remain available to provide habitat for avian individuals potentially displaced.

Temporary impacts from noise and visual disturbance associated with the presence of personnel, vehicles, and equipment during construction could disrupt normal feeding or breeding activities or cause birds to avoid the area. Operations will have reduced levels of human activity compared to construction but could still cause birds to alter their typical behavior and/or avoid the area.

Unlike avian fatality data available for wind turbines, there have been limited standard fatality data associated with PV solar energy infrastructure collected and available across the country. The available data on avian mortality at utility-scale solar energy sites suggests mortality at PV facilities is low, compared to collisions occurring with other anthropogenetic infrastructure (e.g., wind turbines, communication towers, tall buildings). In a study by Kosciuch et al. (2020) that analyzed fatality monitoring data from 10 PV solar facilities in California and Nevada, a fatality estimate of 2.5 birds/MW/year was calculated, but this was reduced to an average annual fatality rate of 1.8 birds per MW per year when an outlier project was removed.

It is theorized that waterbirds confuse the reflective array of solar panels located near ground level to be a body of water and attempt to land on them, and other bird species may fly into the reflective panels like they would windows, unable to perceive the difference between the sky and the glass. The Kosciuch et al. (2020) study showed that water obligate bird fatalities were present in most of the studies (80 percent). Water obligates are species that depend on water for mobility and cannot take flight from land, while water associates are species that rely on water for foraging, reproduction, and/or roosting. Kosciuch et al. (2020) stated that the causal mechanism responsible for water obligate mortalities at PV facilities could not be concluded with their study, and their results were not predictive outside of the vicinity of the sites included in their study.

In a recent solar study that included six small solar arrays located next to Lake Michigan, no water obligate mortalities were recorded and only two water associate mortalities showed evidence of death caused by colliding with solar panels (Rodriguez et al. 2023). In addition, an analysis that summarized bird fatalities to date at PV solar facilities in Alberta, Canada, was conducted and found no correlation with water associate and water obligate mortalities being present at higher numbers than other avian species (Kosciuch et al. 2022).

The results from three publicly available studies from large-scale California PV facilities reported the avian taxonomic groups most highly represented as fatalities were passerines (49 percent), followed by doves/pigeons (22 percent), although loons and grebes ranked second at one facility (23 percent; WEST 2014). Passerines are "perching birds" that make up almost half of all bird species, so that high percentage could easily correlate with the high number of birds in that taxonomic group. When analyzing the fatality species composition, often the species with the largest populations spend most of their time close to the ground and inhabit landscapes with relatively low-growing vegetation or are habituated to human structures. These species often represent the highest number of fatalities at PV facilities (e.g., horned larks, western meadow larks, mourning doves, house sparrows, house finches, gray partridge; Kosciuch et al. 2020, Kosciuch et al. 2022, WEST 2014).

In Oregon, results of a fatality study at a 56-MW PV facility near Prineville detected only three bird fatalities during one year of standardized searches, including only two native birds: horned lark (*Eremophila alpestris*) and a dark-eyed junco (*Junco hyemalis*) (ODOE 2020). These findings, which are the first for the region in Oregon, imply that significant fatality events are unlikely at PV solar facilities in the area. However, low numbers of common ground-dwelling bird species fatalities are possible (ODOE 2020).

Although the fatality numbers from solar studies suggest the probability for waterbird fatality events associated with hitting solar panels is low, waterbirds may attempt to land on the solar panels at the Solar Components, which is located in the vicinity of the Columbia River, a known waterbird stop-over area, especially in times of poor weather and low visibility, and during nocturnal migration.

Artificial lighting has been shown to attract nocturnally migrating birds, resulting in collisions with structures such as communication towers, guy wires, and wind turbines. Research has shown that lighting at solar energy facilities can be designed to minimize that attraction, including using lights that are directed downward, have the lowest allowable intensity, and are on timers or motion sensors.

Interactions with overhead electrical systems have the potential to negatively affect birds, especially raptors, primarily through electrocutions and collisions. Electrocution on overhead electric systems is a primary cause of anthropogenic mortality for golden eagles in North America (Dwyer et al. 2020). Powerline collisions appear to be a less frequent source of mortality for raptors compared to electrocutions (Loss et al. 2014). Collisions with powerlines are possible; however, transmission lines will be constructed following the Avian Powerline Interaction Committee (APLIC) recommendations for collision avoidance (APLIC 2012). Powerline electrocution is not

expected at the Solar Components because all transmission lines will be constructed following the latest APLIC design standards (APLIC 2012), as specified in Site Certificate Condition 58.

The security perimeter fencing proposed for the Solar Components, estimated to total up to 14.3 miles of fence, is an additional collision hazard for birds. The security perimeter fencing will be chain-link and up to 8 feet in height with additional strands of barbed or razor wire on top.

During the 2024 survey effort, no nests of sensitive raptor species were observed in the analysis area. The only sensitive raptor species observed nesting during long-term raptor nesting surveys at the BCWF was the Swainson's hawk (state sensitive). Two great horned owl nests and three inactive nests were recorded during the 2024 raptor nest surveys (Attachment P-1). Most of the nests were associated with Emigrant Canyon in the northern portion of the analysis area. Construction activities occurring near nests during the sensitive breeding season could cause the nests to fail. The protective buffers and survey requirements identified in Site Certificate Condition 132 will be implemented for raptor nests that are determined to be active during construction.

Construction occurring during the breeding season (as early as February and lasting through August) could cause active nests to fail due to direct destruction of nests or nearby disturbance causing nest abandonment. Active nests of all native birds are protected under the Migratory Bird Treaty Act. As described above, nine state sensitive bird species and two eagle species may occur within the analysis area. Impacts to sensitive bird species with the potential to occur within the Solar Micrositing Area are addressed below. Measures described in Section 9.0 will be used to minimize or avoid these potential impacts.

- **Bald eagle (no state status, BGEPA-protected):** No bald eagle nests or bald eagle individuals were recorded during 2024 surveys (Attachment P-1). Bald eagles have been observed during avian use surveys for the BCWF. There is no suitable nesting habitat for the bald eagle within the analysis area. Bald eagle use of the Solar Components is expected to be mostly limited to migration and winter, when the species sometimes feeds on carrion (Buehler 2022). Although bald eagles may occasionally pass through the area, construction and operation of the Solar Components are not expected to adversely impact bald eagles.
- **Brewer's sparrow (state sensitive):** No Brewer's sparrows were recorded during 2024 surveys (Attachment P-1). Additionally, no Brewer's sparrows were detected during avian use surveys for the BCWF; a single individual was found during fatality monitoring for the BCWF (Table P-5). This species uses shrublands, generally with a canopy height of more than 5 feet. Despite the lack of detections, Brewer's sparrows could potentially occur in the limited shrub-steppe habitat within the Solar Micrositing Area. Impacts to appropriate habitat for this species during the construction and operation of the Solar Components include permanent impact to approximately 20.7 acres of Sagebrush Shrub-Steppe habitat, and temporary impact to approximately 0.3 acre of Sagebrush Shrub-Steppe habitat (Table P-6). Construction and operation of the Solar Components may result in the loss of suitable breeding and foraging habitat, potential nesting disturbance, and potential collision risks with vehicles, solar arrays, perimeter fencing, and overhead electrical lines. Sparrow

fatalities have been documented at PV solar facilities (WEST 2014), although no Brewer's sparrows have been reported specifically. Brewer's sparrows are a nocturnal migrant (ADW 2024); therefore, this species may be attracted to artificial lights produced by the Solar Components during migration, increasing collision risks.

- **Burrowing owl (state sensitive-critical):** No burrowing owls were recorded during 2024 surveys (Attachment P-1), but the species was detected during pre-construction surveys at the BCWF (Table P-5). The species inhabits wide-open, sparsely vegetated areas and could occur in grassland, shrubland, agricultural, and developed habitats within the Solar Micrositing Area, especially if burrowing mammals are present. Potential adverse impacts from the construction and operation of the Solar Components include the loss of foraging and breeding habitat, potential collapse of burrows and nesting disturbance, and potential collision risks with vehicles, solar arrays, perimeter fencing, and overhead collector lines during the breeding season. Burrowing owl fatalities have been documented at PV solar facilities (WEST 2014). This species is a nocturnal migrant and, therefore, may be attracted to artificial lights produced by the Solar Components during migration, increasing collision risks.
- **Common nighthawk (state sensitive):** No common nighthawks were recorded during the 2024 surveys (Attachment P-1), but one individual found during fatality monitoring for the BCWF (Table P-5). Common nighthawk is most commonly found in open or semi-open terrain. The species tends to roost and nest on gravel or sparsely vegetated grasslands (Brigham et al. 2020). It is an aerial insectivore that feeds in low-light conditions at dusk and dawn, often near water, but also on insects attracted to artificial lights (Brigham et al. 2020). Potential impacts to common nighthawk during construction and operation of the Solar Components include roosting and nesting disturbance and collision with vehicles, solar arrays, perimeter fencing, and overhead collector lines during the breeding season and collision with vehicles and turbine blades. Nighthawks have been documented at PV solar facilities (WEST 2014). This species is a diurnal migrant and should not be adversely impacted by artificial lighting at the Solar Components during migration.
- **Ferruginous hawk (state sensitive-critical):** No ferruginous hawks were recorded during 2024 surveys (Attachment P-1). Low numbers of ferruginous hawks have been detected during avian use surveys for the BCWF but no nests have been found during raptor nest surveys for the BCWF (Table P-5). The potential adverse impact to this species includes loss of foraging habitat, as no nests were observed within the analysis area. Limited hawk fatalities have been documented at PV solar facilities, and no ferruginous hawk fatalities specifically; therefore, the solar arrays should not create a collision risk to this species.
- **Golden eagle (BGEPA):** No golden eagles were recorded during 2024 surveys (Attachment P-1). Golden eagles were regularly detected during avian use surveys for the BCWF but no nests detected within the survey area during raptor nest surveys for the BCWF (Table P-5). The potential adverse impact to this species includes loss of foraging habitat. No golden

eagle fatalities have been recorded at solar fatalities, and the species is assumed not to be at risk of colliding with solar arrays.

- **Grasshopper sparrow (state sensitive):** No grasshopper sparrows were recorded during the 2024 surveys (Attachment P-1), but grasshopper sparrows were regularly recorded during avian use surveys for the BCWF (Table P-5). This species uses dry grassland habitat, generally with low to moderate grass height and low percent shrub cover. It could potentially occur in the limited grassland habitat within the Solar Micrositing Area. Impacts to appropriate habitat for this species during the construction and operation of the Solar Components include permanent impact to 3 acres of Grassland habitat and temporary impact to 0.1 acres of Grassland habitat (Table P-6). Other potential adverse impacts from collision risks exist with vehicles, heavy equipment, solar arrays, perimeter fencing, and overhead collector line. Sparrow fatalities have been documented at PV solar facilities (WEST 2014). Grasshopper sparrow is also a nocturnal migrant (Hill and Renfrew 2018); therefore, this species may be attracted to artificial lights produced by the Solar Components during migration, causing additional collision risks.
- **Lewis's woodpecker (sensitive-critical):** No Lewis's woodpeckers were recorded during 2024 surveys (Attachment P-1) or during pre- or post-construction surveys at the BCWF (Table P-5). Lewis' woodpecker is associated with open forests, often at lower elevations, and nest in woodlands of the river valleys of eastern Oregon (Csuti et al. 2001). The Solar Micrositing Area does not provide breeding habitat, but the species has the potential to pass through the Solar Components during migration. As a diurnal migrant (Abele et al. 2004), this species will not be adversely impacted by artificial lighting. This species has also not been documented as a fatality at solar fatalities. Impacts to Lewis' woodpeckers from construction and operation of the Solar Components are anticipated to be minimal.
- **Loggerhead shrike (state sensitive):** One loggerhead shrike was recorded during 2024 surveys (Attachment P-1). The shrike was observed in Upland Trees habitat in the southern portion of the Solar Micrositing Area. Additionally, low numbers (one to two individuals) of loggerhead shrikes have been occasionally detected during avian use surveys for the BCWF. This species uses tall sagebrush for nesting and roosting, and forages in open areas with grasses and bare ground (OCS 2016). Potential adverse impacts to loggerhead shrike include habitat loss, nesting disturbance, and collisions associated with vehicles, solar arrays, perimeter fencing, and overhead collector lines. Loggerhead shrike fatalities have been documented at PV solar facilities, and this species is a nocturnal migrant (WEST 2014); therefore, this species may be attracted to artificial lights produced by the Solar Components during migration, increasing collision risks.
- **Long-billed curlew (state sensitive-critical):** No long-billed curlews were recorded during the 2024 surveys (Attachment P-1), but the species has been detected during avian use surveys for the BCWF (Table P-5). Long-billed curlew is typically found in open grasslands and could occur in grassland or agricultural habitats within the Solar Micrositing Area. Potential adverse impacts from construction and operation of the Solar Components

include loss of potential nesting and foraging habitat as well as potential collision with the solar arrays, perimeter fencing, overhead collector line, and vehicles during the spring and summer months. Long-billed curlew fatalities have been documented at PV solar facilities and this species is a nocturnal migrant (WEST 2014); therefore, this species may be attracted to artificial lights produced by the Facility during migration, creating additional collision risks. Additionally, long-billed curlew is susceptible to human disturbance during the breeding season, which can result in nest abandonment or disruption of brood-rearing (Dugger and Dugger 2002); construction of the Solar Components may adversely impact active breeding attempts if construction occurs in proximity to long-billed curlew during the breeding season.

- **Swainson's hawk (state sensitive):** No Swainson's hawk individuals or nests were recorded within the analysis area during the 2024 surveys. However, Swainson's hawk has been detected during avian use surveys for the BCWF and has been a regularly occurring nesting raptor species at the BCWF (Table 5). Swainson's hawk is an open-country specialist that forages extensively while in flight. Swainson's hawk is more likely to hunt in agricultural areas, such as hay and alfalfa fields, pastures, and grain crops than is most other raptor species (Bechard et al. 2020). Construction of the Solar Components may result in loss of foraging habitat and reduce nesting habitat if trees are removed. To prevent disturbance to nesting Swainson's hawk, the Certificate Holder will not conduct ground-disturbing activities within 0.25 mile of active Swainson's hawk nests during the nesting season, as described in Section 9. Limited hawk fatalities have been documented at PV solar facilities, and no Swainson's hawk fatalities specifically (WEST 2014); therefore, the solar arrays should not create a collision risk to this species.

8.2.3 Mammals

8.2.3.1 Bats

Five state sensitive bat species have the potential to occur within the analysis area: hoary bat, pallid bat, silver-haired bat, spotted bat, and Townsend's big-eared bat. Two state sensitive species (hoary bat and silver-haired bat) were detected during fatality monitoring at the BCWF (Table P-5). The timing and frequency of detections suggest that these species are relatively common and fly through much of the area during the late summer and fall months, concurrent with their migration period. The three additional state-sensitive bat species with the potential to occur in the analysis area—spotted bat (sensitive), pallid bat (sensitive), and Townsend's big-eared bat (sensitive, sensitive-critical)—were not detected during fatality surveys at BCWF. The Facility is not sited near typical breeding or roosting habitat for these species, and there is limited aquatic foraging habitat such as wetland, ponds, and slow-moving streams within the site boundary (Table P-4, Figure P-2). Additionally, construction activities will typically occur during daylight hours when bats are generally absent, and thus construction activities are not anticipated to disturb foraging bats.

Collision with solar panels and security fencing is a potential threat to bats. Post-construction bat mortality data at utility-scale PV solar energy sites are limited. Smallwood (2022) reviewed 18

California fatality monitoring reports from 1982 to 2018 and calculated an average fatality estimate of 0.06 bats/MW/year at PV solar arrays, 2.56 bats/kilometer/year along perimeter fences, and zero fatalities associated with gen-tie-in power lines. Any impacts to bats would most likely occur in late summer and fall, during the migratory period for tree-roosting bats. Insects may be attracted to lighting around structures, which may in turn attract bats to forage near Solar Components infrastructure. Thus, artificial lighting at night may increase the risk of collision fatalities. However, the potential for collision risk due to artificial night lights will be avoided and minimized, as described in Section 9.0. As a result, construction and operation of the Solar Components are anticipated to have minimal impact on these bat species during their migratory period.

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

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

This section describes measures to avoid, minimize, and mitigate for impacts to state sensitive and other wildlife species and their habitats, and describes how those measures are expected to achieve the habitat mitigation goals of OAR 635-415-0025. The Solar Micrositing Area does not occur in sage-grouse habitat; therefore, the mitigation requirements associated with the Greater Sage-Grouse Conservation Strategy for Oregon do not apply.

9.1 Avoidance and Minimization

9.1.1 Solar Components Design

Measures employed during design of the Solar Components to avoid and minimize impacts to fish and wildlife habitat, as well as state sensitive species, included the following:

- To the extent feasible, Solar Components have been sited on previously disturbed habitat, including cropland and developed areas thereby minimizing impacts to other habitats more suitable for sensitive and other wildlife species, including the ODFW conservation strategy habitats, grasslands, sagebrush, and wetlands. This siting effort is expected to minimize impacts to wildlife generally and to sensitive species in particular.

