# EXHIBIT N – Request for Amendment No. 1

## NEED FOR THE FACILITY
## OAR 345-021-0010(1)(bb)

**OAR 345-021-0010(1)(n)** *If the proposed facility is a non-generating facility for which the applicant must demonstrate need under OAR 345-023-0005, information about the need for the facility, providing evidence to support a finding by the Council as required by OAR 345-023-0005.*

Response: Portland General Electric Company is requesting to amend the Site Certificate for a generating facility and related or supporting facilities. Therefore, a demonstration of need under Oregon Administrative Rules 345-023-0005 is not required.

# EXHIBIT O

# WATER USE
OAR 345-021-0010(1)(o)

## TABLE OF CONTENTS



## TABLES



## APPENDICES

## O.1 INTRODUCTION

**OAR 345-021-0010(1) (o)** *Information about anticipated water use during construction and operation of the proposed facility.*

Response: This exhibit provides the information required by Oregon Administrative Rules 345-021-0010(1)(o), in support of the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station (RFA).

## O.2 WATER USES AND SOURCES

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

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

Response:

### O.2.1 Construction

During construction of the Carty Solar Farm (as defined in Exhibit B), water would be used for dust abatement, washing equipment and vehicles, washing concrete trucks after delivery of concrete loads, and fire suppression. Portland General Electric Company (PGE) anticipates using approximately 8,000,000 gallons through all phases of construction, primarily for dust abatement. Construction is expected to last 12 months; therefore, PGE assumes that all construction water would be used in a 12-month timeframe.

All non-potable water used for construction activities would be obtained from Carty Reservoir. Carty Reservoir has a maximum surface area of approximately 1,450 acres and contains approximately 38,000 acre-feet (12 billion gallons) of water at a maximum pool elevation of 677 feet above mean sea level. The average pool elevation for the reservoir since 1990 has been approximately 667 to 668 feet above mean sea level. At this elevation, the reservoir surface area is approximately 1,100 acres and contains approximately 26,000 acre-feet of water (8.5 billion gallons). Existing storage rights for Carty Reservoir are held by PGE under Certificate 86056. As part of the Application for Site Certificate (ASC), PGE submitted an application (application file number S-87723) for a Permit to Use Surface Water (refer to Appendix O-2 in the ASC). The Oregon Water Resources Department issued PGE Permit S-54925 for the use of up to 3,736 acre-feet per year from Carty Reservoir for industrial/manufacturing uses. This category allows use of water for construction purposes. This water right is sufficient for all water needs during

construction of the proposed Carty Solar Farm. A permit amendment application to add the Carty Solar Farm as a place of use to permit S-54925 is included as Appendix O-1 of this exhibit.

Potable water for the Carty Solar Farm during construction would be obtained from a temporary tie in with the Boardman/Carty potable water system, hauled in from nearby potable water systems, or provided by bottled water or water coolers. Boardman/Carty potable water is obtained from an existing well located approximately 170 feet south of the Carty Unit 1 generation building.

### O.2.2 Operation

The primary uses of water during operation of the Carty Solar Farm would be for panel washing during regular facility maintenance, if washing is determined to be necessary. PGE would obtain water for panel washing from either Carty Reservoir or a municipal source. If obtained from Carty Reservoir the water would undergo treatment at the existing Carty Generating Station water treatment building to produce water suitable for panel washing (e.g. demineralized water). Panel washing would require approximately 2 to 5 acre-feet of water per year.

There would be no new potable water connections required for the operation of the Carty Solar Farm; potable water consumed by personnel working on the Carty Solar Farm would be obtained from the existing Carty Generating Station plant services building connection to the potable water well.

Table O-1 presents the anticipated water use during construction and operation of the Carty Solar Farm; since the Carty solar farm would not continuously require the use of water, the volumes of water are not provided in terms of annual average and summer conditions.

**Table O-1 Anticipated Water Use for Construction and Operation of the Carty Solar Farm**

| Use | Source | Gallons/year | Acre-feet/year | Final Disposition |
|---|---|---|---|---|
| Potable Water and Sanitary Systems – Construction and operation | Existing Well/Private Providers | negligible | negligible | Boardman Sanitary Lagoons |
| Non-Potable Construction Water | Carty Reservoir | 8,000,000 | 24.5 | Primarily evaporation for dust control, small volumes collected and disposed per WPCF permit |

**Table O-1 Anticipated Water Use for Construction and Operation of the Carty Solar Farm**

| Use | Source | Gallons/year | Acre-feet/year | Final Disposition |
|---|---|---|---|---|
| Panel Washing and Maintenance of Carty Solar Farm | Carty Reservoir or municipal source | 652,000 to 1,629,000 | 2 to 5 | Evaporation and infiltration |

Key:
WPCF = Water Pollution Control Facilities

## O.3 WATER LOSSES

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

Response: Water usage at the Carty Solar Farm would be low; however, any water used for the Carty Solar Farm would be considered permanent water loss (i.e., there is no planned water reuse). Water loss associated with the Carty Solar Farm is equal to uses and volumes presented in Table O-1. Table O-1 also presents the final disposition of all wastewater. The disposition of wastewater is discussed further in Exhibit V of this RFA.

## O.4 WATER BALANCE

**OAR 345-021-0010(1)(o)(D)** *For thermal power plants, a water balance diagram, including the source of cooling water and the estimated consumptive use of cooling water during operation, based on annual average conditions.*

Response: The Carty Solar Farm unit is not a thermal power plant; therefore, this information is not applicable to this RFA.

## O.5 REVIEW OF PERMIT NEEDS

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

Response: Permitting requirements are discussed in Section O.6, below.

## O.6 PERMITS

**OAR 345-021-0010(1) (o)(F)** *If the proposed facility would need a groundwater permit, a surface water permit or a water right transfer, information to support a determination by the Council that the Water Resources Department should issue the permit or transfer of a water use, including information in the form required by the Water Resources Department under OAR Chapter 690, Divisions 310 and 380.*

Response: With the ASC, PGE submitted an application (application file number S-87723) for a Permit to Use Surface Water (refer to Appendix O-2 in the ASC) for the Carty Generating Station. The Oregon Water Resources Department issued PGE Permit S-54925 for the use of up to 3,736 acre-feet per year from Carty Reservoir for industrial/manufacturing uses for the areas of use listed within that application. With the facility amendments proposed under this RFA, a permit amendment application will be needed to add the Carty Solar Farm as a place of use to Permit S-54925. The permit amendment application is included in this RFA as Appendix O-1, PGE will pay the application fee and apply for the Oregon Water Resources Department to issue the permit prior to using water from Carty Reservoir for construction.

## O.7 MITIGATION

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

Response: Water use related to this project is not anticipated to have any adverse impacts on affected resources; therefore, PGE is not proposing any mitigation measures.

# APPENDIX O-1

## Application for Permit Amendment

State of Oregon
**Water Resources Department**
725 Summer Street NE, Suite A
Salem, Oregon 97301-1266
(503) 986-0900

# Application for
# Permit Amendment
## Part 1 of 5 – Minimum Requirements Checklist

**This permit amendment application will be returned if Parts 1 through 5 and all required attachments are not completed and included.**
For questions, please call (503) 986-0900, and ask for Transfer Section.

**Check all items included with this application. (N/A = Not Applicable)**

☒ Part 1 – Completed Minimum Requirements Checklist.

☒ Part 2 – Completed Application Map Checklist.

☒ Part 3 – Application Fee, payable by check to the Oregon Water Resources Department, and completed Fee Worksheet, page 3. Try the new online fee calculator at: http://apps.wrd.state.or.us/apps/misc/wrd_fee_calculator. If you have questions, call Customer Service at (503) 986-0801.

☒ Part 4 – Completed Applicant Information and Signature.

☒ Part 5 – Information about Permits to be Amended: **Number of permits to be amended:** One **List them here:** S-54925
Please include a separate Part 5 for each permit. (See instructions on page 6)

☒ Completed Permit Amendment Application Map (Does not have to be prepared by a Certified Water Right Examiner).

☐ ☒ N/A Request for Assignment Form and statutory fee. The request for assignment form has to be completed if the applicant is **not** the permit holder of record and needs to be assigned to the permit; **or** the landowner of the proposed place of use is **not** the permit holder of record and needs to be assigned to the permit (the Request for Assignment Form is available online at http://www.oregon.gov/owrd/pubs/docs/forms). Assignment is not needed if the applicant is the permit holder of record.

☐ ☒ N/A Affidavit(s) of Consent are required from all permit holder(s) of record if the permit is not assigned to the applicant **or** other permit holders of record that are not listed as applicants.

☐ ☒ N/A Land Use Information Form with approval and signature (or signed land use form receipt stub). Land use form is not required if any of the following apply:
- ☐ Water is to be diverted, conveyed, and/or used only on federal lands.
- ☐ All of the following apply: a) a change in place of use only, b) no structural changes, c) the use of water is for irrigation only, and d) the use is located within an irrigation district or an exclusive farm use zone.
- ☐ The proposed changes are all located on the property reviewed in Land Use form enclosed in Water Right Application Folder # _____.

☐ ☒ N/A Water Well Report/Well Log for changes in point(s) of appropriation (well(s)) or additional point(s) of appropriation.

**(For Staff Use Only)**
**WE ARE RETURNING YOUR APPLICATION FOR THE FOLLOWING REASON(S):**

___ Application fee not enclosed/insufficient
___ Map not included or incomplete
___ Land Use Form not enclosed or incomplete
___ Assignment Form and fee not enclosed/insufficient
___ Additional signature(s) required
Part _____ is incomplete
Other/Explanation _____
Staff: _____ 503-986-0___ Date: ____/____/____

## Part 2 of 5 – Permit Amendment Map Checklist

**Your permit amendment application will be returned if any of the map requirements listed below are not met.**

**Please be sure that the map you submit includes all the items listed below and meets the requirements of OAR 690-380-3100, however, the map does not have to be prepared by a Certified Water Right Examiner. Check all boxes that apply.**

☐ ☒ N/A If **more than three** permits are involved, separate maps for each permit.

☒ Permanent quality printed with dark ink on good quality paper.

☒ The size of the map can be 8½ x 11 inches, 8½ x 14 inches, 11 x 17 inches, or up to 30 x 30 inches. For 30 x 30 inch maps, one extra copy is required.

☒ A north arrow, a legend, and scale.

☒ The scale of the map must be: 1 inch = 400 feet, 1 inch = 1,320 feet, the scale of the county assessor map if the scale is not smaller than 1 inch = 1,320 feet, or a scale that has been pre-approved by the Department.

☒ Township, Range, Section, ¼ ¼, DLC, Government Lot, and other recognized public land survey lines.

☒ Tax lot boundaries (property lines) are required. Tax lot numbers are recommended.

☒ Major physical features including rivers and creeks showing direction of flow, lakes and reservoirs, roads, and railroads.

☒ Major water delivery system features from the point(s) of diversion/appropriation such as main pipelines, canals, and ditches.

☒ Existing place of use that includes separate hachuring for each water use permit, priority date, and use including number of acres in each quarter-quarter section, government lot, or in each quarter-quarter section as projected within government lots, donation land claims, or other recognized public land survey subdivisions. If less than the entirety of the permit is being changed, a separate hachuring is needed for the portion of the permit left unchanged.

☒ ☐ N/A If you are proposing a change in place of use, show the proposed place of use with hachuring that includes separate hachuring for each permit, priority date, and use including number of acres in each quarter-quarter section, government lot, or in each quarter-quarter section as projected within government lots, donation land claims, or other recognized public land survey subdivisions.

☒ Existing point(s) of diversion or well(s) with distance and bearing or coordinates from a recognized survey corner. This information can be found in your water use permit.

☐ ☒ N/A If you are proposing a change in point(s) of diversion or well(s), show the proposed location and label it clearly with distance and bearing or coordinates. If GPS coordinates are used, latitude-longitude coordinates may be expressed as either degrees-minutes-seconds with at least one digit after the decimal (example – 42°32'15.5") or degrees-decimal with five or more digits after the decimal (example – 42.53764°).

| FEE WORKSHEET for PERMIT AMENDMENT | | | |
|---|---|---|---|
| 1 | Base Fee (includes one type of change to one permit for up to 1 cfs) | *1* | $1,160 |
| 2 | Types of change proposed:<br>☒ Place of Use<br>☐ Point of Diversion/Appropriation<br>Number of above boxes checked = 1 (2a)<br>Subtract 1 from the number in line 2a = 0 (2b) *If only one change, this will be 0*<br>Multiply line 2b by $930 and enter » » » » » » » » » » » » » » » | *2* | 0 |
| 3 | Number of permits included in Permit Amendment 1 (3a)<br>Subtract 1 from the number in 3a: 0 (3b) *If only one permit this will be 0*<br>Multiply line 3b by $520 and enter » » » » » » » » » » » » » » » | *3* | 0 |
| 4 | Do you propose to add or change a well, or change from a surface water POD to a well?<br>☒ No: enter 0 » » » » » » » » » » » » » » » » » » » » » » »<br>☐ Yes: enter $410 » » » » » » » » » » » » » » » » » » » » » » » | *4* | 0 |
| 5 | Do you propose to change the place of use?<br>☐ No: enter 0 on line 5 » » » » » » » » » » » » » » » » » » » » » » »<br>☒ Yes: enter the cfs for the portions of the permits to be amended (see example below*): _____ (5a)<br>Subtract 1.0 from the number in 5a above: _____ (5b)<br>If 5b is 0, enter 0 on line 5 » » » » » » » » » » » » » » » » » » » » »<br>If 5b is greater than 0, round up to the nearest whole number: _____ (5c)<br>and multiply 5c by $350, then enter on line 5 » » » » » » » » » | *5* | 0 |
| 6 | Add entries on lines 1 through 5 above » » » » » » » » » » Subtotal: | *6* | $1,160 |
| 7 | Is this permit amendment:<br>☐ necessary to complete a project funded by the Oregon Watershed Enhancement Board (OWEB) under ORS 541.932?<br>☐ endorsed in writing by ODFW as a change that will result in a net benefit to fish and wildlife habitat?<br>If one or more boxes is checked, multiply line 6 by 0.5 and enter on line 7 »<br>If no box is applicable, enter 0 on line 7» » » » » » » » » » » » » » » | *7* | 0 |
| 8 | Subtract line 7 from line 6 » » » » » » » » **Permit Amendment Fee:** | ***8*** | $1,160 |

*Example for Line 5a calculation to transfer 45.0 acres of Primary Permit S-12345 (total 1.25 cfs for 100 acres) and 45.0 acres of Supplemental Permit S-87654 (1/80 cfs per acre) on the same land:

1. For irrigation calculate cfs for each permit involved as follows:
   a. Divide total authorized cfs by total acres in the permit *(for S-12345, 1.25 cfs ÷100 ac)*; then multiply by the number of acres to be changed to get the application cfs *(x 45 ac= 0.56 cfs)*.
   b. If the water right permit does not list total cfs, but identifies the allowable use as 1/40 or 1/80 of a cfs per acre; multiply number of acres proposed for change by either 0.025 (1/40) or 0.0125 (1/80). *(For S-87654, 45.0 ac x 0.0125 cfs/ac = 0.56 cfs)*
2. Add cfs for the portions of permits on all the land included in the application; however **do not count cfs for supplemental permits on acreage for which you have already calculated the cfs fee for the primary permit on the same land**. The fee should be assessed only once for each "on the ground" acre included in the application. *(In this example, blank 5a would be only 0.56 cfs, since both permits serve the same 45.0 acres. Blank 5b would be 0 and Line 5 would then also become 0).*

## Part 4 of 5 – Applicant Information and Signature

### Applicant Information

| APPLICANT/BUSINESS NAME | | | PHONE NO. | ADDITIONAL CONTACT NO. |
|---|---|---|---|---|
| Portland General Electric Company<br>c/o Jeff Danielson | | | 503-464-8149 | 503-464-2634 |
| ADDRESS<br>121 SW Salmon Street, 3WTCBR03 | | | | FAX NO. |
| CITY<br>Portland | STATE<br>OR | ZIP<br>97204 | E-MAIL<br>Jeff.Danielson@pgn.com | |
| **BY PROVIDING AN E-MAIL ADDRESS, CONSENT IS GIVEN TO RECEIVE ALL CORRESPONDENCE FROM THE DEPARTMENT ELECTRONICALLY. COPIES OF THE FINAL ORDER DOCUMENTS WILL ALSO BE MAILED.** | | | | |

**Agent Information** – The agent is authorized to represent the applicant in all matters relating to this application.

| AGENT/BUSINESS NAME | | | PHONE NO. | ADDITIONAL CONTACT NO. |
|---|---|---|---|---|
| Martha O. Pagel, Schwabe, Williamson & Wyatt | | | 503-540-4260 | |
| ADDRESS<br>530 Center Street NE, Ste 730 | | | | FAX NO. |
| CITY<br>Salem | STATE<br>OR | ZIP<br>97301 | E-MAIL<br>mpagel@schwabe.com | |
| **BY PROVIDING AN E-MAIL ADDRESS, CONSENT IS GIVEN TO RECEIVE ALL CORRESPONDENCE FROM THE DEPARTMENT ELECTRONICALLY. COPIES OF THE FINAL ORDER DOCUMENTS WILL ALSO BE MAILED.** | | | | |

Explain in your own words what you propose to accomplish with this permit amendment; and why:
This amendment is for a General Industrial Use permit to modify (add) Place of Use, but there are no changes to Point of Diversion or volume.

If you need additional space, continue on a separate piece of paper and attach to the application as "Attachment 1".

☐ Check this box if this project is fully or partially funded by the American Recovery and Reinvestment Act. (Federal stimulus dollars)

**Is the applicant the permit holder of record?** ☒ Yes ☐ No

If NO, include either:

☐ A completed assignment form (with required statutory assignment fee), assigning all or a portion of the permit to the applicant(s), **OR**

☐ An affidavit of consent from the permit holder(s) of record that gives permission for the applicant to amend the permit.

I understand that prior to Department approval of the permit amendment, I may be required to submit payment to the Department for publication of a notice in a newspaper with general circulation in the area where the permit is located, once per week for two consecutive weeks. If more than one qualifying newspaper is available, I suggest publishing the notice in the following newspaper: _____.

**I (we) affirm that the information contained in this application is true and accurate.**

| Applicant Signature | Print Name (and Title if applicable) | Date |
|---|---|---|
| | JEFFREY L. DANIELSON | 2/15/18 |
| Applicant Signature | Print Name (and Title if applicable) | Date |
| | | |

**Check <u>one</u> of the following:**

☐ The applicant is responsible for completion of change(s). Notices and correspondence should continue to be sent to the applicant.

☒ The permit holder(s) of record will be responsible for completing the proposed change(s) after the final order is issued. Copies of notices and correspondence should be sent to the permit holder(s) of record.

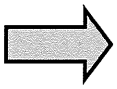
**Check the appropriate box, if applicable:**

☐ Check here if any of the permits proposed for amendment are or will be located within or served by an irrigation or other water district.

| IRRIGATION DISTRICT NAME | ADDRESS | |
|---|---|---|
| CITY | STATE | ZIP |

☐ Check here if water for any of the permits supplied under a water service agreement or other contract for stored water with a federal agency or other entity.

| ENTITY NAME | ADDRESS | |
|---|---|---|
| CITY | STATE | ZIP |



To meet State Land Use Consistency Requirements, you must list all local governments (each county, city, municipal corporation, or tribal government) within whose jurisdiction water will be diverted, conveyed or used.

| ENTITY NAME | ADDRESS | |
|---|---|---|
| CITY | STATE | ZIP |

| ENTITY NAME | ADDRESS | |
|---|---|---|
| CITY | STATE | ZIP |

Not applicable, Land Use Consistency will be determined by Energy Facility Siting Council pursuant to ORS 469.378. Approval of this permit amendment application can only be granted after the applicant obtains a First Amended Site Certificate from the Energy Facility Siting Council.

# INSTRUCTIONS for editing the Application Form

To add additional lines to tables within the forms or to copy and paste additional Part 5 pages, please **save the application form to your computer**. Unlock the document by using one of the following instructions for your Microsoft Word software version:

Once the application has been unlocked, you may:

- add additional rows to tables using the Table tools, and
- select and copy the pages of Part 5 and paste as many additional sets of Part 5 pages as needed at the end of the application.

After editing, re-lock the document to enable checkboxes to work.

**Microsoft Word 2003**

Unlock the document by one of the following:

- Using the **Tools** menu => click **Unprotect Document;**

**OR**

- Using the **Forms** toolbar => click on the **Protect/Unprotect** icon.

To relock the document to enable the checkboxes to work, you will need to:

- Using the **Tools** menu => click **Protect Document;**

**OR**

- Using the **Forms** toolbar => click on the **Protect/Unprotect** icon.

**Microsoft Word 2007**

- Unlock the document by clicking the **Review** tab, then click **Protect Document**, then click **Stop Protect**

- To relock the document, click **Editing Restrictions**, then click **Allow Only This Type of Editing**, select **Filling In Forms** from the drop-down menu, then check **Yes, Start Enforcing Protection**.

**Microsoft Word 2010**

- Unlock the document by clicking the **Review** tab, toggle the **Restrict Editing icon** at the upper right, then click **Stop Protect** at the bottom right. Then uncheck the "**Allow only this type of editing** in the document: **Filling in forms**" in the "Editing restrictions" section on the right-hand list of options.

- To relock the document, check the **Editing Restrictions/Allow Only This Type of Editing/Filling In Forms** box from the drop-down menu, then check **Yes, Start Enforcing Protection**. You do not need to assign a password for the editing restrictions.

**Other Alternatives:**

- Photocopy pages or tables in Part 5, ~~mark through~~ any non-applicable information, insert/attach photocopied pages to document in the appropriate location, and manually amend page numbers as necessary (e.g. Page ~~5~~ 6 of ~~9~~ 10).

- You may refer to additional attachments that you may include, such as separately produced tables or spreadsheets to convey large numbers of rows of place of use listings, owner/property parcels, etc. You may contact the Department at 503-986-0900 and ask for Transfer Staff if you have questions.

## Part 5 of 5 – Water Use Permit Information

Please use a separate Part 5 for each permit being changed. See instructions on page 6, to copy and paste additional Part 5s, or to add additional rows to tables within the form.

**PERMIT** # S-54925

**Table 1. Location of Authorized and Proposed Point(s) of Diversion (POD) or Appropriation (POA)**
(Note: If the POD/POA name is not specified in the permit, assign it a name or number here.)

| POD/POA Name or Number | Is this POD/POA Authorized by the permit or is it Proposed? | If POA, OWRD Well Log ID# (or Well ID Tag # L-___) | Twp | | Rng | | Sec | ¼ ¼ | | Tax Lot, DLC or Gov't Lot | Measured Distances (from a recognized survey corner) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| #1 | ☒ Authorized<br>☐ Proposed | | 3 | N | 24 | E | 33 | NE | NE | | 680 feet north and 640 Feet East from SW Corner, Section 34 |
| | ☐ Authorized<br>☐ Proposed | | | | | | | | | | |

**Check all type(s) of change(s) proposed below (change "CODES" are provided in parentheses):**

- ☒ Place of Use (POU)
- ☐ Point of Diversion (POD)
- ☐ Additional Point of Diversion (APOD)
- ☐ Point of Appropriation/Well (POA)
- ☐ Additional Point of Appropriation (APOA)
- ☐ Surface water POD to Ground Water POA (SW/GW)

**Will all of the proposed changes affect the entire water use permit?**

- ☒ Yes — Complete only the proposed ("to" lands) section of Table 2 on the next page. Use the "CODES" listed above to describe the proposed changes.
- ☐ No — Complete all of Table 2 to describe the portion of the permit to be changed.

**For a change in place of use:**

**Does the permit holder of record own or control the land TO which the place of use is being moved?**
☐ Yes ☒ No

If NO, the landowner of the land TO which the place of use is being **moved must be assigned to the permit as a permit holder of record** by submitting a completed Request for Assignment form and the required statutory fee for an assignment. PGE is in the process of obtaining a ROW for an approximately 0.5 mile long portion of land not owned by PGE for which water may be applied to for dust suppression during construction of a transmission line. The ROW will be obtained prior to starting construction.

**Is the proposed place of use contiguous to the authorized place of use?** ☒ Yes ☐ No

The permitted place of use can be moved only to lands that are contiguous to the authorized place of use **unless** the change to non-contiguous lands is in furtherance of mitigation or conservation efforts undertaken for the purposes of benefiting a species listed as sensitive, threatened, or endangered under ORS 496.171 to 496.192 or the federal Endangered Species Act of 1973 (16 U.S.C. 1531 to 1544), as determined by the listing agency. Contiguous land being either adjacent land or land separated from the land to which a permit is authorized by roads, utility corridors, irrigation ditches or publicly owned rights of way.

Please use and attach additional pages of Table 2 as needed.
See page 6 for instructions.

Do you have questions about how to fill-out the tables?
Contact the Department at 503-986-0900 and ask for Transfer Staff.

**Table 2. Description of Changes to Water Use Permit # S-54925**

List the change proposed for the acreage in each ¼ ¼. If more than one change is proposed, specify the acreage associated with each change.
If there is more than one POD/POA involved in the proposed changes, specify the acreage associated with each POD/POA.

| AUTHORIZED (the "from" or "off" lands) The listing that appears on the certificate BEFORE PROPOSED CHANGES. List only that part or portion of the water right that will be changed. | | | | | | | | | Proposed Changes (see "CODES" from previous page) | PROPOSED (the "to" or "on" lands) The listing as it would appear AFTER PROPOSED CHANGES are made. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Twp | Rng | Sec | ¼ ¼ | Tax Lot | Gvt Lot or DLC | Acres (if applicable) | POD(s) or POA(s) (name or number from Table 1) | Priority Date | | Twp | Rng | Sec | ¼ ¼ | Tax Lot | Gvt Lot or DLC | Acres (if applicable) | POD(s) or POA(s) to be used (from Table 1) | Priority Date | |
| **EXAMPLE** | | | | | | | | | | | | | | | | | | | | |
| **2** | **S** | **9** | **E** | **15** | **NE** | **NW** | **100** | | **15.0** | **POD #1 POD #2** | | **POU/POD** | **2** | **S** | **9** | **E** | **15** | **NW** | **NW** | **100** | **1** | **10.0** | **POD #5** | |
| " | " | " | " | " | " | " | " | " | EXAMPLE | " | | " | **2** | **S** | **9** | **E** | **15** | **SW** | **NW** | **200** | | **5.0** | **POD #6** | |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **NE** | **NE** | **121** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **NW** | **NE** | **121** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **SW** | **NE** | **121** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **SE** | **NE** | **121** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **SE** | **NW** | **121** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **NE** | **SW** | **121/122** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **NW** | **SW** | **121** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **SW** | **SW** | **121/122** | | | **POD #1** | **May 18, 2011** |
| | | | | | | | | | | | | | **3** | **N** | **24** | **E** | **33** | **SE** | **SW** | **122/121** | | | **POD #1** | **May 18, 2011** |

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| | | | | | | | | | | 3 | N | 24 | E | 34 | NE | NW | 114/115 /102 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | NW | NW | 114 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | SW | NW | 114 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | SE | NW | 114/102 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | NE | SW | 114/102 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | NW | SW | 114 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 32 | NE | SE | 121 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 32 | SE | SE | 121 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 33 | SW | SE | 122 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | SW | SW | 114 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | SE | SW | 114/102 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | NW | NE | 115/102 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | SW | NE | 102 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 34 | NW | SE | 102 | | | POD #1 | May 18, 2011 |
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| | | | | | | | | | | 3 | N | 24 | E | 35 | SW | NW | 104/113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 35 | NW | SW | 104/113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 35 | SW | SW | 104/117 /113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 35 | NE | NW | 113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 35 | SE | NW | 113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 35 | NE | SW | 113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 3 | N | 24 | E | 35 | SE | SW | 113 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 2 | NW | NW | 100 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 2 | SW | NW | 100 | | | POD #1 | May 18, 2011 |
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| | | | | | | | | | | 2 | N | 24 | E | 2 | SW | SW | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 2 | NE | SW | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 2 | SE | SW | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 3 | NE | NE | 106 | | | POD #1 | May 18, 2011 |

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| | | | | | | | | | | 2 | N | 24 | E | 3 | NW | NE | 106 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 3 | NE | NW | 106 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 3 | NW | SE | 102/105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 3 | SW | SE | 102/105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 3 | NE | SE | 102/105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 3 | SE | SE | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 10 | NW | NE | 102/105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 10 | SW | NE | 102/105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 10 | NE | NE | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 10 | SE | NE | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 11 | NW | NW | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 11 | SW | NW | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 11 | NE | NW | 105 | | | POD #1 | May 18, 2011 |
| | | | | | | | | | | 2 | N | 24 | E | 11 | SE | NW | 105 | | | POD #1 | May 18, 2011 |
| TOTAL ACRES | | | | | | | | | | TOTAL ACRES | | | | | | | | | N/A | | |

Additional remarks: _____.

**Are there other water rights certificates, water use permits or ground water registrations associated with the "from" or "to" lands?** ☒ Yes ☐ No

If YES, list the other certificate, permit, or ground water registration numbers: Certificate 86056 (Storage Right) and Certificate 86057 (Secondary Use).