- PGE will construct all overhead transmission lines following PGE's avian-safe design standards which are consistent with the suggested practices manual published by APLIC (APLIC 2012). This is expected to minimize the risk of electrocution and collision to all bird species, and to eagles, Swainson's hawks, and ferruginous hawks in particular. Per Site Certificate Condition 52, the Certificate Holder will implement permanent down-shield lighting at the substations and operations and maintenance buildings. Outdoor lighting will be sited, limited in intensity, shielded, and hooded in a manner that prevents the lighting from projecting onto adjacent properties and roadways. This is expected to minimize the risk of avian collision with Facility infrastructure for all birds and bats in general, but to nocturnal migrant species (including Brewer's sparrows and grasshopper sparrows) and to the crepuscular, insectivorous common nighthawk in particular. Down-shield lighting will be in place year-round, mitigating impacts to birds and bats both during migration and while foraging for insects at any time of the year.

9.1.2 During Construction and Operation

During construction and operation of the Solar Components, measures for avoiding and reducing impacts to wildlife and plants, including state sensitive species, will be implemented as follows:

- Per Site Certificate Condition 52, the Certificate Holder will use the minimum lighting necessary for nighttime construction, repairs, or emergencies. The lighting will be directed downward to limit the illumination to the work area.
- Per Site Certificate Condition 49, the Certificate Holder shall control the introduction and spread of noxious weeds in accordance with the methods, monitoring procedures and success criteria set forth in the Comprehensive Solar Revegetation and Soil Management Plan (Exhibit I, Attachment I-2).
- Per Site Certificate Condition 140, the Certificate Holder shall restore areas that are temporarily disturbed during construction in accordance with the methods, monitoring procedures and success criteria set forth in the Comprehensive Solar Revegetation and Soil Management Plan (Exhibit I, Attachment I-2).
- Per Site Certificate Condition 141, the Biglow Solar Habitat Mitigation Plan (HMP) is included as Attachment P-2. Components of the WMMP applicable to the Solar Components include ongoing environmental training for Solar Components personnel and reporting requirements governing incidental wildlife injuries and deaths observed at the Solar Components and raptor nest monitoring. Raptor nest monitoring performed for BCWF covers the entirety of the Solar Micrositing Area and this RFA does not propose any modifications to the methods or timing of future raptor nest monitoring efforts associated with BCWF and the Solar Components.
- Per Site Certificate Condition 133, the Certificate Holder will perform pre-construction raptor nest surveys to determine the location of active raptor nests. Survey methods shall be approved by ODFW. Condition 133 includes nest buffers and seasonal restriction dates

within which the certificate holder would not engage in high-impact construction activities (defined in Condition 133).

- Per Site Certificate Condition 31, during construction of the underground collector system, the Certificate Holder shall open the smallest necessary sections of trench during each day of construction and backfill the trenches as soon as is practical after power lines have been set in the trenches. Doing so is expected to safeguard animals from falling into the trenches and becoming trapped.

9.1.3 Environmental Training and Sensitive Resource Awareness

Per Condition 57, the Certificate Holder will provide environmental training to construction and operation staff to avoid impacts to sensitive species, their habitat, review exclusion areas/seasonal avoidance buffers, and other environmental issues. Training includes reporting injured or dead wildlife discovered incidental to construction and maintenance operations in accordance with the procedures described in the HMP (Attachment P-2).

9.1.4 Avian Protection

The Certificate Holder will implement the following avian protection measures:

- Condition 132 – nest buffers and seasonal restrictions.
- Condition 58 – design and construct all aboveground transmission line structures following the practices suggested by APLIC.
- Company-wide Avian Protection Plan (PGE 2020).
    - Avian-safe design, consistent with Condition 58.
    - Consideration of risk factors for avian collisions and use of flight diverters, if warranted.
    - Internal reporting system for tracking avian mortalities.

9.2 Mitigation

After avoidance and minimization measures have been implemented, some impacts to wildlife habitat and sensitive species will remain. Permanent habitat loss will be mitigated for according to ODFW Habitat Mitigation Policy goals and standards, as described in the Solar Micrositing Area HMP (Attachment P-2). Included in this plan are measures for protecting and enhancing sufficient acreages of wildlife habitat to meet the mitigation goals and standards for those habitat subtypes and categories temporarily and permanently impacted by the Solar Components. The mitigation will be in place for the duration of the Solar Components.

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

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

The Certificate Holder will conduct revegetation monitoring as described in the Comprehensive Solar Revegetation and Soil Management Plan (Exhibit I, Attachment I-2). The Certificate Holder will conduct habitat mitigation monitoring as described in the HMP (Attachment P-2). Monitoring for noxious weeds will occur per the Comprehensive Solar Revegetation and Soil Management Plan (Exhibit I, Attachment I-2).

No formal monitoring program is applicable to some of the measures discussed in Section 9.0. For instance, other than through professional review of the information included in this RFA, there is no monitoring program for design of the Solar Components. Similarly, adherence to speed limits will be expected but not formally monitored.

Environmental monitors will be on-site during construction to support implementation of the environmental training and sensitive resource awareness.

11.0 Conclusion

As part of the RFA and Solar Components siting process, fish and wildlife habitats within the analysis area were identified and categorized pursuant to OAR 635-415-0025. Based on survey results, the Solar Components were adjusted to avoid all impacts to Category 1 habitat and to minimize impacts to Category 2 and 4 habitats. Unavoidable habitat impacts will be mitigated consistent with OAR 635-415-0025.

Therefore, based on the information provided in this exhibit, there is sufficient evidence upon which the Council may find that the design, construction, and operation of the Solar Components, taking into account the proposed mitigation measures, are consistent with the fish and wildlife mitigation goals and standards of OAR 635-415-0025. Accordingly, the Certificate Holder demonstrates compliance with OAR 345-022-0060.

12.0 References

Abele, S.C., V.A. Saab, and E.O. Garton. 2004. Lewis's Woodpecker (*Melanerpes lewis*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5182072.pdf

Adamus, P.R., and R. Scalf. 2021. Update to the Oregon Breeding Bird Atlas. https://oregonbirding.org/obba-update/

ADW (Animal Diversity Web). 2024. Brewer's sparrow (*Spizella breweri*) species account. https://animaldiversity.org/accounts/Spizella_breweri/. Accessed October 2024.

APLIC (Avian Powerline Interaction Committee). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

Bechard, M. J., C. S. Houston, J. H. Saransola, and A. S. England. 2020. Swainson's Hawk (*Buteo swainsoni*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.swahaw.01

Buehler, D. A. 2022. Bald Eagle (*Haliaeetus leucocephalus*), version 2.0. In Birds of the World (P. G. Rodewald and S. G. Mlodinow, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.baleag.02

Csuti, B., T.A. O'Neil, M.M. Shaughnessy, E.P. Gaines, and J.C. Hak. 2001. *Atlas of Oregon Wildlife*, 2nd edition. Oregon State University Press, Corvallis. 525 pp.

Dugger, B. D., and K. M. Dugger. 2002. Long-billed Curlew (*Numenius americanus*), version 2.0. In *The Birds of North America* (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA.

eBird. 2024. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. https://ebird.org/map. Accessed October 2024.

Hill, J.M. and R.B. Renfrew. 2018. Migratory patterns and connectivity of two North American grassland bird species. *Ecology and Evolution* 9(1):680-692. https://doi.org/10.1002/ece3.4795. Accessed October 2024.

Kosciuch, K., D. Riser-Espinoza, M. Gerringer, and W. Erickson. 2020. A summary of bird mortality at photovoltaic utility scale solar facilities in the Southwestern U.S. PLoS ONE 15(4): e0232034. https://doi.org/10.1371/journal.pone.0232034. Accessed October 2024.

Kosciuch, K., D. Riser-Espinoza, K. Russell, J. Sullivan, and N. Bartok. 2022. Alberta Regional Solar Fatality Analysis. Summarized the incidence of water-associated and water obligate bird fatalities observed to date at PV solar facilities in Alberta, Canada.

NRCS (Natural Resources Conservation Service). 2024. Web Soil Survey. Available online at: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed August 2024.

ORBIC (Oregon Biodiversity Information Center). 2024. Element Occurrence Record Digital Data Set for rare, threatened, or endangered species for the state of Oregon, May 2, 2024. ORBIC, Institute for Natural Resources. Portland State University, Portland, Oregon. Accessed July 2024.

OCS (Oregon Conservation Strategy). 2016. Oregon Department of Fish and Wildlife, Salem, Oregon. http://oregonconservationstrategy.org.

ODA (Oregon Department of Agriculture). 2022. Noxious Weed Policy and Classification System. Noxious Weed Control Program. Salem, OR. https://www.oregon.gov/oda/shared/Documents/Publications/Weeds/NoxiousWeedPolicyClassification.pdf. Accessed June 2024.

ODFW (Oregon Department of Fish and Wildlife). 2008. The Mitigation Category Flow Chart. Available online at: https://www.dfw.state.or.us/habitat/mitigation/mitigation_category_flow.pdf

ODFW. 2013. Deer and Elk Winter Range for Eastern Oregon. GIS Data Files. Publish Date: 1/9/2013. https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=885.xml.

ODFW. 2021. Sensitive Species List. Revised October 2021. https://www.dfw.state.or.us//wildlife/diversity/species/docs/Sensitive_Species_List.pdf. Accessed September 2023.

ODFW. 2023. Priority Wildlife Connectivity Areas Web Map. Oregon Department of Fish and Wildlife. Salem, Oregon. https://experience.arcgis.com/experience/6979b6598f904951bd0af1821e1595f1/.

ODFW. 2024. Compass Online Fish and Wildlife Mapping Tool. http://dfw.state.or.us/maps/compass/. Accessed September 2024.

ODOE (Oregon Department of Energy). 2020. Montague Wind Power Facility - Final Order on Request for Amendment 5. September 25, 2020.

Orion Sherman County Wind Farm, LLC. 2005. Site Certificate Application for the Biglow Canyon Wind Farm. Submitted to the Oregon Energy Facility Siting Council. October 2005.

OSULP and INR (Oregon State University Libraries & Press and Institute for Natural Resources). 2021. Oregon Explorer. https://oe.oregonexplorer.info/wildlife/wildlifeviewer/. Accessed October 2024.

PGE (Portland General Electric Company). 2020. Avian Protection Plan. Revision 2. Prepared by PGE Environmental Services.

PGE. 2023. Biglow Canyon Wind Farm Wildlife Monitoring, Habitat Mitigation and Revegetation 2022 Monitoring Report. Prepared by PGE Environmental Services. April 2023.

Rodriguez, M., D. Riser-Espinoza, W. Erickson, and M. Tuma. 2023. Post-Construction Monitoring at the Two Creeks Solar Project. Manitowoc County, Wisconsin.

SCNWD (Sherman County Noxious Weed District). 2024. Sherman County Noxious Weeds. https://www.co.sherman.or.us/noxious-weeds-sherman-county/. Accessed June 2024.

Smallwood, S. 2022. Utility-Scale Solar Impacts to Volant Wildlife. Journal of Wildlife Management. Vol.86, Issue 4. https://doi.org/10.1002/jwmg.22216

StreamNet. 2024. Fish distribution data for All Fish Species. GIS Data. Portland (OR). https://www.streamnet.org/home/data-maps/sn-mapper/. Accessed October 2024.

USFS and BLM (U.S. Forest Service and U.S. Bureau of Land Management). 1998. Survey and Manage Survey Protocol – Vascular Plants.

USFWS (U.S. Fish and Wildlife Service). 2024. National Wetlands Inventory. Wetlands Data by State, Oregon. https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed August 2024.

USGS (U.S. Geological Survey). 2024. National Hydrography Dataset. Available online at: http://datagateway.nrcs.usda.gov/. Accessed: August 2024.

WEST (Western EcoSystems Technology, Inc.). 2005. Wildlife and Habitat Baseline Study for the Proposed Biglow Canyon Wind Power Project, Sherman County, Oregon. March 2004 - August 2005. Prepared for Orion Energy LLC., Oakland, California. Prepared October 2005.

WEST. 2009. Biglow Canyon Wind Farm Phase I Post-Construction Avian and Bat Monitoring First Annual Report Sherman County, Oregon. January 2008 – December, 2008. Prepared for Portland General Electric Company. Prepared April 2009.

WEST. 2010. Biglow Canyon Wind Farm Phase I Post-Construction Avian and Bat Monitoring Second Annual Report, Sherman County, Oregon. January 26, 2009 – December 11, 2009. Prepared for Portland General Electric Company. Prepared April 2010.

WEST. 2012a. Biglow Canyon Wind Farm – Phase III, Year 1 Avian and Bat Monitoring Report, Sherman County, Oregon. September 13, 2010 – September 9, 2011. Prepared for Portland General Electric Company. Prepared April 2012.

WEST. 2012b. Biglow Canyon Wind Farm Phase II, Amended Year 1 Post-construction Avian and Bat Monitoring Report, Sherman County, Oregon. September 10, 2009 – September 12, 2010. Prepared for Portland General Electric Company. Original report prepared January 2011. Amended June 2012.

WEST. 2012c. Biglow Canyon Wind Farm Phase II, Year 1 Post-construction Avian and Bat Monitoring Report, Sherman County, Oregon. September 13, 2010 – September 15, 2011. Prepared for Portland General Electric Company. Prepared April 2012.

WEST. 2013. Biglow Canyon Wind Farm – Phase III, Year 2 Avian and Bat Monitoring Report, Sherman County, Oregon. September 19, 2011 – September 18, 2012. Prepared for Portland General Electric Company. Prepared April 2013.

WEST. 2014. Sources of Avian Mortality and Risk Factors Based on Empirical Data from Three Photovoltaic Solar Facilities. June 2014.

Figures

Biglow Canyon Wind Farm Request for Amendment #4

Figure P-1
Analysis Area

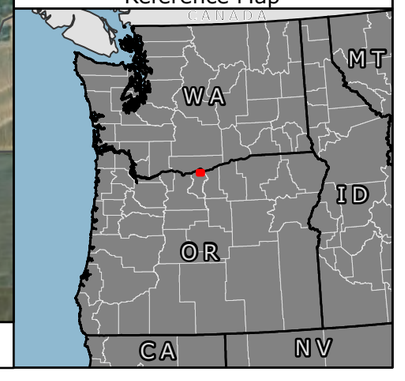
SHERMAN COUNTY, OR

- Solar Micrositing Area
- Analysis Area (0.5-mile Buffer)
- County Boundary
- City/Town
- Local Roads
- Deer Winter Range
- Priority Wildlife Connectivity

TETRA TECH

PGE

Reference Map



Kuypers Rd
Helms Springs Rd
Fox Rd
Phillipi Canyon Ln
Gilliam County
Sherman County
Helms Creek Rd
Herin Ln
McNab Ln
Biglow Canyon Rd
Weir Ln
Weir Rd
Emigrant Spring Rd
Emigrant Springs Ln
Oehman Rd
N Klondike Rd
Beacon Rd
Rayburn Rd
Medler Ln

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WGS 1984 UTM Zone 10N

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NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment #4

Figure P-2 Habitat Types and Subtypes

SHERMAN COUNTY, OR

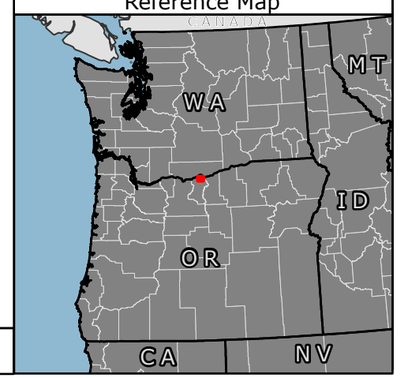
- Solar Micrositing Area
- Analysis Area (0.5-mile Buffer)
- County Boundary
- City/Town
- Local Roads

Habitat Type; Habitat Subtype

- Agriculture; Irrigated Cropland
- Agriculture; Non-Irrigated Cropland
- Developed
- Grassland-steppe; Grasslands
- Riparian; Riparian Trees
- Shrub-steppe; Sagebrush Shrub-Steppe
- Surface Water; Intermittent Streams
- Wetland; Freshwater Emergent Wetland

TETRA TECH PGE

Reference Map



Helms Springs Rd
Kuypers Rd
Fox Rd
Phillipi Canyon Ln
Gilliam County
Sherman County
Helms Creek Rd
Herin Ln
Biglow Canyon Rd
Weir Ln
McNab Ln
Emigrant Spring Rd
Emigrant Springs Ln
Ochman Rd
N Klondike Rd
Beacon Rd
Medler Ln

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Biglow Canyon Wind Farm Request for Amendment #4

Figure P-3
Habitat Categories

SHERMAN COUNTY, OR

- Solar Micrositing Area
- Analysis Area (0.5-mile Buffer)
- County Boundary
- Local Roads
- City/Town

Habitat Category

- 2
- 3
- 4
- 6

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PGE

Reference Map

Helms Springs Rd
Kuypers Rd
Fox Rd
Phillipi Canyon Ln
Gilliam County
Sherman County
Helms Creek Rd
Herin Ln
Biglow Canyon Rd
Weir Ln
McNab Ln
Emigrant Spring Rd
Emigrant Springs Ln
Oehman Rd
N Klondike Rd
Beacon Rd
Rayburn Rd
Medler Ln

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Attachment P-1. Biological Survey Reports

2024 Habitat Categorization and Special Status Wildlife Survey Report

2024 Habitat Categorization and Special Status Wildlife Survey Report

Biglow Canyon Wind Farm
Request for Amendment 4
November 2024

Prepared for

BRIGHTNIGHT

BIGL bn, LLC

Prepared by

TETRA TECH

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Table of Contents

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Acronyms and Abbreviations

AC	alternating current
BCWF or Existing Facility	Biglow Canyon Wind Farm
BIGL	BIGL bn, LLC
Certificate Holder / PGE	Portland General Electric Company
Council / EFSC	Oregon Energy Facility Siting Council
GIS	geographic information system
IPaC	Information for Planning and Consultation
MW	megawatt
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
ORBIC	Oregon Biodiversity Information Center
RFA	Request for Amendment
Site Certificate	Site Certificate to Amendment 3
Solar Components	photovoltaic solar energy generation and battery storage
Survey Area	2024 Habitat Categorization Survey Area
Tetra Tech	Tetra Tech, Inc.
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) is submitting a Request for Amendment (RFA) 4 to the Site Certificate on Amendment 3, issued October 31, 2008 (Site Certificate) for the Biglow Canyon Wind Farm (BCWF or Existing Facility) to add photovoltaic solar energy generation and battery storage (Solar Components) to the operating BCWF in Sherman County, OR.