Also, Permit S-55062; however, this permit is not valid because it was issued before EFSC issued an amended site certificate to the Carty Generating Station and; therefore, should not have been issued to PGE. PGE will be requesting that Permit S-55062 be cancelled.

If the permit(s) are for irrigation or supplemental irrigation use, other water rights existing on the same land for irrigation that are subject to transfer must either change concurrently or be cancelled. Any change to a water right certificate or ground water registration must be filed separately in a water right transfer application or ground water registration modification application, respectively.

**For a change in point(s) of appropriation (well(s)) or additional point(s) of appropriation:**

☐ Well log(s) are attached for each authorized and proposed well(s) that are clearly labeled and associated with the corresponding well(s) in Table 1 above and on the accompanying application map. (**Tip**: You may search for well logs on the Department's web page at: http://apps2.wrd.state.or.us/apps/gw/well_log/Default.aspx)

**AND/OR**

☐ Describe the construction of the authorized and proposed well(s) in Table 3 for any wells that do not have a well log. For *proposed wells not yet constructed or built*, provide "a best estimate" for each requested information element in the table. The Department recommends you consult a licensed well driller, geologist, or certified water right examiner to assist with assembling the information necessary to complete Table 3.

**Table 3. Construction of Point(s) of Appropriation**

Any well(s) in this listing must be clearly tied to corresponding well(s) described in Table 1 and shown on the accompanying application map. Failure to provide the information will delay the processing of your transfer application until it is received. The information is necessary for the department to assess whether the proposed well(s) will access the same source aquifer as the authorized point(s) of appropriation (POA). The Department is prohibited by law from approving POA changes that do not access the same source aquifer.

| Proposed or Authorized POA Name or Number | Is well already built? (Yes or No) | If an existing well, OWRD Well ID Tag No. L-____ | Total well depth | Casing Diameter | Casing Intervals (feet) | Seal depth(s) (intervals) | Perforated or screened intervals (in feet) | Static water level of completed well (in feet) | Source aquifer (sand, gravel, basalt, etc.) | Well - specific rate (cfs or gpm). If less than full rate of water right |
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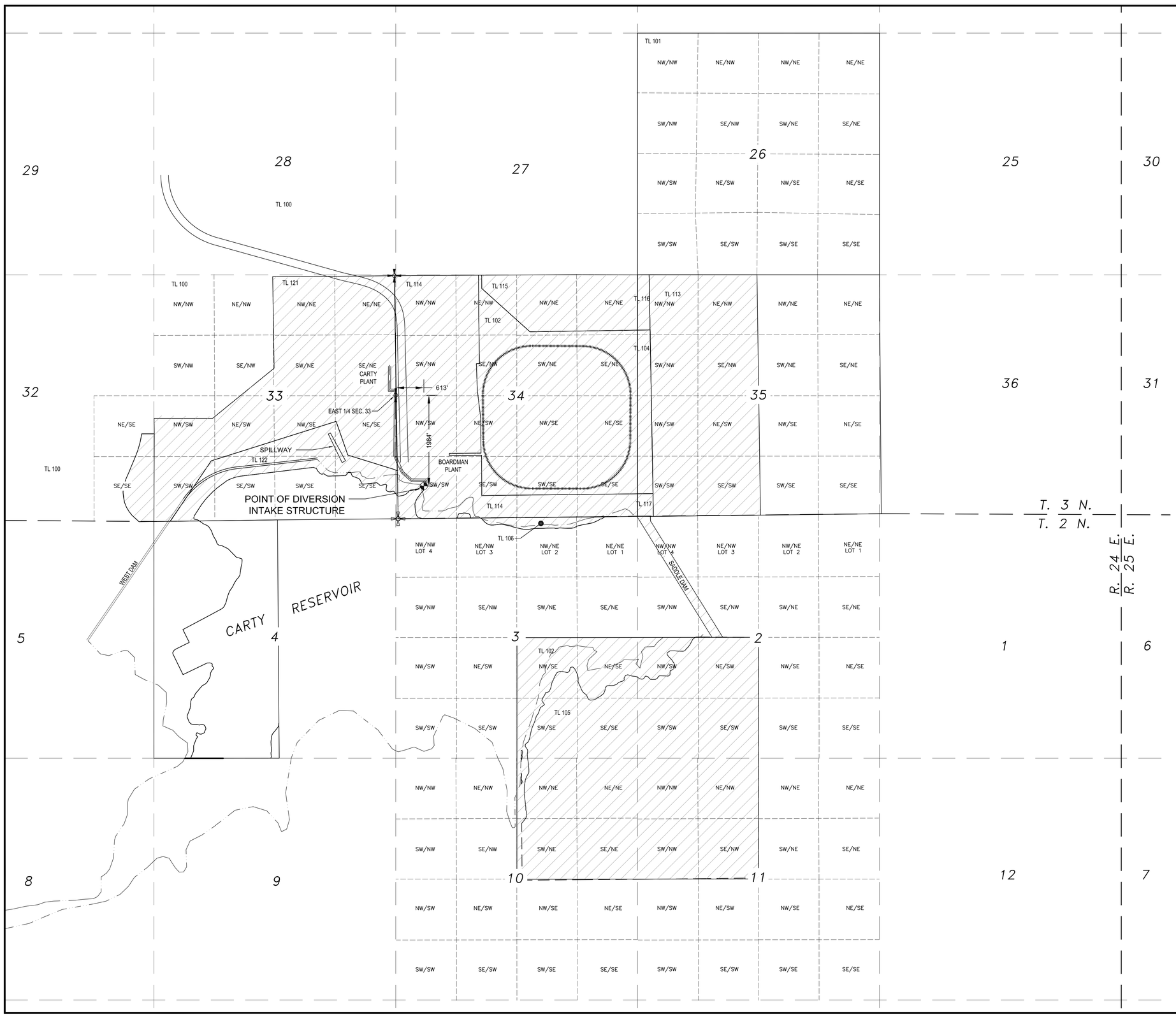


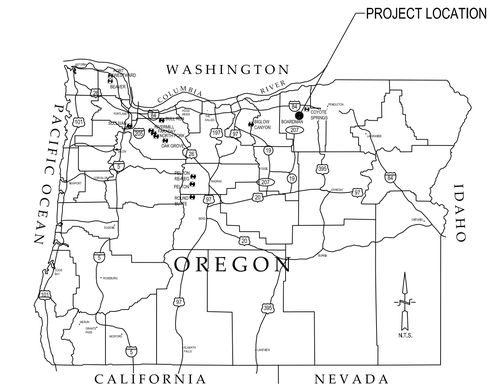


OREGON STATE LOCATION MAP

SCALE: N.T.S.

LEGEND

- = PLACE OF USE
- = POINT OF DIVERSION
- = SECTION CORNER
- = QUARTER CORNER
- = PROPERTY\TAX LOT LINE
- = TOWNSHIP LINE
- = SECTION LINE
- = QUARTER/QUARTER LINE
- = WATER LINE

-1000' -500' 0 1000' 2000'

SCALE: 1" = 1000'

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|---|---|---|---|
| DATE: 2/14/2018 | DESIGNER: | CHECKED BY: JLD | |
| DRAWN BY: RJB | DESIGN ENGR.: | ENGR. MGR.: SGH | |
| SCALE: 1"=1000' | CAD FILE NAME: CYP1-AmendedPermit | | |

PGE

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204

# CARTY PLANT

## APPLICATION MAP TO ACCOMPANY APPLICATION FOR PERMIT AMENDMENT

SITUATED IN T.2 N, R.24 E., SEC. 2, 3, 10 & 11; T.3 N., R.24 E., SEC. 32, 33, 34 & 35, WILLAMETTE MERIDIAN MORROW COUNTY, OREGON

WARNING

0 ½ 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Public

Access Not Limited

| DRAWING NO.: | SHEET NO.: | REV. NO.: |
|---|---|---|
| EXHIBIT B | -V1 | 0 |

# EXHIBIT P – Request for Amendment No. 1

# FISH AND WILDLIFE HABITAT

OAR 345-021-0010(1)(p)

## TABLE OF CONTENTS

## TABLES



## FIGURES



## APPENDICES

## P.1 INTRODUCTION

**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 OAR 345-02100010(1)(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.*

Response: This exhibit provides the information required by Oregon Administrative Rules 345-021-0010(1)(p) in support of the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station (RFA). The analysis area for fish and wildlife species and habitat covered in this exhibit includes the area within the amended Site Boundary and 0.5 mile from the amended Site Boundary. This exhibit addresses the fish and wildlife species (excluding endangered, threatened, or candidate species addressed in Exhibit Q) and their habitats in the analysis area, and how these may be affected by the construction and operation of the Carty Solar Farm (as defined in Exhibit B). The Application for Site Certificate (ASC) provides additional details about wildlife species and their habitats, as well as potential impacts, mitigation, and monitoring associated with the project facilities that have already been constructed.

Portland General Electric Company (PGE) prepared the 2016 Biological Resources Survey Report, included as Appendix P-1, for the previous draft of this RFA submitted to the Oregon Department of Energy (Department) in August 2016. Since that submittal, PGE has modified its plans for the project. Therefore, references to Units 2 and 3 are included in Appendix P-1 but are no longer relevant to PGE's amendment request and are not incorporated into the evaluation of compliance with applicable Oregon Energy Facility Siting Council (Council) standards.

## P.2 DESCRIPTION OF BIOLOGICAL SURVEYS PERFORMED

**OAR 345-21-0010(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: PGE's consultant, Ecology and Environment, Inc. (E & E), conducted three types of biological surveys in the analysis area in March and April of 2016: habitat mapping, wetland and waterbody delineations, and species-specific surveys for the Washington ground squirrel (WGS) (*Urocitellus washingtoni*). PGE staff biologists conducted WGS surveys in the spring of 2016 and 2017 in portions of the analysis area within the Carty Habitat Mitigation Area and WGS activity areas being monitored under the Carty Wildlife and Habitat Monitoring and Mitigation Plan, and within existing PGE conservation areas associated with the Boardman Plant. In

addition, The Nature Conservancy (TNC) conducted WGS surveys in portions of the analysis area in the spring of 2016. Some of PGE's and TNC's survey areas overlapped with E & E's survey area. WGS survey data from E & E, PGE, and TNC are included in Exhibit Q. The WGS is listed as endangered by the State of Oregon. Refer to Exhibit Q of the RFA for further details regarding this species.

For the surveys conducted by E & E, an interdisciplinary team of biologists conducted the habitat mapping, wetland and waterbody delineations, and WGS surveys. The team also recorded all incidental wildlife and noxious weed observations made during the course of their fieldwork. Per consultation with the Oregon Department of Fish and Wildlife (ODFW), such incidental wildlife observations, combined with desktop analyses, are sufficient to inform this exhibit. Per consultation with the Morrow County Weed Inspector, an additional comprehensive noxious weed survey will be conducted prior to construction. The information collected during biological field surveys is summarized below.

### P.2.1 Vegetation and Habitat Mapping

E & E completed vegetation and habitat mapping within the Site Boundary expansion areas during the week of April 4, 2016. Refer to the 2016 Biological Resources Survey Report in Appendix P-1 for a complete discussion of the vegetation and habitat mapping methods used. Refer to Sections P.3 and P.4 below for vegetation and habitat mapping results.

### P.2.2 Noxious Weeds

E & E documented incidental observations of noxious weeds encountered during WGS, wetland and waterbody delineation, and habitat mapping surveys. Observations included populations of bull thistle (*Cirsium vulgare*) and yellow starthistle (*Centaurea solstitialis*). Refer to Appendix P-1 for further details. Per consultation with the Morrow County Weed Inspector, an additional comprehensive noxious weed survey will be conducted prior to construction.

### P.2.3 Wetlands and Waterbodies

Based on field surveys conducted in 2009, 2012, and 2016, there are eight wetlands, two intermittent streams, and one artificial waterbody (sewage lagoon) in the amended Site Boundary. Of these, only the artificial waterbody (sewage lagoon) is in a Site Boundary expansion area (see Figure J-1) . The southern part of the sewage lagoon is located adjacent to one of the potential routes for the Carty Solar Farm interconnection transmission line. The ASC addresses potential impacts on the other features. No portions of the Carty Solar Farm would be constructed in wetlands or waterbodies. Refer to Exhibit J of the RFA for descriptions of delineation methods and results.

### P.2.4 Fish and Wildlife Resources

E & E biologists recorded incidental wildlife observations while conducting surveys for WGS, wetlands and waterbodies, and vegetation and habitat mapping. The biologists maintained daily records of all observed species. Crews used global positioning system units to mark observations of State Sensitive Species as listed in Table P-2. E & E documented northern sagebrush lizards (*Sceloporus graciosus graciosus*) at two locations in sagebrush steppe habitat in the northeast portion of the Carty Solar Farm (refer to Appendix P-1 for mapped locations of these observations). E & E did not observe any other State Sensitive Species in 2016.

E & E also documented active and inactive raptor nests within the analysis area. The survey team observed three active raptor nests and nine inactive stick nests. Active nests were all located in trees in the riparian forest associated with the margins of Carty Reservoir and included one bald eagle (*Haliaeetus leucocephalus*) nest[1] on the south shore of the reservoir, and two red-tailed hawk (*Buteo jamaicensis*) nests on the north shore of the reservoir. Refer to Appendix P-1 for complete discussion of survey methods and results.

PGE conducts raptor monitoring annually in January, March through August, and December as part of the Boardman Ecological Monitoring Program and records all identified raptor nests in the project vicinity. Since the start of Carty Unit 1 construction, PGE has not observed any ODFW State Sensitive raptor species nesting within specified buffer distances (see Appendix P-3) from Unit 1. However, multiple red-tailed hawk (*Buteo jamaicensis*) and great-horned owl (*Bubo virginianus*) nests have been located and monitored in riparian areas associated with Carty Reservoir and on transmission towers within the analysis area.

PGE also conducts fish surveys of Carty Reservoir every three years as part of the Ecological Monitoring Program for the Boardman Coal-fired Plant. To date, PGE has observed smallmouth bass (*Micropterus dolomieu*), bluegill (*Lepomis macrochirus*), carp (*Cyprinus carpio*), and prickly sculpin (*Cottus asper*). The sculpin is a common, locally abundant native species that is not on ODFW's sensitive species list. The other species are non-native.

[1] The Bald Eagle nest is located approximately 0.57 mile from the Amended Site Boundary and therefore falls just outside the analysis area.

## P.3 IDENTIFICATION AND CLASSIFICATION OF FISH AND WILDLIFE HABITATS IN THE ANALYSIS AREA

**OAR 345-21-0010(1)(p)(B)** *Identification of all fish and wildlife habitat in the analysis area, classified by the habitat categories as set forth in OAR 635-415-0025 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.*

Response: This section identifies and classifies habitats located within the analysis area (i.e., areas in the amended Site Boundary plus an additional 0.5 mile). E & E mapped habitats in the field within the original Site Boundary in 2010 (as described in the ASC) and within the Site Boundary expansion areas in 2016; combined, these mapped areas covered the amended Site Boundary. For habitats beyond the amended Site Boundary, but still within the 0.5-mile analysis area, E &E used aerial photography and the data collected from the field mapping efforts to assign habitat types.

Table P-1 summarizes fish and wildlife habitats that were field-mapped in 2016 and includes dominant plant species within each habitat type. Surveyed areas included the Site Boundary expansion areas and areas beyond the amended Site Boundary where Category 1 habit for active WGS sites was delineated. The ASC summarizes habitats mapped for the original project. Figure P-1 depicts the locations of all habitat types (field mapped and desktop-delineated) in the analysis area. PGE and E & E used ODFW's Mitigation Category Flow Chart to assign categories to habitats in the analysis area (ODFW 2014). The following text categorizes each habitat type in the analysis area—with the exception of areas in the original Site Boundary—and explains the rationale behind each category assignment. The ASC provides descriptions for habitat types mapped in the original Site Boundary.

### Habitats Identified and Categorized within the Site Boundary expansion areas and the 0.5-mile buffer portions of the Analysis Area

#### *Habitat Category 1*

ODFW defines Category 1 habitat as *irreplaceable, essential, and limited,* and in this region this habitat type typically includes any habitat containing active WGS burrows (ODFW 2016). A habitat is considered essential if "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" (ODFW 2016). A habitat is considered limited if it is "an amount insufficient or barely sufficient to sustain fish and wildlife populations over time" (ODFW 2016).

**WGS Occupied** – Areas with suitable habitat that are within a 785-foot buffer of active WGS burrows are Category 1 habitat. Based on the 2016 and 2017 survey results, there is Category 1

habitat in the northeastern portion of the amended Site Boundary (and in the analysis area beyond the amended Site Boundary). However, there are no disturbance areas associated with the Carty Solar Farm in this part of the amended Site Boundary. There is also Category 1 habitat in the analysis area south of the Carty Solar Farm generation facility site. Within the analysis area, this habitat type occurred in shrub-steppe and grassland vegetation communities.

***Habitat Category 2***

ODFW defines Category 2 habitat as essential and limited.

**WGS Potential Seasonal Home Range Shift –** PGE reviewed Delavan (2008), which investigated home range fidelity in WGS, to develop their approach for defining Category 2 habitat as it pertains to nearby active WGS colonies. This study documented the maximum single season home range shift of male or female WGS to be less than 300 meters. For the purposes of this project, in areas with suitable habitat for WGS, PGE considers habitat within 300 meters of the edge of Category 1 habitat to be Category 2 habitat. This 300-meter buffer is the habitat area that is most likely to be occupied by an active WGS colony in the immediate future, and therefore meets the definitions for essential and limited habitat. While other areas beyond 300 meters from Category 1 habitat may be within the dispersal capability of the species, they should not necessarily be considered essential habitat unless they are required for dispersal between currently occupied habitat areas, which is not the case for the disturbance areas associated with the Carty Solar Farm. Using this definition of 300 meters from Category 1 habitat, Category 2 habitat is present at several locations in the northeastern portion of the amended Site Boundary. However, only one of these areas lies within proposed disturbance areas associated with the Carty Solar Farm—a small portion of one of the interconnection line routes (see Figure P-1).

During meetings to discuss the project in 2016 and 2017, and in comments on the initial amendment application, ODFW recommended that all areas with suitable habitat for WGS, regardless of habitat quality, that are within 1,500 meters of the edge of Category 1 habitat should be considered Category 2 habitat. The foundation of this recommendation is Klein (2005), which found that the majority (75%) of WGS male dispersal occurred within 1,500 meters of the natal burrow. PGE contends that this "one-size-fits-all" recommendation does not adequately consider the spatial and habitat quality context of a particular site. Female dispersal would be required for an active breeding colony to occupy new or previously occupied habitat, and all indications in the literature are that adult females disperse less frequently and shorter distances than males (Delavan 2008, Klein 2005). The fact that WGS males could potentially disperse into a habitat area (especially marginal habitat with no suitable habitat beyond it) does not on its own make it essential habitat. Because of its location on the margin of a large expanse (70,000+ acres) of protected suitable habitat, development of the Carty Solar Farm would not affect WGS habitat connectivity within or between currently occupied habitat. Therefore, it is

not essential habitat, the removal of which, by definition, would result in depletion of a fish or wildlife species.

Therefore, PGE proposes that the method described above to calculate the location and extent of Category 2 habitats in the analysis area (using a 300-meter buffer for Category 2, rather than a 1,500-meter buffer), is a more appropriate application of the ODFW habitat mitigation policy that takes into consideration the site-specific context.

***Habitat Category 3***

**Sagebrush steppe** and **riparian forest** – High quality sagebrush steppe and riparian forest are important and limited in the Columbia Plateau ecoregion, as indicated by the fact that ODFW (2006) identified them as Strategy Habitats.[2] By definition, habitats that are important *and* limited are considered Habitat Category 3 (ODFW 2014 and 2016. Note that in spring/summer of 2017, a wildfire occurred across much of the Category 3 sagebrush steppe habitat mapped in the Carty Solar Farm site. Although preliminary inspections by PGE indicate that much of the big sagebrush (*Artemisia tridentata*) was damaged, PGE has not determined the full scale (or long-term) effects on this area. For this reason, PGE does not propose a change in category of this habitat at this time; however, if future field observations warrant a change in habitat category, PGE will consult with ODFW and the Department and, if necessary, submit a request to the Department.

**WGS Potential Seasonal Dispersal Areas** – For the purposes of this project, in areas with suitable habitat for WGS, lands up to 1,200 meters beyond the edge of Category 2 habitat are considered to be Category 3 habitat. Because of their proximity to occupied WGS habitat, these areas can be considered limited on an ecoregion basis. Within the analysis area, this habitat type occurred primarily in grasslands, shrub-steppe, grasslands (post-burn), and grasslands (degraded).

**Riparian Scrub Wetland** – Wooded wetland areas identified from aerial photography were classified as "Riparian scrub wetland." These areas include wetland woodlands/thickets with standing water, often dominated by Russian olive (*Elaeagnus angustifolia*), Pacific willow (*Salix lasiandra*), Canada goldenrod (*Solidago canadensis*), and amaranth (*Amaranth sp.*)

[2] Strategy Habitats are habitats of conservation concern within Oregon that provide important benefits to Strategy Species. Strategy Species have small or declining populations or are otherwise at risk, and are outlined in the Oregon Conservation Strategy (ODFW 2006). All species identified in Table P-2 are also Strategy Species.

*Habitat Category 4*

**Sagebrush steppe (disturbed), broom snakeweed shrublands, grasslands (post-burn)**, and **grasslands (degraded)** – Although high quality sagebrush steppe and grasslands would typically be considered important and limited (i.e., Habitat Category 3) in the analysis area, the areas described here are isolated or fragmented, and/or dominated or co-dominated by non-native plant species—Russian thistle (*Salsola kali*) in the sagebrush steppe, and cheatgrass (*Bromus tectorum*) and crested wheatgrass (*Agropyron cristatum*) in the degraded grasslands. The broom snakeweed shrubland within the Site Boundary expansion areas is dominated by broom snakeweed (*Gutierrezia sarothrae*), cheatgrass and, in some areas, Russian thistle. Broom snakeweed is an early successional shrub that commonly occurs after fire or other disturbances in sagebrush steppe habitats. Grasslands identified in the analysis area are dominated by grasses and herbs with less than 10% cover by shrubs or trees. The post-burn grasslands are distinguished by a predominance of cheatgrass, jagged chickweed (*Holosteum umbellatum*), redstem stork's bill (*Erodium cicutarium*), and bare ground. The degraded grasslands are distinguished by a predominance of cheatgrass, crested wheatgrass, and Sandberg bluegrass (*Poa secunda*).

The habitat types discussed here may still provide important habitat for some wildlife, but their poorer quality precludes them from being considered limited. Important, but not limited, habitats are, by definition, considered Habitat Category 4 (ODFW 2014 and 2016). This categorization is consistent with that of shrub-steppe habitats dominated by non-native species, as described in the ASC (refer to Table P-1 and Section P.5.4 of the ASC).

**Cheatgrass savannah** – This savannah habitat is dominated by cheatgrass, an invasive, non-native grass that is not limited in the Columbia Plateau ecoregion. However, it may provide important habitat for wildlife. For example, isolated junipers (*Juniperus occidentalis*) may provide nesting sites for raptors like the Swainson's hawk (*Buteo swainsoni*), and long-billed curlews (*Numenius americanus*) may nest in cheatgrass-dominated grasslands (Dugger and Dugger 2002; Marshall et al. 2006). Important habitats are, by definition, considered Habitat Category 4 (ODFW 2014a,b).

**Shrub-steppe and grassland** – All shrub habitats identified from aerial photography were classified as "shrub-steppe." Shrub-steppe includes areas with at least 10% cover by shrubs that are primarily sagebrush and/or early successional shrubs such as broom snakeweed. Non-woody species composition appeared to be similar in the shrub steppe and grassland habitats, and typically included cheatgrass, jagged chickweed, and redstem stork's bill. PGE assumed that these shrub-steppe and grassland habitats were not high quality due to the predominance of non-native plants such as cheatgrass, and/or the limited biomass and widespread bare ground associated with recent wildfires in some areas. Thus, PGE classified these areas as Habitat Category 4.

*Habitat Category 5*

**Riparian meadow (disturbed)** – Riparian habitats would typically be considered important; however, this habitat type in the Site Boundary expansion areas is composed largely of non-native plants (Table P-1). There is high restoration potential for this habitat type; therefore, the riparian meadow (disturbed) is considered Habitat Category 5 (ODFW 2014a,b).

*Habitat Category 6*

**Agriculture Cropland** – Agricultural areas identified from aerial photography were classified as "agriculture." These areas include active or seasonally inactive irrigated crop circles and the interstitial disturbed farm areas, which often displayed signs of having been previously graded.

**Artificial Pond** – This habitat type includes sewage lagoons associated with PGE's Boardman Plant. It is not an important habitat for fish and wildlife and has low restoration potential; therefore, it is considered Habitat Category 6 (ODFW 2014a,b).

**Developed** – These areas include existing infrastructure, roads, buildings, and proximal, heavily disturbed vegetated areas with no potential to provide important wildlife habitat.

**Table P-1 Fish and Wildlife Habitats and Dominant Plant Species Field-Mapped in 2016[1]**

| Habitat Category | Habitat Type | Dominant Species or Components | Stratum |
|---|---|---|---|
| 1 | WGS Occupied; grassland and shrub steppe mosaic | *Artemisia tridentata* | Shrub |
| | | *Gutierrezia sarothrae* | Shrub |
| | | *Bromus tectorum* | Herb |
| | | *Holosteum umbellatum* | Herb |
| | | *bare ground* | N/A |
| 2 | Habitat adjacent to and within documented seasonal home range shift of WGS Category 1 habitat; mixture of shrub steppe and grassland (degraded) | *See species lists under habitat types below* | *See strata below* |
| 3 | Habitat contiguous with WGS Category 2 habitat; mixture of shrub-steppe, grasslands (post-burn), and grasslands (degraded) | *See species lists under habitat types below* | *See strata below* |
| | Sagebrush steppe | *Artemisia tridentata* | Shrub |
| | | *Gutierrezia sarothrae* | Shrub |
| | | *Bromus tectorum* | Herb |

**Table P-1 Fish and Wildlife Habitats and Dominant Plant Species Field-Mapped in 2016[1]**

| Habitat Category | Habitat Type | Dominant Species or Components | Stratum |
|---|---|---|---|
| | | *Holosteum umbellatum* | Herb |
| | | bare ground | N/A |
| | Riparian forest | *Populus trichocarpa or deltoides* | Tree |
| | | *Artemisia tridentata* | Shrub |
| | | *Bromus tectorum* | Herb |
| | Riparian scrub wetland | *Alkali swainsonpea (Sphaerophysa salsula)* | Herb |
| | | *Willow (Salix sp.)* | Shrub |
| | | *Russian olive (Eleagnus angustifolia)* | Shrub |
| 4 | Sagebrush steppe (disturbed) | *Artemisia tridentata* | Shrub |
| | | *Gutierrezia sarothrae* | Shrub |
| | | *Bromus tectorum* | Shrub |
| | | *Salsola kali* | Herb |
| | Grassland (degraded) | *Bromus tectorum* | Herb |
| | | *Agropyron cristatum* | Herb |
| | | *Poa secunda* | Herb |
| | Grassland (post-burn) | *Bromus tectorum* | Herb |
| | | *Holosteum umbellatum* | Herb |
| | | *Erodium cicutarium* | Herb |
| | | *bare ground* | N/A |
| | Cheatgrass savannah | *Juniperus occidentalis* | Tree |
| | | *Artemisia tridentata* | Shrub |
| | | *Bromus tectorum* | Herb |
| | | *Stenotus lanuginosus* | Herb |
| | Broom snakeweed shrubland | *Gutierrezia sarothrae* | Shrub |
| | | *Bromus tectorum* | Herb |
| | | *Poa bulbosa* | Herb |
| | | *Salsola kali* | Herb |
| 5 | Riparian meadow (disturbed) | *Bassia hyssopifolia* | Herb |
| | | *Festuca arundinacea* | Herb |
| | | *Polygonum aviculare* | Herb |
| | | *Sphaerophysa salsula* | Herb |
| 6 | Artificial pond | N/A | N/A |
| | Developed | N/A | N/A |

**Key:**
N/A = not applicable
WGS = Washington ground squirrel
Notes:
[1] Surveys in 2016 were conducted in Site Boundary expansion areas. The remainder of the analysis area was desktop mapped using aerial photographs and the results of ground surveys, with the exception of areas with active WGS sites (Category 1 habitat), which were field mapped. Because dominant species were not field verified in other areas beyond the Site Boundary expansion areas, these areas are not included in this table.

## P.4 HABITAT MAPS

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

Response: Figure P-1 shows the mapped habitats (field-mapped and desktop-delineated) in the analysis area.

## P.5 IDENTIFICATION OF STATE SENSITIVE SPECIES POTENTIALLY PRESENT IN THE ANALYSIS AREA AND ASSOCIATED SITE-SPECIFIC ISSUES

**OAR-345-021-0010(1)(p)(D)** *Based on consultation with 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: E & E reviewed the ODFW (2017) Sensitive Species List and determined the State Sensitive Species with the potential to occur in the analysis area based on each species' range and the existing habitats in the analysis area. E & E used the following resources to verify range and habitat preferences:

- Oregon Biodiversity Information Center (ORBIC 2016)
- eBird (2017)
- NatureServe (2017)
- Oregon Wildlife Explorer (OSU Libraries and Press and Institute for Natural Resources 2014)
- Birds of Oregon (Marshall et al. 2006)
- Birds of North America (Rodewald 2015)

E & E biologists corroborated the results of desktop analyses through field vegetation mapping efforts and consultation with ODFW. Table P-2 lists State Sensitive Species with the potential to occur in the analysis area. PGE (2017) fish survey data from Carty Reservoir, the only open water in the analysis area, indicate that sensitive fish species do not occur in this reservoir.

Potential site-specific issues of concern for State Sensitive Species would be similar to those of wildlife in general in the analysis area. Impact types may include sensory disturbance, habitat loss/modification, collisions with equipment and facilities, increased predation, and power line electrocutions or collisions. The potential impacts on wildlife, including State Sensitive Species, from the construction and operation of new and modified facilities are discussed in Section P.7,

and the measures proposed to avoid, reduce, or mitigate those potential impacts are outlined in Section P.8.

**Table P-2 State Sensitive Species Known to or with the Potential to Occur in the Analysis Area**

| Common Name | Scientific Name | State Sensitive Status[1] | Potential to Occur[2,3] | Potential Habitat Use[6] |
|---|---|---|---|---|
| **Reptiles** | | | | |
| Northern Sagebrush Lizard | *Sceloporus graciosus graciosus* | Sensitive | Observed[4] (Year-round) | Shrub-steppe habitats |
| Western Painted Turtle | *Chrysemys picta bellii* | Sensitive-Critical | Possible (Year-round) | Carty Reservoir and uplands within 50 meters of water |
| **Birds** | | | | |
| Brewer's Sparrow | *Spizella breweri breweri* | Sensitive | Likely[5] (Breeding/Migration) | Sagebrush and other shrublands |
| Burrowing Owl | *Anthene cunicularia* | Sensitive-Critical | Possible (Breeding/Migration) | Shrub-steppe habitats, grassland habitats |
| Common Nighthawk | *Chordeiles minor* | Sensitive | Likely[5] (Breeding/Migration) | Sagebrush and rocky scablands |
| Ferruginous Hawk | *Buteo regalis* | Sensitive-Critical | Likely[5] (Breeding/Migration) | Shrub-steppe habitats, grassland habitats, cheatgrass savannah |
| Grasshopper Sparrow | *Ammodramus savannarum* | Sensitive | Likely[5] (Breeding/Migration) | Grassland habitats, cheatgrass savannah |
| Loggerhead Shrike | *Lanius ludovicianus* | Sensitive | Likely[5] (Breeding/Migration) | All terrestrial habitats |
| Long-billed Curlew | *Numenius americanus* | Sensitive-Critical | Likely[5] (Breeding/Migration) | Grassland habitats, cheatgrass savannah, agriculture |
| Sagebrush Sparrow | *Amphispiza nevadensis* | Sensitive-Critical | Likely[5] (Breeding/Migration) | Shrub-steppe habitats |
| Swainson's Hawk | *Buteo swainsoni* | Sensitive | Likely[5] (Breeding/Migration) | Shrub-steppe habitats, grassland habitats, agriculture |

**Table P-2 State Sensitive Species Known to or with the Potential to Occur in the Analysis Area**

| Common Name | Scientific Name | State Sensitive Status[1] | Potential to Occur[2,3] | Potential Habitat Use[6] |
|---|---|---|---|---|
| **Mammals** | | | | |
| Pallid Bat | *Antrozous pallidus* | Sensitive | Possible (Year-round) | Shrub-steppe habitats, grassland habitats, riparian forest |
| Townsend's Big-eared Bat | *Corynorhinus townsendii* | Sensitive-Critical | Possible (Year-round) | Roosts in caves, mines, hollow trees, built structures. |

Notes:

[1] State Sensitive Species Status Definitions (ODFW 2017):
**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] **"Potential to Occur"** sources: Oregon Explorer species by county (http://oe.oregonexplorer.info/wildlife/wildlifeviewer/) and presence of suitable habitat in project area.

[3] "Likelihood of Occurrence" was determined based on available suitable habitat and documented observations in the analysis area. **"Likelihood of Occurrence"** category definitions: **Observed** – Species observed during Project field surveys. **Likely** – Analysis area lies within the species' range, suitable habitat is available, and occurrence data exists. **Possible** – Analysis area lies within the species' range and contains some suitable habitat, but for whom no occurrence data exists.

[4] Observed in sagebrush steppe habitat in northeastern quarter of the proposed Carty Solar Farm in March 2016 (refer to Appendix P-1 for further location detail).

[5] eBird (2017) observation(s) reported in analysis area, and PGE annual Boardman Coal Plant Multi-Species Candidate Conservation Agreement with Assurances and ecological program monitoring data.

[6] "Potential Habitat Use" sources: Marshall et al. 2006; OSU Libraries and Press and Institute for Natural Resources 2014; Rodewald 2015; NatureServe 2017.

## P.6 DESCRIPTION OF BASELINE SURVEYS OF STATE SENSITIVE SPECIES

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

Response: ODFW did not recommend targeted, species-specific surveys of any State Sensitive Species (Table P-2). As stated in Section P.2, E & E did document all incidental sightings of State Sensitive Species while field mapping habitats and wetlands within the analysis area and conducting species-specific surveys for WGS (discussed in Exhibit Q). PGE determined the potential use of habitat in the analysis area by State Sensitive Species using the mapped habitat type data, known habitat preferences, project occurrence data, and publicly available occurrence data (eBird [2017] and ORBIC [2016]), and ongoing ecological monitoring data for the Boardman Plant. Refer to Table P-1 for habitat types in which each species may potentially occur in the analysis area.

## P.7 DESCRIPTION OF POTENTIAL ADVERSE IMPACTS

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

Response: Section P.9 of the ASC addresses impacts associated with the construction, operation, and retirement of Unit 1 and the Grassland Switchyard. This section discusses the potential impacts associated with the construction, operation, and retirement of the Carty Solar Farm.

The construction and operation of the project, as amended, would result in permanent and temporary loss or modification of habitat, which would indirectly impact wildlife that use those habitats. Permanent impacts would last at least the life of the project, while temporary impacts would vary depending on habitat type. For example, grasslands may recover to pre-construction conditions within one or two growing seasons, while habitats with shrubs or trees may require many years, and possibly more than a decade, to recover. Temporary impact areas would be restored and allowed to recover once construction is completed. However, additional disturbances to soils and vegetation may be necessary, albeit to a much lesser extent, during operations and retirement phases of the project. Temporary habitat losses or modifications would, in turn, result in temporary change or loss of habitat function for wildlife. Table P-3 details the acreages of temporary and permanent impacts in each habitat category as a result of constructing the Carty Solar Farm.

The construction of the Carty Solar Farm would result in loss of occupied habitat for the northern sagebrush lizard, a state sensitive species, but PGE expects that they may be able to disperse to adjacent suitable habitats. While PGE did not observe any other species listed in Table P-2 within the amended Site Boundary, other species have the potential to occur; however, those species, if they do occur, would be also expected to be able to disperse to nearby suitable habitats. PGE would mitigate to reduce the effects of habitat losses or modification (see Section P.8).

No State Sensitive Species are known to occur in Carty Reservoir, and PGE expects that impacts on any sensitive species that could occur there, such as the western painted turtle, would be negligible. The project would not directly disturb Carty Reservoir; however, indirect impacts could occur if sediment enters the reservoir from nearby project disturbance areas or if project-related chemicals spill into the reservoir. The substantial riparian buffer or landscape/topography buffers between the reservoir and project disturbance areas make such impacts unlikely. Additionally, PGE would implement erosion control and storm water best management practices and additional measures to reduce potential indirect runoff impacts, as will be described in the National Pollution Discharge Elimination System construction stormwater permit and associated Sediment and Erosion Control Plan (see Exhibit I, Appendix I-1 for preliminary permit application). In addition, PGE would implement spill prevention and response measures to prevent project-related chemicals entering the water, as described in the Spill Prevention Control and Countermeasure Plan for the Carty Generating Station.

Project-related sensory disturbance (i.e., noise, vibration, and visual) impacts on wildlife, including State Sensitive Species, would include temporary impacts from the presence of personnel, vehicles, and equipment during construction, operations, and retirement, as well as permanent impacts from the presence of project facilities during operations. Sensory disturbances could induce stress, disrupt normal activities, or cause wildlife to flee and/or avoid the area. These responses could, in turn, reduce the fitness of affected individuals. PGE expects that sensory disturbance impacts would be relatively low while constructing and operating project facilities north of the reservoir, as this area is already exposed to high levels of noise and visual disturbances. Noise, vibration, and visual impacts associated with construction of the Carty Solar Farm would essentially amount to habitat loss/modification, for which PGE would mitigate impacts (see Section P.8).

Several project activities and features could result in direct mortality or injury of wildlife. Excavation, clearing, and grading during construction could affect less mobile animals unable to disperse from active construction areas in time. Similarly, project vehicles could collide with wildlife during construction, operation, or retirement of the project. Northern sagebrush lizards are known occupants of the project construction areas within the proposed Carty Solar Farm area. This species is mobile and could be expected to avoid project equipment and vehicles;

however, mortalities are possible. Refer to Section P.8 for a discussion of measures PGE would implement to avoid, minimize, or mitigate the abovementioned impacts.

The Carty Solar Farm presents a potential risk for bird collisions with photovoltaic solar panels. Bird mortalities at large solar farms in the southwestern United States indicate that birds may be susceptible to "lake effect," whereby birds, and potential insect prey, mistake the reflective surface of photovoltaic solar panel arrays for a body of water. Lake effect is a relatively new and unstudied phenomenon at utility-scale solar facilities, and to date the evidence is limited to the larger facilities in the southwest (Upton 2014). Furthermore, no empirical research has been conducted to evaluate the attraction of utility-scale solar facilities to migrating or foraging birds (Walston et al. 2016). Given the paucity of information regarding lake effect, particularly outside of the southwestern United States, PGE proposes to implement their avian mortality reporting system (refer to the Avian Protection Plan in Appendix P-2) at the Carty Solar Farm and to consult ODFW and the Department should collision issues arise.

Power lines pose potential electrocution and collision risks for birds in the analysis area. These impacts would be similar in nature to those described in Section P.9 of the ASC. Potential impacts associated with power lines would be permanent, lasting the life of the project, and would be avoided or minimized by the measures put forth in PGE's Avian Protection Plan (Appendix P-2).

The construction of power lines may also increase predation of wildlife in the analysis area. Power lines can provide hunting perches for corvids and raptors, particularly in open habitats where very few elevated perches exist (Lammers and Collopy 2007). Perching on structures is believed to increase hunting efficiency due to the increased visibility it affords of the surrounding area. This would benefit avian predators but would negatively impact their potential prey, including small mammals, reptiles, amphibians, and other birds.

The proposed transmission line options from the Carty Solar Farm to the point of interconnection would create elevated perches that may improve the hunting efficiency of avian predators in the grasslands and shrubland habitats to the east of Carty Reservoir, where elevated perches do not currently exist. Implementation of Site Certificate Condition 10.16—use of perch-preventing structures—would minimize the potential for increased predation in areas identified as Category 1 habitat for WGS. For these reasons, the construction of the transmission line east of the reservoir is expected to have minimal impact on predation of WGS. Transmission line options running along the north side of Carty Reservoir and near the Boardman Plant would not likely increase predation, as elevated perches already exist in the form of existing transmission lines, buildings, and trees lining the north end of the reservoir.

## P.8 MITIGATION MEASURES

**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 OAR-345-021-0010(1)(p)(F) in accordance with the ODFW mitigation goals described in OAR 635-415-0025 and a discussion of how the proposed measures would achieve those goals.*

Response: PGE would adhere to the measures detailed in Exhibit P, Section P.10 of the ASC; the amended Wildlife and Habitat Monitoring and Mitigation Plan (Appendix P-3); and the amended Revegetation and Noxious Weed Control Plan (Appendix P-4) to avoid, reduce, or mitigate adverse impacts on fish and wildlife and their habitats during the construction and operation of the proposed Carty Solar Farm. In general, these measures include a combination of project siting, pre-construction surveys, temporal and spatial avoidance buffers, compensatory mitigation, habitat restoration, and monitoring. PGE also would take steps to control designated noxious weeds and prevent fires and would implement measures from their Avian Protection Plan (Appendix P-2) to avoid or minimize impacts.

PGE would provide habitat mitigation–in the form of a permanent conservation easement on a habitat mitigation area (HMA)–based on the acreage calculations outlined in Table P-3. Furthermore, PGE would take measures to uplift mitigation habitats through seeding and planting of native species and control of noxious weeds. Refer to Appendix P-3 of this RFA for details of proposed changes to the plan.

Placement of the conservation easement would not conflict with the existing mitigation requirements for this area, as set forth in the Multi-Species Candidate Conservation Agreement with Assurances (MSCCAA). The MSCCAA is a 25-year, voluntary conservation agreement between Threemile Canyon Farms and PGE, TNC, ODFW, and the United States Fish and Wildlife Service. In exchange for conserving lands with suitable habitats for wildlife species that occupy shrub-steppe habitat and are considered to be candidaes for listing under the Endangered Species Act (including WGS), and implementing other conservation measures, Threemile Canyon Farms and PGE were provided regulatory certainty should these species become listed in the future. As a result of the MSCCAA, Threemile Canyon Farms and PGE conserved over 23,000 acres consisting primarily of shrub-steppe habitat. PGE has voluntarily committed to protecting the 880-acre PGE Conservation Area under the MSCCAA; however, it is not protected by a conservation easement.

PGE mitigated habitat impacts that resulted from the construction of the original project by creating the 78-acre HMA for Unit 1, located northeast of the Boardman Plant, and on the western edge of the much larger PGE Conservation Area. The proposed mitigation area for the Carty Solar Farm—HMA for Carty Solar Farm—would be located within a portion of the PGE MSCCAA Conservation Area, which borders the HMA for Unit 1 to the north and east. The vegetation in these areas is dominated by Sandberg's bluegrass (*Poa secunda*), bluebunch

wheatgrass (*Pseudoroegneria spicata*), cheatgrass, and intermittent areas of needle-and-thread grass (*Hesperostipa comata*), as well as cheatgrass. There are also occasional green rabbitbrush (*Chrysothamnus viscidiflorus*) and gray rabbitbrush (*Ericameria nauseaosa*), big sagebrush, fiddleneck (*Amsinckia menziesii*), yarrow (*Achillea millefolium*), and isolated junipers. Placement of the conservation easement would complement or improve upon, rather than conflict with, the existing conservation commitments for this area, as set forth in the MSCCAA. Most notably, protection of habitat in the HMA for Carty Solar Farm would be ensured through a conservation easement that would not cease when the MSCCAA expires (in 2029 under the current 25-year term of the agreement, or potentially earlier for PGE participation with the closing of the Boardman Coal Plant).

Additionally, any fencing bordering the HMA for the Carty Solar Farm would be modified to wildlife-safe fencing. PGE would provide uplift to sagebrush habitat specifically, by planting or seeding sagebrush. No grazing occurs in this area now, and future grazing on the HMA for Carty Solar Farm would be prohibited. With guidance from ODFW and the United States Fish and Wildlife Service, PGE would create new raptor nesting habitat (selected juniper plantings), as appropriate. All of these activities would complement PGE's existing commitments under the MSCCAA to protect and maintain covered-species habitats within the Conservation Area, and inclusion in the HMA for Carty Solar Farm would add the assurance of long-term habitat protection.

Refer to Table P-3 for habitat mitigation acreages for the Carty Solar Farm. Table P-3 acreages are in addition to acreage already mitigated for Carty Unit 1. On July 7, 2014, the Department approved the habitat mitigation acreages for Unit 1 of the Carty Generating Station—the HMA for Unit 1—as part of the amended Wildlife Habitat Monitoring and Mitigation Plan for the Energy Facility Site (Unit 1), which PGE submitted on June 24, 2014. The construction of Unit 1 resulted in 45 acres of permanent disturbance and 55.4 acres of temporary disturbance, resulting in a total required mitigation area of 72.7 acres. To mitigate these impacts, in 2016, PGE established the HMA for Unit 1 at 78 acres, which exceeded the required mitigation by 5.3 acres.

**Table P-3 Temporary and Permanent Impacts and Mitigation for the Carty Solar Farm**

| Habitat Type by Project Area | Temporary Impacts (acres)[1] | Permanent Impacts (acres)[2,3] | Calculated Mitigation Area (acres)[1,2] |
|---|---|---|---|
| **Energy Generation Facility Site** | | | |
| **Carty Solar Farm Generation Facility[4]** | | | |
| Category 3 | 9.61 | 302.16 | 306.97 |
| Category 4 | 70.09 | 12.29 | 47.34 |
| Category 5 | 0.0 | 0.0 | 0 |
| Category 6 | 0.01 | 0.19 | 0 |
| Total Area | 79.7 | 314.64 | |
| Total Solar Farm Mitigation | | | 354.31 |
| **Transmission Facilities** | | | |
| **Grassland Switchyard (Interconnection Option 1)[5]** | | | |
| Category 4 | 7.5 | 6.5 | 10.25 |
| Total Area | 7.5 | 6.5 | |
| Total Grassland Switchyard Mitigation | | | 10.25 |
| **Route 1 Carty Solar Farm Interconnection Option 1: to Grassland Switchyard[6]** | | | |
| Category 3 | 4.44 | <0.1 | 2.22 |
| Category 4 | 12.98 | <0.1 | 6.49 |
| Category 6 | 2.80 | <0.1 | 0 |
| Total Area | 20.22 | <0.1 | |
| Total Route 1 Mitigation | | | 8.71 |
| **Route 2a Carty Solar Farm Interconnection Option 2: to Unit 1 Isophase** | | | |
| Category 3 | 4.14 | <0.1 | 2.07 |
| Category 4 | 11.35 | <0.1 | 5.68 |
| Category 6 | 2.07 | <0.1 | 0 |
| Total Area | 17.56 | <0.1 | |
| Total Route 2a Mitigation | | | 7.75 |
| **Route 2b Carty Solar Farm Interconnection Option 2: to Unit 1 Isophase** | | | |
| Category 2 | 0.42 | <0.1 | 0.42 |
| Category 3 | 5.32 | <0.1 | 2.66 |
| Category 4 | 7.51 | <0.1 | 3.76 |
| Category 6 | 4.99 | <0.1 | 0 |
| Total Area | 18.24 | <0.1 | |
| Total Route 2b Mitigation | | | 6.84 |
| **Route 3a Carty Solar Farm Interconnection Option 3: to Boardman Plant** | | | |
| Category 3 | 3.66 | <0.1 | 1.83 |

**Table P-3 Temporary and Permanent Impacts and Mitigation for the Carty Solar Farm**

| Habitat Type by Project Area | Temporary Impacts (acres)[1] | Permanent Impacts (acres)[2,3] | Calculated Mitigation Area (acres)[1,2] |
|---|---|---|---|
| Category 4 | 8.66 | <0.1 | 4.33 |
| Category 6 | 2.81 | 2.07 | 0 |
| Total Area | 15.13 | 2.07 | |
| Total Route 3a Mitigation | | | 6.16 |
| **Route 3b Carty Solar Farm Interconnection Option 3: to Boardman Plant** | | | |
| Category 2 | 0.42 | <0.1 | 0.42 |
| Category 3 | 5.34 | <0.1 | 2.67 |
| Category 4 | 6.63 | <0.1 | 3.32 |
| Category 6 | 6.71 | 2.07 | 0 |
| Total Area | 19.11 | 2.07 | |
| Total Route 3b Mitigation | | | 6.41 |
| Mitigation Required for Carty Solar Farm[6] | | | 373.27 |

Notes:

In some instances, depending on final design, areas of temporary or permanent impacts may differ from what is shown in this table. Some areas impacted in one phase of construction may be impacted again in subsequent phases of construction. In all cases, impacts in a given project area will only be mitigated once, based on the final construction.

[1] Temporary impact mitigation is based on a 1:1 acre ratio for Category 2, 0.5:1 acre ratio for Category 3 and 4, and zero for Category 5 and 6.

[2] Permanent impact mitigation is based on a 1:1 acre ratio for Category 3 and zero for Category 5 and 6.

[3] Cells totals <0.1 acres are negligible and therefore not include in grand totals.

[4] Includes temporary impacts associated with construction laydown and parking areas, including two areas near the Carty Reservoir and three areas near Unit 1.

[5] Previously approved facility; current constructed facility occupies 8.5 acres, but PGE plans build-out up to the previously approved 15 acres. The Grassland Switchyard would only be built out if Route 1 for the potential Carty Solar Farm interconnection transmission line is constructed.

[6] Route 1 for the potential Carty Solar Farm interconnection transmission lines is used to calculate total mitigation area because it is the route that would require the greatest amount of mitigation acres.

## P.9 MONITORING PROGRAM

**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 OAR-345-021-0010(1)(p)(G).*

Response: PGE would adhere to the monitoring measures detailed in Appendix P-3 (as updated in this RFA) to evaluate the success of the measures outlined in Section P.8. Monitoring would consist of measures to monitor general wildlife use of the immediate project facility (such as pre- and post-construction raptor nest surveys and pre- and post-construction surveys of known

WGS activity areas), monitoring of habitat conditions and wildlife use within the HMA for the Carty Solar Farm, monitoring of the success of habitat enhancement measures within the HMA for the Carty Solar Farm to ensure they meet success criteria, and monitoring the revegetation of construction temporary disturbance to ensure that wildlife habitat is successfully restored. Details of each type of monitoring are included in Appendix P-3 and the Revegetation and Noxious Weed Control Plan (Appendix P-4).

## P.10 REFERENCES


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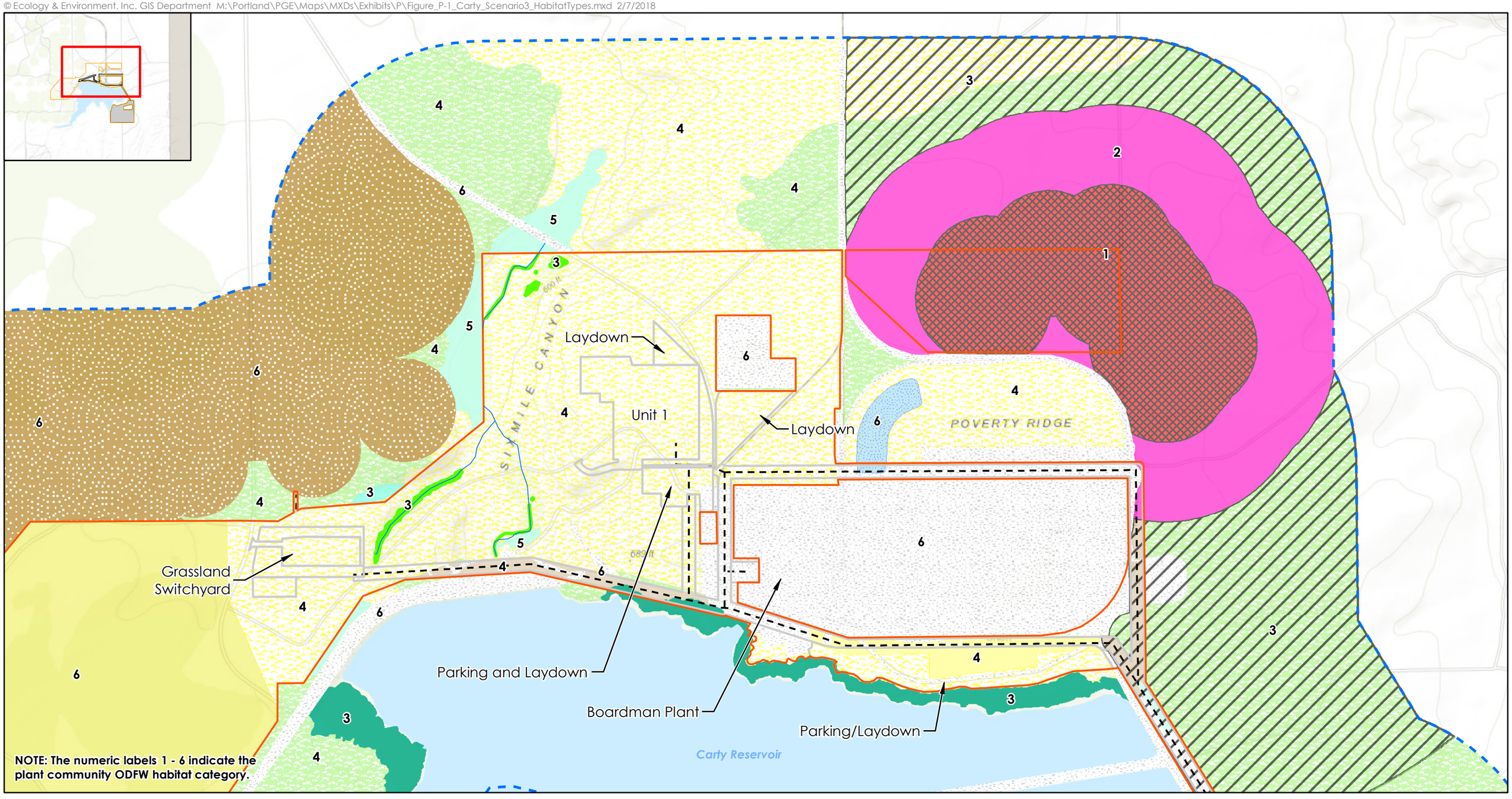


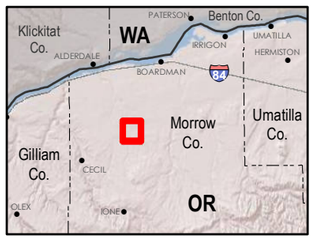


- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas
- 0.5 Mile Analysis Area
- Transmission Line Options

**Habitat Types Within Half a Mile (2016)**

- Agriculture Cropland
- Artificial pond
- Developed
- Grassland
- Riparian meadow (disturbed)
- Riparian scrub wetland
- Riparian Forest
- Shrub Steppe

**Field-Mapped Habitat Types (2016)**

- Developed
- Grassland (degraded)
- Riparian meadow (disturbed)
- Riparian Forest
- Sagebrush steppe
- Category 1 Habitat (Essential, Limited & Irreplaceable) – WGS 2016 and/or 2017 occupied range
- Category 2 Habitat (Essential and Limited) – Potential WGS Habitat within 300m of category 1 habitat
- Category 3 Habitat (Important and Limited) – Potential WGS Habitat within 1,200m of category 2 habitat

**Habitat Types Original Site Boundary**

- Agriculture Cropland
- Shrub Steppe
- Field Delineated Stream
- Field Delineated Wetland

N

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0 0.125 0.25 Miles

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp.,

Figure P-1
Sheet 1 of 3
Habitat Types in the
0.5-Mile Analysis Area

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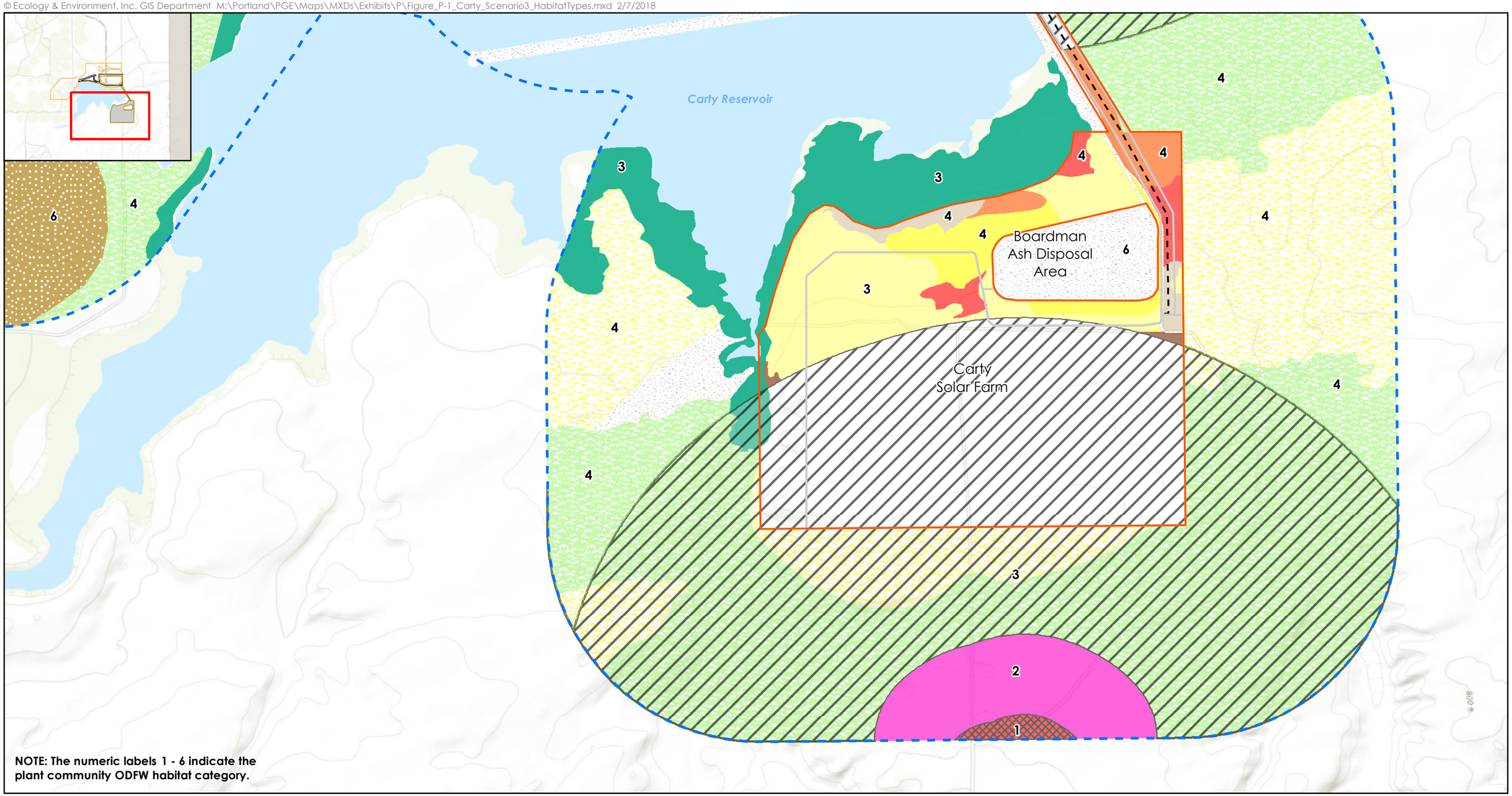
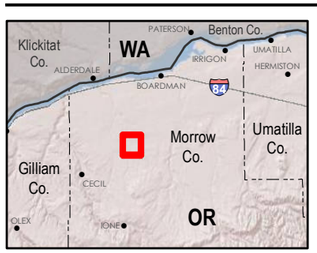