BCWF, owned and operated by PGE, is located within an approved site boundary comprising approximately 25,000 acres, approximately 2.5 miles northeast of the town of Wasco in Sherman County, Oregon (Figure 1). The BCWF operates under the Site Certificate from the Oregon Energy Facility Siting Council (Council or EFSC) as administered by the Oregon Department of Energy. BCWF currently consists of 217 wind turbines, with a maximum blade tip height of 445 feet, and a peak generating capacity of 450 megawatts (MW).

In RFA 4, PGE proposes to add up to 385 MW alternating current (AC) generating capacity from photovoltaic solar arrays and 375 MW in battery storage capacity. RFA 4 seeks to expand the BCWF site boundary to include the Solar Components in portions of the existing site boundary and in the proposed expanded site boundary (together, Solar Micrositing Area or RFA 4 Site Boundary).

The Solar Micrositing Area is approximately 3,980 acres and provides a conservative estimate of the maximum area needed for development, micrositing, and temporary disturbances from the Solar Components during construction, rather than the anticipated disturbance footprint. Solar Components will include solar arrays, inverters, battery energy storage system facilities and their subcomponents (i.e., inverters), two collector substations, a total of approximately 3 miles of 230-kilovolt generation tie transmission line, medium voltage collector lines, operations and maintenance structures, site access roads, internal roads, perimeter fencing, facility entry gates, and temporary laydown areas. The maximum generating capacity from the Solar Components will be 385 MW AC and construction may take place in phases.

PGE will own and operate the Solar Components as a part of the BCWF, which, to date, have been developed by BIGL bn, LLC (BIGL). BIGL, in its capacity as the project developer, supports PGE in this RFA 4 and may construct and temporarily operate the Solar Components on behalf of PGE under a Build-Transfer Agreement. Tetra Tech Inc. (Tetra Tech) is providing support to PGE and BIGL through preparation of RFA 4.

This survey report presents the methods and results of the 2024 habitat categorization and special status wildlife surveys conducted by Tetra Tech for the Solar Micrositing Area. The objective of this survey was to map and classify habitat according to Oregon Department of Fish and Wildlife (ODFW) guidelines set forth in Oregon Administrative Rule (OAR) 635-415-0025 and identify the presence of special status wildlife species and their habitats.

2.0 Methods

Prior to conducting field surveys, Tetra Tech conducted a desktop assessment including a review of existing information regarding habitat types and special status species with the potential to occur within the Solar Micrositing Area. The term "special status species" includes federal and state endangered, threatened, proposed, and candidate fish, wildlife, and plant species, as well as state sensitive wildlife species with distribution in Sherman County. Special status species also include eagles. Attachment 1 includes a list of special status species with the potential to occur in the 2024 Habitat Categorization Survey Area (Survey Area; defined in Section 2.1 below). This report focuses on special status wildlife species; special status plant species are addressed in a separate report. Nests of raptor species not considered special status wildlife are addressed in a separate report.

Information pertaining to federally listed species was obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning, and Consultation (IPaC; USFWS 2024) database and site-specific records of sensitive species and habitat occurrences was received from the Oregon Biodiversity Information Center (ORBIC; ORBIC 2024). Other resources consulted during the desktop assessment included the National Land Cover Database, aerial photography, the original application materials for the BCWF, the Oregon Conservation Strategy (2016), and the ODFW Compass mapping tool. The Sherman County Comprehensive Plan (Goal 5) was also reviewed to determine the potential for big game and threatened and endangered species habitat, and eagle or other sensitive bird nesting habitats to occur within the Solar Micrositing Area.

2.1 Survey Area

Figure 1 shows the Solar Micrositing Area of approximately 3,980 acres and the slightly larger Survey Area. The Survey Area covered 4,636 acres including the entire Solar Micrositing Area and some additional lands that have since been omitted from the Solar Micrositing Area. The southern portion of the Survey Area is approximately 1.5 miles east of the town of Wasco, and the northern portion of the Survey Area is approximately 1 mile southwest of the John Day River, in Sherman County, Oregon (Figure 1).

2.2 Habitat Categorization

The objective of conducting surveys was to categorize habitats per the habitat categories set forth in OAR 635-415-0025 (ODFW's Fish and Wildlife Mitigation Policy) and assign habitat subtypes consistent with the habitat subtypes developed during permitting of the BCWF.

The ODFW Fish and Wildlife Habitat Mitigation Policy provides a framework to categorize habitats based on type, quality, availability, and usefulness/importance to wildlife, and establishes mitigation goals and implementation standards for each. Table 1 defines each of the six habitat category types as presented in the ODFW Habitat and Wildlife Mitigation Policy.

Table 1. Habitat Categorization Types

Category Type	Definition[1]	Mitigation Goal
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.	The mitigation goal for Category 1 habitat is no loss of either habitat quantity or quality.
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.	The mitigation goal if impacts are unavoidable is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality.
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.	The mitigation goal is no net loss of either habitat quantity or quality.
4	Important habitat for fish and wildlife species.	The mitigation goal is no net loss of either habitat quantity or quality.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.	The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality.
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.	The mitigation goal is to minimize impacts.
1. Source: OAR 635-415-0025.		

Attachment 2 includes a habitat matrix that defines the habitat subtypes and the corresponding habitat categories in which each habitat subtype may fall based on proximity to wildlife resources and/or vegetation composition.

Habitat categorization surveys were conducted within the Survey Area concurrently with special status wildlife surveys. Habitat mapping was performed within a minimum of 1 acre mapping unit (except for specialized habitat such as cliffs or rock outcrops). These surveys were conducted by one field biologist familiar with vegetation of the Columbia Plateau Ecoregion and were scheduled during the growing season to aid in identification of vegetative species.

During surveys, meandering transects were walked by a biologist to categorize the composition and structure of habitat within the Survey Area by noting the dominant vegetation, presence of large trees, existing disturbance, or other habitat features such as shrub and grass composition and density. Each polygon was then assigned a habitat type, subtype, and habitat quality category that was guided by the habitat categorization for the BCWF. Habitat was classified into categories by quality per the ODFW Habitat Mitigation Policy. Spatial information was recorded on Samsung Galaxy tablets using the FieldMaps application; Attachment 3 includes the habitat form that was filled out during surveys to describe habitat category, type, and subtype. The biologist reviewed

high-resolution aerial photographs to locate and visit areas with unique vegetation or habitat features. Habitat types and categories were not assigned to wetlands or waters in the field as they were derived from data collected during wetland and water surveys.

Following the habitat categorization surveys, the digitized habitat boundaries were downloaded and processed in geographic information system (GIS) software, and the data were incorporated into spatial data. Data were then reviewed for quality control and assurance.

2.3 Special Status Wildlife

The objective of the wildlife survey was to document the presence of any special status species within the Survey Area, as well as general wildlife species that may occur. Special status species include species protected by the Endangered Species Act (7 United States Code [U.S.C.] 136), the Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and ODFW (2021b).

Wildlife surveys were conducted by a field biologist familiar with fish and wildlife species of the Columbia Plateau Region and were scheduled to begin early in the morning and continue through late afternoon to allow observations of species most active at dawn and late afternoon (e.g., mule deer [*Odocoileus hemionus*]). Additionally, survey dates were planned to coincide with the period of highest biological activity of neotropical migrant and breeding birds, foraging and breeding wildlife species, and other taxa. During surveys, the biologist walked meandering transects through non-agricultural areas within the Survey Area, searching (scanning and listening) for wildlife species and recognizable signs of wildlife (e.g., scat, tracks, burrows and nests). Agricultural areas were surveyed by visually scanning and listening for wildlife from accessible roads or bordering non-agricultural lands. During surveys, the biologist documented the location of special status species, or recognizable sign, and recorded the number of individuals and their behavior, if observed. Special habitats and unique features (i.e., cliffs, ponds, talus slopes, rock outcrops, raptor nests, and big game) were also documented if encountered.

Following field surveys, the digitized data were downloaded and processed using GIS software and reviewed for quality control and assurance.

3.0 Results

3.1 Habitat

Targeted, field-based habitat categorization surveys were performed from June 10-12, 2024, within the Survey Area concurrently with special status wildlife surveys. These surveys determined habitat types and subtypes as shown in Table 2 and displayed on Figure 2. Land use in the Survey Area consists of existing wind turbines and associated gravel turbine pads and access roads, dryland wheat fields, grassland, and ephemeral drainages (Table 2). Photos of select habitat types and subtypes are provided in Attachment 4.

Table 2. Habitat Categories, Types, and Subtypes within the Survey Area

Habitat Category	Habitat Type	Habitat Subtype	Acreage within Survey Area	Category Subtotal
Category 2	Riparian	Intermittent Streams/Riparian Trees	11.9	11.9
Category 3	Upland	Upland Trees	20.6	70.0
	Shrub-steppe	Sagebrush Shrub-steppe	49.4	
Category 4	Grassland-steppe	Grasslands	94.5	94.5
Category 6	Agriculture	Irrigated Cropland	53.1	4,459.4
		Non-irrigated Cropland	4,343.2	
	Developed		63.3	
		Total	**4,635.9**	**4,635.9**
Note: Totals may not sum exactly due to rounding.				

The most prominent habitat category in the Survey Area was Category 6, Agriculture habitat type, which included both Irrigated and Non-irrigated Croplands (4,396 acres), and Developed habitat subtypes (63 acres), totaling 96 percent of the Survey Area. The remaining 4 percent contained Category 4 Grasslands habitat subtype (95 acres), Category 3 Sagebrush Shrub-steppe (49 acres) and Upland Trees (21 acres) habitat subtypes, as well as Category 2 Intermittent and Riparian Tree habitat subtype (12 acres; Table 2; Figures 2 and 3).

3.1.1 Category 6

The Category 6 habitat is dominated by the Agriculture habitat type, which primarily contains the habitat subtype of Non-irrigated Croplands as well as one small area of Irrigated Cropland. The Non-irrigated Croplands consisted of 4,343 acres of active dryland wheat and barley fields, as well as fallow fields (Photos 1 and 3 in Attachment 4). The Irrigated Croplands consisted of one fallow and one active barley field, totaling 53 acres (Photo 4 in Attachment 4).

Additionally, approximately 63 acres of Category 6 habitat was classified as Developed, consisting of residences, farm buildings, farm equipment storage and staging areas, farming materials, corrals, turbine strings, paved and gravel county roads, pastures, abandoned buildings, a substation and transmission line, and a rock quarry (Photos 5 to 7 in Attachment 4).

3.1.2 Category 4

The Category 4 Grasslands-steppe contained one habitat subtype: Grasslands. This habitat consisted of a high percentage of non-native plant species. The dominant plants in this habitat were cereal rye (*Secale cereale*) and downy brome (*Bromus tectorum*), with some traces of native green rabbitbrush (*Chrysothamnus viscidiflorus*), balsamroot (*Asteraceae* spp.), wild buckwheat (*Eriogonum ovalifolium*), squirreltail (*Elymus elymoides*), and tall wheatgrass (*Thinopyrun elongatum*; Photos 8 and 9 in Attachment 4). Category 4 habitat is defined as "important habitat."

3.1.3 Category 3

The Category 3 habitats contained two habitat types, Shrub-steppe and Upland. Both habitat types contain one subtype each: Sagebrush Shrub-steppe and Upland Trees. The Sagebrush Shrub-steppe subtype consisted of moderately disturbed areas with a mix of natives and non-natives and a minor to moderate shrub component. This habitat was dominated by downy brome, followed by basin big sagebrush (*Artemisia tridentata)* and grey rabbitbrush (*Ericameria nauseosa*.)*.* One mapped area was dominated by an unidentified annual grass, as well as bluebunch wheatgrass (*Pseudoroegneria spicata*), mature grey rabbitbrush, six-week fescue (*Vulpia octoflora*), sedum (*Crassulaceae* spp.), bulbous bluegrass (*Poa bulbosa*), and sagebrush (*Artemisia* spp.) on the hill tops (Photos 10 and 11 in Attachment 4).

The Upland Trees subtype consisted mostly of live black locust (*Robinia pseudoacacia*) trees and snags containing an understory of downy brome, squirreltail, tall wheatgrass, sagebrush, and rabbitbrush (Photo 12 in Attachment 4).

3.1.4 Category 2

Category 2 Riparian contained a habitat subtype of Intermittent Streams/Riparian Trees and consisted of cattails (*Typhalatfolia*), reed canarygrass (*Phalaris arundinacea*), cereal rye, willow (*Salix exigua*), Russian olive (*Elaeagnus angustifolia*), cottonwood (*Populus trichocarpa.*), stinging nettle (*Urtica dioica*) and poison hemlock (*Conium maculatum*) in varying densities (Photos 16 and 17 in Attachment 4).

3.2 Special Status Wildlife Species

Concurrently with habitat surveys on June 10-12, 2024, the biologist documented the occurrence of wildlife species and maintained a running list of wildlife individuals and sign observed in the vicinity of the Solar Components (Attachment 5).

Review of IPaC and ORBIC data returned no occurrences of special status wildlife within the Survey Area. No federal or state endangered, threatened, proposed, or candidate species were observed during the survey. One Oregon special status species, a loggerhead shrike (*Lanius ludovicianus*, state-sensitive) was observed within the Survey Area (Figure 4). According to Holmes and Thibodeaux (2014), the loggerhead shrike breeds in a variety of shrubland and open woodland habitats, but relies on big sagebrush plant communities and breeds primarily in this habitat, which is threatened by high-intensity fires and conversion to agriculture.

4.0 Summary and Discussion

The habitat in the Survey Area was primarily classified as Category 6 Agriculture and Developed lands. The uncultivated and undeveloped portions of the Survey Area were classified as Category 4 Grasslands, Category 3 Sagebrush Shrub-steppe and Upland Trees habitats, or Category 2

Intermittent Streams/Riparian Trees habitat. The Category 2, 3, and 4 habitats provide essential and important wildlife habitat that are limited within the Survey Area.

The mitigation goal for Category 2 habitat, if impacts are unavoidable, is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality. The mitigation goal for Category 3 habitat is no net loss of either habitat quantity or quality. The mitigation goal for Category 4 habitat is no net loss of habitat quantity or quality and the mitigation strategy is in-kind, in-proximity mitigation. The mitigation goal for Category 6 habitat is to minimize impact and the mitigation strategy is to minimize direct habitat loss and avoid off-site impacts. Mitigation is typically not required for impacts to Category 6 habitat.

One special status species, the loggerhead shrike, was documented during surveys. This species is likely to use the Shrub-steppe habitat within the Survey Area during breeding and/or migration. No federal or state threatened, endangered, or candidate species were observed in the Survey Area.

5.0 References

Holmes, A.L., and B. Thibodeaux. 2014. Population Status, Distribution, and Nesting Success of Loggerhead Shrikes in the Boardman Conservation Area, Boardman, Oregon, 2013. Prepared for The Nature Conservancy, Portland, Oregon by Northwest Wildlife Science, LLC. Available online at: https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/oregon/deserts/cbg/wildlife/Documents/LOSH_2013_Report_Final_editted_jr.pdf. Accessed July 2024.

ODFW (Oregon Department of Fish and Wildlife). 2021a. Oregon Department of Fish and Wildlife Sensitive Species List. Available online at: https://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive_Species_List.pdf. Accessed July 2024.

ODFW. 2021b. Threatened, Endangered and Candidate Fish and Wildlife Species, Revised October 2021. Available online at: https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened_and_Endangered_Species.pdf. Accessed July 2024.

ORBIC (Oregon Biodiversity Information Center). 2024. Element Occurrence Record Digital Data Set for rare, threatened, or endangered species for the state of Oregon, May 2, 2024. ORBIC, Institute for Natural Resources. Portland State University, Portland, Oregon. Accessed July 2024.

USFWS (U.S. Fish and Wildlife Service). 2024. IPaC – Information for Planning and Consultation Resource List for the Project location in Sherman County, Oregon. Available online at: https://ipac.ecosphere.fws.gov/ Accessed July 2024.

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Figures

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 1
Project Location

SHERMAN COUNTY, OR

- Amended Site Boundary
- Survey Area
- Proposed Transmission Interconnect
- Existing Transmission Lines (230-kV)
- Existing Biglow Canyon Substation
- Existing Biglow Canyon Wind Farm Turbine

Oregon Energy Facility Council Facilities (Operating)

- Biglow Canyon Wind Farm
- Golden Hills Wind Project
- Klondike III Wind Project

Land Status

- Bureau of Land Management
- Private

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map

HELMS SPRINGS RD
FOX RD
SCOTT CANYON RD
SHERMAN COUNTY
OREGON
John Day River
HELMS CREEK RD
MERIN LN
GERKING CANYON RD
MCNAB LN
WEIR RD
China Hollow Creek
CHINA HOLLOW RD
EMIGRANT SPRINGS LN
MEDLER LN
N KLONDIKE RD
DEHLER RD
WEBFOOT RD
LOCUST GROVE LN
97
206
Wasco
Wasco State Airport
OLD WASCO-HEPPNER HWY
KLONDIKE RD
EGYPT RD
1000
1250
1500
500
750

1:55,000 WGS 1984 UTM Zone 10N 0 0.5 1 2 Miles NOT FOR CONSTRUCTION

\\ess706gisfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\HabitatWildlifeReport_20240701\BrightNight_BiglowSolar_HabitatWildlife_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 2
Habitat Types and Subtypes within the Survey Area

SHERMAN COUNTY, OR

- Survey Area
- US Highway
- State Highway

Habitat Type; Subtype

- Agriculture; Non-Irrigated Cropland
- Agriculture; Irrigated Cropland
- Grassland-steppe; Grasslands
- Riparian; Intermittent Stream / Riparian Trees
- Shrub-steppe; Sagebrush Shrub-Steppe
- Upland; Upland Trees
- Developed

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map

Wasco

206

97

97

1:44,000

WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 3
Habitat Categories within the Survey Area

SHERMAN COUNTY, OR

Survey Area
US Highway
State Highway

Habitat Category
2
3
4
6

Wasco
97
206
97

1:44,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map

CANADA
MT
WA
ID
OR
CA
NV

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 4
Special Status Wildlife Species Observations

SHERMAN COUNTY, OR

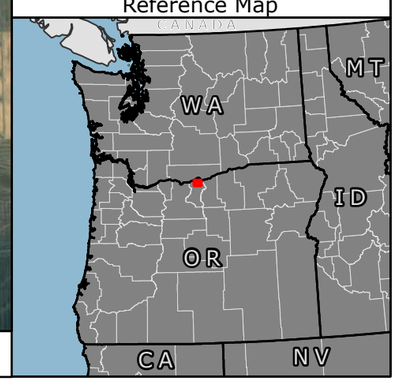
Survey Area
US Highway
State Highway

Special Status Wildlife Observation

Loggerhead Shrike

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map



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1:44,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Attachment 1. Special Status Wildlife and Plant Species with Potential to Occur

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Common Name	Scientific Name	Federal Status[1]	Oregon Status[2]
Birds			
Brewer's sparrow	*Spizella breweri*	–	S, CSS
Burrowing owl (Western)	*Athene cunicularia hypugaea*	SOC	SC, CSS
Common nighthawk	*Chordeiles minor*	–	S, CSS
Ferruginous hawk	*Buteo regalis*	SOC	SC, CSS
Golden eagle	*Aquila chrysaetos*	BGEPA	–
Grasshopper sparrow	*Ammodramus savannarum*	–	S, CSS
Bald eagle	*Haliaeetus leucocephalus*	BGEPA	–
Lewis's woodpecker	*Melanerpes lewis*	BCC	SC, CSS
Loggerhead shrike	*Lanius ludovicianus*	–	S, CSS
Long-billed curlew	*Numenius americanus*	–	SC, CSS
Swainson's hawk	*Buteo swainsoni*	–	S, CSS
Reptiles			
Northern sagebrush lizard	*Sceloporus graciosus*	-	S, CSS
Western painted turtle	*Chrysemys picta bellii*	-	SC, CSS
Mammals			
Hoary bat	*Lasiurus cinereus*	-	S
Pallid bat	*Antrozous pallidus*	-	S
Silver-haired bat	*Lasionycteris noctivagans*	-	S, CSS
Spotted bat	*Euderma maculatum*	-	S, CSS
Townsend's big-eared bat	*Corynorhinus townsendii*	-	SC, CSS
Plants			
Henderson's ricegrass	*Eriocoma [Achnatherum] hendersonii*	-	C
Hepatic monkeyflower	*Erythranthe jungermannioides*	-	C
Lawrence's milkvetch	*Astragalus collinus var. laurentii*	-	T
Sessile mousetail	*Myosurus sessilis*	-	C

Sources: ODFW 2021a, ODFW 2021b, ORBIC 2024, USFWS 2024

1. Federal Status: BGEPA = Bald and Golden Eagle Protection Act, BCC = Bird of Conservation Concern, SOC = Species of Concern, C = Candidate, T = Threatened, PT = Proposed as Threatened.

2. Oregon Department of Fish and Wildlife Status in the Columbia Plateau/Columbia Basin: CSS = Conservation Strategy Species, SC = Sensitive Critical, S = Sensitive. Oregon Department of Agriculture Plant listing, T = Threatened, C = Candidate.

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Attachment 2. Habitat Types and Subtypes Occurring at the Solar Components

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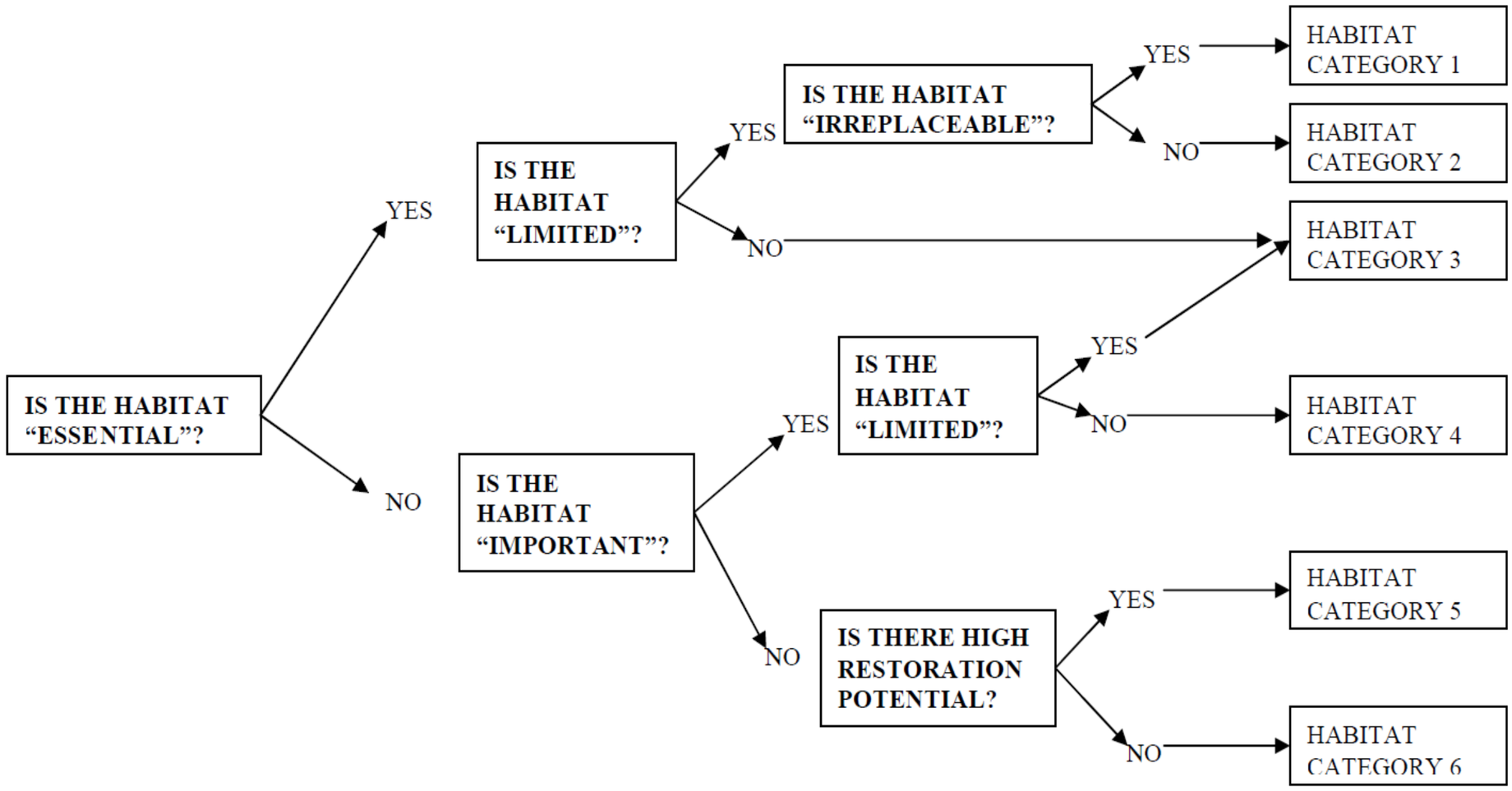
Habitat Type	Habitat Sub-type	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Riparian	Intermittent Streams			Essential or important fish and wildlife habitat which is limited.			
	Riparian Trees		Essential and limited habitat for wildlife (documented nest/roost habitat)				
	Intermittent Streams / Riparian Trees		Essential and limited habitat for wildlife (documented nest/roost habitat)				
Surface Water	Ponds			Essential or important wildlife habitat which is limited (e.g. wetland feature).			
Upland	Upland Trees	Irreplaceable, essential habitat for a wildlife species (e.g. Swainson's hawk) and limited within a physiogeographic province (documented food/cover/nest habitat, and active nests).		Essential or important habitat for wildlife that is limited.			
Shrub-steppe	Sagebrush Shrub-Steppe		Essential and limited wildlife habitat (e.g. fairly undisturbed, old-growth shrub structure; moderate grazing).	Essential or important wildlife habitat which is limited (e.g. fairly undisturbed habitat; moderate grazing).	Important wildlife habitat (e.g. moderate-heavy grazing or weedy habitat.		
Grassland-steppe	Grasslands				Important wildlife habitat (e.g. moderate-heavy grazing or weedy habitat.		
Agriculture	Irrigated Cropland						Cultivated cropland with the artificial application of water with low potential for becoming essential or important habitat.
	Non-Irrigated Cropland						Cultivated croplands with low potential for becoming essential or important habitat.
	Conservation Reserve Program (CRP)			Croplands planted to grassland / shrub-steppe in the CRP program that provide important wildlife habitat.	Croplands planted to grassland / shrub-steppe in the CRP program that lack seral stage vegetative communities and/or are of less importance as wildlife habitat because of the land management or topographic locale.		
Developed							Low potential for becoming essential or important habitat (e.g. residences, storage bins, farm equipment storage, grain elevators, industrial/commercial facilities, gravel quarries).

		Category 2	Category 3	Category 4	Category 5
Eastside Grassland	**Native %** (***Without*** **Sage)**	> 75 %	50-75 %	15-50 %	< 15 %
	Native % (***With*** **Sage)**	50-75 %	15-50 %	< 15 %	None
	Disturbance	None – Low	Moderate	High	High - Extreme



Fish and Wildlife Habitat Mitigation - Key Definitions

Essential habitat	Any habitat condition or set of habitat conditions which, if diminished in quality or quantity, would result in depletion of a fish or wildlife species.
Limited habitat	An amount insufficient or barely sufficient to sustain fish and wildlife populations over time.
Important habitat	Any habitat recognized as a contributor to sustaining fish and wildlife populations over time.
Irreplaceable habitat	Successful in-kind habitat mitigation to replace lost habitat quantity and/or quality is not feasible within an acceptable period of time or location, or involves an unacceptable level of risk or uncertainty.
Habitat with High Restoration Potential	Previous uses or activities that have reduced habitat values need to be able to be eliminated or severely reduced.

The Fish and Wildlife Habitat Mitigation Policy establishes mitigation goals for each category of habitat and, depending upon the importance of the habitat, identifies preferred strategies to avoid or mitigate the impact of proposed actions on fish and wildlife habitat. The policy sets sideboards within which ODFW considers recommended options and alternatives for mitigation. The less important the habitat is, the more options that may be considered for mitigation.

Habitat Categories and Mitigation Strategies

Habitat Category	Definition	Example	Goal for Mitigation	Mitigation Strategy
Category 1	Irreplaceable, essential and limited habitat	Bogs and fens, certain springs and pools	No loss of habitat quantity or quality	Avoidance
Category 2	Essential and limited habitat	Salt marshes, cottonwood galleries, big game winter range, salmonid migration corridors, some spawning and rearing areas.	No net loss of habitat quantity or quality and to provide a net benefit of habitat quantity or quality	In-kind, in-proximity mitigation
Category 3	Essential habitat, or important and limited habitat	Older forested areas, reed canary grass wetland, spawning and rearing areas.	No net loss of habitat quantity or quality	In-kind, in-proximity mitigation
Category 4	Important habitat	Isolated or degraded wetlands, big game summer range, spawning, rearing and foraging areas.	No net loss of habitat quantity or quality	In-kind or out-of-kind, in-proximity or off-proximity mitigation
Category 5	Habitat having high potential to become either essential or important habitat	Restorable rye grass fields or diked or drained coastal marshes, marshes, some types of reservoirs.	Net benefit in habitat quantity or quality	Actions that improve habitat conditions
Category 6	Habitat that has low potential to become essential or important habitat	Urban areas and other areas with little or no restoration potential, artificial ponds without native species.	Minimize impacts	Minimize direct habitat loss and avoid off-site impacts

Source: OAR 635-415-0025

Attachment 3. Oregon Habitat Categorization Datasheet

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Oregon Habitat Categorization Datasheet

Data Sheet ID #: _____

Project: _____ **County:** _____ **Surveyor(s):** _____ **Date:** _____

Habitat Category: 1 / 2 / 3 / 4 / 5 / 6

Habitat Type & Subtype

Riparian	Surface Water	Upland	Shrub-steppe	Agriculture **specify crops in "Description"*
[ ] Intermittent Stream [ ] Riparian Trees [ ] Intermittent Stream / Riparian Trees [ ] _____	[ ] Ponds [ ] _____	[ ] Upland Trees [ ] _____ **Grassland-steppe** [ ] Grasslands [ ] _____	[ ] Sagebrush Shrub-steppe [ ] _____	[ ] Non-irrigated Cropland [ ] Irrigated Cropland [ ] Conservation Reserve Program (CRP) [ ] _____ **Developed** **specify features in "Description"* [ ] Developed [ ] _____

Datasheet Description: _____

_____

Additional Notes: _____

Overall Habitat Community *(Total cover amongst all strata, can equal over 100%)*

% Absolute Canopy Closure: Trees: _____ **Shrubs:** _____ **Grasses + Forbs:** _____

% Bare Ground: _____ % **Duff:** _____ % **Rock:** _____ % **Moss:** _____ **Cryptobiotic Crust:** [ ] Yes [ ] No

Species Composition (*Mark natives with *, noxious weeds with ***)

Dominant ≥20%, Subdominant 10-20% of stratum cover

TREES

Dominant: _____

_____

Subdominant: _____

_____

Trace / Other noteworthy species: _____

_____

 # Subcanopy Layers: _____ **Percent of Stratum that is Native:** _____ **Max Vegetation Height** (*ft.*): _____

Avg. DBH (*in.*): _____ **Stumps Present?** [ ] Yes [ ] No **Forest Phase**: GF / SHR / OSP / CSPS / LGSAW / OGDD

Snags Present? [ ] Yes [ ] No **Abundance:** _____/ac **Snag Stage**: 1 / 2 / 3 / 4 / 5

Notes: _____

SHRUBS

Dominant: _____

_____

Subdominant: _____

_____

Trace / Other noteworthy species: _____

_____

 # Subcanopy Layers: _____ **Percent of Stratum that is Native:** _____ **Max Vegetation Height** (*in.*): _____

Notes: _____

GRASSES + FORBS

Dominant: _____

_____

Subdominant: _____

_____

Trace / Other noteworthy species: _____

_____

Data Sheet ID #: _____

 # Subcanopy Layers: _____ Percent of Stratum that is Native: _____ Max Vegetation Height (*in.*): **_____**

Notes: _____

Other Descriptions

Check all that apply <u>within or outside but in view</u> of the habitat polygon(s).

List the approximate distance from polygon edge, and specify units (ft, m, mi), or write "in" for features within the polygon(s).

Disturbance		Sensitive Species/Habitat	Unique Features	Anticipated Recovery Timeline*
[ ] None	[ ] Row Crop _____	[ ] None	[ ] None	[ ] 0-5 years
[ ] Wind Facility _____	[ ] Farm _____	[ ] Bald Eagle _____	[ ] Caves _____	[ ] 5-30 years
[ ] Solar Facility _____	[ ] Corral _____	[ ] Golden Eagle _____	[ ] Mines / Quarries _____	[ ] >30 years
[ ] Railroad _____	[ ] Pasture _____	[ ] Raptor Nest(s) _____	[ ] Cliffs / Rimrock _____	
[ ] Dirt Road _____	[ ] Grazing _____	[ ] _____ _____	[ ] Rock Outcrop _____	**Recovery Rationale:**
[ ] Gravel Road _____	[ ] Erosion _____	[ ] _____ _____	[ ] Abandoned Buildings _____	[ ] Mature Sagebrush
[ ] Paved Road _____	[ ] Construction _____	[ ] _____ _____	[ ] Large Snag(s) _____	[ ] Mature Riparian
[ ] Highway _____	[ ] Invasive Plants _____	[ ] _____ _____	[ ] Wood Bridge(s) _____	[ ] _____
[ ] Industrial _____	[ ] Logging _____	[ ] _____ _____	[ ] Balds _____	[ ] _____
[ ] Residence _____	[ ] Thinning _____	[ ] _____ _____	[ ] Bluffs _____	[ ] _____
[ ] Campground _____	[ ] Quarry _____	[ ] _____ _____	[ ] Wetlands / Waters _____	[ ] _____
[ ] _____ _____	[ ] _____ _____	[ ] _____ _____	[ ] _____ _____	

**Anticipated recovery timeline should be estimated during surveys for the purposes of determining the need for mitigation to compensate for temporary impacts to habitat that would be long-term or difficult to restore.*

For example, disturbed annual grassland typically recovers in 2-5 years, high quality native grassland typically recovers in ~3 years, or > 5 years depending on the site (e.g., existing disturbance, precipitation, and quality of planting/seeding), rabbitbrush typically recovers <5 years, and sagebrush typically recovers in 5-30 years.