**NOTE: The numeric labels 1 - 6 indicate the plant community ODFW habitat category.**




- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas
- 0.5 Mile Analysis Area
- Transmission Line Options

**Habitat Types Within Half a Mile (2016)**

- Agriculture Cropland
- Developed
- Grassland
- Riparian Forest
- Shrub Steppe

**Field-Mapped Habitat Types (2016)**

- Developed
- Grassland (degraded)
- Grassland (post-burn)
- Riparian Forest
- Sagebrush steppe
- Sagebrush steppe (disturbed)
- Broom snakeweed shrubland
- Cheatgrass savannah
- Category 1 Habitat (Essential, Limited & Irreplaceable) – WGS 2016 and/or 2017 occupied range
- Category 2 Habitat (Essential and Limited) – Potential WGS Habitat within 300m of category 1 habitat
- Category 3 Habitat (Important and Limited) – Potential WGS Habitat within 1,200m of category 2 habitat

**Habitat Types Original Site Boundary**

- Agriculture Cropland
- Shrub Steppe

N

1:14,000

0 0.125 0.25 Miles

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp.,

Figure P-1
Sheet 2 of 3
Habitat Types in the
0.5-Mile Analysis Area

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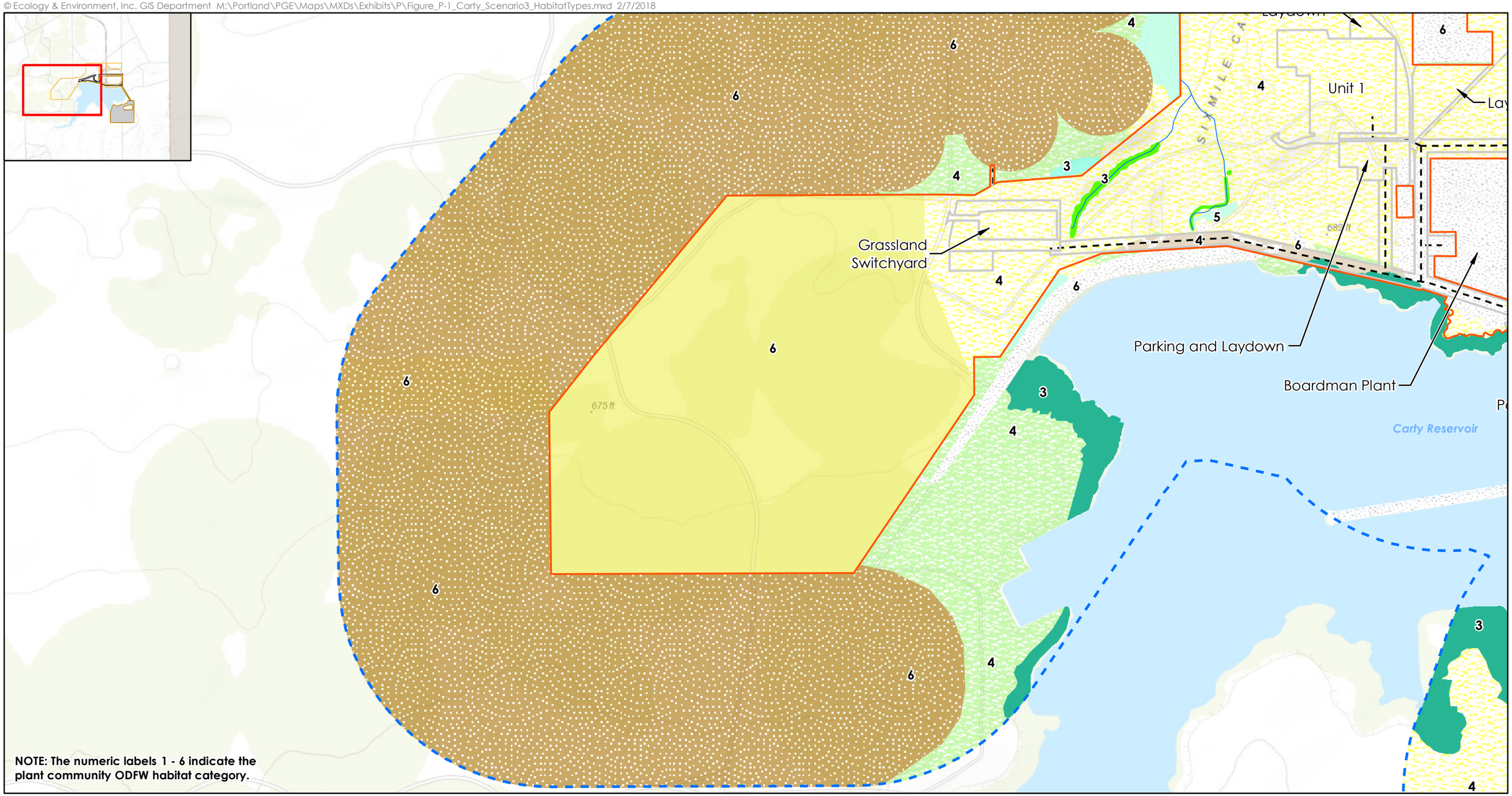


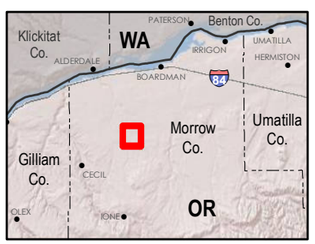


- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas
- 0.5 Mile Analysis Area
- Transmission Line Options

**Habitat Types Within Half a Mile (2016)**

- Agriculture Cropland
- Developed
- Grassland
- Riparian meadow (disturbed)
- Riparian scrub wetland
- Riparian Forest
- Shrub Steppe

**Field-Mapped Habitat Types (2016)**

- Developed
- Grassland (degraded)
- Riparian meadow (disturbed)
- Riparian Forest
- Sagebrush steppe

**Habitat Types Original Site Boundary**

- Agriculture Cropland
- Ag/Weedy Shrub ROW
- Shrub Steppe
- Field Delineated Stream
- Field Delineated Wetland

N

1:14,000

0 0.125 0.25 Miles

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp.,

Figure P-1
Sheet 3 of 3
Habitat Types in the 0.5-Mile Analysis Area

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# Appendix P-1

## 2016 Biological Resources Survey Report

Note: PGE prepared Appendix P-1, 2016 Biological Resources Survey Report, for the previous draft of this RFA, submitted to the Oregon Department of Energy in August 2016. Since that submittal, PGE has modified its plans for the project. Therefore, information references to Units 2 and 3 are included in Appendix P-1 but are no longer relevant to PGE's amendment request and are not incorporated into the evaluation of compliance with applicable Oregon Energy Facility Siting Council standards.

# Carty Generating Station

# 2016 Biological Resources Survey Report

**August 2016**

**(revised January 2018)**

## Prepared for:

**Portland General Electric**
121 SW Salmon St.
Portland, OR 97204

## Prepared by:

**Ecology and Environment, Inc.**
333 SW Fifth Avenue, Suite 600
Portland, Oregon 97204

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## Acronyms and Abbreviations

| | |
|---|---|
| E & E | Ecology and Environment, Inc. |
| GPS | global positioning system |
| PGE | Portland General Electric Company |
| RFA | Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station |
| TNC | The Nature Conservancy |

# 1.0 PURPOSE AND SCOPE

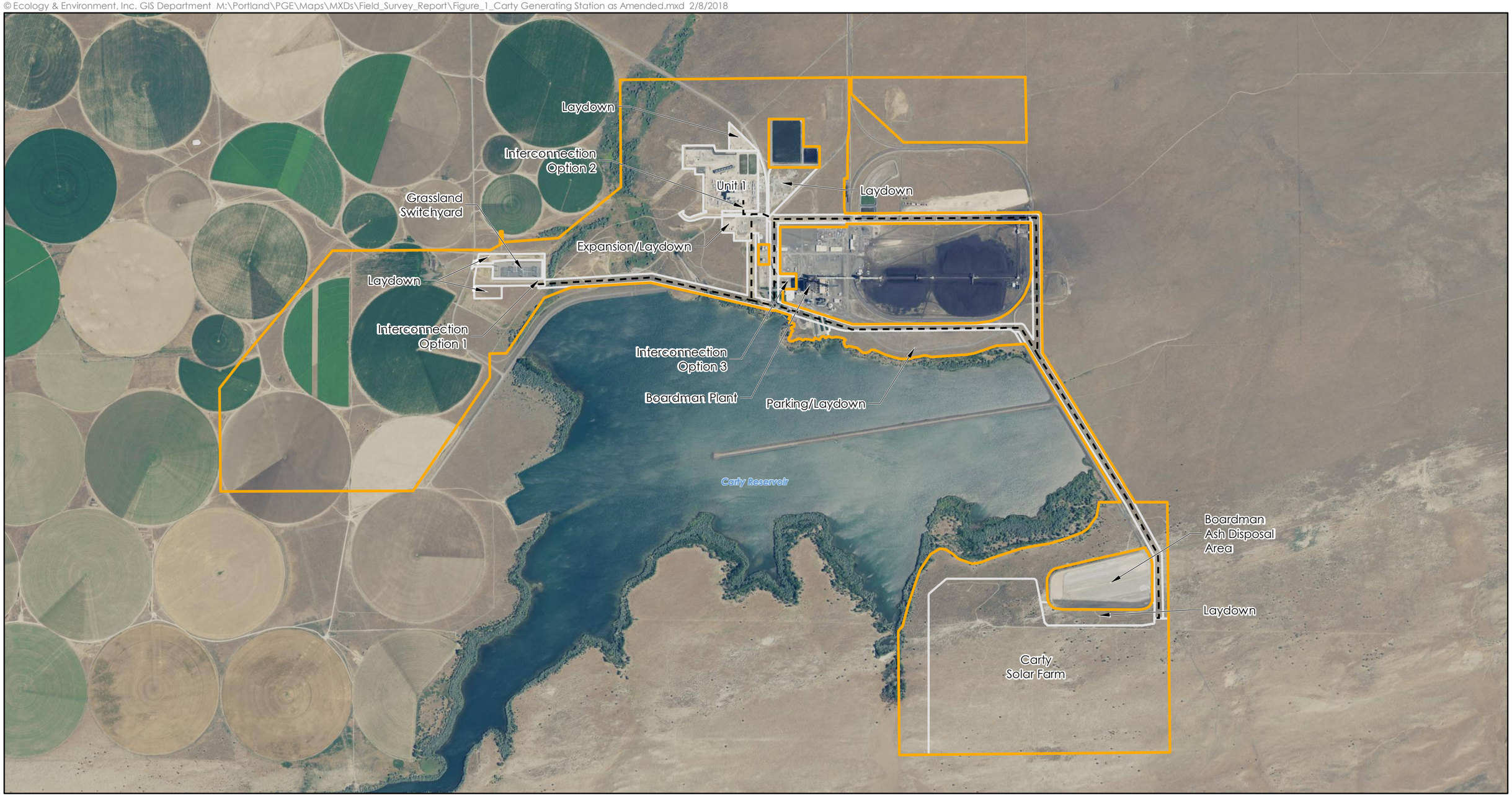
Portland General Electric Company (PGE) is seeking to amend the Site Certificate for the Carty Generating Station, located approximately 13 miles southwest of Boardman, Oregon, adjacent to the existing Boardman Plant and Carty Reservoir in Morrow County. PGE proposes to expand the Carty Generating Station, as originally certificated, with the construction of an additional 330-megawatt natural-gas-powered generating unit (Unit 3), a 50-megawatt solar facility (Carty Solar Farm), and associated transmission lines (Figure 1). The footprint of the proposed amended facilities is hereafter referred to as the "Site Boundary expansion areas."

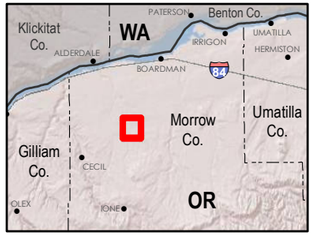
PGE's consultant, Ecology and Environment, Inc. (E & E), conducted a series of biological surveys in March and April 2016 to inform, in combination with desktop analyses, the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station (RFA). More specifically, PGE incorporated the results of these surveys into the RFA's Exhibit J, "Jurisdictional Waters"; Exhibit P, "Fish and Wildlife Habitat"; and Exhibit Q, "Threatened and Endangered Species." The primary objectives of the surveys were to identify vegetation and map habitats, delineate wetlands and waterbodies, and determine presence/absence of Washington ground squirrels (*Urocitellus washingtoni*). E & E also recorded incidental observations of noxious weeds and other wildlife, including State Sensitive Species, in the study areas.

# 2.0 SURVEY METHODS

## 2.1 Vegetation and Habitat Mapping

E & E completed vegetation and habitat mapping within the Site Boundary expansion areas the week of April 4, 2016. In preparation for the field mapping effort, E & E reviewed land cover and vegetation types within and adjacent to the Site Boundary expansion areas and new or modified features within the original Site Boundary using aerial photography and the Oregon Gap Analysis Program (OR-GAP 1999). In the field, E & E biologists established 10 survey plots with 15-foot radii at representative locations within distinct habitat types to identify dominant plant species and estimate their absolute covers. Finally, the biologists delineated the boundaries of each habitat type on field maps and digitized them using geographic information systems software.




- Transmission Line Options
- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas

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Miles
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Credits: Copyright:© 2014 Esri
Esri, USDA Farm Service Agency

Figure 1
The Carty Generating Station as Amended

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## 2.2 Wetlands and Waterbodies

E & E delineated wetlands and waterbodies within the Site Boundary expansion areas—the Study Area for 2016 wetland and waterbody surveys—the week of April 4, 2016. Prior to beginning the field delineations, E & E analyzed aerial imagery and publicly available databases, including the Soil Survey Geographic database (Soil Survey Staff, NRCS, USDA 2013), the National Hydrography Dataset (USGS 2013), and the National Wetland Inventory (USFWS 2010) to determine potential areas of jurisdiction and prepare digital basemaps. In addition, E & E reviewed the Wetland Delineation Report (E & E 2009) and Addendum to the report (E & E 2013) for surveys in the original Site Boundary that were submitted to the Oregon Department of State Lands in support of the PGE Carty Generating Station Application for Site Certificate. During the field investigation, E & E biologists used a tablet computer equipped with the above-mentioned basemaps and a wireless connection to a global positioning system (GPS) unit with sub-meter accuracy to record wetland and waterbody boundaries, data points, and other features. Refer to the Carty Generating Station 2016 Waters Delineation Report in Appendix J-1 of the RFA for complete details regarding the wetlands and waterbody delineation methods.

## 2.3 Noxious Weeds

E & E did not conduct targeted surveys for noxious weeds, but incidentally recorded noxious weed locations encountered during habitat mapping, wetland and waterbody delineations, and Washington ground squirrel surveys.

## 2.4 Fish and Wildlife Resources

### 2.4.1 Washington Ground Squirrel

E & E conducted two rounds of presence/absence surveys for Washington ground squirrels the weeks of March 7 and April 18 using survey protocols approved by the Oregon Department of Fish and Wildlife. The study area consisted of all grassland and shrub steppe habitats within the Site Boundary expansion areas and new or modified features within the original Site Boundary, plus an additional 1,000 feet beyond such areas. Surveyors meandered along transects 165 feet (50 meters) apart. The amplitude of the meanders varied with habitat density, decreasing in denser vegetation and increasing in grassy areas with high bare ground cover. During the second round of surveys in April, transects were either oriented perpendicular to those of the first round (in nonlinear study areas, such as the solar site) or offset by one-half transect from those of the first round to increase the coverage area.

E & E biologists considered Washington ground squirrels present if they saw or heard squirrels, or if they observed relatively fresh scat (i.e., of the spring 2016 season) in or near burrow entrances. E & E could not confirm Washington ground squirrel activity based on the

presence of burrows alone (i.e., without hearing vocalizations or detecting scat), as other animals in the area use burrows of similar size, placement, and structure. When E & E biologists observed Washington ground squirrels or their sign, they delineated the extent of the colony by extensively searching around confirmed burrows. They also recorded the number of burrows associated with the colony, recorded all observations on GPS units, and wrote detailed notes in a field log book.

E & E biologists also visited five previously active Washington ground squirrel sites located outside of the survey area at the Oregon Department of Fish and Wildlife 's request. The Nature Conservancy (TNC) documented these sites as active colonies in 2013. The biologists searched for signs of Washington ground squirrels in a 300-meter radius around each of these sites. Three sites were located south of proposed solar facility, one east of Carty Reservoir, and one north of the Boardman Plant. Refer to Figure 2 for specific locations of the 2013 TNC sites.

This report primarily discusses Washington ground squirrel data collected by E & E. Additional data collected by PGE and TNC are provided in Exhibits P and Q of the RFA.

### 2.4.2 General Wildlife

E & E biologists recorded incidental wildlife observations while conducting surveys for Washington ground squirrels, wetlands and waterbodies, and vegetation and habitat mapping. The biologists maintained daily records of all observed species and their sign (e.g., scat). They used GPS units to mark observations of State Sensitive Species and raptor nests (active and inactive) within 0.5 mile of the Site Boundary expansion areas and new or modified features within the original Site Boundary. During observations of active raptor nests, the biologists maintained enough distance to avoid disturbing the birds.

## 3.0 Results and Discussion

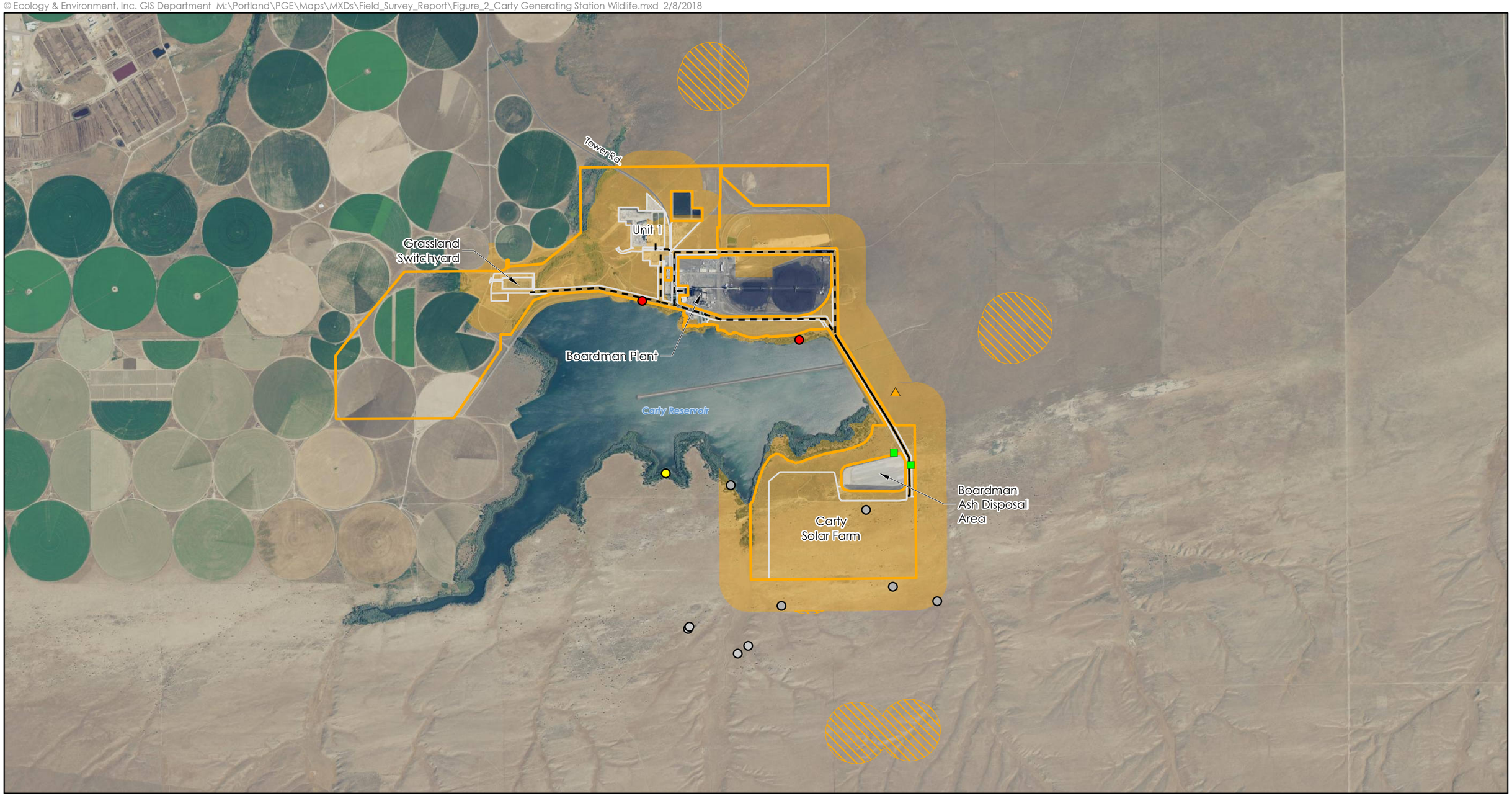
### 3.1 Vegetation and Habitat Mapping

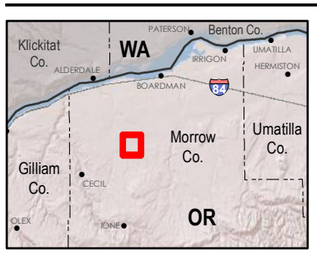
Table 1 lists the habitat types delineated within the Site Boundary expansion areas and identifies dominant plant species as well as absolute cover, vegetation strata, and native/non-native status. Figure 3 depicts the locations and boundaries of each habitat type. E & E noted that the southern portion of the proposed solar facility site burned in May 2015 (see Grassland [post-burn] in Table 1).

### 3.2 Wetlands and Waterbodies

E & E biologists identified one artificially created pond (sewage lagoon) in the study area in 2016 (Figure 3). No wetlands, streams, or other waters were detected in the study area. The

artificially created pond is used for sewage treatment and is located within the coal train loop approximately 0.25 mile northeast of the Boardman plant. Only the southern portion of the sewage pond extends into the amended Site Boundary. Refer to the Carty Generation Station 2016 Waters Delineation Report in Appendix J-1 of the RFA for further details regarding 2016 wetland and waterbody delineation results.




- Transmission Line Options
- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas
- Washington ground squirrel survey areas
- Washington ground squirrel off-site survey areas
- Sagebrush lizard
- Inactive Washington Ground Squirrel Colony, likely last active in 2014 or 2015

Raptor nest
- Red-tailed hawk (active)
- Bald eagle (active)
- Inactive

N

1:36,000

0 0.5 1 Miles



Figure 2
Washington Ground Squirrel Study Area and Notable Wildlife Observations

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**Table 1 Habitat Types within the Site Boundary Expansion Areas[1]**

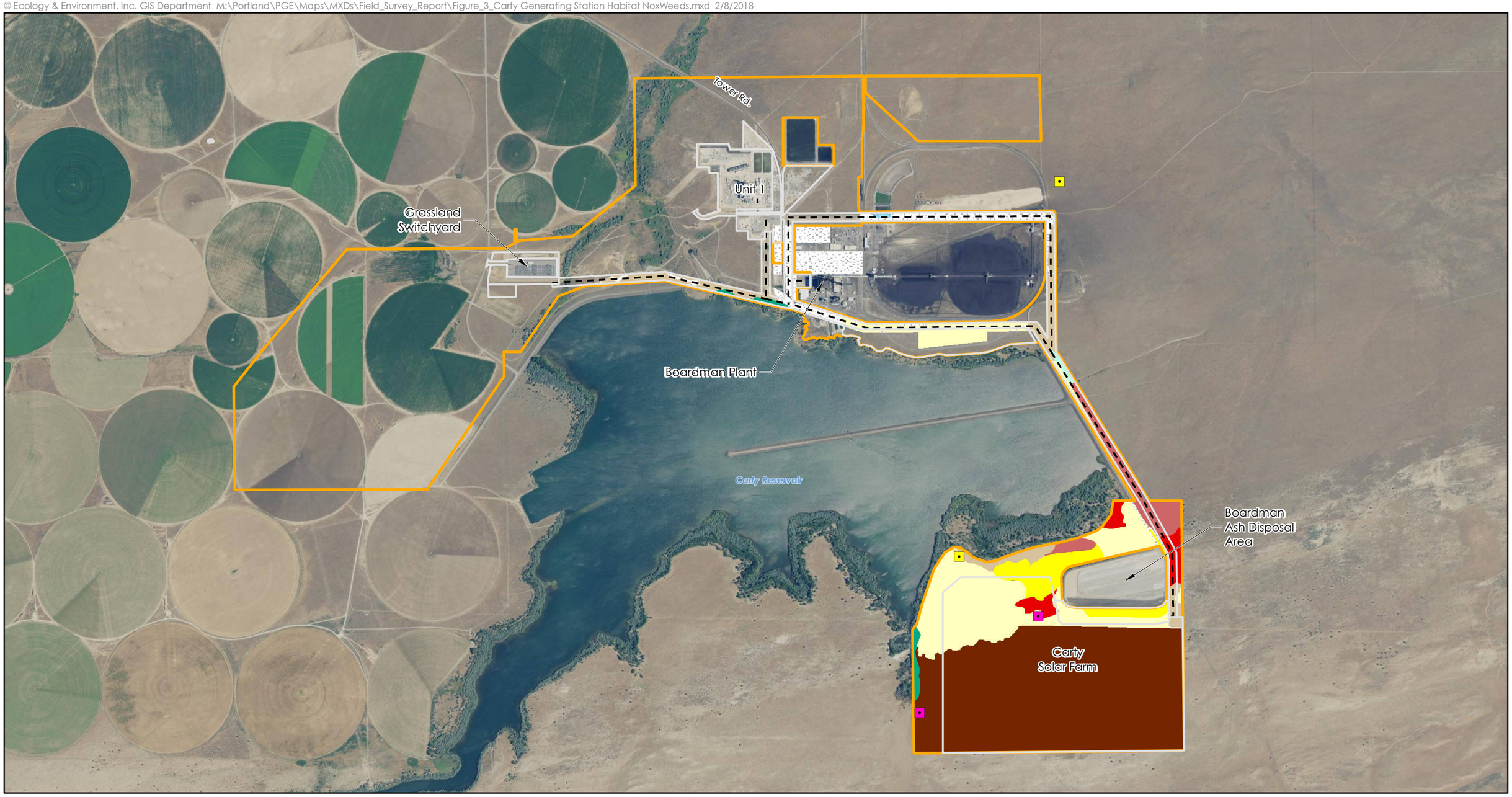
| Habitat Type | Dominant Species or Components | Stratum | Absolute Cover[2] | Native/ Non Native |
|---|---|---|---|---|
| Sagebrush steppe | Sagebrush (*Artemisia tridentata*) | Shrub | 19.2 | Native |
| | Broom snakeweed (*Gutierrezia sarothrae*) | Shrub | 7.5 | Native |
| | Cheat grass (*Bromus tectorum*) | Herb | 46.7 | Non-Native |
| | Mouse-ear chickweed (*Holosteum umbellatum*) | Herb | 20.8 | Native |
| | bare ground | n/a | 10 | n/a |
| Sagebrush steppe (disturbed) | Sagebrush (*Artemisia tridentata*) | Shrub | 17.5 | Native |
| | Broom snakeweed (*Gutierrezia sarothrae*) | Shrub | 22.5 | Native |
| | Cheat grass (*Bromus tectorum*) | Herb | 20 | Non-Native |
| | Russian thistle (*Salsola kali*) | Herb | 25 | Non-Native |
| Grassland (post-burn) | Cheat grass (*Bromus tectorum*) | Herb | 22.5 | Non-Native |
| | Mouse-ear chickweed (*Holosteum umbellatum*) | Herb | 20 | Native |
| | Redstem filaree (*Erodium cicutarium*) | Herb | 25 | Native |
| | bare ground | n/a | 25 | n/a |
| Grassland (degraded) | Cheat grass (*Bromus tectorum*) | Herb | 65 | Non-Native |
| | Crested wheat grass (*Agropyron cristatum*) | Herb | 20 | Non-Native |
| | Sandberg bluegrass (*Poa secunda*) | Herb | 16.3 | Native |
| Cheatgrass savannah | Western Juniper (*Juniperus occidentalis*) | Tree | 5 | Native |
| | Sagebrush (*Artemisia tridentata*) | Shrub | 5 | Native |
| | Cheat grass (*Bromus tectorum*) | Herb | 70 | Non-Native |
| | Wooly mock goldenweed (*Stenotus lanuginosus*) | Herb | 20 | Native |
| Broom snakeweed shrubland | Broom snakeweed (*Gutierrezia sarothrae*) | Shrub | 25 | Native |

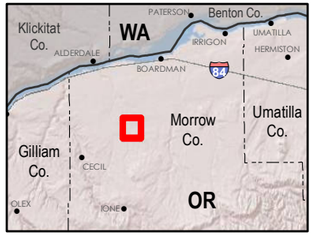
**Table 1 Habitat Types within the Site Boundary Expansion Areas[1]**

| Habitat Type | Dominant Species or Components | Stratum | Absolute Cover[2] | Native/ Non Native |
|---|---|---|---|---|
| | Cheat grass (*Bromus tectorum*) | Herb | 65 | Non-Native |
| | Bulbous bluegrass (*Poa bulbosa*) | Herb | 25 | Native |
| | Russian thistle (*Salsola kali*) | Herb | 20 | Non-Native |
| Riparian forest | Cottonwood (*Populus trichocarpa or deltoids*) | Tree | 25 | Non-Native |
| | Sagebrush (*Artemisia tridentate*) | Shrub | 7.5 | Native |
| | Cheat grass (*Bromus tectorum*) | Herb | 50 | Non-Native |
| Riparian meadow (disturbed) | Fivehorn smotherweed (*Bassia hyssopifolia*) | Herb | 42.5 | Non-Native |
| | Tall fescue (*Festuca arundinacea*) | Herb | 15 | Non-Native |
| | Prostrate knotweed (*Polygonum aviculare*) | Herb | 7.5 | Native |
| Artificial Pond[3] | n/a | | | |
| Developed[4] | n/a | | | |

**Notes:**
[1] Includes all portions of the proposed Carty Solar Farm and supporting and related facilities that are located outside of the original Site Boundary.
[2] Absolute cover refers to the percentage of bare ground covered by plant vegetation when viewed from above.
[3] Evaporation pond with no vegetation.
[4] Developed areas included buildings, roads, infrastructure, and proximal, heavily disturbed vegetated areas.