See Brown 1985 for forest recovery/phase timelines.

Additional Notes / Categorization Rationale:

Attachment 4. Select Photographs of Habitat and Wildlife

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Photo 1. Category 6: Non-irrigated cropland with active wheatfield.

Photo 3. Category 6: Non-irrigated cropland with fallow field.

Photo 4. Category 6: Irrigated cropland with fallow field.

Photo 5. Category 6: Development with farm building and equipment/materials storage area.

Photo 6. Category 6: Development with abandoned buildings.

Photo 7. Category 6: Development with substation and large transmission line.

Photo 8. Category 4: Grassland-steppe habitat dominated by cereal rye and downy brome.

Photo 9. Category 4: Grassland-steppe habitat dominated by cereal rye, downy brome, and traces of native shrubs and grasses.

Photo 10. Category 3: Moderately disturbed shrub-steppe habitat dominated by downy brome, with some rabbitbrush and sagebrush.

Photo 11. Category 3: Shrub-steppe habitat dominated by annual grasses, native grasses such as six-week fescue and some sagebrush on hill tops.

Photo 12. Category 3: Upland habitat with black locust trees and snags.

Photo 13. Category 3: Upland habitat with black locust trees and snags with raptor nest (great-horned owl).

Photo 14. Category 3: Upland habitat with black locust trees and snags without raptor nests.

Photo 15. Category 3: Upland habitat showing wildlife guzzler location.

Photo 16. Category 2: Riparian habitat with cattails, reed canarygrass, cereal rye, and other riparian vegetation.

Photo 17. Category 2: Riparian habitat within drainage.

Attachment 5. Wildlife Species Occurring in the Solar Components Vicinity

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Common Name*	Scientific Name
Birds	
American crow	*Corvus brachyrhynchos*
American goldfinch	*Spinus tristis*
Barn swallow	*Hirundo rustica*
California quail	*Callipepla californica*
Common raven	*Corvus corax*
European starling	*Sturnus vulgaris*
Great horned owl	*Bubo virginianus*
Horned lark	*Eremophila alpestris*
House wren	*Troglodytes aedon*
Loggerhead shrike*	*Lanius ludovicianus*
Mourning dove	*Zenaida macroura*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-necked pheasant	*Phasianus colchicus*
Song sparrow	*Melospiza melodia*
Turkey vulture	*Cathartes aura*
Western meadowlark	*Sturnella neglecta*
Western wood pewee	*Contopus sordidulus*
Mammals	
Grey squirrel	*Sciurus carolinensis*
Mountain cottontail	*Sylvilagus nuttallii*
Mule deer	*Odocoileus hemionus*
Porcupine	*Erethizon dorsatum*
Pronghorn	*Antilocapra americana*
Invertebrates	
Damselfly	NA
Dragonfly	NA
*ODFW Sensitive Species. See Attachment 1. NA = Not Applicable, unable to identify to species level.	

2024 Botanical Survey Report

2024 Botanical Survey Report

Biglow Canyon Wind Farm
Request for Amendment 4
November 2024

Prepared for

BIGL bn, LLC

Prepared by

TETRA TECH

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Table of Contents

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Acronyms and Abbreviations

AC	alternating current
Solar Micrositing Area	Site Boundary Subject to RFA 4
BCWF or Existing Facility	Biglow Canyon Wind Farm
BIGL	BIGL bn, LLC
Certificate Holder / PGE	Portland General Electric Company
Council	Oregon Energy Facility Siting Council
ESA	Endangered Species Act
GPS	Global Positioning System
IPaC	Information for Planning and Consultation
MW	megawatt
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ORBIC	Oregon Biodiversity Information Center
RFA	Request for Amendment
Tetra Tech	Tetra Tech, Inc.
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) is submitting a Request for Amendment (RFA) 4 to the Site Certificate on Amendment 3, issued October 31, 2008 (Site Certificate) for the Biglow Canyon Wind Farm (BCWF or Existing Facility) to add photovoltaic solar energy generation and battery storage (Solar Components) to the operating BCWF in Sherman County, OR.

BCWF, owned and operated by PGE, is located within an approved site boundary comprising approximately 25,000 acres, approximately 2.5 miles northeast of the town of Wasco in Sherman County, Oregon (Figure 1). The BCWF operates under the Site Certificate from the Oregon Energy Facility Siting Council (Council or EFSC) as administered by the Oregon Department of Energy. BCWF currently consists of 217 wind turbines, with a maximum blade tip height of 445 feet, and a peak generating capacity of 450 megawatts (MW).

In RFA 4, PGE proposes to add up to 385 MW alternating current (AC) generating capacity from photovoltaic solar arrays and 375 MW in battery storage capacity. RFA 4 seeks to expand the BCWF site boundary to include the Solar Components in portions of the existing site boundary and in the proposed expanded site boundary (together, Solar Micrositing Area or RFA 4 Site Boundary).

The Solar Micrositing Area is approximately 3,980 acres and provides a conservative estimate of the maximum area needed for development, micrositing, and temporary disturbances from the Solar Components during construction, rather than the anticipated disturbance footprint. Solar Components will include solar arrays, inverters, battery energy storage system facilities and their subcomponents (i.e., inverters), two collector substations, a total of approximately 3 miles of 230-kilovolt generation tie transmission line, medium voltage collector lines, operations and maintenance structures, site access roads, internal roads, perimeter fencing, facility entry gates, and temporary laydown areas. The maximum generating capacity from the Solar Components will be 385 MW AC and construction may take place in phases.

PGE will own and operate the Solar Components as a part of the BCWF, which, to date, have been developed by BIGL bn,LLC (BIGL). BIGL, in its capacity as the project developer, supports PGE in this RFA 4 and may construct and temporarily operate the Solar Components on behalf of PGE under a Build-Transfer Agreement. Tetra Tech Inc. (Tetra Tech) is providing support to PGE and BIGL through preparation of RFA 4.

This survey report presents the methods and results of the 2024 botanical surveys conducted by Tetra Tech for the Solar Micrositing Area. The purpose of the botanical surveys was to document the presence of federally or state listed endangered, threatened, and candidate vascular plant species and state and county-designated noxious weeds within the Solar Micrositing Area. The surveys were designed in accordance with Council standards set forth in Oregon Administrative Rules (OAR) 345-021-0010 (1)(p) and (a), OAR 345-022-0070, and in coordination with the Oregon Department of Agriculture (ODA).

2.0 Methods

The background review and field survey methods described in this section were submitted to ODA for review on June 10, 2024. ODA provided concurrence with these methods on June 13, 2024, prior to Tetra Tech conducting field surveys (J. Brown, personal communication, June 13, 2024).

2.1 Survey Area

The Survey Area for the 2024 botanical surveys consisted of the 3,980-acre Solar Micrositing Area as shown on Figure 1. All areas of suitable or marginally suitable habitat within the Solar Micrositing Area (i.e., Survey Area) were surveyed during botanical surveys conducted in 2024. Only active agricultural lands and developed lands (e.g., existing roads, existing buildings) were excluded from surveys.

2.2 Background Review

2.2.1 Threatened, Endangered, and Candidate Plants

Tetra Tech conducted a review of existing information to identify federal and state endangered, threatened, proposed, and candidate plant species with the potential to occur within the vicinity of the Survey Area. Sources of information included the following:

- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) Resource List for the Survey Area (USFWS 2024a);
- USFWS threatened, endangered, and candidate species list for Oregon (USFWS 2024b);
- Oregon Listed Plants by County (ODA 2024a);
- Oregon Biodiversity Information Center (ORBIC) 2019 Rare, Threatened and Endangered Species of Oregon (ORBIC 2019);
- ORBIC Rare, Threatened and Endangered Vascular Plant Species of Oregon (ORBIC 2023);
- ORBIC Element Occurrence Records for the vicinity of the Project (ORBIC 2024); and
- OregonFlora's Online Guide to the Vascular Plants of Oregon (OregonFlora 2024).

The initial list of potential primary target species included all vascular plant species listed as endangered, threatened, proposed, or candidate for listing by the USFWS under the federal Endangered Species Act (ESA), or by the ODA under the Oregon ESA, that occur or have potential to occur within or near the Solar Components. Based on this review, Tetra Tech determined that no federally listed, proposed, or candidate plant species have the potential to occur within or near the Proposed Facility; however, one state-listed threatened and three state candidate vascular plant species have potential to occur within or near the Solar Components (Table 1).

Table 1. Threatened, Endangered, and Candidate Vascular Plant Species with Potential to Occur at the Solar Components

Scientific Name	Common Name	State Status[1]	Habitat	Survey Period
Astragalus collinus var. *laurentii*	Lawrence's milkvetch	T	Bunchgrass prairies, roadsides; sandy or rocky soils overlying basalt on dry slopes.	Surveys should be conducted when species is fruiting; typically late May to August
Eriocoma [*Achnatherum*] *hendersonii*	Henderson's ricegrass	C	Dry, shallow rocky soils described from basalt in sagebrush or ponderosa pine. Soils are often subject to frost heave.	May to June
Erythranthe jungermannioides	Hepatic monkeyflower	C	Moist basalt crevices and seeps in vertical cliff faces and canyon walls.	May (June) to August (depending on hydrology)
Myosurus sessilis	Sessile mousetail	C	Vernal pools and alkali flats.	April to June (depending on hydrology)

Sources:, ODA 2024a, 2024b; OregonFlora 2024.

1. T = Threatened, C = Candidate for listing.

2.2.2 Noxious Weeds

Prior to field surveys, Tetra Tech reviewed lists of species designated as noxious weeds in Oregon state and Sherman County (ODA 2022; SCNWD 2024). Existing literature and other sources were also reviewed to familiarize surveyors with identification of designated noxious weeds that would potentially be encountered within the Survey Area. Sources of information reviewed included:

- OregonFlora online guide to vascular plants of Oregon (OregonFlora 2024);
- Oregon Noxious Weed Profiles (ODA 2024c); and
- Oregon WeedMapper (ODA 2024d).

2.3 Field Survey Methods

2.3.1 Threatened, Endangered, and Candidate Plants

Field surveys were conducted in early July. The survey schedule was chosen based on the recommended survey period for Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*), the primary target plant species with potential to occur in the Solar Components vicinity. Surveys were conducted by a Tetra Tech senior botanist familiar with suitable habitat for and identification of Lawrence's milkvetch as well as the other target plant species listed in Table 1. Prior to conducting

field surveys, fact sheets for the target plant species were compiled. These fact sheets were used by the surveyor in the field and included the following:

- Photos of each target species and its habitat;
- Information detailing habitat associations;
- Range and flowering period;
- Identifying features; and
- Characteristics distinguishing target species from similar species within its range.

Tetra Tech conducted botanical field surveys 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 survey area, 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.

Standard Tetra Tech survey protocol includes recording Global Positioning System (GPS) locations of any target species encountered with a tablet using ArcGIS FieldMaps software. Survey methods also include completing ORBIC siting forms for any rare plant populations observed and taking photos to serve as digital specimen vouchers to illustrate identifying characteristics, plant habits, and habitat.

Data collected for each rare plant population, if encountered, would include:

- Species phenology;
- Number of plants observed;
- Habitat information and associated species; and
- Visible threats.

During surveys, Tetra Tech maintained a running list of vascular plant species encountered and made informal collections of unknown species for later identification. Identification was verified by the use of appropriate plant keys; in particular, *Flora of the Pacific Northwest* (Hitchcock and Cronquist 2018). Nomenclature follows that used by OregonFlora (2024). The final vascular plant species list for the surveys is included as Attachment 1 of this report.

2.3.2 Noxious Weeds

Noxious weed surveys were conducted concurrently with surveys for threatened, endangered, and candidate plant species. During the surveys, surveyors documented observations of state and county-listed noxious weeds within the survey area. When a noxious weed was encountered, the

location was recorded with a GPS point and the species, estimated size of infestation (i.e., small – less than 0.1 acre, medium – 0.1 to 1 acre, or large – 1 to 5 acres), and relative abundance (i.e., sparse [only a few individuals noted or low cover of species in area], common [many individuals of the species noted in area], or very high cover [dense population of the species]) was recorded.

3.0 Results

Field surveys were conducted on July 9 and 10, 2024. During the surveys, Tetra Tech observed that vegetation within much of the Survey Area has been modified due to historic and current agricultural activity, construction and management of the existing wind energy facility, and historic and current grazing activity. Non-native, invasive grasses and forbs are common throughout the Survey Area due to these land uses. Only limited areas of native habitat types (e.g., shrub-steppe) occur within the Survey Area and even in these areas, non-native, invasive grasses and forbs, including cheatgrass (*Bromus tectorum*), bulbous bluegrass (*Poa bulbosa*), cereal rye (*Secale* cereale), and prickly lettuce (*Lactuca serriola*) were often abundant.

3.1 Threatened, Endangered, and Candidate Plants

No threatened, endangered, proposed, or candidate vascular plant species were observed within the Survey Area. In addition, no suitable habitat for Henderson's ricegrass (*Eriocoma* [*Achnatherum*] *hendersonii*), hepatic monkeyflower (*Erythranthe jungermannioides*), and sessile mousetail (*Myosurus sessilis*), and limited suitable habitat for Lawrence's milkvetch, was observed within the Survey Area. As noted above, historic and current anthropogenic activities have resulted in degradation of the limited suitable habitat for Lawrence's milkvetch within the Survey Area.

3.2 Noxious Weeds

Tetra Tech recorded 12 listed noxious weed species within the Survey Area. Table 2 lists the noxious weed species observed, their noxious weed designation, and the frequency of observations. Figure 2 displays the locations of noxious weeds observed during the field surveys.

Table 2. Noxious Weeds Observed Within the Survey Area

Scientific Name	Common Name	Status (State[1]/ Sherman County[2])	Frequency[3]
Aegilops cylindrica	Jointed goatgrass	B / C	Infrequently observed. Observations primarily in southern portion of Survey Area.
Centaurea diffusa	Diffuse knapweed	B* / B (T)	Several small to medium-sized patches observed.
Chondrilla juncea	Rush skeletonweed	B (T)* / A (T)	Frequently observed in non-cultivated portions of Survey Area.
Cirsium arvense	Canada thistle	B* / B (T)	One observation in southern portion of Survey Area.

Scientific Name	Common Name	Status (State[1]/ Sherman County[2])	Frequency[3]
Cirsium vulgare	Bull thistle	B* / C	Observed in two locations.
Convolvulus arvensis	Field bindweed	B* / B	Many small to large patches observed.
Conyza canadensis	Horseweed, marestail	Not listed / C	Commonly observed within Survey Area.
Lactuca serriola	Prickly lettuce	Not listed / C	Frequently observed within Survey Area.
Onopordum acanthium	Scotch thistle	B / B (T)	Several observations in northeastern portion of Survey Area.
Rhaponticum (*Acroptilon*) *repens*	Russian knapweed	B* / B	One observation in northeastern portion of Survey Area.
Salsola tragus	Russian thistle	Not listed / C	Frequently observed within Survey Area.
Secale cereale	Common rye, cereal rye	Not listed / C	Frequently observed within Survey Area.

1. "B" Listed weeds: Weeds of economic importance, which are regionally abundant, but which may have limited distribution in some counties. "T" Designated weeds: designated group of weed species selected from either the A or B list as a focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T-designated noxious weeds are determined by the Oregon State Weed Board and directs ODA to develop and implement a statewide management plan. Species marked with an (*) are targeted for biocontrol (ODA 2022).
2. "A" Class: High Priority. Any noxious weed which greatly endangers the overall economic well – being of the County and has a small enough distribution where eradication is possible. "B" Class: Moderate Priority. A noxious weed which is well established in the County and has known negative impacts, but due to its distribution, eradication is not feasible. "C" Class – Low Priority. A noxious weed which is widespread throughout the County and has known economic impacts. "T" Class – Targeted List. A noxious weed from any Class that the Weed Advisory Board wishes to focus efforts and resources on. This T class list is reviewed annually. (SCNWD 2024).
3. Patch/observation sizes are as follows : small = less than 0.1 acre, medium = 0.1 to 1.0 acre, large = greater than 1 acre.

Four noxious weed species were frequently observed in non-cultivated areas throughout the Survey Area: common rye (*Secale cereale*), prickly lettuce (*Lactuca serriola*), rush skeletonweed (*Chondrilla juncea*), and Russian thistle (*Salsola tragus*) (Figure 2). Observations of common rye typically consisted of large, dense infestations. Observations of prickly lettuce typically consisted of large, sparse to moderately dense infestations and observations of Russian thistle ranged from small, sparse to large, moderately dense infestations. Most observations of rush skeletonweed consisted of small or medium-sized sparse to moderately dense infestations, although one large infestation was also observed.

Diffuse knapweed (*Centaurea* diffusa), field bindweed (*Convolvulus arvensis*), marestail (*Conyza canadensis*) were all observed in several locations within the Survey Area. Diffuse knapweed (*Centaurea diffusa*) was primarily observed within the northeastern portion of the Survey Area, with observations ranging from small, sparse infestations to medium-sized, moderately dense infestations. Field bindweed was observed in the central and northern portion of Survey Area, with observations ranging from small, sparse infestations to moderately dense large infestations. Marestail was observed in the northern and southern portions of the Survey Area with observations ranging from sparse, medium to large, moderately dense infestations.

Jointed goatgrass (*Aegilops cylindrica*) and Scotch thistle (*Onopordum acanthium*) were each observed in four locations within the Survey Area. Three of the observations of jointed goatgrass were in the southern portion of the Survey Area and the fourth was in the central portion (Figure 2). The observation in the central portion of the Survey Area was a small, sparse infestation, whereas the observations in the southern portion consisted of medium-sized, moderately dense infestations and large, sparse infestations. All four observations of Scotch thistle were located in the northeastern portion of the Survey Area. While all four of these observations were small, they ranged in density from just a few individuals to dense cover of Scotch thistle.

The remaining three noxious weeds—bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), and Russian knapweed (*Rhaponticum* [*Acroptilon*] *repens*)—were only observed in one to three locations within the Survey Area (Table 2). Bull thistle was observed in two locations within the Survey Area. The observation in the northeast portion of the Survey Area consisted of just a few individuals in a small area, whereas the observation in the southern portion of the Survey Area consisted of a medium-size, moderately dense infestation. Canada thistle and Russian knapweed were each observed in just one location. Both observations consisted of medium-sized, moderately dense infestation. The observation of Canada thistle was observed near a pond in the southern portion of the Survey Area and the observation of Russian knapweed was located along a road in the northeastern portion of the Survey Area.

4.0 Conclusions

Tetra Tech did not observe state listed or candidate vascular plant species during botanical surveys in 2024. Tetra Tech documented 12 state and/or county designated noxious weeds within the Survey Area, 4 of which were abundant throughout the Survey Area: common rye, prickly lettuce, rush skeletonweed, and Russian thistle.

5.0 References

Hitchcock, C. L., and A. Cronquist. 2018. *Flora of the Pacific Northwest*. University of Washington Press; second edition. Seattle, WA.

ODA (Oregon Department of Agriculture). 2022. Noxious Weed Policy and Classification System. Noxious Weed Control Program. Salem, OR. Available online at: https://www.oregon.gov/oda/shared/Documents/Publications/Weeds/NoxiousWeedPolicyClassification.pdf. Accessed June 2024.

ODA.2024a. Oregon Listed Plants by County. Available online at: https://www.oregon.gov/oda/programs/PlantConservation/Pages/ListedPlants.aspx. Accessed April 2024.

ODA. 2024b. Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*) Fact Sheet. Available online at: http://www.oregon.gov/ODA/shared/Documents/Publications/PlantConservation/AstragalusCollinusLaurentiiProfile.pdf. Accessed June 2024.

ODA. 2024c. Oregon Noxious Weed Profiles. Available online at: https://www.oregon.gov/oda/programs/weeds/oregonnoxiousweeds/pages/aboutoregonweeds.aspx. Accessed June 2024.

ODA. 2024d. Oregon WeedMapper. Available online at: https://www.oregon.gov/oda/programs/Weeds/Pages/WeedMapper.aspx. Accessed June 2024.

ORBIC (Oregon Biodiversity Information Center). 2019. Rare, Threatened and Endangered Species of Oregon. Institute for Natural Resources, Portland State University, Portland, Oregon. 136 pp.

ORBIC. 2023. Rare, Threatened and Endangered Vascular Plant Species of Oregon – An excerpt of the Rare, Threatened, and Endangered Species of Oregon publication. Available online at: https://inr.oregonstate.edu/orbic/rare-species/rare-species-oregon-publications. Accessed April 2024.

ORBIC. 2024. Element Occurrence Record Digital Data Set for Rare, Threatened and Endangered Species for the Biglow Solar Project in Sherman County. ORBIC, Institute for Natural Resources, Portland State University. Portland, OR. Received May 2, 2024.

OregonFlora. 2024. Comprehensive Guide to the Vascular Plants of Oregon. Oregon State University. Corvallis, OR. Available online at: https://oregonflora.org. Accessed May 2024.

SCNWD (Sherman County Noxious Weed District). 2024. Sherman County Noxious Weeds. Available online at: https://www.co.sherman.or.us/noxious-weeds-sherman-county/. Accessed June 2024.

USFS (U.S. Forest Service) and BLM (U.S. Bureau of Land Management). 1998. Survey and Manage Survey Protocol – Vascular Plants.

USFWS (U.S. Fish and Wildlife Service) 2024a. IPaC – Information for Planning and Consultation Resource List for the Project location in Wasco County, Oregon. Available online at: https://ipac.ecosphere.fws.gov/location/ECIIWBUQ5JGEJN7MSYTNJNMQ4M/resources. Accessed April 2024.

USFWS. 2024b. Federally Listed, Proposed, Candidate, Delisted Species and Species of Concern under the Jurisdiction of the Fish and Wildlife Service which May Occur in Oregon. Available online at: https://www.fws.gov/sites/default/files/documents/oregonspeciesstatelist_0.pdf. Accessed April 2024.

Figures

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 1
Project Location

SHERMAN COUNTY, OR

- Solar Micrositing Area/ Survey Area
- Proposed Transmission Interconnect
- Existing Transmission Lines (230-kV)
- Existing Biglow Canyon Substation
- Existing Biglow Canyon Wind Farm Turbine

Oregon Energy Facility Council Facilities (Operating)

- Biglow Canyon Wind Farm
- Golden Hills Wind Project
- Klondike III Wind Project

Land Status

- Bureau of Land Management
- Private

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map

HELMS SPRINGS RD
FOX RD
SCOTT CANYON RD
SHERMAN COUNTY
OREGON
HELMS CREEK RD
HERIN LN
GERKING CANYON RD
MCNAB LN
WEIR RD
John Day River
EMIGRANT SPRINGS LN
China Hollow Creek
CHINA HOLLOW RD
MEDLER LN
N KLONDIKE RD
DEHLER RD
WEBFOOT RD
OCUST GROVE LN
97
206
Wasco
Wasco State Airport
OLD WASCO-HEPPNER HWY
KLONDIKE RD
EGYPT RD
1000
1250
1500
500
750

1:55,000 WGS 1984 UTM Zone 10N 0 1 2 4 Miles NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\NoxiousWeedsReport_20240828\BrightNight_Biglow_NoxiousWeeds_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 2
Noxious Weed Observations

SHERMAN COUNTY, OR

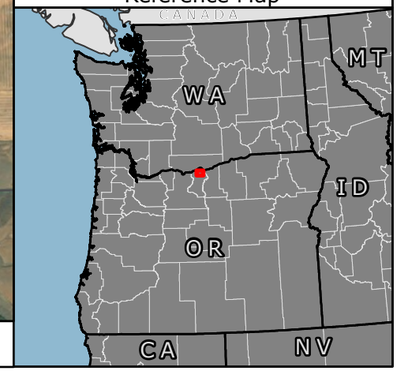
Figure 2.1
Figure 2.2
Figure 2.3
Figure 2.4
Figure 2.5
Figure 2.6

Helms Springs Rd
Fox Rd
Scott Canyon Rd
Gerking Canyon Rd
Helms Creek Rd
Herlin Ln
Oehman Rd
McNab Ln
Biglow Canyon Rd
Weir Ln
Weir Rd
Emigrant Springs Ln
Gilliam County
Sherman County
Cline Hollow Rd
Medler Ln
N Klondike Rd
Raybum Rd
Dehler Ln
Dehler Rd
Beacon Rd
Beacon Ln
Webfoot Rd
97
N Sawtooth Rd
Old Hwy 97
Sherman Hwy
Celilo-Wasco Hwy
Fulton Canyon Rd
Fulton St
Hilderbrand Ln
Old Wasco-Heppner Hwy
Armsworthy St
Clark St
Wasco-Heppner Hwy
Klondike Rd
Egypt Rd
206

Map Grid
Solar Micrositing Area/ Survey Area
City/Town
US Highway
State Highway
Local Roads
County Boundary

TETRA TECH
BRIGHTNIGHT
Power when you need it

Reference Map



1:48,000
WGS 1984 UTM Zone 10N
0 1 2 4 Miles
NOT FOR CONSTRUCTION

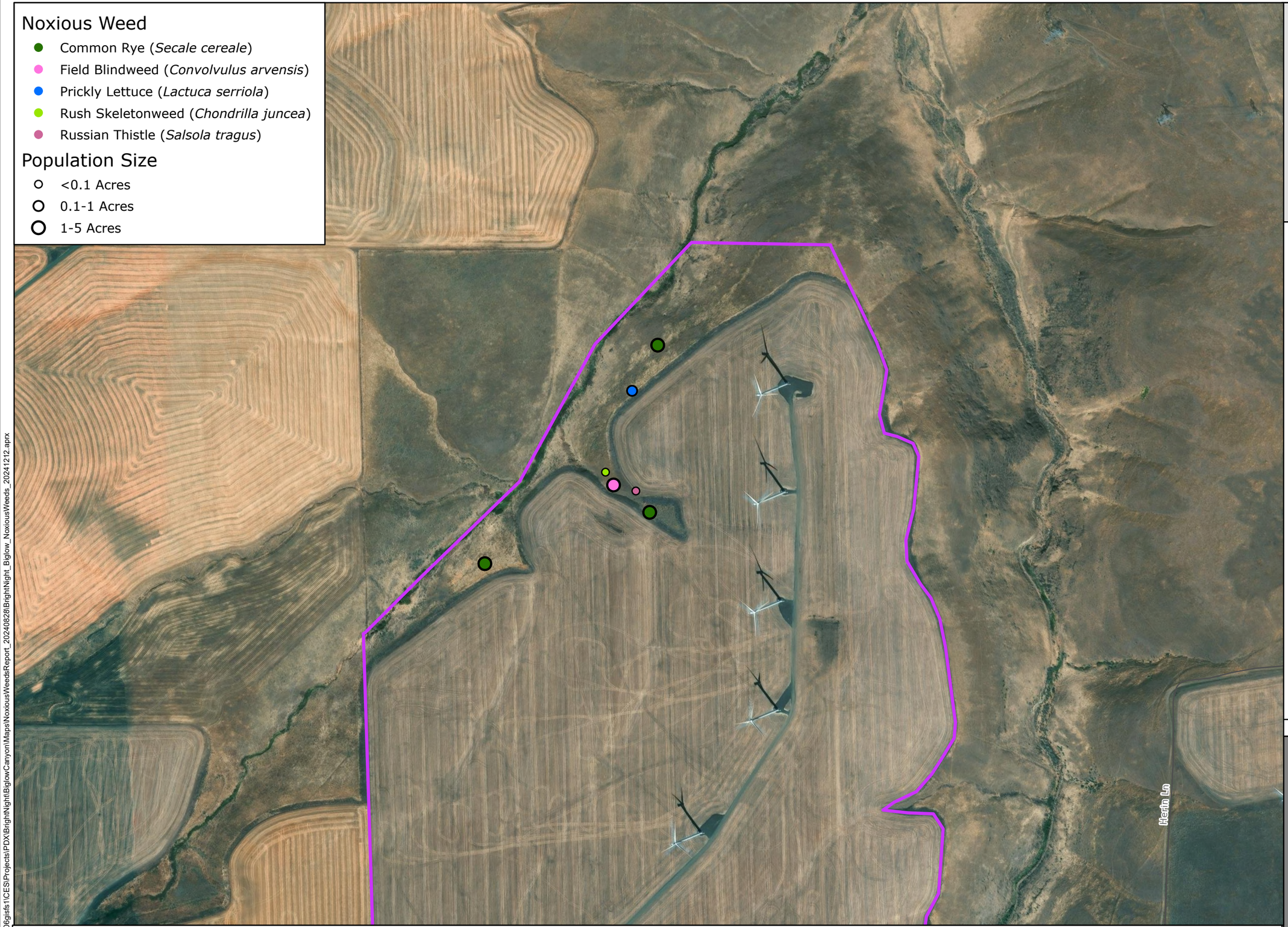
\\ess706gisfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\NoxiousWeedsReport_20240828\BrightNight_Biglow_NoxiousWeeds_20241212.aprx

Noxious Weed

- Common Rye (*Secale cereale*)
- Field Blindweed (*Convolvulus arvensis*)
- Prickly Lettuce (*Lactuca serriola*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Russian Thistle (*Salsola tragus*)

Population Size

- <0.1 Acres
- 0.1-1 Acres
- 1-5 Acres



Biglow Canyon Wind Farm Request for Amendment 4

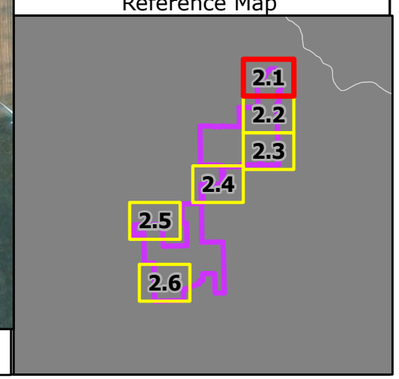
Figure 2.1 Noxious Weed Observations

SHERMAN COUNTY, OR

- Solar Micrositing Area/ Survey Area
- Local Roads

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map



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Biglow Canyon Wind Farm Request for Amendment 4

Figure 2.2 Noxious Weed Observations

SHERMAN COUNTY, OR

Noxious Weed

- Common Rye (*Secale cereale*)
- Field Blindweed (*Convolvulus arvensis*)
- Prickly Lettuce (*Lactuca serriola*)
- Rush Skeletonweed (*Chondrilla juncea*)

Population Size

- <0.1 Acres
- 1-5 Acres

Solar Micrositing Area/ Survey Area

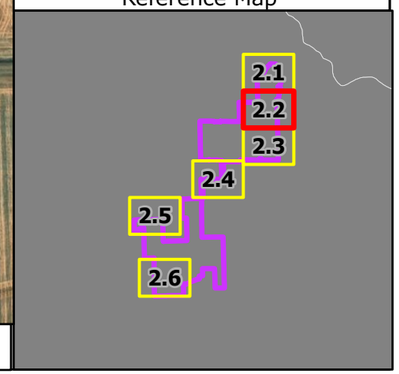
Local Roads

Herin Ln

TETRA TECH

BRIGHTNIGHT
Power when you need it

Reference Map



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Noxious Weed

- Bull Thistle (*Cirsium vulgare*)
- Common Rye (*Secale cereale*)
- Diffuse Knapweed (*Centaurea diffusa*)
- Field Blindweed (*Convolvulus arvensis*)
- Marestail (*Conyza canadensis*)
- Prickly Lettuce (*Lactuca serriola*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Russian Knapweed (*Rhaponticum repens*)
- Russian Thistle (*Salsola tragus*)
- Scotch Thistle (*Onopordum acanthium*)

Population Size

- <0.1 Acres
- 0.1-1 Acres
- 1-5 Acres

Biglow Canyon Rd

Biglow Canyon Wind Farm Request for Amendment 4

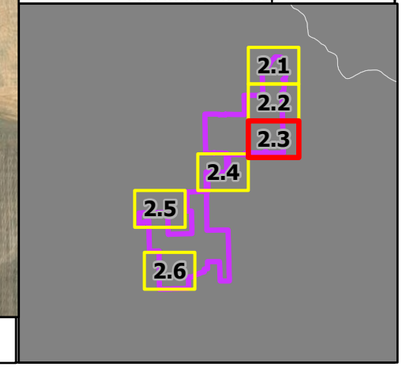
Figure 2.3 Noxious Weed Observations

SHERMAN COUNTY, OR

- Solar Micrositing Area/ Survey Area
- Local Roads

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map



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Noxious Weed

- Common Rye (*Secale cereale*)
- Field Blindweed (*Convolvulus arvensis*)
- Jointed Goatgrass (*Aegilops cylindrica*)

Population Size

- <0.1 Acres
- 0.1-1 Acres

Biglow Canyon Wind Farm Request for Amendment 4

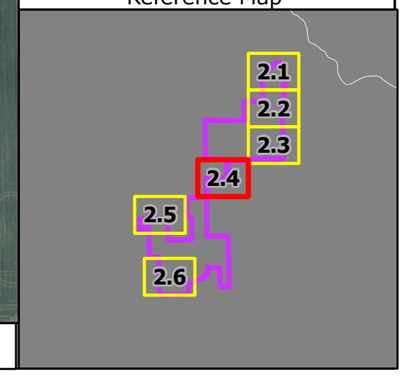
Figure 2.4 Noxious Weed Observations

SHERMAN COUNTY, OR

- Solar Micrositing Area/ Survey Area
- Local Roads

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map



1:6,000 WGS 1984 UTM Zone 10N

0 0.13 0.25 0.5 Miles

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Noxious Weed

- Prickly Lettuce (*Lactuca serriola*)