**Key:**
n/a not applicable




- Transmission Line Options
- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas

Noxious Weed Incidental Observations

- Bull thistle
- Yellow star-thistle

Habitat Types

- Artificial pond
- Developed
- Grassland (degraded)
- Grassland (post-burn)
- Riparian meadow (disturbed)
- Riparian forest
- Sagebrush steppe
- Sagebrush steppe (disturbed)
- Broom snakeweed shrubland
- Cheatgrass savannah

N

1:22,000

0 0.25 0.5 Miles



Figure 3
Habitat Types and
Noxious Weeds

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## 3.3 Noxious Weeds

E & E documented two noxious weed species within the Site Boundary expansion areas, including two populations of yellow starthistle (*Centaurea solstitialis*) and two populations of bull thistle (*Cirsium vulgare*). The bull thistle observations consisted of single plants, while the yellow starthistle records were about 10 and 100 feet in diameter. The Oregon Department of Agriculture (2015) identifies both species as "B Listed Weeds," which are defined as weeds of economic importance that are regionally abundant but may have limited distribution in some counties. Refer to Figure 3 for locations of observed noxious weeds within the Site Boundary expansion areas.

## 3.4 Fish and Wildlife Resources

### 3.4.1 Washington Ground Squirrel

E & E biologists did not observe active colonies in the Washington ground squirrel study area. They delineated an inactive Washington ground squirrel site east of Carty Reservoir, approximately 440 feet east of the transmission line right-of-way (Figure 3). The site consisted of 25 burrows, four of which contained old, deteriorating, sun-bleached scat. The biologists did not hear any vocalizations, and the burrows did not appear to have been actively maintained in 2016. Therefore, the biologists determined that the site was inactive in 2016, but possibly active in 2014 or 2015.

E & E did not observe Washington ground squirrels or their sign at any of the five TNC sites that E & E assessed; TNC had indicated that these five sites were active in 2013. Two of these sites were located within the area of a large wildfire that occurred in May 2015.

### 3.4.2 Raptor Nests

E & E biologists identified three active raptor nests during the March and April 2016 field surveys (Figure 2). Red-tailed hawks (*Buteo jamaicensis*) were in incubation position on two nests in the riparian forest north of Carty Reservoir, and a bald eagle (*Haliaeetus leucocephalus*) was also apparently incubating eggs on a nest in the riparian forest on the south side of the reservoir about 0.57 mile west of the amended Site Boundary near the proposed solar facility site. The biologists also recorded nine inactive stick nests: eight in western junipers within or to the south of the proposed solar facility and one in a cottonwood tree in the riparian forest on the south side of the reservoir.

### 3.4.3 Other Wildlife

Table 2 lists all vertebrate wildlife species that E & E documented during their March and April 2016 field surveys. E & E observed 32 species of birds, seven mammals, three reptiles, and one amphibian by sight, sound, and/or sign (i.e., scat or tracks). The crew observed one State Sensitive Species, the sagebrush lizard (*Sceloporus graciosus*), in two locations in the northeast portion of the proposed solar site, shown in Figure 2.

**Table 2 Vertebrate Wildlife Species Observed in or Near the Amended Site Boundary During March and April 2016**

| Common Name | Latin Name |
|---|---|
| **Birds** | |
| Canada Goose | *Branta Canadensis* |
| American Wigeon | *Anas Americana* |
| Mallard | *Anas platyrhynchos* |
| Northern Pintail | *Anas acuta* |
| Bufflehead | *Bucephala albeola* |
| Common Goldeneye | *Bucephala clangula* |
| California Quail | *Callipepla californica* |
| Ring-necked Pheasant | *Phasianus colchicus* |
| Osprey | *Pandion haliaetus* |
| Bald Eagle | *Haliaeetus leucocephalus* |
| Red-tailed Hawk | *Buteo jamaicensis* |
| American Coot | *Fulica americana* |
| Sandhill Crane | *Grus canadensis* |
| Killdeer | *Charadrius vociferus* |
| Eurasian Collared-Dove | *Streptopelia decaocto* |
| Mourning Dove | *Zenaida macroura* |
| Northern Flicker | *Colaptes auratus* |
| Downy Woodpecker | *Picoides pubescens* |
| American Kestrel | *Falco sparverius* |
| Black-billed Magpie | *Pica hudsonia* |
| Common Raven | *Corvus corax* |
| Horned Lark | *Eremophila alpestris* |
| Ruby-crowned Kinglet | *Regulus calendula* |
| American Robin | *Turdus migratorius* |
| Cedar Waxwing | *Bombycilla cedrorum* |
| Yellow-rumped Warbler | *Setophaga coronata* |
| Dark-eyed Junco | *Junco hyemalis* |
| White-crowned Sparrow | *Zonotrichia leucophrys* |
| Song Sparrow | *Melospiza melodia* |
| Spotted Towhee | *Pipilo maculatus* |

**Table 2 Vertebrate Wildlife Species Observed in or Near the Amended Site Boundary During March and April 2016**

| Common Name | Latin Name |
|---|---|
| Red-winged Blackbird | *Agelaius phoeniceus* |
| Western Meadowlark | *Sturnella neglecta* |
| **Mammals** | |
| Elk | *Cervus canadensis* |
| Mule Deer | *Odocoileus hemionus* |
| Coyote | *Canis latrans* |
| Black-tailed Jackrabbit | *Lepus californicus* |
| Nuttall's Cottontail | *Sylvilagus nuttallii* |
| Porcupine | *Erethizon dorsatum* |
| Ord's Kangaroo Rat | *Dipodomys ordii* |
| **Reptiles** | |
| Short-horned Lizard | *Phrynosoma douglasii* |
| Sagebrush Lizard | *Sceloporus graciosus* |
| Racer | *Coluber constrictor* |
| **Amphibians** | |
| Pacific Chorus Frog | *Pseudacris regilla* |

## 4.0 References

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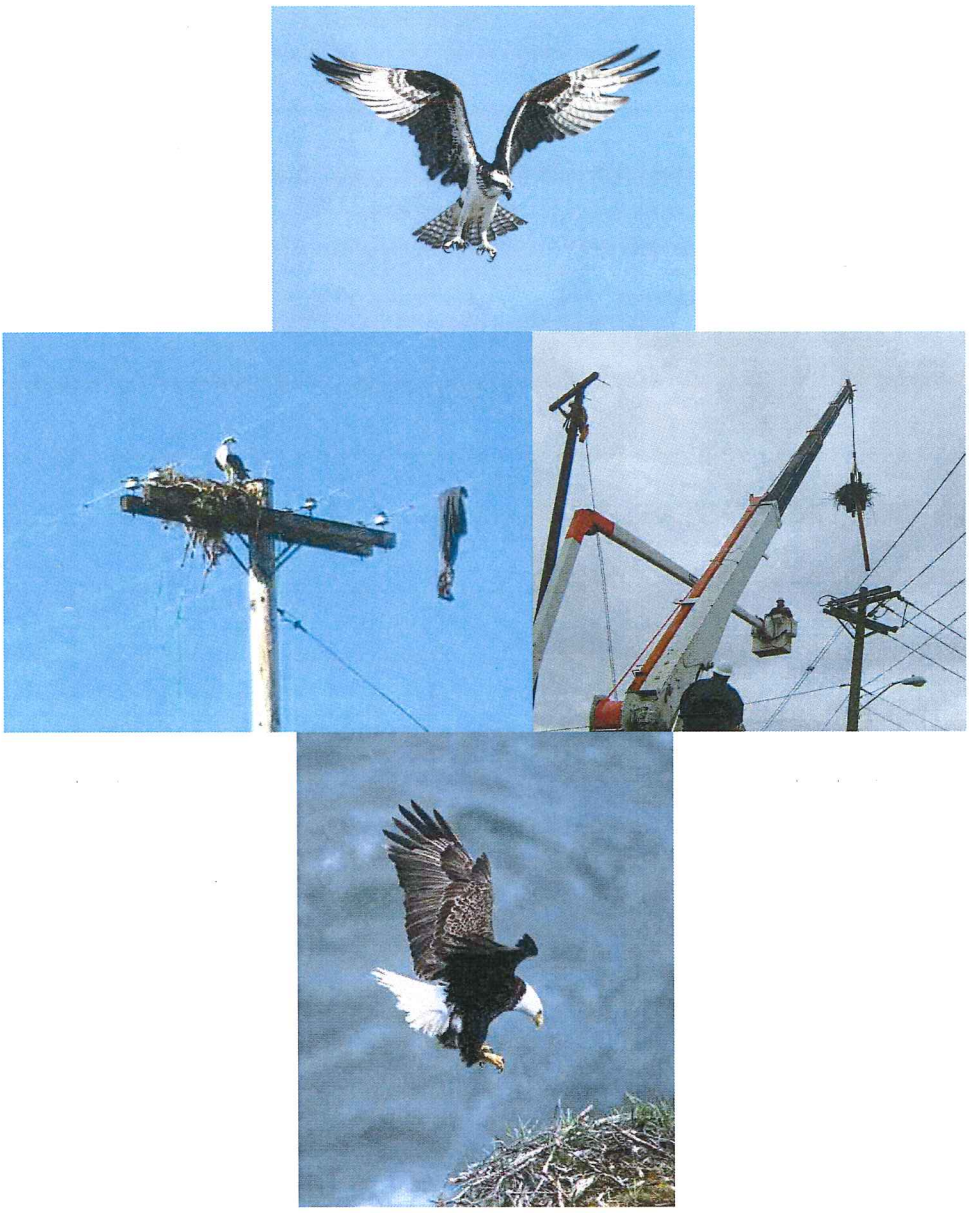
# Appendix P-2

## Avian Protection Plan
## Portland General Electric Company

# Avian Protection Plan

# Portland General Electric



*Prepared by:*
*PGE Environmental Services*
*April 2007*

*Revision 1, January 2015*

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# INTRODUCTION

The purpose of the Portland General Electric (PGE) Avian Protection Plan (APP) is to reduce risks to avian (bird) species that can result from electrocutions and collisions with electric utility power lines and associated equipment. Through development and implementation of an Avian Protection Plan, PGE intends to benefit through regulatory compliance, reliability improvements, and positive recognition from regulators and the public. PGE completed development and began implementation of its original APP in April 2007. This revised and updated version reflects the current status of PGE's APP program after the first six years of implementation.

The Portland General Electric (PGE) distribution service area covers portions of six counties in northwest Oregon and includes the Portland and Salem metro areas (Appendix A). PGE also owns and operates electrical generation facilities and transmission lines in northwest Oregon along the lower Columbia, Sandy, Willamette and Clackamas rivers, in the Cascade Range along the Breitenbush River and North Santiam River drainage, in central and northeastern Oregon, and in southeastern Washington. The range of the company's system, especially its electrical distribution lines, over a variety of habitats creates substantial potential risk for bird and power line interactions.

PGE's APP includes a three-phased approach that addresses avian risk issues while maintaining the company's focus on system reliability and operational excellence. The three aspects of this approach include:

**Preventive:** Emphasize compliance with all applicable laws, regulations, and permits. Construct all new or rebuilt lines (and other electrical equipment as appropriate) in identified areas with high avian risk (which may include rural areas, known raptor high use areas, etc.) to avian-safe standards (see Construction Design Standards section and APLIC 2006 for discussions of avian-safe standards).

**Reactive:** Document all bird mortalities and problem nests associated with PGE electrical facilities through an avian reporting system. Conduct remedial measures (such as insulating conductors and installing alternate nest platforms) to the extent practicable and feasible. Notify resource agencies according to applicable APP procedures, permits and regulations.

**Proactive:** Provide the necessary training and resources to improve employees' knowledge and awareness of avian protection issues and APP procedures. Conduct risk assessments of existing lines (and other associated electrical equipment as appropriate) in potential raptor high use areas. Based on such risk assessments, modify existing structures to avian-safe standards where appropriate and feasible. Seek opportunities to contribute to research on bird/electrical equipment interactions and enhance avian habitat associated with company projects and facilities.

The foundation of PGE's APP consists of company-wide procedures for documenting and tracking avian mortalities and problem nests. Procedures are designed to guide company personnel in the appropriate response to and documentation of incidents involving birds and

electrical equipment. The resulting accumulation of company experience and bird incident data is a valuable asset in accomplishing the preventative, reactive, and proactive aspects of the plan.

## BACKGROUND

Power lines and associated electrical equipment can cause mortality of raptors, eagles, and other migratory birds through electrocution and collisions. Various statutory authorities establish civil, criminal, or administrative penalties for the unauthorized take of migratory birds. The following general discussion of avian risks and applicable regulations provides some background on the need for an Avian Protection Plan (APP).

*Avian Risks: Electrocution and Collision*

Birds, especially open-country raptors such as eagles, buteos (large soaring hawks) and ospreys, use power poles and other electrical equipment for a variety of purposes. Poles and other electrical equipment may be used for nesting or as perches for resting, hunting, roosting or territorial defense. A bird can be electrocuted when it completes an electrical circuit by simultaneously touching two energized parts or an energized part and a grounded part. Most electrocutions occur on medium-voltage distribution lines (4 to 34.5 kilovolts), because the necessary spacing between conductors and other energized or grounded equipment on lines is generally small enough to be bridged by birds. To be avian-safe, structures must provide adequate spacing or covering between energized and/or grounded parts to accommodate a large bird's wingspan and height. Raptor species (i.e. eagles, hawks, ospreys and owls), due to their behavior and large wingspans, are most often considered when addressing electrocution risk. However, other large birds, such as crows, ravens, waterfowl, and wading birds, can also be electrocuted by insufficiently spaced conductors. Electrical equipment (such as transformers, cutouts, and associated wires), may have numerous, closely-spaced energized and grounded parts that can present a risk, even to small birds.

Collisions with electrical lines also present a risk of injury or mortality for migratory birds. Collision risk depends on a variety of factors related to the behaviors of the bird species involved, the surrounding environment and weather conditions, and the location and configuration of lines. Raptors generally are agile fliers with keen eyesight, and therefore their risk of collision with power lines is low. On the other hand, large, heavy-bodied birds such as cranes and herons have relatively higher risk for collisions due to their large wingspans, habitat preferences and use patterns, and lack of agility. Flocking behavior by waterfowl also may limit maneuverability and the ability to avoid collision hazards, particularly if flocks are taking off or landing under conditions of limited visibility. Therefore, power lines in proximity to bodies of water frequented by wading birds and waterfowl, or in upland feeding areas used by such species, likely pose a higher risk for collision than lines in other areas.

*Applicable Regulations*

The Migratory Bird Treaty Act (MBTA) protects listed migratory birds (and their parts, nests and eggs) that occur in North America (16 USC 703-712). There are 1,007 species listed for protection under the act as currently amended, including all birds native to North America. The MBTA prohibits the "take" (defined as "pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt any of these acts"), possession, or transportation of any migratory bird or any part, nest, or egg of a migratory bird. It is a strict liability law, meaning that proof of intent is not a

necessary element of a violation. Violations can result in fines (which may be doubled for organizations) of up to $15,000 and/or up to six months imprisonment for a misdemeanor, and up to $250,000 and/or up to 2 years imprisonment for a felony.

The federal Endangered Species Act (ESA) (16 USC 1531 et seq.) protects species that are listed as endangered or threatened under the act. Current species on the federal and state endangered species lists that occur in Oregon are primarily associated with coastal and interior forest habitats and are unlikely to interact with PGE's power lines or facilities.

In addition to being covered under the MBTA, bald and golden eagles are protected by the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668-668c). The BGEPA includes prohibitions and fines similar to those in the MBTA. Bald eagles were removed from the federal ESA list in 2007 and the Oregon ESA list in 2012. In 2009, USFWS published a Final Eagle Permit Rule authorizing limited issuance of permits to take bald and golden eagles where the action is not for the purpose of take and is an otherwise lawful activity. The Eagle Conservation Plan Guidance provides direction to industry for project development and protection of eagles. An approved Eagle Conservation Plan is necessary to acquire a take permit under BGEPA.

The USFWS is the federal agency principally responsible for enforcement of the MBTA, BGEPA and eagle permit regulations. USFWS has worked with the Avian Power Line Interaction Committee (APLIC) to develop guidelines for voluntary APP's. In April 2005, APLIC and USFWS finalized the Avian Protection Plan Guidelines (APLIC & USFWS 2005). USFWS is advising utilities to use the guidelines to develop a plan that is specific to their needs and demonstrates their commitment to reducing risks to protected migratory birds.

## PROGRAM OVERVIEW

This Avian Protection Plan (APP) focuses on PGE's policies and procedures for 1) responding to and documenting bird/electrical equipment interactions when they occur, and 2) reducing overall avian risk associated with the company's facilities. PGE has developed this document with reference to the guidelines developed cooperatively by APLIC and USFWS (APLIC & USFWS 2005). Consistent with the guidelines, the PGE APP includes the following elements:

- *Corporate Policy* – A statement of PGE's commitment to avian protection and effective implementation of the plan.
- *Permit Compliance* – A review of current permit requirements and procedures for permit compliance.
- *Avian Reporting System* – Procedures and data systems used to report, document, and track bird mortality incidents.
- *Nest Management* – Procedures for assessing and managing nests on utility structures.
- *Training* – Programs and resources in place for increasing employees' knowledge and awareness of avian protection issues and APP procedures.
- *Construction Design Standards* – Standards to be used for design of new construction in areas of high avian risk and for retrofitting equipment where bird mortality has occurred.
- *Risk Assessment Methodology* – Methods for using the Avian Reporting System data and additional data on bird activity areas to assess avian risk and prioritize areas for avian-safe new construction standards and proactive retrofit efforts.
- *Mortality Reduction Measures* – Steps the company will take, if warranted by risk assessment results, to develop an avian mortality reduction plan for areas of concern.
- *Avian Enhancement Options* – Procedures for evaluating, and implementing where feasible, potential proactive measures to enhance migratory bird populations or habitat.
- *Quality Control* – Procedures that may be used to periodically assess the effectiveness of the APP program and possible areas for improvement.
- *Public Awareness* – Methods that may be used to educate the public about avian protection issues, PGE's APP, and the company's successful avian protection efforts.
- *Key Resources* – Resources to be used by PGE in implementing the APP.

## PGE CORPORATE BIRD MANAGEMENT POLICY

A successful Avian Protection Plan (APP) requires management endorsement and support to ensure that resources are allocated as necessary, there is a unified company strategy for implementing the plan, and the necessary oversight is in place to ensure the plan is effective. PGE is committed to complying with legal requirements for protecting avian species while also improving customer service and distribution system reliability. PGE management and employees are committed to minimizing detrimental impacts of bird interactions with power lines and other electrical equipment.

Commitments in PGE's existing Environmental Policy directly applicable to responsible bird management include:

- Requiring strict adherence to environmental laws, regulations and standards by all employees and contractors;
- Ensuring that our employees receive adequate training and are aware of the importance of their roles in protecting our environment;
- Working cooperatively with environmental and community organizations to further mutual goals for resource protection;
- Maintaining open and constructive dialogue with regulatory agencies, public officials, environmental groups and customers to identify and respond to emerging issues and concerns;
- Incorporating environmental considerations into the planning and design of new projects and the upgrade of existing projects; and,
- Clearly establishing accountability within the Company for environmental planning, performance and oversight.

To fulfill the above commitments in regard to avian protection, PGE will:

- Implement and comply with its APP;
- Ensure its actions comply with applicable laws, regulations, permits, and APP procedures;
- Document bird mortalities, problem poles/lines/electrical equipment, and problem nests;
- Provide information, resources and training to improve its employees' awareness of avian protection issues and APP content and procedures;
- Conduct risk assessments to determine areas of high avian risk.
- Construct all new or rebuilt lines (and other electrical equipment as appropriate) in identified areas with high avian risk (which may include rural areas, areas of known raptor use, etc.) to PGE raptor-safe standards;
- As practicable, modify or retrofit power poles (and other electrical equipment as appropriate) where a raptor or other large bird has died or been injured; and,
- Inform the community about PGE's avian protection efforts in order to raise public awareness about migratory bird protection issues and regulations.

Through these proactive procedures, PGE will strive to reduce risk to migratory birds while providing reliable electrical service in a cost-effective manner.

Signature and Date

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General Manager, Environmental & Licensing Services — 1/23/15

Maria Pope,
Senior Vice President Power Supply & Operations and Resource Strategy — 1/28/2015

Bill Nicholson
Senior Vice President Customer Service, Transmission and Distribution — 1/29/15

Larry Bekkedahl
Vice President Transmission & Distribution — 3/6/2015

## PERMIT COMPLIANCE

PGE will work with resource agencies (i.e. USFWS) Regional Migratory Bird Permit Office and Oregon Department of Fish and Wildlife [ODFW] as necessary to identify and obtain required permits for operational activities that impact protected avian species. PGE currently holds a Special Purpose - Utility permit (No. MB117979-1) from the USFWS Region 1 Migratory Bird Permit Office (Appendix B). The permit outlines authorized procedures for handling and disposal of dead birds and relocation of problem nests when necessary for bird safety and/or system reliability.

*Handling and Disposal of Dead Birds*

PGE's Special Purpose permit authorizes Company personnel (under advisement of a PGE wildlife biologist) to pick up and bury the carcasses of non-eagle and non-ESA listed bird species on site if appropriate or dispose of them following municipal garbage regulations. The permit requires an annual report detailing the locations and dates that bird carcasses were found and disposed of or buried. Consistent with the permit and applicable laws, ODFW and USFWS Law Enforcement Office will be notified of all eagle and threatened or endangered bird species mortalities when they occur. Eagle carcasses will be transferred to one of the two agencies. PGE's Dead Bird Reporting and Disposal Procedure (Appendix C-1) and data form (Appendix C-2) provide a mechanism for documenting bird mortalities and ensuring that bird carcasses are handled and disposed of according to permit restrictions (also see Avian Reporting System section).

*Injured Birds and Specimen Salvage*

Transport of injured birds to rehabilitators may be necessary and will be coordinated with the appropriate agencies. The Special Purpose permit allows authorized PGE personnel to pick up and transfer injured raptors and other birds to a federal or state licensed rehabilitation facility. If an injured eagle is involved, PGE must first notify ODFW and the USFWS Law Enforcement Office. Only permitted rehabilitators will be used, and injured birds will be transported by wildlife agency personnel or a permitted rehabilitator whenever possible. A list of permitted rehabilitators is provided in the Key Resources section at the end of this plan. PGE may choose on a case-by-case basis to offer carcasses as specimens for scientific or educational purposes. Such salvage activities will be conducted in coordination with another organization that holds a valid salvage permit (i.e. an educational institution with a salvage permit) and consistent with the requirements of that permit.

*Nest Relocation*

PGE's Special Purpose permit authorizes PGE to relocate active (containing eggs or young) migratory bird nests from transformers and conductors when the threat of fire hazard and power outages is present at the current nest location. The USFWS permit office must be informed of the nest location and relocation details within 72 hours of the action. Relocation of eagle nests or nests of threatened or endangered species, whether active or inactive, are not authorized under the permit. Additional permitting is required if management of an eagle or endangered/threatened species nest is absolutely necessary. To ensure that permitting requirements are followed, all nest relocation/removal activities will be performed and documented according to established company procedure (see Nest Management section and Nest Management and Reporting Procedure, Appendix C-3).

## AVIAN REPORTING SYSTEM

PGE has developed an internal reporting system and database for tracking avian mortalities, nest management issues, and remedial actions taken. The Dead Bird Reporting and Disposal Procedure (Appendix C-1) directs Company personnel to report bird mortalities to a PGE wildlife biologist via a 24-hour, dedicated bird reporting number (hotline). The biologist provides immediate guidance to the field crew on bird identification, handling and disposal. The biologist records incident information on the Avian Mortality and Nest Management Data Form (Appendix C-2) and forwards the form and other pertinent information to the appropriate distribution or other facility staff. The applicable distribution or facility personnel work with the biologist to determine the necessary remedial action and schedule. Throughout this process, information on the incident and remedial action is entered into PGE's Enablon Compliance Tracking Database (Avian Protection Database) and incident folders by a PGE wildlife biologist or other designated database manager.

A similar process is followed to document problem nest situations and nest management activities. The Nest Management Procedure (Appendix C-3) directs personnel to consult a PGE wildlife biologist prior to removing or relocating a migratory bird nest (see Nest Management Section). The biologist advises field personnel on appropriate nest management with regard to migratory bird laws and permit requirements. Information on the problem nest situation and management actions taken are documented on the Avian Mortality and Nest Management Data Form and entered into the Avian Protection Database.

These reporting and data management procedures allow documentation of bird mortalities, problem nest situations, and remedial actions conducted to make the facilities involved avian-safe. The resulting database will allow: 1) tracking of incidents and remedial actions to ensure that all measures are completed and documented; 2) accumulation of a long-term data set; and, 3) compliance with the reporting requirements of the federal USFW Special Purpose permit.

The reporting system also will provide data on the location and frequency of bird mortalities and problem nests. Such data will be necessary for conducting the proactive risk assessment and mortality reduction measures described below.

## NEST MANAGEMENT

Raptors and some other birds occasionally nest on distribution and transmission structures. All active nests (eggs or young present) of migratory birds are protected by the Migratory Bird Treaty Act. PGE has an established history of responsibly managing nests, especially osprey nests, on utility poles and communicating with agencies concerning nest locations and management needs. PGE has also provided crews and bucket trucks to assist USGS research biologists with osprey management and research projects, including collecting eggs from nests and taking blood samples from chicks.

PGE's Avian Protection Plan (APP) includes procedures for nest management on utility structures (See Nest Management Procedure and data form, Appendix C-2 and C-3). To ensure that all permitting requirements are followed, all nest relocation/removal activities will be performed and documented according to established company procedure. PGE's federal Special Purpose permit (No. MB117979-1) authorizes PGE to relocate active (containing eggs or young) migratory bird nests from transformers and conductors when the threat of fire hazard and power outages is present at the current nest location. In such cases, PGE must report active nest relocations to USFWS within 72 hours. Relocation of bald or golden eagle nests, or nests of threatened or endangered species, whether active or inactive, is not authorized under the permit. Additional permitting would be required if management of an eagle or endangered/threatened species nest is absolutely necessary. Relocation of eagle and other endangered/threatened species nests would be conducted only under the advisement of a PGE wildlife biologist and after any additional required permits or authorizations have been obtained.