Population Size

- 1-5 Acres

Medler Ln

Biglow Canyon Wind Farm Request for Amendment 4

Figure 2.5 Noxious Weed Observations

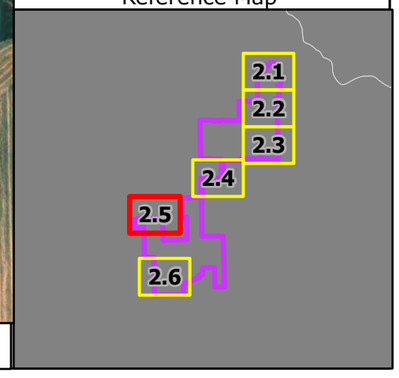
SHERMAN COUNTY, OR

- Solar Micrositing Area/ Survey Area
- Local Roads

TETRA TECH

BRIGHTNIGHT
Power when you need it

Reference Map



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WGS 1984 UTM Zone 10N

0 0.13 0.25 0.5 Miles

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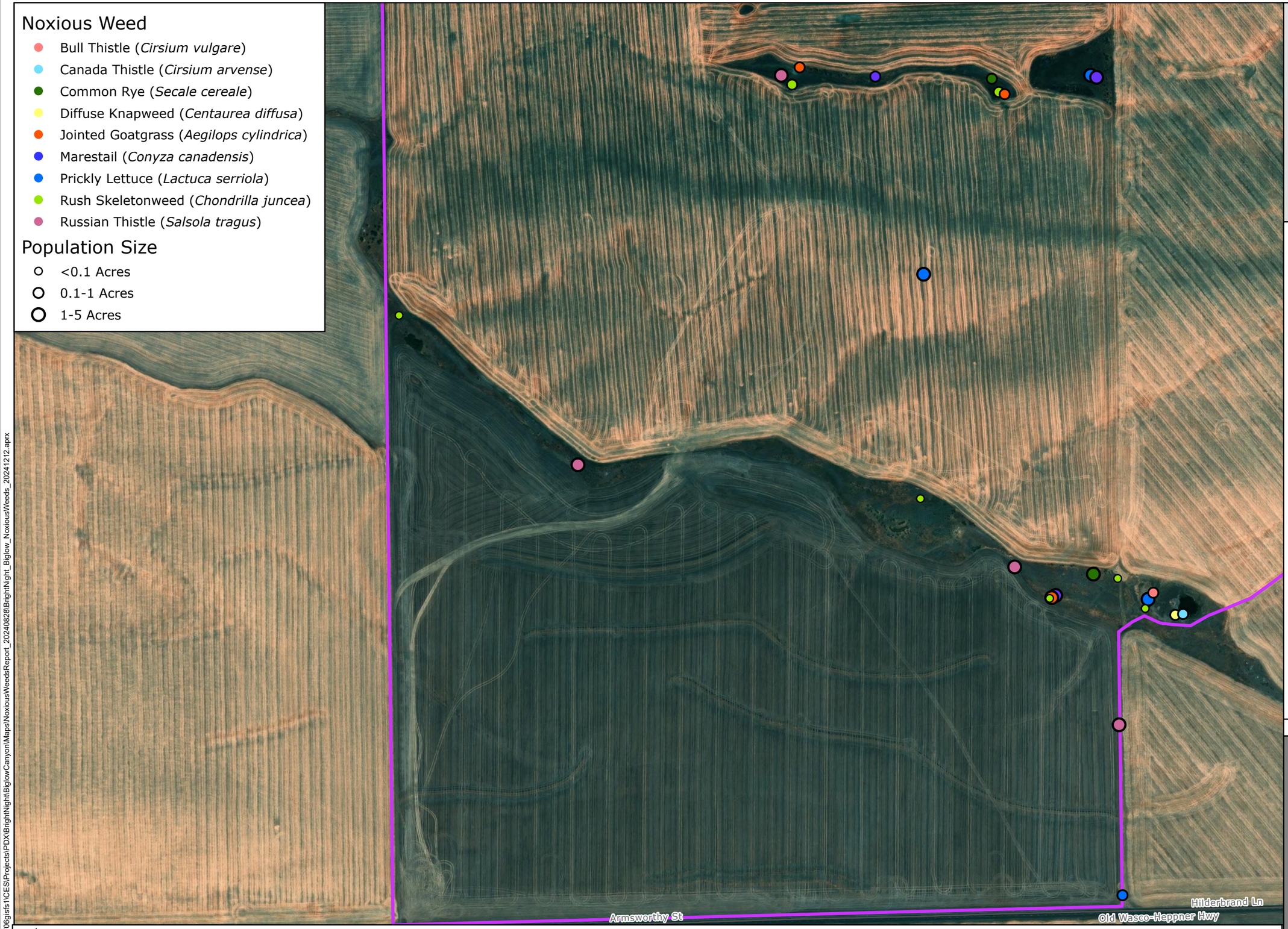
Biglow Canyon Wind Farm Request for Amendment 4

Figure 2.6 Noxious Weed Observations

SHERMAN COUNTY, OR



Noxious Weed

- Bull Thistle (*Cirsium vulgare*)
- Canada Thistle (*Cirsium arvense*)
- Common Rye (*Secale cereale*)
- Diffuse Knapweed (*Centaurea diffusa*)
- Jointed Goatgrass (*Aegilops cylindrica*)
- Marestail (*Conyza canadensis*)
- Prickly Lettuce (*Lactuca serriola*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Russian Thistle (*Salsola tragus*)

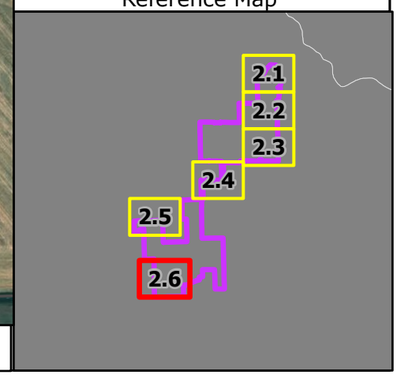
Population Size

- <0.1 Acres
- 0.1-1 Acres
- 1-5 Acres

- Solar Micrositing Area/ Survey Area
- Local Roads

TETRA TECH BRIGHTNIGHT Power when you need it

Reference Map



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0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Attachment 1. Vascular Plants Observed During 2024 Field Surveys

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Attachment 1. Vascular Plants Observed During 2024 Field Surveys

Scientific Name	Common Name	Native or Introduced? [1]	Synonym	Notes
Achillea millefolium	common yarrow, milfoil	N		
Aegilops cylindrica	jointed goatgrass	I		ODA Noxious Weed, B List; Sherman County Noxious Weed, B List
Agoseris grandiflora	large-flowered agoseris	N		
Agoseris heterophylla	annual agoseris	N		
Agropyron cristatum	crested wheatgrass	I		
Amaranthus albus	tumbling pigweed	I		
Amaranthus blitoides	prostrate pigweed, tumbleweed amaranth	U		
Amsinckia spp.	fiddleneck	N		
Artemisia tridentata	big sagebrush	N		
Asclepias fascicularis	narrowleaf milkweed	N		
Astragalus purshii	Pursh's milkvetch, woollypod milkvetch	N		
Balsamorhiza sagittata	arrowleaf balsamroot	N		
Bromus hordeaceus	soft chess	I	*Bromus mollis*	
Bromus diandrus	ripgut brome	I		
Bromus tectorum	cheatgrass, downy brome, downy chess	I		
Centaurea diffusa	diffuse knapweed, tumble knapweed	I		ODA and Sherman County Noxious Weed, B List
Chenopodium album	lamb's quarters, pigweed	I		
Chondrilla juncea	rush skeletonweed	I		ODA Noxious Weed, B List; Sherman County Noxious Weed, A List
Chrysothamnus viscidiflorus	green rabbitbrush, sticky-flowered rabbitbrush	N		
Cirsium arvense	Canada thistle, creeping thistle	I		ODA Noxious Weed, B List
Cirsium vulgare	bull thistle, common thistle	I		ODA and Sherman County Noxious Weed, B List
Convolvulus arvensis	field bindweed, field morning-glory	I		ODA and Sherman County Noxious Weed, B List
Conyza canadensis	Canadian fleabane, horseweed, marestail	N		Sherman County Noxious Weed, C List
Crataegus douglasii	black hawthorn, Douglas' hawthorn	N		
Crepis atrabarba	slender hawksbeard	N		
Crepis spp.	hawksbeard	N		
Descurainia sophia	flixweed, herb Sophia	I		
Draba verna	spring draba, spring whitlow grass	N		
Elaeagnus angustifolia	oleaster, Russian olive	I		
Eleocharis palustris	common spikerush, marsh spikerush, creeping spikerus	N		
Eleocharis sp.	spikerush	N		
Elymus elymoides	squirreltail	N	*Sitanion hystrix*	
Elymus trachycaulus ssp. trachycaulus	slender wheatgrass	N		
Epilobium brachycarpum	tall annual willowherb, autumn willowherb	N	*Epilobium paniculatum*	
Ericameria nauseosa	rubber rabbitbrush	N	*Chrysothamnus nauseosus*	
Erigeron filifolius	threadleaf fleabane	N		
Eriocoma thurberiana	Thurber's needlegrass	N	*Achnatherum thurberianum, Stipa thurberiana*	
Eriogonum niveum	snow buckwheat	I		
Erodium cicutarium	redstem filaree	I		

Scientific Name	Common Name	Native or Introduced? [1]	Synonym	Notes
Festuca idahoensis	Idaho fescue	N		
Galium aparine	stickywilly, cleavers, common bedstraw	N		
Gutierrezia sarothrae	broom snakeweed, matchweed	N		
Helianthus annuus	common sunflower	N		
Holosteum umbellatum	jagged chickweed	I		
Hordeum jubatum	squirreltail barley	N		
Hordeum vulgare	barley	I		
Juglans nigra	black walnut	I		
Juncus balticus	baltic rush	N	Juncus arcticus ssp. balticus	
Juncus effusus	pasture rush, soft rush	N		
Lactuca serriola	prickly lettuce	I		Sherman County Noxious Weed, C List
Lagophylla ramosissima	slender hareleaf, common rabbitleaf	N		
Lepidium perfoliatum	clasping pepperweed	I		
Leymus cinereus	Great Basin wildrye	N	*Elymus cinereus*	
Logfia arvensis	field cottonrose, field filago	I		
Lupinus leucophyllus	velvet lupine, woolly-leaved lupine	N		
Madia exigua	little tarweed, threadstem madia	N		
Madia gracilis	slender tarweed, common tarweed	N		
Matricaria discoidea	pineapple weed	I	*Matricaria matricarioides*	
Medicago sativa	alfalfa, lucerne	I		
Melilotus officinalis	yellow sweetclover	I		
Mentha canadensis	corn mint, field mint	N		
Microsteris gracilis	annual phlox, slender phlox	N	*Phlox gracilis*	
Onopordum acanthium	Scotch thistle, cotton thistle	I		ODA and Sherman County Noxious Weed, B List
Phalaris arundinacea	reed canarygrass	I		
Phragmites australis ssp. *australis*	American common reed	N		
Plantago major	common plantain	I		
Plantago patagonica	Indian wheat, woolly plantain	N		
Plectritus macrocera	longspur white plectritis	N		
Poa bulbosa	bulbous bluegrass	I		
Poa pratensis	Kentucky bluegrass	I		
Poa secunda ssp. juncifolia	alkali bluegrass, big bluegrass, Nevada bluegrass	N	*Poa ampla*	
Poa secunda ssp. secunda	Sandberg's bluegrass, Canby's bluegrass, pine bluegrass	N		
Polemonium micranthum	annual Jacob's-ladder, annual polemonium	N		
Polygonum aviculare	prostrate knotweed, doorweed, knotgrass	I		
Polypogon monspeliensis	rabbitsfoot grass, annual beardgrass	I		
Populus alba	silverleaf poplar, white poplar	I		
Populus nigra	black poplar, Lombardy poplar	I		
Prunus virginiana	western chokecherry	N		
Pseudoroengeria spicata	bluebunch wheatgrass	N	*Agropyron spicatum*	
Rhaponticum repens	Russian knapweed	I	*Acroptilon repens*	ODA and Sherman County Noxious Weed, B List
Robinia pseudoacacia	black locust	I		
Rumex crispus	curly dock	I		
Salix lasiandra	Pacific willow	N		

Scientific Name	Common Name	Native or Introduced? [1]	Synonym	Notes
Salsola tragus	prickly Russian thistle, tumbleweed	I	*Salsola kali*	Sherman County Noxious Weed, C List
Schoenoplectus acutus	hardstem bulrush, tule	N		
Secale cereale	cereal rye, commoon rye, rye	I		Sherman County Noxious Weed, C List
Sisymbrium altissimum	Jim Hill mustard, tumble mustard	I		
Solanum triflorum	cut-leaved nightshade	I		
Stephanomeria paniculata	stiff-branched wirelettuce, tufted wirelettuce	N		
Taraxacum officinale	common dandelion	I		
Thinopyrum intermedium	intermediate wheatgrass	I	*Agropyron intermedium*	
Toxicodendron diversilobum	poison oak	N		
Tragopogon dubius	yellow salsify	I		
Trifolium repens	white clover, Dutch clover	I		
Triticum aestivum	wheat	I		
Typha latifolia	broad-leaf cattail, common cattail	N		
Urtica dioica	stinging nettle	N		
Verbascum thapsus	common mullein, cowboy toilet paper	I		
Verbena bracteata	big-bracted verbenam bracted vervain	N		
Veronica americana	American brooklime	N		
Vulpia bromoides	brome fescue, rattail fescue	I	*Festuca bromoides*	
Vulpia myuros	rattail fescue, rat-tail six-weeks grass	I	*Festuca myuros*	

Nomenclature and nativitiy follows Flora of the Pacific Northwest (Hitchcock and Cronquist 2018) and OregonFlora (https://oregonflora.org/)

1. I=Introduced, N=Native, U=Uknown

2024 Raptor Nest Survey Report (CONFIDENTIAL)

This document contains confidential information and is provided under separate cover.

Attachment P-2. Biglow Solar Habitat Mitigation Plan

Biglow Solar Project

Draft Habitat Mitigation Plan

Biglow Canyon Wind Farm
Request for Amendment 4
December 2025

Prepared for

Portland General Electric Company

Prepared by

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

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1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) is submitting a Request for Amendment 4 (RFA 4) to the existing Site Certificate for the Biglow Canyon Wind Farm (BCWF or Existing Facility) to add photovoltaic solar energy generation and battery storage (Solar Components). Located approximately 4.5 miles northeast of Wasco in Sherman County, Oregon, BCWF currently consists of 217 wind turbines, with a peak generating capacity of 450 megawatts (MW). In RFA 4, PGE proposes to add up to 125 MW alternating current generating capacity from photovoltaic solar arrays and 125 MW in battery storage capacity.

The Solar Micrositing Area identified as part of RFA 4 is approximately 1,924 acres and provides a conservative estimate of the maximum area needed for development, micrositing, and temporary disturbances from the Solar Components during construction, rather than the anticipated disturbance footprint. The permanent disturbance area impacted by the Solar Components is 1,445 acres.

PGE will own and operate the Solar Components as a part of the BCWF (together, Facility), which, to date, have been developed by BIGL bn, LLC (BIGL). BIGL, in its capacity as the project developer, supports PGE in this RFA 4 and may construct and temporarily operate the Solar Components on behalf of PGE under a Build-Transfer Agreement.

The Certificate Holder in coordination with BIGL conducted habitat categorization surveys and other biological studies in and adjacent to the Solar Micrositing Area that informed habitat categorization in accordance with the Oregon Department of Fish and Wildlife's (ODFW) Fish and Wildlife Habitat Mitigation Policy, Oregon Administrative Rules (OAR) 635-415-0000 through 0025. Coordination with ODFW, including a site visit on January 10, 2025, provided direction and clarification on categorization of habitat within the Solar Micrositing Area.

The Certificate Holder's goal is to preserve and maintain in-kind habitat in the Columbia Plateau Ecoregion to achieve a net benefit to Category 2 Priority Wildlife Connectivity Area (PWCA) habitat, and no net loss of Category 4 habitat through the measures described in this draft Habitat Mitigation Plan (HMP).

2.0 Habitat Categories and Habitat Types

A habitat survey was conducted to verify habitat subtypes and habitat categories of all areas to be affected by the Facility. The ODFW Fish and Wildlife Habitat Mitigation Policy provides a framework to categorize habitats based on type, quality, availability, and usefulness/importance to wildlife, and establishes mitigation goals and implementation standards for each. Table 1 defines each of the six habitat category types as presented in the ODFW Habitat Mitigation Policy.

Table 1. Habitat Categorization Types

Category Type	Definition[1]	Mitigation Goal
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.	The mitigation goal for Category 1 habitat is no loss of either habitat quantity or quality.
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.	The mitigation goal if impacts are unavoidable is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality.
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.	The mitigation goal is no net loss of either habitat quantity or quality.
4	Important habitat for fish and wildlife species.	The mitigation goal is no net loss of either habitat quantity or quality.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.	The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality.
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.	The mitigation goal is to minimize impacts.
1. Source: OAR 635-415-0025.		

3.0 Temporary and Permanent Impacts

Impacts may be permanent or temporary. Permanent impacts are defined as those impacts that will exist for the life of the Solar Components. Temporary impacts are those impacts that will last for a time less than the life of the Solar Components. The duration of temporary impacts to habitat will vary by habitat subtype. For example, the recovery period for agricultural areas that were temporarily disturbed could be as short as 1 to 3 years, grasslands generally recover within 3 to 7 years, and shrublands may require 10 to 50 years to recover (with the longer recovery periods associated with disturbances in mature sagebrush [*Artemisia* sp.] habitats). The Certificate Holder will restore temporary impacts consistent with the Revegetation Plan (Attachment P-2 of Exhibit P).

As described in Exhibit P, there are no impacts to Category 1 habitat within the Solar Micrositing Area. Category 2 habitat occurs in the Solar Micrositing Area and will be impacted by the Solar Components (Table 2). Category 2 habitat within the Solar Micrositing Area is associated with an ODFW-designated PWCA along Biglow Canyon. Category 4 and 6 habitat will also be impacted by the Solar Components, while Category 3 and 5 habitat were not identified in the Solar Micrositing Area.

The Oregon Conservation Strategy (ODFW 2025) defines PWCA "regions" as the combined top one percent of connectivity priorities across all 54 Oregon Connectivity Assessment and Mapping Project (OCAMP) species' connectivity models. Regions are large, contiguous areas and represent the highest-value habitat for facilitating species movement throughout the state. PWCA "connectors" are then described as pathways that provide the best available habitat for facilitating movement between regions. Connectors may pass through high-quality habitat in intact, relatively undisturbed parts of the landscape, as well as the best remaining marginal habitat in developed or degraded areas. The Solar Components impact a PWCA region along Biglow Canyon.

Table 2 shows the acres of permanent and temporary impacts in each habitat category by habitat subtype for the Solar Components.

Table 2. Temporary and Permanent Impacts by Habitat Category and Habitat Subtype

Habitat Category	Habitat Subtype	Impact (acres)	
		Temporary	Permanent
2	PWCA: Riparian Trees	<0.1	<0.1
	PWCA: Sagebrush Shrub-Steppe	0.3	20.7
Category 2 Subtotal		**0.3**	**20.7**
4	Grassland-steppe	0.1	3.0
	Ephemeral Streams	<0.1	<0.1
Category 4 Subtotal		**0.1**	**3.0**
6	Irrigated Cropland	0.1	52.0
	Non-Irrigated Cropland	9.4	1,365.0
	Developed	1.0	3.9
Category 6 Subtotal		**10.5**	**1,420.9**
Grand Total		**10.9**	**1,444.6**

Note: Totals in this table may not sum correctly due to rounding; "--" = no impact; <0.1 = greater than zero but less than 0.05 acre.

4.0 Methods for Calculating Mitigation

Solar Component impacts, as determined based on the Solar Micrositing Area, would result in a mitigation need of 45 acres, including 44.4 acres of mitigation for permanent impacts (41.4 acres of Category 2 and 3.0 acres of Category 4) and 0.6 acres of mitigation for temporary impacts (0.6 acres of Category 2 and <0.1 acres of Category 4; Table 3 and Table 4). The actual acres of temporary and permanent impacts and the associated mitigation requirements will be confirmed following

construction. The Certificate Holder is not proposing compensatory mitigation under the ODFW Fish and Wildlife Habitat Mitigation Policy for impacts to Category 6 habitat.

Table 3. Calculating Mitigation for Permanent Impacts

Habitat Category	Impact Acres	Mitigation Ratio[1]	Mitigation Need	Mitigation Description
Category 2	20.7	2:1	41.4	The mitigation goal for Category 2 habitat is "no net loss" and "net benefit." Accordingly, mitigation for permanent impacts on Category 2 habitat needs to demonstrate a net benefit in quality or quantity.
Category 4	3.0	1:1	3.0	The mitigation goal for Category 4 habitat is "no net loss" in quantity or quality. During a site visit on January 10, 2025, ODFW recommended that impacts on Upland Tree habitat types should be mitigated within grassland or shrubland habitat types.
Category 6	1,420.9	0:1	--	The mitigation goal for impacts on Category 6 habitat is minimization; no compensatory mitigation proposed.
Grand Total	**1,444.6**	**--**	**44.4**	--

1. Acres mitigation per acres impacted.

Note: Totals in this table may not sum correctly due to rounding.

Table 4. Calculating Mitigation for Temporary Impacts

Habitat Category	Habitat Subtype	Impact Acres	Mitigation Ratio[1]	Mitigation Need	Mitigation Description
Category 2	PWCA: Riparian Trees	<0.1	2:1	<0.1	The mitigation goal for Category 2 habitat is "no net loss" and "net benefit." Accordingly, mitigation for permanent impacts on Category 2 habitat needs to demonstrate a net benefit in quality or quantity.
	PWCA: Sagebrush Shrub-steppe	0.3	2:1	0.6	
Category 4	Grassland-steppe	0.1	0:1	--	The mitigation goal for Category 4 habitat is "no net loss" in quantity or quality. The proposed mitigation ratio would result in a lesser amount of acreage of mitigation than what is impacted by the Solar Components. Combined with restoration of temporary disturbances, the proposed mitigation ratio is intended to account for the temporary loss of habitat functionality and meet the "no net loss" goal. Temporary disturbances to Category 4 Grassland-steppe are not mitigated beyond restoration.
	Ephemeral Streams	<0.1	1:1	<0.1	

Habitat Category	Habitat Subtype	Impact Acres	Mitigation Ratio[1]	Mitigation Need	Mitigation Description
Category 6	Agriculture, Developed	10.5	0:1	--	The mitigation goal for impacts on Category 6 habitat is minimization; no compensatory mitigation proposed.
Grand Total		**10.9**	**--**	**0.6**	--

1. Acres mitigation per acres impacted.

Note: Totals in this table may not sum correctly due to rounding. "--" = no impact; <0.1 = greater than zero but less than 0.05 acres.

5.0 Biglow Canyon Wind Farm Habitat Mitigation Area

The Habitat Mitigation Area (HMA) is the area where the Certificate Holder is proposing to perform enhancement and preservation actions that are in addition to the revegetation of areas of temporary disturbance associated with the Biglow Solar Project. The HMA must be large enough and have the characteristics to meet the standards set in OAR 635-415-0025.

According to ODFW standards, areas appropriate for mitigation of Category 2 habitat impacts must provide "in-kind" mitigation that creates similar structure and function to that being disturbed, be "in-proximity" to the Solar Components, and have potential for habitat enhancement. The Certificate Holder identified 78 acres for the HMA located within 880 acres of land owned by the Certificate Holder adjacent to the Carty Generating Facility in Morrow County (Figure 1). The Certificate Holder identified an area larger than its mitigation need (need is 45 acres) to allow for flexibility in management of the HMA. The Certificate Holder discussed the location of the HMA with ODFW and received assurance that the mitigation goals of "in-kind" and "in-proximity" can be met.

5.1 Habitat Assessment and Mitigation Accounting

The Certificate Holder identified 78 acres of suitable in-kind and in-proximity habitat within an 880-acre parcel. The HMA is adjacent to the existing PGE-owned Conservation Area and a conservation area maintained by The Nature Conservancy (South Farm Conservation Area; Figure 1). The habitat mapped within the HMA includes rabbitbrush shrubland and broom snakeweed shrubland (Figure 1). The HMA is dominated by Sandberg's bluegrass (*Poa secunda*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and intermittent areas of needle-and-thread grass (*Hesperostipa comata*), as well as cheatgrass (*Bromus tectorum*). There are also occasional occurrences of green rabbitbrush (*Chrysothamnus viscidiflorus*), gray rabbitbrush (*Ericameria nauseosa*), big sagebrush (*Artemisia tridentata*), fiddleneck (*Amsinckia menziesii*), and yarrow (*Achillea millefolium*).

The HMA is within a PWCA connector (ODFW 2023). PWCAs are considered Category 2 habitat, so the HMA is appropriate for mitigating impacts on Category 2 PWCA habitat. The HMA also contains Category 1 and Category 2 habitat associated with Washington ground squirrel (*Urocitellus washingtoni*) colonies that are immediately adjacent to the HMA.

The Certificate Holder plans to mitigate for the habitats impacted by placing a conservation easement on the appropriate acreage and by providing habitat uplift through the habitat enhancement and monitoring activities described below.

5.2 Habitat Enhancement Actions

Based on the acres of impact and mitigation need identified in Tables 2, 3, and 4, the Certificate Holder identified 78 acres available to fulfill the mitigation need for Solar Component impacts, subject to confirmation of impacts following construction. The objectives of habitat enhancement and restoration are to protect habitat within the mitigation area from degradation and improve the habitat quality of the mitigation area. The Certificate Holder shall initiate the habitat enhancement actions for the Facility before beginning operation of the Solar Components. The Certificate Holder shall restrict uses of the mitigation area that are inconsistent with the goal of no net loss and net benefit of Category 2 habitat and no net loss of Category 4 habitat. The Certificate Holder shall implement habitat enhancement actions as described in this Amended Plan and as specified in the amended Site Certificate. If vegetation in the HMA is damaged from fire or from fire suppression efforts (e.g., vehicular disturbance), the area would be seeded as necessary with the appropriate seed mix. Potential enhancement actions and monitoring procedures are detailed below and will be finalized prior to construction. Besides legal protection to ensure no development, potential enhancement actions for the HMA include those detailed in the following subsections.

5.2.1 Noxious Weed Prevention, Inventory, and Control

Weeds will be controlled as needed to maintain and enhance habitat quality within the mitigation area, with the goal of working toward eradication of targeted noxious weeds or, if eradication is not practical, decreasing their abundance to minimize impacts on native plant communities. Weeds known to occur within the HMA include rush skeletonweed (*Chondrilla juncea*), knapweed (*Centaurea* spp.), and yellow starthistle (*Centaurea solstitialis*).

Weed management practices will be consistent with an integrated weed management approach, using an appropriate combination of inventory, prevention (such as best management practices to prevent weed establishment), and control methods (such as hand pulling, mowing, biological control, and/or herbicides). The Certificate Holder shall obtain ODFW's approval prior to the use of pesticides. Controlling weeds in the HMA should promote growth of native vegetation.

5.2.2 Access Control

The Certificate Holder will monitor and control access to the HMA and will post informative signs depicting the area(s) as "protected" and including natural resources information as appropriate for the life of the Facility. Primary access to the PGE property is controlled by a gate off Tower Road north of the Carty Generating Station (currently used by PGE and The Nature Conservancy), the gated entrance to the Boardman Plant, and a gated road from Ione to the south. The Nature Conservancy and Three Mile Canyon Farms may occasionally use the two-track access crossing PGE's property to access the Farm's conservation area. Approved access to the site is currently

limited to such occasional approved use of access roads and PGE's general operational needs. No livestock grazing is currently occurring on the site, and grazing would not be allowed in the future. Periodic monitoring will be conducted to evaluate the effectiveness of access control measures and signage maintenance needs.

5.2.3 Sagebrush Plantings

To mitigate for permanent impacts to Category 2 sagebrush habitat affected by the Solar Components, the Certificate Holder will plant sagebrush seedlings in the HMA for the Solar Components, focusing on enhancing and expanding remnant stands of shrubs that were impacted by past wildfires. Sagebrush seedlings will be planted at an appropriate density to establish sagebrush commensurate with the density of sagebrush impacted by the Solar Components and/or a planting density agreed upon with ODOE and ODFW.

5.3 HMA Enhancement Monitoring

The Certificate Holder will use a qualified investigator (botanist, wildlife biologist, or revegetation specialist) to conduct monitoring at the HMA. The purpose of this monitoring is to evaluate on an ongoing basis the protection of habitat quality and the results of enhancement actions.

The investigator will visit the HMA as necessary to complete the required monitoring during the first, third, and fifth year after construction of the Solar Components and every fifth year thereafter (in years divisible by five, unless otherwise specified for specific measures) for the life of the Facility. Monitoring methods and frequency may warrant adjustment after 5 years or after success criteria are met; changes to monitoring methods would be documented in an amendment to this HMP per Section 8.0. Monitoring activity shall include an assessment of the following:

1. General quality of vegetation cover (dominant species, structural age, etc.), as determined by ocular estimates, measurements, and photo points;
2. Success of weed control efforts:
    a. Weed control efforts at the HMA will be considered successful when infestations are eradicated or reduced to the point where they no longer interfere with overall HMA goals.
    b. Annual inventories will be conducted on the HMA to identify new weed infestations, the status of existing infestations, and the progress of weed control efforts in eradicating or reducing infestations.
    c. Weed inventories will be conducted on foot. Detailed information on weed infestations will be collected, including, but not limited to, data on species, location, growth form, infestation size, and weed cover class (an ocular estimate of the percentage of the ground covered or concealed by weeds in a specific infestation area). In addition, the surveyor will identify potential weed control strategies for each infestation, as well as constraints that could limit the effectiveness of weed control efforts.

   d. Results from the surveys will be incorporated into a geographic information system database. Weed infestations will also be photographed during the initial inventory, and then again over time to document progress of weed control efforts.

3. Success of sagebrush plantings:
   a. Revegetation success of planted areas will be evaluated using appropriate vegetation measurement methodologies, considering the type of enhancement action completed. If the success criteria are related to density of a particular species or vegetation class, density (plant counts) may be measured within macroplots, quadrats, and/or belt transects randomly located within the enhancement area.
   b. Planted shrubs will have a performance goal of 50 percent of the density of the impacted shrublands and/or appropriate reference site within 5 years of planting. Methods and performance criteria will be finalized prior to construction of the Solar Components.
4. Success of remedial actions to restore habitat quality in damaged areas (such as managed weed infestations, fire damage, and any necessary seeding/planting areas), as determined by vegetation cover (ocular estimate) and photo points (see below);
5. Photos taken from established photo points within the HMA, including 1) a minimum of five permanent photo points distributed to show general vegetation status throughout the HMA, and 2) additional photo points as needed to monitor success of significant enhancement activities, such as managed weed infestations and/or any necessary seeding/planting areas;
6. Incidental wildlife occurring within the HMA (counts concurrent with all other monitoring work);
7. Environmental factors found on site during monitoring activities and annual summary records (such as precipitation);
8. Surveys of resident special status wildlife species (Washington ground squirrel) that have been documented during previous monitoring or survey efforts within the HMA, using existing protocols approved by ODFW; and

6.0 Data Reporting

The Certificate Holder will submit a report including wildlife and habitat monitoring data and analysis to the Oregon Department of Energy (ODOE) and ODFW during each monitoring year according to the schedule in Table 5. The Certificate Holder will notify the U.S. Fish and Wildlife Service and ODFW within one business day if any federal or state endangered or threatened species are killed or injured on the facility site or within the HMA. The Certificate Holder may include the reporting of wildlife monitoring data and analysis in the report required under OAR 345-026-0080 or submit this information as a separate document concurrently with the submittal of the report. In addition, the Certificate Holder will provide ODOE with any data or

record generated by the investigators in carrying out this Amended Plan upon request by ODOE.

Table 5. Schedule of Monitoring

Task	Schedule
General HMA Monitoring	During the first, third, and fifth years after Solar Component construction, and otherwise every fifth year thereafter for the life of the Facility.
Washington Ground Squirrel Monitoring	
Noxious Weed Inventory for HMA	
General Weed Control and Monitoring Activity for HMA	At least every 2 years (in priority areas based on every 5-year comprehensive inventory results) starting from the completion of construction.
HMA Sagebrush Habitat Monitoring	Annually for a period of 5 years.

7.0 Implementation Schedule

Baseline monitoring and implementation of habitat enhancement actions will occur during the appropriate seasonal timeframe concurrently with or immediately after construction. The Certificate Holder will prepare an implementation schedule prior to construction. This implementation schedule will be adjusted as needed based on field conditions at the time of implementation and other factors (e.g., seed availability).

8.0 Amendment of the HMP

This HMP may be amended from time to time by agreement of the Certificate Holder and the Energy Facility Siting Council (EFSC). Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this plan. ODOE shall notify EFSC of all amendments, and EFSC retains the authority to approve, reject, or modify any amendment of this plan agreed to by ODOE.

9.0 References

ODFW (Oregon Department of Fish and Wildlife). 2023. Priority Wildlife Connectivity Areas Web Map. Oregon Department of Fish and Wildlife. Salem, Oregon. https://experience.arcgis.com/experience/6979b6598f904951bd0af1821e1595f1/

ODFW. 2025. Priority Wildlife Connectivity Areas. https://oregonconservationstrategy.org/success-story/priority-wildlife-connectivity-areas-pwcas/ (Accessed August 8, 2025).

Figure

Biglow Canyon Wind Farm RFA4

Figure 1
Habitat Mitigation Area

MORROW COUNTY, OR

CP-C39
CP-C37
Tower Rd
CP-R22
CP-C47
CP-C48
CP-C52
CP-R28

- Habitat Mitigation Area
- County Boundary
- City/Town
- Carty 1 HMA boundary
- PGE Conservation Area
- South Farm Conservation Area

Oregon PWCA Type
- Connector
- Region

WAGS Habitat Buffer
- Habitat Category 1 WAGS Buffer
- Habitat Category 2 WAGS Buffer

Habitat
- Broom Snakeweed Shrubland
- Rabbitbrush Shrubland

TETRA TECH
PGE

Reference Map

1:25,000
WGS 1984 UTM Zone 10N
0 1,250 2,500 5,000 US Feet
NOT FOR CONSTRUCTION

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