Osprey nesting platforms are valuable tools for reducing electrocution risk for nesting birds and improving electrical system reliability. PGE has successfully used osprey nest platforms many times in the past, and will continue to do so as necessary in the future. Typically, a separate pole with a nest platform is located nearby a "problem nest" pole, with the platform higher than the existing structure to make it desirable to the nesting ospreys. If an established nest is present, and if possible, it is then relocated to the new platform, and the existing structure is retrofitted to reduce risk of injury or to discourage perching or nest building in unsafe locations. If the specific location cannot accommodate a separate nest platform pole, a combination of avian-safe retrofits and addition of a platform on a pole-top extension has been successfully used. The Company's experience indicates that ospreys readily adapt to new nest platforms.

Timing of nest management activities is also an important consideration. Whenever possible, PGE plans nest management activities to avoid disturbance of active migratory bird nests. For example, relocation of osprey nests is conducted prior to egg laying or delayed until after the breeding season, unless immediate relocation is necessary due to public safety, system reliability, or bird safety concerns. Often, simple retrofits such as insulating conductors and removing falling nest materials can minimize risk to nesting birds, and, if necessary, the nest can be moved at a later date outside of the active nesting season.

Since implementation of the original APP, PGE has revised the nest management procedure to include not only proper procedures for managing nests but also for documenting all nest

management situations reported by company staff. Current procedures document and map nest locations and nest platform installations, allowing PGE to better understand nest management issues throughout its territory. This information may be beneficial to future risk assessments and proactive mortality reduction measures.

## TRAINING

Training is an important element of the PGE Avian Protection Plan (APP). All appropriate personnel, including managers, supervisors, line and electrical maintenance crews, dispatch, engineering, and design personnel, will be trained in avian protection issues as applicable to their work. Training will include information on: avian electrocution/collision risks; applicable laws and permit requirements; protected birds in the PGE service territory; avian mortality reporting, recordkeeping, and carcass disposal; remedial action procedures; company design standards; and nest management protocols. Training will be conducted on a periodic basis to ensure that new employees are trained and to address any significant changes to regulations, permit conditions, or internal procedures.

Training materials will include: 1) flow diagrams and/or written instructions detailing company procedures for nest management and the handling and reporting of dead birds and nest management situations (Appendices C-1 to C-3); and, 2), photos and identification information for common raptors and endangered species occurring in PGE's service area, or at other project sites as applicable, and review/discussion of recent bird mortality and nest management incidents that illustrate proper procedure or "lessons learned" situations. Training format will consist of multimedia presentations at departmental meetings and compliance trainings. As the training program progresses, various training materials and formats, including brochures, videos, and computer-based training exercises will likely be developed and used. Additional ongoing training opportunities will consist of follow-up and "lessons learned" communications to employees about bird-related incidents.

PGE's training efforts to date have included:

- Avian Protection training at annual compliance training sessions for PGE line crews, electrical maintenance and construction crews, and generation plant personnel in 2007-2013. Avian Protection training was conducted by PGE Environmental Services Staff (typically a wildlife biologist) and included a variety of information, formats, and materials as described above.
- Case-by-case discussions between company biologists and field personnel regarding management of osprey nests on power poles and bird mortality incidents.

PGE's plans for future training include:

- Inclusion of Avian Protection training in PGE's "Training by Position" program to ensure that employees in applicable positions, including new employees, receive an appropriate level of training as well as regular refresher trainings.
- Increased emphasis on design and engineering personnel to ensure that newly constructed power lines and facilities are evaluated for avian risks and incorporate avian-safe design as necessary and appropriate.

## CONSTRUCTION DESIGN STANDARDS

PGE considers avian interactions in the design and installation of new facilities as well as in the operation and maintenance of existing facilities. As practicable, PGE will implement accepted avian-safe design standards for: 1) new construction in identified areas with high avian risk (see the Risk Assessment Methodology section); 2) retrofitting existing structures where bird mortalities have occurred, and; 3) proactive retrofits of existing structures in selected areas identified as having high avian risk. PGE's avian-safe design standards have been developed with reference to APLIC guidance documents (*Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* and *Mitigating Bird Collisions with Power Lines: The State of the Art in 2012)* and standards used by other electrical utilities.

*New Construction*

Avian-safe design will be used for all new construction and line rebuilds in identified areas with high avian risk, as feasible and practicable. High avian risk areas will be determined by bird mortality and nesting activity data; and avian risk assessments will guide avian-safe design measures in high risk areas (see Avian Reporting System section, Risk Assessment Methodology section). Site-specific reviews of new construction projects may also be used to determine if avian-safe construction should be used for particular projects outside of currently-mapped avian risk areas if a high potential for bird risk is identified. The objective of avian-safe design is to provide 60 inches (1.5 meters) of separation between energized conductors and/or energized conductors and grounded hardware, or to insulate energized parts and grounded hardware if adequate spacing is not possible. If other system design considerations prohibit avian-safe design for a particular line segment, other measures, such as perch guards and installation of safe alternative perch locations, may be implemented to minimize the potential for birds perching in unsafe locations.

In addition, risk factors for avian collisions with power lines should be considered when siting new lines. When possible, new line placement will avoid bird concentration areas (such as wildlife refuges, wetlands and riparian areas) and known flight routes. When such areas cannot be avoided, the use of bird flight diverters and line marking devices may effectively reduce collision risk. Site specific factors such as vegetation and topographic features can also be evaluated to determine the line placement that minimizes collision risk.

*Retrofitting Existing Facilities and Proactive Retrofits*

Any PGE power line structure or other equipment involved in an avian electrocution or collision incident will be evaluated and modified as practicable and feasible. Other structures in the vicinity with similar design and in similar habitat will also be modified when practicable and feasible. Other "problem poles" or high-risk equipment may be identified through the bird mortality database (i.e. multiple electrocutions/collisions documented in one area or on a particular circuit), avian risk assessments, and/or feedback from field personnel, wildlife agencies, and concerned customers.

Proactive retrofits of equipment identified as high risk to birds will be conducted as feasible, particularly when work can coincide with routine maintenance activities or when significant system reliability improvements may result. See the Risk Assessment and Mortality Reduction sections for more information on and examples of proactive retrofits.

A remedial action should accomplish the following objectives in order to prevent or reduce the risk of avian electrocution and/or collision:

- Provide 60 inches of separation between energized conductors and/or energized conductors and grounded hardware;
- Cover/insulate hardware or conductors to reduce risk of simultaneous contact if adequate spacing is not possible;
- Discourage birds from perching in unsafe locations;
- As practicable, provide alternative locations for perching and/or nesting; and, if applicable,
- Increase the visibility of conductors or shield wires to prevent avian collisions.

With the above objectives in mind, PGE engineering, operations, and environmental personnel will consult on each problem line or equipment situation to determine the most appropriate remedial action in consideration of site-specific factors (i.e. bird species involved, local land use, habitat and topography, line and equipment configuration, design constraints, etc.). Retrofit measures may include one or a combination of the following: reframing or replacing a structure to achieve adequate spacing of conductors; covering jumper wires, conductors, and equipment; installing perch guards to discourage perching in unsafe locations; installing bird flight diverter and/or line marker devices to increase line visibility and reduce collision risk; and, other modifications as appropriate. See Appendix D for illustrations of the types of avian-safe specifications, construction designs, and retrofit techniques that PGE uses for avian protection.

## RISK ASSESSMENT METHODOLOGY

An effective Avian Protection Plan (APP) should incorporate methods for assessing avian risk. Rather than simply reacting to bird mortalities as they occur, avian risk assessments can be used to identify areas of relatively high avian risk and prioritize them for proactive retrofit efforts. PGE's APP includes methods for evaluating risks to migratory birds and identifying areas and issues of particular concern.

The Avian Reporting System discussed above is an important part of the PGE's risk assessment approach. As PGE collects data on bird mortalities and problem nests over time, patterns are emerging that may indicate areas in the distribution system that could pose relatively high avian risk. The data also indicates particular equipment types and/or configurations that are most dangerous to birds, such as poles with transformers, cutouts, and jumper wires over crossarms.

Analysis of fatality data collected since 2006 indicates that over 80% of electrocutions occur on poles with various types of equipment, particularly transformer poles. Equipment poles typically have additional wires (such as transformer tap wires and jumper wires over crossarms) in proximity to energized and/or grounded equipment posing higher risk for birds. PGE intends to use this information to implement avian-safe design options for new equipment poles and equipment replacements. For example, installation of covered wire for equipment connections on new and replacement equipment, and as part of proactive retrofits where appropriate and feasible, could be an important component of reducing avian risk throughout PGE's system over time. PGE's Standards Advisory Committee has approved covered wire and is close to approving a cutout cover option. Transformer construction standards are being updated to include the covered jumper wire and cutout covers. PGE will continue to evaluate the use of covered wire for jumper wires on the top of poles.

PGE uses existing data as well as information collected by company biologists to determine areas where high bird use may result in relatively high avian risk. Information considered in a risk assessment includes structure configuration, level of avian use, avian mortality, nesting problems, established flyways, adjacent wetlands, prey populations, perch availability, effectiveness of existing procedures, remedial actions, and other factors that affect avian interactions with utility facilities. These types of analyses allow PGE to focus efforts in a cost effective manner on areas that pose the greatest risk to migratory birds.

The fatality and nesting data indicate that higher risk areas may occur in proximity to river and stream corridors as well as in agricultural areas. Areas meeting those criteria will be given a higher priority when assessing the need for avian safe construction and potential proactive retrofits. However, such areas cover substantial portions of PGE's service territory. PGE will continue to use nesting and mortality data in combination with system configuration, geographical and land use/condition information to identify potential risk areas as appropriate. For example, areas with active and productive bald eagle nests, documented osprey nests, and/or reports of electrocution and collision risk issues. Due to its proximity to water and its habitat types, it is an area that could pose higher risk to certain avian species and will be considered for future pro-active retrofits.

## MORTALITY REDUCTION MEASURES

The avian reporting and risk assessment procedures detailed in this Avian Protection Plan (APP) helps PGE identify areas of high avian risk that warrant mortality risk reduction measures. Examples of mortality risk reduction measures include system monitoring to further define risk, system retrofits, and avian-safe standards for new construction. As necessary, PGE will develop risk reduction plans that address where retrofit efforts should be focused and where new construction warrants special attention to avian issues. Risk reduction plans will identify areas where mortality reduction measures should be implemented, the specific measures that will be implemented, and an implementation schedule.

During development of this APP in 2006-2007, a general consensus emerged among PGE personnel and wildlife agency contacts regarding three areas within PGE's service area that warrant proactive mortality reduction measures. These three areas are the Tualatin River National Wildlife Refuge (including the Wapato Lake Unit added to the Refuge in 2007), Sauvie Island, and Jackson Bottom Wetlands. To reduce avian risks in the vicinity of these wildlife refuge areas, PGE spent up to $ 100,000 per year to conduct bird risk reduction measures at each of the three wildlife areas in 2007-2010. Proactive work in 2011-2013 has included installation of numerous osprey nesting platforms, retrofits in proximity to known bald eagle nest sites, and installation of perch poles in known raptor use areas.

PGE will continue to further reduce mortality of avian species with the following proactive measures: 1) retrofit additional adjacent poles as appropriate at bird mortality and nest sites; 2) continue to install platforms to provide alternate nest sites for ospreys using PGE power poles; 3) conduct proactive retrofit measures on other identified high risk areas as practical and feasible; 4) work with other company programs such as the transformer replacement program to ensure new transformers are appropriately covered with wildlife protective materials; and, 5) install appropriate bird safe protection on equipment poles as practical and feasible (see Risk Assessment Methodology Section). PGE will continue to use the avian reporting and risk assessment procedures described in this APP to identify areas that may warrant mortality reduction measures.

## AVIAN ENHANCEMENT OPTIONS

In addition to the goal of reducing avian mortalities through implementation of this Avian Protection Plan (APP), PGE will also look for opportunities to enhance avian populations or habitat. Such proactive efforts for avian habitat conservation have included developing nest platforms, managing habitat to benefit migratory birds, or participating in research on bird populations and habitat management. PGE will identify avian habitat enhancement opportunities during the course of mortality reporting, risk assessment and mortality reduction planning. Avian habitat enhancement measures will be encouraged and explored where practical and economically feasible, especially in cases where they can contribute to improved electrical system reliability (such as construction of nest platforms).

PGE has an established history of successfully managing osprey nests using nest platforms. Company bucket truck crews also have assisted USGS research biologists with osprey management and research projects, including collecting eggs from nests and taking blood samples from nestlings.

Other PGE programs related to avian population monitoring and habitat management include:

- Annual occupancy and productivity surveys of eagle, osprey, and prairie falcon nests associated with PGE hydro project reservoirs in central Oregon;
- Annual bald eagle and waterfowl winter use surveys at PGE hydro project reservoirs in central Oregon;
- Blue bird nest box program on PGE Pelton Round Butte Project wildlife habitat lands
- Purple martin nest colony annual monitoring and maintenance
- Annual sponsorship of the Eagle Watch public event at Lake Billy Chinook;
- Annual surveys of bald eagle fall and winter communal roosts at PGE hydro project reservoirs in central Oregon;
- Development of bald eagle nest site and roost site management plans for nest and roost sites monitored at PGE hydro project reservoirs in central Oregon (Pelton-Round Butte Hydro Project) and on the Mount Hood National Forest (Clackamas Hydro Project);
- Participation in a Multi-Species Candidate Conservation Agreement with Assurances (MSCCAA) including habitat protection, management and monitoring activities intended to benefit populations of ferruginous hawks, loggerhead shrikes, and sage sparrows on PGE-owned and adjacent lands at PGE's Boardman Coal Plant;
- Coordinating with the Sauvie Island Habitat Partnership to monitor, map, and manage osprey nests and nest platforms on Sauvie Island;

- Periodic financial contributions to support the state-wide golden eagle nest inventory program;

- Implementation of a golden eagle satellite telemetry study in central Oregon to identify breeding season home range for several pairs of golden eagles, and determine movement patterns or home range during the non-breeding season.

- Assisted the Tualatin River National Wildlife Refuge with an eagle nest stabilization project.

## QUALITY CONTROL

Effective database management will be the primary tool through which PGE assesses and maintains the quality of Company avian protection procedures and activities. Documentation and tracking of bird mortalities, nest problems, and remedial actions will allow assessment of the effectiveness of avian management actions. For example, tracking of nest management problems will help determine whether nest management actions have been effective or whether nest-related problems are re-occurring at specific locations. The Avian Protection Database will allow Company wildlife biologists to identify re-occurrence of bird mortalities at sites that have been retrofitted. The database will be a key tool for determining the effectiveness of specific retrofit techniques.

In addition to tracking reported mortalities and nest problems, company wildlife biologists will regularly monitor the Company's Outage Management System to detect any outage-related avian issues that are not reported under the Avian Protection Plan (APP) reporting procedures. In addition, ongoing communications with employees through trainings and follow-up communications to avian incidents will provide an ongoing feedback loop to aid in the evaluation and improvement of avian protection procedures.

## PUBLIC AWARENESS

PGE's efforts at avian protection will undoubtedly provide opportunities for educating the public about avian electrocution issues, the company's Avian Protection Plan (APP), and the company's successes in avian protection. A substantial increase in awareness among Company employees in general is expected to result from periodic APP training and internal communications about avian protection initiatives. PGE communicates news to employees on a weekly basis through the company intranet. Therefore, news about avian protection related initiatives, projects, and events can be conveyed to employees as relevant on an ongoing basis.

PGE may publicize information about its APP and avian protection projects through the company internet site, through fliers distributed in customer mailings, and at community events. In addition, direct interaction with customers during the course of avian protection activities (such as investigating bird mortalities, conducting system retrofits, and performing nest management work on customer property) will provide opportunity for raising public awareness about avian protection issues.

The company will also seek sponsorship and participation in organizations, community events and/or symposiums with avian conservation themes. Current examples include: PGE's sponsorship (in cooperation with Cove Palisades State Park and the Confederated Tribes of Warms Springs Reservation of Oregon) of the annual Eagle Watch public event at Lake Billy Chinook; sponsorship of the Oregon Zoo's Wild Life Live! bird show; and membership in the Avian Power Line Interaction Committee.

## KEY RESOURCES

Communication between avian experts and utility decision-makers is important for regulatory compliance, reduction of avian risks, and associated improvements in system reliability. Useful resources for PGE personnel may include Company biologists and contacts at federal and state resource agencies, universities, conservation organizations, wildlife rehabilitation centers, and other utilities. The following is a list of such resources for reference by company personnel.

### PGE Wildlife Biologists

PGE Bird call line (24-hour hotline to on-call PGE Wildlife Biologist)
503-464-CROW (2769)

Kristi Boken (Wildlife Biologist)
Location (3 WTC)
Office: 503-464-7546
Cell: 503-724-0288

Andy Bidwell (Wildlife Biologist)
Location (3 WTC)
Office: 503-464-8526
Cell: 503-887-3002

Robert Marheine (Wildlife Biologist)
Location (Pelton Round Butte)
Office: 541-325-5350
Cell: 541-325-6847

Thad Fitzhenry (Wildlife Biologist)
Location (Pelton Round Butte)
Office: 541-325-5341
Cell: 541-325-2105

Greg Concannon (Manager)
Location (Pelton Round Butte)
Office: 541-325-5339
Cell: 541-325-6840

## Resource Agency Contacts

Oregon Department of Fish and Wildlife (http://www.dfw.state.or.us/wildlife/)

Susan Barnes
Northwest Region Conservation Biologist
971-673-6010 ext. 230

Liz Ruther
Regional Wildlife Biologist
503-621-3488 ext. 228

US Fish and Wildlife Service (http://www.fws.gov/birds/)

Office of Law Enforcement
Jimmy Barna
Special Agent
503-682-6131

Oregon Field Office
Kevin Maurice
Biologist
503-231-6179

Migratory Bird Permit Office
Jennifer Miller
(503) 231-2266

## Utility Resources

Avian Power Line Interaction Committee (APLIC) (http://www.aplic.org/)

Edison Electric Institute (http://www.eei.org/)

APLIC Chair, Sherry Liguori, 801-220-4736

## Bird Conservation and Information Resources

American Bird Conservancy (http://www.abcbirds.org/)

Audubon Society of Portland (http://audubonportland.org/)

Cornell Lab of Ornithology (http://www.birds.cornell.edu/)

HawkWatch International (http://www.hawkwatch.org/)

Idaho Bird Observatory (http://www.boisestate.edu/biology/ibo/)

National Biological Information Infrastructure (http://birdcon.nbii.gov/)

USGS Patuxent Wildlife Research Center (http://www.pwrc.usgs.gov/)

USGS Raptor Information System (http://ris.wr.usgs.gov/)

North American Bird Conservation Initiative (NABCI) (http://www.nabci-us.org/main2.html#)

Partners in Flight (http://www.partnersinflight.org/)

Smithsonian Migratory Bird Center
(http://nationalzoo.si.edu/conservationandscience/MigratoryBirds/)

**Wildlife Rehabilitator Resources** (near PGE service territory and generation facilities)

Portland Audubon Society (http://www.audubonportland.org/)
Wildlife Care Center
5151 NW Cornell Road, Portland
503-292-0304; Daily 9AM – 5PM only

DoveLewis (http://www.dovelewis.org/)
24- Hour Emergency Service
1945 NW Pettygrove, Portland
503-228-7281; Daily, 24 hours
(will transfer to Portland Audubon)

Rowena Wildlife Clinic (www.rowenawildlifeclinic.org)
6900 Highway 30, The Dalles, OR
541-478-2584; Daily, 24-hour, leave message for immediate call back

Wildlife Center of the North Coast (www.coastwildlife.org)
Astoria, OR
503-338-0331; 7AM – 9PM, leave a message

Wild Wings Raptor Rehabilitation Sisters, OR
Gary 541-408-0863; Daily 24-hour

High Desert Rescue and Rehabilitation (http://www.highdesertwildliferescue.org/index.html)
Bend, OR
541-693-3416; Daily 24-hour
541-306-8462

Blue Mountain Wildlife (http://www.bluemountainwildlife.org/)
71046 Appaloosa Land, Pendleton, OR
541-377-0215 (24-hour rescue line)

Turtle Ridge Wildlife Center (http://www.turtleridgewildlifecenter.org/WP/)
Salem, OR
503-540-8664; Daily 8AM – 8PM April to October, 8AM – 6PM November to March

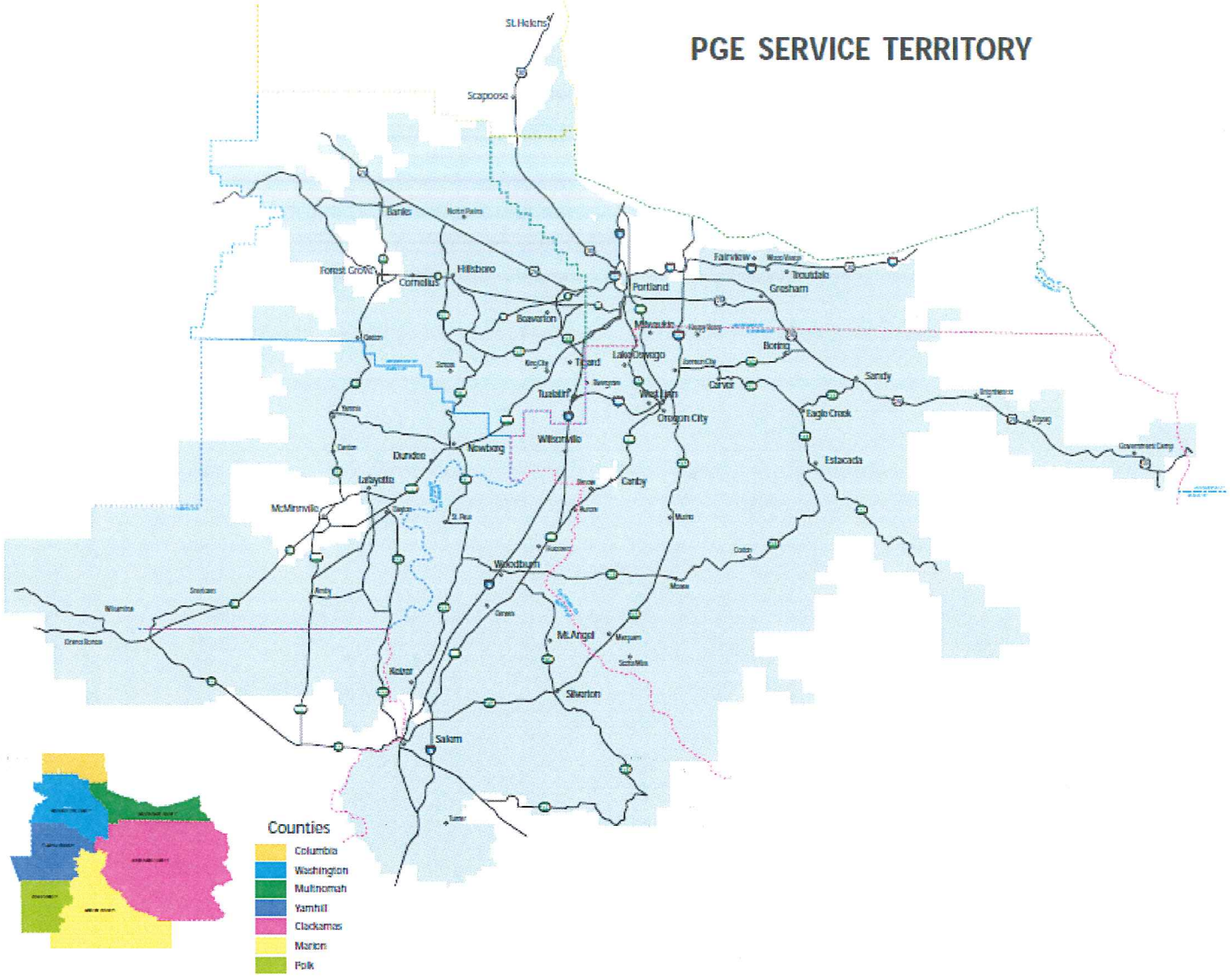
ODFW Rehabilitator List
http://www.dfw.state.or.us/wildlife/rehabilitation/docs/wildlife_rehabilitators.pdf

# Appendix A

# PGE Service Territory Map

**PGE Avian Protection Plan**

**Revision 1, January 2015**


PGE SERVICE TERRITORY
St Helens
Scappoose
Banks
Forest Grove
Cornelius
Hillsboro
Beaverton
Portland
Fairview
Troutdale
Gresham
Milwaukie
Boring
Lake Oswego
Tigard
Tualatin
West Linn
Oregon City
Carver
Sandy
Eagle Creek
Estacada
Wilsonville
Newberg
Dundee
Lafayette
McMinnville
Canby
Woodburn
Mt Angel
Silverton
Keizer
Salem
Counties
Columbia
Washington
Multnomah
Yamhill
Clackamas
Marion
Polk

# Appendix B

# Migratory Bird Special Purpose Permit

**PGE Avian Protection Plan**

**Revision 1, January 2015**

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

# FEDERAL FISH AND WILDLIFE PERMIT

2. AUTHORITY-STATUTES
16 USC 703-712

REGULATIONS
50 CFR Part 13
50 CFR 21.27

1. PERMITTEE

PORTLAND GENERAL ELECTRIC
ATTN: ANDREW BIDWELL
121 SW SALMON ST
PORTLAND, OR 97204-2901

3. NUMBER: MB117979-1 — AMENDMENT

4. RENEWABLE: [X] YES [ ] NO

5. MAY COPY: [X] YES [ ] NO

6. EFFECTIVE: 05/01/2012

7. EXPIRES: 03/31/2015

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*
GREG CONCANNON
SUPERVISOR/MANAGER

9. TYPE OF PERMIT
SPECIAL PURPOSE UTILITY PERMIT FOR MIGRATORY BIRD MORTALITY MONITORING

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
On and near Portland General Electric thermal, hydro, and wind generation sites
(PGE service territories of these power sources throughout the State of Oregon)

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE

D. You are authorized **to take, transport, and relocate active nests** (containing eggs or chicks) of migratory birds form transformers and conductors ***when the threat of fire hazard and power outages is present and imminent*** at current nest location. The office issuing this permit shall be notified within 72 hours of an active nest relocation, giving the location and details on relocation (i.e. nest moved to platform built adjacent to power pole).

This **DOES NOT** authorize relocation of bald and golden eagle nests, nests of species listed as threatened or endangered under the Endangered Species Act, or nests relocated for reasons other than imminent fire hazard or power outage (such as maintenance or other non-emergency situations).

For a list of threatened and endangered species in your state, visit the U.S. Fish and Wildlife Service's Threatened and Endangered Species System (TESS) at: http://www.fws.gov/endangered/.

E. You are authorized to **pick up and dispose of carcasses and partial remains of migratory birds** (except bald and golden eagles and threatened or endangered species). Carcasses may be retained up to 180-days prior to disposal for identification and training purposes. Carcases should be burried in the field, transported for incineration, buried off-site, turned over to USDA-Wildlife Service, or disposed of in accordance with municipal garbage disposal regulations. Records must be maintained of exact dates and locations (preferably GPS coordinates) carcasses are found. Annual reports of specimens will be due by January 31 each year, for the previous Calendar Year. Forms will be provided by permit office.

[X] ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORT DUE: 01/31
You must submit an annual report to your Regional Migratory Bird Permit Office each year, even if you had no activity. Form: www.fws.gov/forms/3-202-17.pdf.

| ISSUED BY | TITLE | DATE |
|---|---|---|
| [signature] | PERMIT BIOLOGIST - FWS REGION 1 | 05/02/2012 |

This permit **does not authorize personal use** of any migratory birds, parts, nests or eggs salvaged, transported, or temporarily possessed under the authority of this permit.

Any dead **bald eagle or golden eagle** picked up must be reported to the office issuing this permit (PermitsR1MB@fws.gov) within 72 hours. Eagle carcasses must be turned over to the State Fish and Game Department and the U.S. Fish and Wildlife Service Law Enforcement Office (OLE) (phone number at the bottom) so they can be forwarded to the National Eagle Repository in Colorado. If permittee is unable to make contact with either agency personnel, authorized to transport eagle carcass to a freezer for temporary storage until it can be turned over to State or Federal personnel.

F. **Injured birds** must be picked up and transferred to a federally permitted wildlife rehabilitation center. Please contact the issuing office if you need rehabilitator information (503-872-2715).

G. **Records** must be maintained at location indicated in Block 10 (above). You must maintain records in accordance with 50 CFR 13.46 and 50 CFR 21.27.

H. **Authorized personnel:** Greg Concannon, Andrew Bidwell, Robert Marheine (Wildlife Biologists acting as advisory contacts for PGE field crews) and any person who is
(1) employed by or under contract to you for the activities specified in this permit, or
(2) otherwise designated a subpermittee by you in writing, may exercise the authority of this permit.

Subpermittees must be at least 18 years of age. As the permittee, you are legally responsible for ensuring that your subpermittees are adequately trained and adhere to the terms of your permit. You are responsible for maintaining current records of who you have designated as a subpermitte, including copies of letters you have provided.

I. You and any subpermittees must carry a legible copy of this permit and display it upon request whenever you are exercising its authority. Subpermittees must also carry your written subpermittee designation letter. You and any subpermittees must comply with the attached Standard Conditions for Federal Migratory Bird Scientific Collecting Permits. **These standard conditions are a continuation of your permit conditions *and must remain with your permit.***

Possession of this permit does not absolve the company from liability for take, nor does it relieve the company of its obligations to comply with applicable Federal, state, tribal, or local laws.

Acceptance of this permit authorizes the Director's agent to enter the facility property at any reasonable hour as necessary to inspect the wildlife, records, infrastructure, property, and associated infrastructure for wildlife impacted by the energy development, and for compliance with the terms of this permit and governing regulations.

**For suspected illegal activity, immediately contact USFWS Office of Law Enforcement at:** 503-682-6131

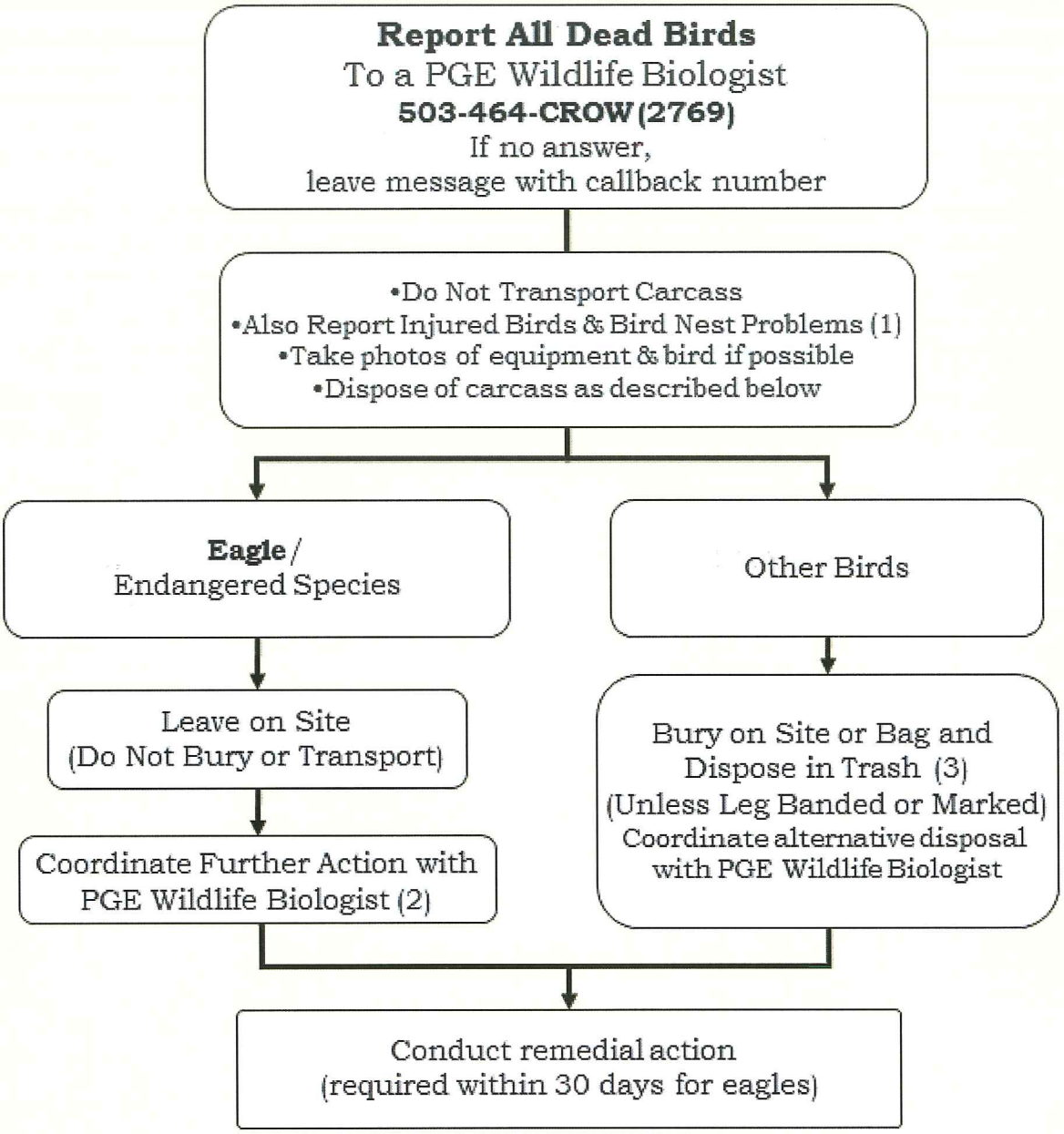
# Appendix C-1

# PGE Dead Bird Reporting and Disposal Procedure

**PGE Avian Protection Plan**

**Revision 1, January 2015**

# PGE Dead Bird Reporting and Disposal Procedure




(1) See the PGE Nest Management Procedure

(2) A PGE Wildlife Biologist can help coordinate transfer of eagle carcasses to a US Fish and Wildlife Service Agent.

(3) Burial on site or bag and dispose in trash is consistent with PGE's Migratory Bird Permit. A PGE Wildlife Biologist can advise on proper carcass disposal if necessary.

Rev. 2, March 2013

# Appendix C-2

# PGE Avian Mortality and Nest Management Data Form

**PGE Avian Protection Plan**

**Revision 1, January 2015**

# Portland General Electric
# Avian Mortality and Nest Management
# Data Form

Under the PGE Dead Bird Reporting Procedure and the Nest Management Reporting Procedure, an on-call PGE Environmental Services biologist is contacted when a bird mortality occurs in association with PGE power lines or facilities. The biologist will document each bird mortality incident using the following procedure.

1. **Document the incident by collecting the following information as appropriate:**

Bird Mortality (check if yes): ☐ Nest Management (check if yes): ☐

Date Found:

Reported by: Phone #:

Address: County:

Pole #: Map #:

Transformer #: Size:

Other Equipment/Facility:

Bird Species: Number of Dead Birds:

Cause of Death

Disposal Method (check method used): Bagged and disposed of in municipal solid waste ☐ Buried on site ☐

Other (describe):

Additional incident or site information:

2. **Enter incident information into the Avian Protection database/tracking system**

   Date entered:

3. **Coordinate with PGE Distribution Department (for power line incidents) or other personnel as appropriate to assess the equipment involved, need for alternate nest platform, etc.**

   Field review conducted by:

   Date conducted:

4. **Recommend corrective measures to reduce bird risk at the site involved.**

   Recommended measures:

5. **Track incident follow-up and document date corrective measures are completed in the Avian Protection database/tracking system.**

   Work order #:

   Date Completed:

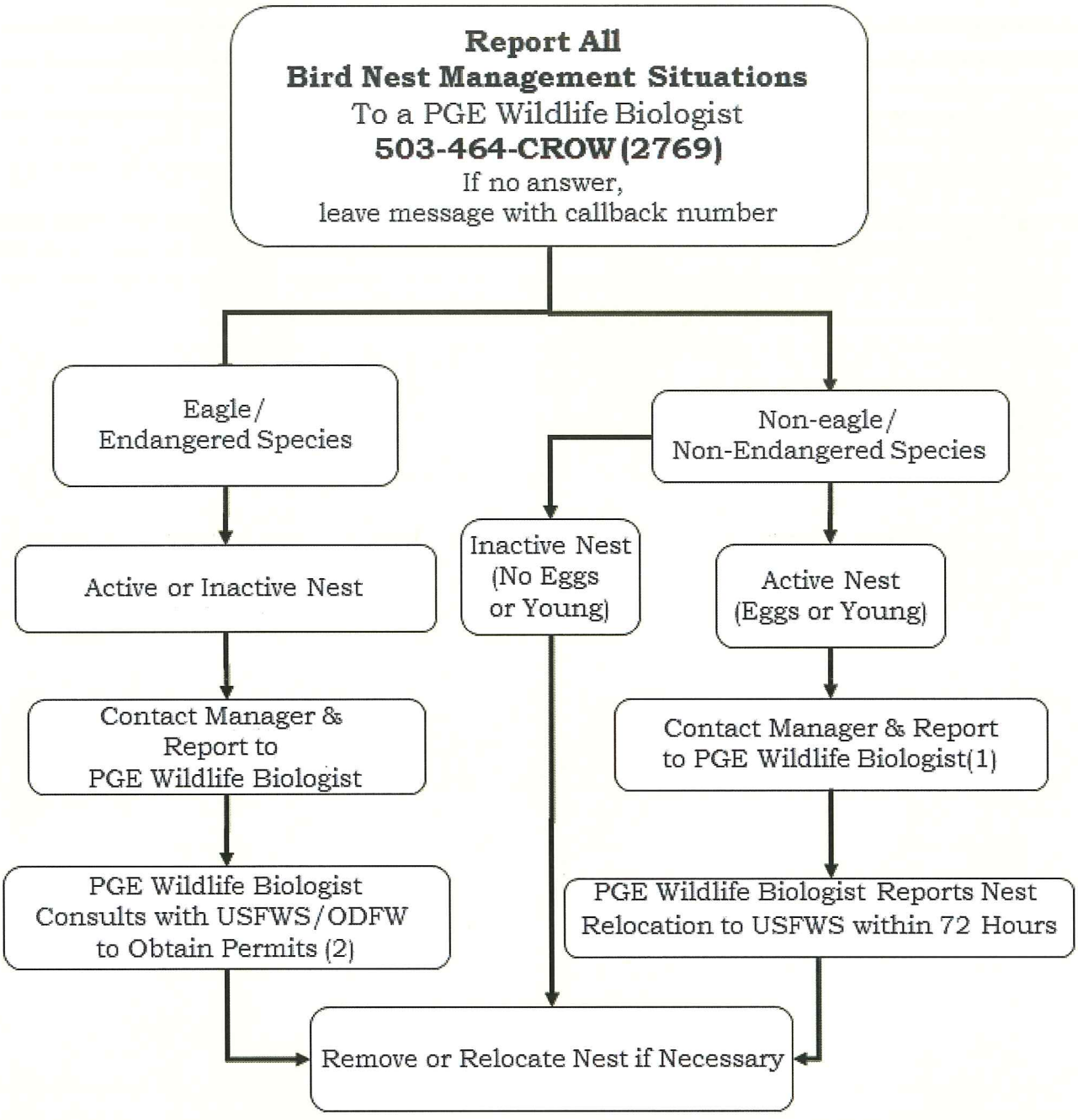
# Appendix C-3

# PGE Nest Management Procedure

**PGE Avian Protection Plan**

**Revision 1, January 2015**

# PGE Nest Management Procedure




(1) If there is imminent danger, it is permissible to move active nests of non-eagle species before contacting a PGE Wildlife Biologist.

(2) A PGE Wildlife Biologist must be involved to coordinate permitting for all eagle/endangered species nest relocations or other management

Rev. 1, Aug 2009

# Appendix D

# PGE Construction Design Standards for Wildlife Protection

**PGE Avian Protection Plan**

**Revision 1, January 2015**

## Overhead Construction - Section 118, Wildlife Protection

LC11805, Avian Protection, General

LC11810, Wildlife Protection, Covers

LC11820, Framing Construction Units, Avian, Three-Phase

LC11825, Framing Construction Units, Avian, Three-Phase, 12.5 kV, Underbuild

LC11826, Wildlife, Osprey Platform

The complete detailed standards can be found at:
http://sharepoint/SREStandardsnSpecifications/Standards/Forms/AllItems.aspx?RootFolder=%2FSREStandardsnSpecifications%2FStandards%2FOverhead%20Construction%2FSection%20118%2C%20Wildlife%20Protection

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## General Information

Companies and individuals can be held legally responsible for violations of these acts, and violations can result in imprisonment and/or fines. A program to address the avian issue does not totally eliminate the possibility of enforcement action, but does greatly reduce the probability of adverse consequences. PGE is required to retrofit all equipment where a large bird has been killed to make the equipment avian safe. The PGE Avian Protection Plan (APP) requires avian-safe standards for new construction in identified avian high risk areas order to facilitate future compliance with migratory bird protection laws. More information concerning the avian issue can be found in the APP. Additional information and links to other websites can be found on the Avian Power Line Interaction Committee website at http://www.aplic.org.

The standard practices for avian protection cover new construction methods as well as retrofit materials and methods. Some methods may be more effective than others, depending on the bird species and existing design. In some cases, a method may be inappropriate for a specific construction. Notes and other information from industry experience will be provided when available.

# Standard Practices for Avian Protection

- Protect all apparatus bushings by covering with approved bushing protectors.
- Cover riser wires with silicon rubber tubing.
- Provide 60-inch diagonal separation between primary phase conductors, or cover the center-phase conductor with a center-phase cover. Refer to LC11820 and LC11810.
- Where 60-inch spacing between primary conductors on crossarms cannot be met, cover the center-phase conductor with a center-phase cover. Refer to LC11810.
- Install triangles on crossarms where the center phase is on the arm, and appropriate spacing can be achieved. Refer to LC11810.
- Where poles are adjacent to avian glidepaths near lakes or other wetland habitat, use collision-avoidance products.

# Appendix P-3

## Wildlife and Habitat Monitoring and Mitigation Plan

# Carty Generating Station: Wildlife and Habitat Monitoring and Mitigation Plan[1]

~~July 2, 2014~~
February 2018[2]

## I. INTRODUCTION

This Wildlife and Habitat Monitoring and Mitigation Plan (Plan) describes wildlife monitoring that the certificate holder shall conduct during construction and operation of the Carty Generating Station. The monitoring objectives are to determine whether the facility causes significant fatalities of wildlife species or results in a loss of habitat quality.

This Plan also describes methods and standards for preservation and enhancement ~~of an area~~ of land near the Carty Generating Station to mitigate for impacts of the facility on wildlife habitat and addresses mitigation for both the permanent impacts of facility components and the temporal impacts of facility construction. The certificate holder shall protect and enhance the mitigation area(s) as described herein. This Plan specifies habitat enhancement actions and monitoring procedures to evaluate the success of those actions. Remedial action may be necessary if the mitigation area ~~does~~(s) do not demonstrate progress toward habitat enhancement success.

## II. DESCRIPTION OF THE FACILITY

The Carty Generating Station Site is located in Morrow ~~and Gilliam Counties~~County, Oregon, approximately 13 miles southwest of the town of Boardman, Oregon. The generating facility and associated transmission lines would be located on an upland plateau at an elevation of approximately 650 feet above sea level. The project facilities would be located entirely on private lands that are mostly characterized as shrub-steppe ~~rangeland, weedy agricultural and shrub~~, grassland, or agricultural ~~cropland~~areas. There are some riparian and wetlands habitats present within the amended site boundary; however, all project facilities—including transmission line towers—will be sited to avoid impacts on these habitats. Soil types in the area consist primarily of sandy loam, silt loam, and very stony loam.

~~The project boundary contains shrub-steppe habitat, agriculture cropland, and riparian areas and wetlands.~~ Much of the native shrub-steppe vegetation within the project boundary has been modified by livestock grazing and past wildfires. Functional mature shrub-steppe habitat is patchy and is dominated by big sagebrush (*Artemisia tridentata*), broom snakeweed (*Gutierrezia sarothrae*), bluebunch wheatgrass (*Pseudoroegneria spicata*), cheatgrass (*Bromus tectorum*), gray rabbitbrush (~~*Chrysothamnus viscidiflorus*~~*Ericameria nauseosus*), needle-and-thread grass (*Hesperostipa comata),* and Sandberg's bluegrass *(Poa secunda)*. ~~The transmission line area consists~~Grasslands consist of ~~irrigated agriculture crops, weedy/grazed shrub-steppe,~~ cheatgrass, crested wheatgrass (*Agropyron cristatum*), bluebunch wheatgrass, needle-and ~~a riparian zone with mixed upland~~-threadgrass, Sandberg's bluegrass, redstem filaree (*Erodium cicutarium*), and ~~water-tolerant plants, a few wetlands, and Willow Creek. Wetland areas~~mouse-ear chickweed (*Cerastium* sp.). Riparian forests are dominated by Russian olive (*Elaeagnus*

[1] This ~~plan~~Plan is incorporated by reference in the site certificate for the Carty Generating Station and must be understood in that context. It is not a "stand-alone" document. This plan does not contain all mitigation required of the certificate holder.

[2] A draft version of this plan was included as Exhibit 1 to the Energy Facility Siting Council's *Final Order on the Carty Generating Station Application for Site Certificate* (June 29, 2012). In accordance with Site Certificate Condition 10.1 the certificate holder consulted with the Oregon Department of Fish and Wildlife (ODFW) and obtained Department approval of the Plan prior to the start of construction (December, 2013). As allowed by Section IX of the Plan, the Department reviewed and approved ~~this~~an amended Plan on July 7, 2014. This February 2018 amended plan is being submitted as part of the Request for Amendment No. 1 of the Carty Generating Station Site Certificate.

*angustifolia*), Pacific willow (*Salix lucida* ssp.), Canada goldenrod (*Solidago canadensis*), amaranth (*Amaranthus* sp.*)*, and broadleaf cattail (*typha latifolia*).

The Oregon Department of Fish and Wildlife (ODFW) describes habitat categories in ~~their~~its Wildlife Habitat Mitigation Policy (Oregon Administrative Rules [OAR] 635-415-0025). The generating facility will be constructed in two phases, with the components referred to as Unit 1 and ~~Unit 2. For construction of~~ the Carty Solar Farm. Unit 1 (Energy Facility Site and a portion of the switchyard), ~~facility components will occupy~~completed in 2016, occupies approximately 45 acres of Category 4 shrub-steppe habitat, and temporary construction-related impacts ~~will occur~~occurred on approximately 55.4 acres of Category 4 shrub-steppe habitat. ~~Unit 2~~Portland General Electric Company (PGE) established a Habitat Mitigation Area (HMA) of 78 acres (the HMA for Unit 1) to mitigate these permanent and ~~the transmission line (if necessary) will be constructed at a later date.~~ temporary impacts (Figure 1 and Table 2). PGE will establish the HMA for the Carty Solar Farm to mitigate permanent and temporary impacts that result from construction of the Carty Solar Farm. The overall HMA for the Carty Generating Station (the Carty Generating Station HMA, or just HMA in this document) will consist of the combined areas of the HMA for Unit 1 and the HMA for the Carty Solar Farm. Disturbance and mitigation acreage for ~~Unit 2 and~~ the ~~transmission line~~Carty Solar Farm will be finalized and updated in this plan in consultation with ODFW and the Oregon Department of Energy (the Department) at a later date, prior to construction of ~~those portions~~each phase of the project~~.~~ (see Section IV for HMA acreage calculation).

## III. WILDLIFE MITIGATION AND MONITORING MEASURES

The certificate holder shall use a qualified investigator (~~botanist,~~ wildlife biologist~~, or revegetation specialist~~) to conduct monitoring for Washington ground squirrel (WGS; *Spermophilus washingtoni*) and avian use of the project area ~~and HMA~~. Specific monitoring and mitigation measures for these species are described below~~:~~ (also see Section VII for HMA monitoring requirements):

### A. Washington Ground Squirrel

Best Management Practices

- The certificate holder shall impose and enforce a construction and operation speed limit of 20 miles-per-hour throughout the facility site and, during the active squirrel season (February 1 through June 30) a speed limit of 10 miles-per-hour on private roads near known WGS colonies.
- Conduct Environmental Awareness Training for all project personnel and construction contractors prior to the beginning of construction or before entering the Project right-of-way (ROW~~.~~). The training program shall discuss WGS and all other environmental issues related to the project, and include handouts with WGS identification information and reporting procedures. Smaller training sessions shall be conducted as needed for personnel that start after the beginning of construction.
- In order to discourage ~~squirrels~~WGS from moving into planned construction areas~~,~~ the certificate holder may disc or till~~, at~~ a minimum~~,~~ of an 800~~-ft.~~foot buffer within the perimeter of the ~~Facility Site Boundary~~ planned ground disturbance areas in closest proximity to squirrel activity areas ~~(i.e., areas immediately southwest of Tower Road). Areas to~~. Proposed measures and areas where measures will be ~~tilled~~implemented shall be reviewed by ODFW and ~~United States Fish and Wildlife Service (USFWS) and would~~shall be informed by the most recent WGS survey data~~, and may include all~~. If the certificate holder discs or ~~portions of the Facility Site, as appropriate~~tills areas, the certificate holder shall plant dryland wheat or another cover crop approved by ODFW in tilled areas. Such areas shall be tilled annually until construction begins to maintain a soil disturbance regime that is unsuitable for use by WGS. Other potential measures for deterring WGS movement into planned construction areas, such as installation of

perimeter silt fences, will be planned in coordination with and approved by ODFW. In addition to preventing WGS from moving into the planned construction areas, discing or tilling the planned construction area, and/or implementing other approved deterrence measures, means the area will no longer be considered WGS habitat and would not be included in the no-impact buffer area for any new WGS burrows that are established within 785 feet of the Facility Site Boundary. (Note, an approximately 45-acre portion of the Energy Facility Site was tilled and planted with winter wheat in December 2012 following coordination with ODFW and USFWS).

- ~~In order to control erosion and weed establishment in tilled areas, the certificate holder shall plant dryland wheat or another cover crop, as appropriate. Crops to be planted shall be reviewed and approved by ODFW and USFWS.~~
- If pre-construction surveys determine that WGS burrows have been established ~~west of Tower road~~in previously inactive areas, the certificate holder shall immediately report to ODFW ~~and USFWS~~. The certificate holder shall coordinate with ODFW ~~and USFWS~~ to establish additional mitigation measures or to obtain an Incidental Take Permit, as appropriate.
- The certificate holder will consult with ODFW ~~and USFWS~~ to discuss the situation and potential additional avoidance measures should WGS establish burrows within 785 feet of ~~the Facility Site Boundary.~~ existing facilities, construction activity, or planned construction disturbance areas. If there is concern that, despite reasonable avoidance measures, WGS may accidently be killed or injured by construction activities, then the certificate holder shall work with ODFW to obtain an Incidental Take permit, as appropriate.

Monitoring

The certificate holder shall conduct post-construction surveys on known colonies ~~in~~within the ~~Carty facility area~~amended Site Boundary, on land owned by the certificate holder, both within the HMA and in areas where known active burrows were recorded during ~~preconstruction~~pre-construction field surveys ~~(2009-2012).~~ The surveys shall be conducted by qualified biologists in year one, year three, and year five after ~~operations~~operation of Unit 1 have begun (i.e., 2017, 2019, and 2021) and then at least every five years (in years divisible by five) after that for the life of the Project. Surveyors shall record evidence of WGS activity, current land use, and ~~evidence of~~any conditions caused by the project that might increase erosion or result in a decline in vegetation quality and adversely affect a WGS colony. ~~The facility is~~Unit 1 and portions of the potential Carty Solar Farm transmission line are located on the southwest side of Tower ~~road.~~ Road. In consultation with ODFW, it was determined that Tower Road is a significant boundary to WGS habitat. Therefore, for active burrows located on the northeast side of Tower Road, the 785-foot buffer will not extend across Tower Road.

**B. Raptor Nest Monitoring**

~~Monitoring~~

During the year in which any phase of construction occurs, the certificate holder shall use a protocol approved by ODFW to conduct raptor nest surveys to determine whether there are any active nests that would potentially be disturbed during construction. Surveys will consist of ground-based and/or helicopter aerial searches, as appropriate to the construction activity locations planned for a given year. Surveys will be carried out to 1 mile from the construction disturbance areas for golden eagle nests, 0.6 mile~~s~~ for ferruginous hawk nests, and 1,300 feet for the nests of all other raptor species. The survey team will also document all other raptor nests observed during surveys for golden eagle nests.

If a nest is occupied by any of these sensitive raptor species, the certificate holder shall not

engage in high-impact construction activities (activities that involve blasting, grading, or other major ground disturbance) or allow high levels of construction traffic within ~~1 mile (line of sight) of active golden eagle nests,~~ designated buffer distances for each species (Table 1). ~~Buffer of the Horn Butte Area of Critical Environmental Concern (ACEC), within 0.6 mile (line of site) of nests occupied by ferruginous hawks, or within (line of site) of nests occupied by certain other sensitive raptor species during their critical nesting periods. These buffer~~ distances may be decreased with approval by ODFW and USFWS depending on the intensity of construction activity and whether sufficient barriers (e.g., vegetation, topography) are present to shelter a particular nest site from construction disturbance or if consultation determines a lesser distance is feasible and appropriate. ~~Critical nesting periods for sensitive raptor species are indicated in Table 1.~~ The certificate holder also will instruct construction personnel to avoid any unnecessary activity within the buffer area.

**Table 1. Critical Nesting Periods for Sensitive Raptors**

| Species | Disturbance Buffer Distance (line of sight) | Critical Nesting Period | Early Release Date |
|---|---|---|---|
| Ferruginous Hawk | 0.6 mile | March 15 to ~~July~~August 15 | May 31 |
| Bald Eagle | 0.5 mile | January 1 to August 15 | May 31 |
| Swainson's Hawk | 1,300 feet | April 1 to July 15 | May 31 |
| Golden Eagle | 1 mile | January 1 to July 15 | May 31 |
| Burrowing Owl | 1,300 feet | April 1 to August 15 | July 15 |
| Long-billed Curlew* | 0.5 mile | March 8 to June 15 | May 31 |

*Although not a raptor species, a critical nesting period and buffer of 0.5 mile for active long-billed curlew nests were included in the Site Certificate.

The certificate holder will direct a qualified biological monitor, as approved by ~~ODOE~~the Department, to observe the active nest sites during the sensitive period for signs of disturbance. If an active raptor nest is found during construction, the certificate holder will consult with ODFW and USFWS and institute buffer distances and monitoring as appropriate.

The certificate holder may begin or resume high-impact construction activities before the ending day of the sensitive period if any known nest site is not occupied by the early release date (Table 1). If a nest site is occupied, the certificate holder may begin or resume high-impact construction before the ending day of the sensitive period, with the approval of ODFW and USFWS, after the young are fledged. The certificate holder would use a protocol approved by ODFW and USFWS to determine when the young are fledged (that is, when the young are independent of the core nest site).

During construction and in year one, year three, and year five after operations of Unit 1 have begun (i.e., 2017, 2019, and 2021), and then at least every five years (in years divisible by five) after that for the life of the project, the certificate holder shall provide an annual sensitive species raptor nest monitoring report to ODFW and ~~the US Fish & Wildlife Service (~~USFWS~~).~~. The report will document the locations and nest productivity of sensitive raptor species~~, including golden eagle (*Aquila chrysaetos*),~~ nests ~~occurring~~ within ~~1 mile of the Carty facility, ferruginous hawk nests occurring within 0.6 mile of the facility, and other sensitive raptor species nests occurring within~~ the amended ~~of the facility~~ site~~.~~ boundary. The certificate holder

shall consult with USFWS and ODFW regarding any active protected bird nests found within the construction disturbance area.

If nest monitoring detects nest site abandonment or other adverse impact to nesting activity caused by project activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of the Department. The certificate holder shall propose and implement mitigation for the affected species in consultation with the Department, ODFW, and USFWS. Mitigation shall be designed to benefit the affected species or contribute to overall scientific knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may be designed to proceed in phases over several years. It may include, but ~~is~~will not be limited to, additional raptor nest monitoring, protection of natural nest sites from human disturbance or cattle activity (preferably within the general area of the facility), or participation in research projects designed to improve scientific understanding of the needs of the affected species.

All bird mortalities and active nests of all other protected bird species found in association with project facilities shall be documented and reported consistent with PGE's adopted Avian Protection Plan. All eagle and other sensitive raptor species mortalities shall be reported immediately to USFWS and ODFW.

**C. Avian Protection**

The certificate holder maintains ~~an adopted~~a company-wide Avian Protection Plan (APP) to reduce impacts to avian species from electrocutions and collisions with electric utility power lines and equipment. The APP is hereby adopted by reference ~~and is attached to this Plan as Appendix A.~~. The APP includes the following three-phased approach to address avian risks that will be applied to the development of the Carty Generating Station:

- Preventive – Emphasize compliance with applicable laws, regulations, and permits. Use avian-safe standards in areas identified as having high avian risk;
- Reactive – Implement the Avian Reporting System (report bird mortalities and conduct remedial measures as appropriate); and
- Proactive – Conduct employee training and risk assessments of existing lines, modify lines when necessary, and contribute to research of avian/electrical equipment interactions.

Electrocution from high-voltage transmission lines is very rare because the distances between conductors, and between conductors and grounded hardware, are greater than the wingspan of any raptor (APLIC ~~1996).~~2006).[3] However, transmission lines do present a collision risk for birds. Consistent with the APP, the certificate holder shall employ pre-construction measures to protect raptors in the design and construction of transmission lines. Protection measures to reduce the potential risks to raptors and other birds will include the following:

- Design and construct all above-ground transmission line support structures following the practices suggested by the Avian Powerline Interaction Committee (APLIC), including a minimum separation of 9 feet between all energized transmission conductors;
- Install perch guards or other deterrents as needed and safe alternative perching or nesting

[3] APLIC (Avian Power Line Interaction Committee). 2006. Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, CA. http://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf. Accessed August 23, 2016.

locations, as appropriate; and

- Install bird flight diverters and line marking devices where necessary to minimize areas of bird collision risk, such as bird concentration areas (wetland/riparian areas) and known flight routes.

A nest management procedure, which identifies steps facility employees must take when a nest is encountered on utility structures, is also included in the APP. As described in the APP, the certificate holder will track avian mortalities, nest management issues, and remedial actions taken using an internal reporting system and database, the Avian Reporting System. This reporting database allows: (1) tracking of incidents and remedial actions to ensure that all measures are completed and documented, (2) accumulation of a long-term data set, and (3) compliance with the reporting requirements of the USFWS Special Purpose Permit currently held by the certificate holder. The reporting system also provides data on the location and frequency of bird mortalities and problem nests.

Where feasible, the certificate holder shall conduct site preparation for construction of the Carty Generating Station and transmission line in a manner that minimizes potential for impacting nesting native birds protected by the Migratory Bird Treaty Act, such as conducting initial site clearing outside of the typical bird breeding season (generally March to July). Prior to commencement of construction activity during the breeding season, a qualified biologist shall survey the construction site to determine the presence of any active protected bird nests. Construction personnel shall be trained in avian awareness, reporting of protected bird nests, and the proper procedures if dead birds are found at the construction site.

## IV. CALCULATION OF THE SIZE OF THE MITIGATION AREA

The ~~Habitat Mitigation Area (~~HMA~~)~~ must be large enough and have ~~the~~ characteristics ~~to~~that meet the standards set by ODFW's Wildlife Habitat Mitigation Policy. These standards include~~":~~ no net loss" of habitat quantity or quality and to provide a net benefit of habitat quantity or quality for Category 2 habitat; no net loss of habitat quantity or quality for Category 3 habitat (in-kind, in-proximity mitigation); no net loss of habitat quantity or quality for Category 4 habitat~~. Mitigation standards~~; net benefit in habitat quantity or quality for Category ~~6 involve minimizing direct~~5 habitat ~~loss~~(i.e., actions that improve habitat conditions); and ~~avoiding~~minimize impacts ~~to off-site~~for Category 6 habitat.

~~Within the site boundary, permanent facility components of~~ Unit 1 ~~(the "footprint") would occupy approximately 45 acres. Temporary construction related~~ impacts ~~would occur on approximately 55 acres. For the footprint~~and estimated acreage impacts for the Carty Solar Farm are shown in Table 2. For permanent impacts, the mitigation area shall include ~~one~~2 acres for every acre of impacts to Category 2 habitat (a 2:1 ratio to provide no net loss and a net benefit of habitat quantity) and 1 acre for every acre of permanent impacts to Category 3 and 4 ~~habitat~~habitats (a~~ 1:1 ratio). This~~ 1:1 ratio ~~is intended~~ to ~~meet the ODFW goal of "~~provide no net loss~~" of habitat.~~). Mitigation for temporary impacts shall include ~~one-half~~1 acre for every acre of impacts to Category 2 habitat (a 1:1 ratio) and 0.5 acre for every acre of temporary impacts to Category 3 and 4 habitat (a 0.5:1 ratio)~~.~~ that have not previously been mitigated for temporary impacts (e.g., areas of temporary impacts that are mitigated as part of construction for Unit 1 that are reused for subsequent units will not result in additional mitigation acreage). Temporary impacts on grasslands typically do not require mitigation in the form of land acquisition and/or conservation.

The acreages of impact in this Plan for Unit 1 are based on the final design layout of the project submitted to the Department and ODFW prior to beginning of project construction~~. If during construction the acreages of impact increase the certificate holder shall provide the Department and ODFW~~ and the revised final design layout of the facility and the associated impact acreages ~~and~~provided to the Department and ODFW during construction. The construction of Unit 1 resulted in 45 acres of permanent disturbance and 55.4 acres of temporary disturbance, resulting in a total required mitigation area of 72.7 acres. The acreages of impact for the Carty Solar Farm are based on preliminary design and will be updated based on final

design layout of the project. The acreages of impact will be submitted for approval to the Department and ODFW prior to beginning construction to demonstrate that the HMA is appropriately sized. ~~.~~

Current maximum habitat impact estimates of the Carty Generating Station construction associated with ~~Unit 1~~each unit are shown in the table below (Table 2).

~~**Table 2. Estimated Habitat Impacts of the Carty Generating Station Unit 1 by Habitat Category (acres)[1]**~~

| ~~Habitat Type~~ | ~~Temporary Impacts (acres)~~ | | ~~Total~~ | ~~Mitigation[3]~~ |
|---|---|---|---|---|
| | ~~Energy Facility~~ | ~~Transmission Line~~ | | |
| ~~Category 4~~ | ~~55~~ | ~~TBD~~ | ~~55~~ | ~~27.5~~ |
| ~~Category 6[2]~~ | ~~0~~ | ~~TBD~~ | ~~0~~ | ~~0~~ |
| ~~Total~~ | ~~55~~ | ~~TBD~~ | ~~55~~ | ~~27.5~~ |
| ~~Habitat Type~~ | ~~Permanent Impacts (acres)~~ | | ~~Total~~ | ~~Mitigation[3]~~ |
| | ~~Energy Facility~~ | ~~Transmission Line~~ | | |
| ~~Category 4~~ | ~~45~~ | ~~TBD~~ | ~~45~~ | ~~45~~ |
| ~~Category 6[2]~~ | ~~0~~ | ~~TBD~~ | ~~0~~ | ~~0~~ |
| ~~Total~~ | ~~45~~ | ~~TBD~~ | ~~45~~ | ~~45~~ |
| ~~**Total mitigation area required (to nearest whole acre, without transmission line)**~~ | | | | ~~**73**~~ |

~~[1] Disturbance and mitigation acreage for Unit 2 and the transmission line will be finalized in consultation with ODFW at a later date prior to construction of those portions of the project.~~

~~[2] No mitigation area required~~

~~[3] Temporary impact mitigation is based on a 0.5:1 acre ratio of Category 4. Permanent impact mitigation is based on a 1:1 acre ratio of Category 4.~~

**Table 2. Estimated Habitat Impacts of the Carty Generating Station by Habitat Category**

| Habitat Type by Project Area | Temporary Impacts (acres)[1] | Permanent Impacts (acres)[2] | Calculated Mitigation Area (acres)[1,2] |
|---|---|---|---|
| **Unit 1 and Supporting Facilities[3]** | | | |
| Category 4 | 55.4 | 45 | 72.75 |
| Total Area | 55.4 | 45 | |
| Total Unit 1 Mitigation[1,2] | 27.75 | 45 | 72.75 |
| **Carty Solar Farm and Supporting Facilities[4]** | | | |
| Category 3 | 14.05 | 302.16 | 309.19 |
| Category 4 | 90.57 | 18.79 | 64.08 |
| Category 6 | 2.81 | 0.19 | 0 |
| Total Area | 107.43 | 321.14 | |
| Total Solar Farm Mitigation[1,2] | 53.72 | 321.14 | 373.27 |
| Total Mitigation for Amended Project | | | 446.02 |
| Mitigation Required to date ( Unit 1) | | | 72.75 |
| Additional Mitigation Required (Unit 1 and Carty Solar Farm) | | | 373.27 |

**Table 2. Estimated Habitat Impacts of the Carty Generating Station by Habitat Category**

| Habitat Type by Project Area | Temporary Impacts (acres)[1] | Permanent Impacts (acres)[2] | Calculated Mitigation Area (acres)[1,2] |
|---|---|---|---|

**Notes:**
In all cases impacts in a given project area will only be mitigated once.

[1] Temporary impact mitigation is based on a 0.5:1 acre ratio of Category 3 and 4 and zero for Category 5 and 6.

[2] Permanent impact mitigation is based on a 1:1 acre ratio of Category 3 and 4 and zero for Category 5 and 6.

[3] Unit 1 includes Unit 1 and all related or supporting facilities constructed as part of Unit 1.

[4] The Carty Solar Farm includes the Carty Solar Farm energy facility site, the potential route for the Carty Solar Farm interconnection transmission line that would require the most mitigation acres (Route 1), the Grassland Switchyard buildout area if interconnection Option 1 is selected (along with potential interconnection Route 1), and temporary construction laydown and parking areas.

**Key:**
ASC = Application for Site Certificate for the Carty Generating Station
RFA = Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station

## V. DESCRIPTION OF THE MITIGATION AREA

To comply with the mitigation criteria outlined in OAR 635-415-0025, the certificate holder shall mitigate for impacts to Category 2, 3, 4, and 5 habitat in a manner consistent with the ODFW habitat mitigation policy and subject to the approval of ODFW. The certificate holder will establish a HMA (or areas) that will be maintained, enhanced, and monitored throughout the life of the Carty facility[3] through implementation of the habitat enhancement actions described in this Plan. The certificate holder shall provide appropriate legal documentation to the Department showing the legal right to create, maintain, and protect the HMA for the life of the Carty facility. The certificate holder shall not undertake any development activities within the HMA throughout the life of the Carty facility.

The ~~proposed~~78-acre HMA for Unit 1 is located immediately east of the ~~s~~Site ~~b~~Boundary and adjacent to existing conservation areas, and comprises all or portions of map T3N R24E, tax lots 101, 113, and 116. The ~~property~~parcel is ~~currently~~ owned and has been placed under conservation easement by the certificate holder. It is ~~abutted by~~adjacent to the existing PGE Conservation Area on the north and east sides, and a ~~by~~ conservation area maintained by The Nature Conservancy along part of the west boundary. The vegetation in the HMA is dominated by Sandberg's bluegrass, bluebunch wheatgrass, and intermittent areas of needle-and-thread grass, as well as cheatgrass. There ~~is~~are also occasional green rabbitbrush (*Chrysothamnus ~~teretifolia~~viscidiflorus*) and gray rabbitbrush, big sagebrush, fiddleneck (*Amsinckia menziesii*), and yarrow (*Achillea millefolium*). ~~In 2010, Washington ground squirrel (*Spermophilus washingtoni*) burrows~~WGS burrows were identified within the HMA~~.~~ for Unit 1 in 2006. As of 2010, approximately 80 percent of the HMA for Unit 1 area ~~is~~was located within 785 feet of identified WGS burrows, and ~~is~~was therefore considered Category 1 habitat. The remainder of the HMA for Unit 1~~is~~was included in the buffer area for previously ~~-~~occupied WGS habitat and ~~is~~was therefore designated as Category 2 habitat. Based on 2016–2017 WGS surveys, the majority of the HMA for the Carty Solar Farm (see below) would be located on Category 2 or Category 3 habitat based on the current habitat categorization for Amendment 1.

The proposed HMA for the Carty Solar Farm and supporting facilities (the HMA for the Carty Solar Farm), estimated at approximately 373 acres per Table 2, would be located within a portion of the certificate holder's Multi-Species Candidate Conservation Agreement with Assurances (MSCCAA)

[3] As used in this plan, "life of the facility" means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

Conservation Area that contains remnant stands of sagebrush. The MSCCAA area adjoins the HMA for Unit 1 to the north and east and is located in Section 26, T3N R24E tax lot 101 and the eastern half of Section 35, T3N R24E, tax lot 113). The certificate holder plans to mitigate for the habitats impacted, including Category 3 sagebrush habitat, by placing a conservation easement on a portion of the MSCCAA area and by providing habitat uplift through the habitat enhancement and monitoring activities described below. Final location of the HMA for the Carty Solar Farm within the MSCCAA area will be delineated in coordination with ODFW prior to construction once final design layout and mitigation acreage is determined.

## VI. HABITAT ENHANCEMENT ACTIONS

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. 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 ~~4~~2 habitat~~.~~ and no net loss of Category 3 and 4 habitats. The certificate holder shall implement habitat enhancement actions as described in this Plan and as specified in the Site Certificate.

### A. Noxious Weed Prevention, Inventory, and Control within the Habitat Management Area

The certificate holder shall conduct comprehensive noxious weed inventories to identify patches of weed infestation within the HMA during year one, year three, and year five after construction of Unit 1 (i.e., 2017, 2019, and 2021), and then continue once every ~~5~~five years (in years divisible by five) for the life of the project. Weed control and monitoring activities will be conducted more frequently (at least every two years), in areas prioritized based on the results of the comprehensive surveys, and reported to ODFW. 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. 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. If a substantial area of soil is left bare from weed control activities, the area will be seeded using the appropriate methods (as described in the Revegetation and Noxious Weed Control Plan) during the appropriate time of year and using an appropriate mixture of native grass and/or shrub seeds. ~~Weed inventories and control measures and revegetation activities should not occur during WGS breeding periods.~~

### B. Fire Control Plan

The certificate holder shall implement a fire control plan for wildfire suppression within the HMA according to the existing Boardman Wildfire Control Plan. A copy of the fire control plan will be provided to ~~ODOE~~the Department upon request. 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 using the appropriate methods ~~for the Site~~, as described in the Revegetation and Noxious Weed Control Plan.

### C. Access Control and Wildlife-Compatible Fencing

The certificate holder will monitor and control access to the ~~mitigation area~~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. ~~Access~~Primary access to the PGE property is controlled by a gate off Tower Road northwest of PGE's Boardman Plant (currently used by PGE and The Nature Conservancy [TNC]), the gated entrance to the Boardman Plant, and a gated road from Ione to the south. TNC 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 ~~only~~such occasional approved use of access roads, Boardman Plant operational needs, and MSCCAA monitoring and noxious weed control efforts. ~~The area is accessed from two points: a locked gate from Tower Road approximately 1 mile west (currently used by PGE and The Nature Conservancy) and a south entrance through the Boardman Plant, which is also gated.~~ Any fences within or bordering the mitigation area(s) will be removed or modified to wildlife-friendly specifications as appropriate. No livestock grazing is currently occurring on the ~~S~~site, and grazing would not be allowed in the future. Periodic monitoring (at least annually but typically more frequently concurrent with other ~~S~~site activities) will be conducted to evaluate effectiveness of access control measures and signage maintenance needs.

**D. Enhancement and Sagebrush Habitat**

To mitigate for impacts to Category 3 sagebrush habitat affected at the Carty Solar Farm (see acreage in Table 2), the certificate holder will plant sagebrush and/or bitterbrush seedlings in the HMA for the Carty Solar Farm, focusing on enhancing and expanding remnant stands of shrubs that were impacted by past wildfires. Sagebrush and/or bitterbrush seedlings will be planted at a density of 450 plants per acre (approximately 10 feet on center). Planted shrubs will be monitored annually for a period of five years, with a performance goal of 60% survival at the end of the five-year monitoring period. Methods and performance criteria to be finalized through consultation with ODFW.

**E. Provide Additional Raptor Nesting Opportunities**

As recommended by ODFW, to mitigate for removal of juniper trees and potential raptor nesting sites in the Carty Solar Farm permanent footprint, the certificate holder will plant up to one tree per 10 acres (roughly 660-foot spacing on center) based on the final size of the HMA for the Carty Solar Farm. Initial planting will be conducted in the October/November or February/March time period during the first year following start of construction. Planted juniper trees will be monitored annually for a period of five years, with a performance goal of 60% survival at the end of the five-year monitoring period. Methods and performance criteria to be finalized through consultation with ODFW.

## VII. MITIGATION AREA MONITORING

The certificate holder shall use a qualified investigator (botanist, wildlife biologist, or revegetation specialist) to conduct a comprehensive monitoring program for the HMA. The purpose of this monitoring is to evaluate on an ongoing basis the protection of habitat quality, the results of enhancement actions, and the use of the area by avian and mammal species, especially during the wildlife breeding season.

The investigator shall visit the HMA as necessary to complete the required monitoring during the first, third, and fifth year after Unit 1 construction~~,~~ (i.e., 2017, 2019, 2021) and every fifth year thereafter (in years divisible by five, unless otherwise specified for specific measures)~~.~~ for the life of the Project. Monitoring activity shall include an assessment of the following:

General quality of vegetation cover (dominant species, structural age, etc.), as determined by ocular estimates and photo points (see below);

1) Success of weed control efforts;
2) Success of remedial actions to restore habitat quality in damaged areas (such as managed weed infestations and any necessary seeding/planting areas), as determined by vegetation cover (ocular estimate) and photo points (see below). Areas where remedial actions involve soil disturbance and

reseeding would be monitored consistent with the revegetation monitoring methods and schedule as described in the Carty Generating Station Revegetation and Noxious Weed Plan. See Section VI for schedule and performance criteria for habitat enhancements involving shrub and juniper plantings.

3) 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;

4) Incidental wildlife occurring within the HMA (counts concurrent with all other monitoring work);

5) Environmental factors found on site during monitoring activities and annual summary records (such as precipitation);

6) Surveys of resident special status wildlife species (~~Washington ground squirrel~~WGS) that have been documented during previous monitoring or survey efforts within the HMA, using existing protocols approved by ODFW; and~~,~~

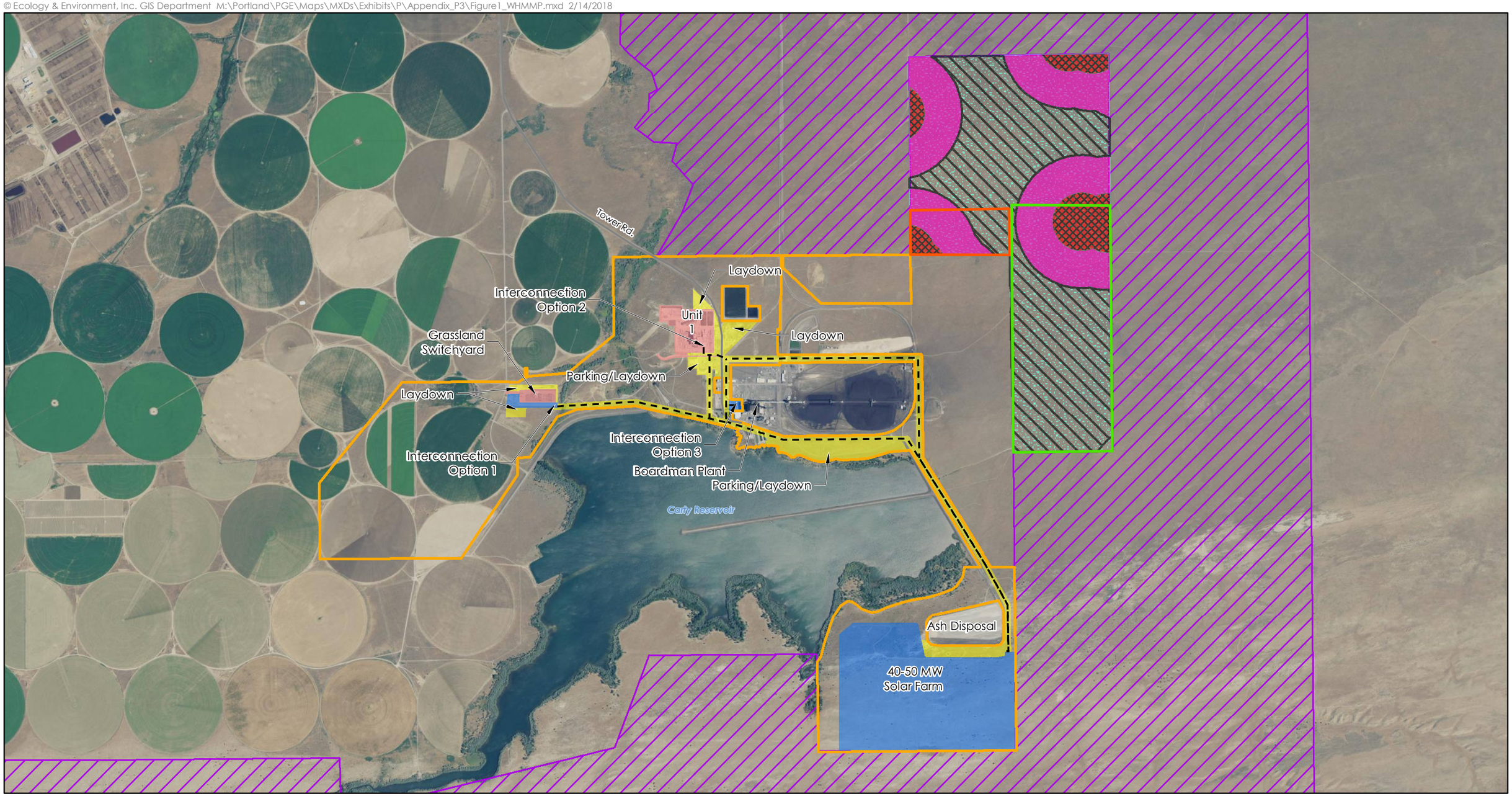
7) Avian point counts during the breeding season conducted annually as part of the existing Boardman Plant Ecological Monitoring Program (four existing point count stations are located in the immediate vicinity of the ~~proposed HMA).~~HMA for Unit 1, and an additional four sites are located in the immediate vicinity of the proposed HMA for the Carty Solar Farm).

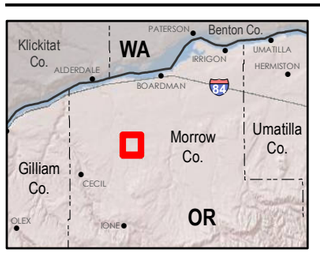
## VIII. DATA REPORTING

The certificate holder shall submit a report including wildlife and habitat monitoring data and analysis to the Department and ODFW during each monitoring year according to the general monitoring schedule (first, third, and fifth years following ~~construction,~~the start of operation of Unit 1 [2017, 2019, 2021], and every five years thereafter, on years divisible by five). The certificate holder shall notify USFWS and ODFW immediately if any federal or state endangered or threatened species are killed or injured on the facility site 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 concurrent with the submittal of the report. In addition, the certificate holder shall provide the Department with any data or record generated by the investigators in carrying out this Plan upon request by the Department.

## IX. AMENDMENT OF THE PLAN

This Wildlife and Habitat Monitoring and Mitigation Plan may be periodically amended by agreement of the certificate holder and the Department. Such amendments may be made without amendment of the Site Certificate. The Energy Facility Siting Council (Council) authorizes the Department to agree to amendments to this plan and to mitigation actions that may be required under this Plan. The Department shall notify the Council of all amendments and mitigation actions, and the Council retains the authority to approve, reject, or modify any amendment of this plan or mitigation action agreed to by the Department.




- Transmission Line Options
- Amended Site Boundary
- Existing Permanent Feature
- Existing and Proposed Temporary Disturbance
- Proposed Permanent Feature
- PGE MSCCAA Conservation Area
- Boardman Conservation Area

Carty Generating Station HMA
- HMA for Unit 1
- HMA for Carty Solar Farm

Habitat Categories in the HMA for Carty Solar Farm
- Category 1 Habitat (Essential, Limited & Irreplaceable) - WGS 2016 and/or 2017 occupied range
- Category 2 Habitat (Essential and Limited) - Potential WGS Habitat within 300m of category 1 habitat
- Category 3 Habitat (Important and Limited) - Potential WGS Habitat within 1,200m of category 2 habitat

Note: the Solar Farm Mitigation Area is shown to depict approximate size and location. Final size and location will be determined prior to construction.

N

1:30,000

0 1,000 2,000 3,000 Feet



# Figure 1
## Habitat Mitigation Areas

Request for Amendment No. 1
Carty Generating Station Site Certificate
Portland General Electric Company
February 2018

# Appendix P-4

## Revegetation and Noxious Weed Control Plan

# Carty Generating Station: Revegetation and Noxious Weed Control Plan[1]

**July 2, 2014[2], February 2018[3]**

## 1 INTRODUCTION

This Revegetation and Noxious Weed Control Plan (Plan) outlines the goals, methods, and success criteria that the project will use for revegetation of areas temporarily disturbed during construction of the Carty Generating Station, including the already constructed Carty Unit 1; Grassland Switchyard; the transmission line segment connecting Unit 1 to the switchyard~~areas in the Energy Facility Site and along the associated transmission line right-of-way (ROW).~~; and additional facilities as approved under Site Certificate Amendment 1, including the Carty Solar Farm site just southeast of Carty Reservoir and the associated interconnection transmission line. This P~~p~~lan has been developed in consultation with the Oregon Department of Fish and Wildlife (ODFW) and ~~,~~ the Morrow County Weed Control Supervisor~~, and the Gilliam County Weed Officer;~~, and utilizes restoration and revegetation methods developed by other energy projects in this region of Oregon that were approved by Oregon Energy Facility Siting Council (~~EFSC~~ 2007). The objective of this Plan is to minimize and mitigate potential impacts to the site, help bolster the native plant community, and provide clear guidelines for the revegetation of all areas disturbed by project~~–~~related activities that are not occupied by permanent structures or facilities.

The project area is composed primarily of shrub-steppe rangeland of varying quality~~, weedy agricultural areas, and active agriculture cropland~~. In general, the intensity of construction impacts on vegetation and habitat in temporary disturbance areas will be low and will often be limited to the flattening of vegetation by rubber-tired vehicles. Such low impact areas will not require the revegetation or soil management measures (such as topsoil salvage) described below, but may require noxious weed prevention best management practices (BMP~~'~~s) as appropriate (such as washing vehicles arriving from outside Morrow ~~and Gilliam~~ County~~ies~~). In some instances, however, the intensity of impacts in temporary disturbance areas will be higher and will require the removal of topsoil and vegetation through grading, excavation, or drilling activities.

The site certificate holder will implement revegetation measures in all temporary construction disturbance areas where soil is disturbed. Such soil disturbance sites will require active measures to restore vegetation cover in a timely manner, control erosion, and prevent the establishment and spread of noxious weeds (plant species listed as noxious under the Oregon Department of Agriculture~~,~~ (ODA)~~,~~ Noxious Weed Control Program~~, including "A", "B", and "T" listed weeds~~ and the Morrow County weed list). Construction crews will segregate topsoil (generally defined as the upper 6 to 12 inches of soil where biological activity is concentrated) from subsoil during all grading and excavation activities and replace this topsoil during the restoration phase of the project.

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1 This ~~p~~Plan is incorporated by reference in the ~~s~~Site ~~c~~Certificate for the Carty Generating Station and must be understood in that context. It is not a "stand-alone" document. This ~~p~~Plan does not contain all revegetation and weed control measures required of the certificate holder.

2 A draft version of this ~~p~~Plan was included as Exhibit 1 to the Energy Facility Siting Council's Final Order on the Carty Generating Station Application for Site Certificate (June 29, 2012). In accordance with Site Certificate Condition ~~10.1~~5.5 the certificate holder consulted with the Morrow County Weed Control Supervisor ~~Oregon Department of Fish and Wildlife (ODFW)~~ and obtained Oregon Department of Energy (Department) approval of the Plan prior to the start of construction (December~~,~~ 2013). As allowed by Section IX of the Plan, the Department reviewed and approved this amended Plan on July 7, 2014.

3 Minor ~~p~~Plan updates were made to reference additional facilities within Morrow County included in Site Certificate Amendment 1 and the updated ~~p~~Plan was reviewed and approved by the Morrow County Weed Control Supervisor in December 2017. Subsequent edits were made in February 2017 to remove references to the unbuilt transmission line between Grassland Switchyard and Slatt substation and remove references to Gilliam County.

The project will implement a number of ~~best management practices (~~BMPs~~)~~ designed to control sediment and minimize erosion, particularly in the vicinity of project drainages and waterbodies. These erosion and sediment control practices will be maintained for the duration of the construction restoration phases of the project, and will be maintained until the affected areas are restored as described in the Plan and the risk of erosion has been eliminated. Erosion and sediment control measures are provided in the Erosion and Sediment Control Plan (ESCP) drawings which are part of the National Pollution Discharge Elimination System (NPDES) 1200-C permit. The ESCP drawings will be maintained onsite during construction.

## 2 GOALS AND OBJECTIVES

The overall goal of this Plan is to return the project site to as close to pre-construction conditions as possible. The Plan has the following objectives:

- Promote recovery of disturbed areas;
- Re-establish native plant communities;
- Control the introduction and spread of undesirable plants;
- Protect the site from erosion; and
- Support existing wildlife habitat.

These objectives will be achieved by a combination of techniques, including, but not limited to, the following:

- Installing and maintaining appropriate erosion control ~~best management practices (~~BMPs~~)~~ and construction limit staking per the Oregon Department of Environmental Quality (ODEQ) 1200-C permit;
- Revegetating disturbed areas with native grasses[~~4~~3];
- Controlling weed germination and growth during and after construction; and
- Establishing a regular monitoring program during and after construction to ensure the continued successful development of restored areas, and to quickly identify new populations of weeds.

## 3 SITE DESCRIPTION

The Energy Facility Site is located in Morrow ~~and Gilliam~~ County~~ies~~, Oregon, approximately 13 miles southwest of the town of Boardman. ~~The new transmission line will originate at the Carty Generating Station and extend approximately 18 miles to the west along an existing transmission line corridor.~~ The project area is situated approximately 7–10 miles south of the Columbia River within the Columbia Plateau physiographic region. The generating facility ~~and associated transmission line ROW will be~~is located on an upland plateau at an elevation of approximately 650 feet above sea level. The project facilities will be located entirely on private lands that are characterized as shrub-steppe rangeland, weedy agricultural and shrub right-of-way~~ROW~~, or agricultural cropland. Soils are typically loess formations of well-drained, moderately permeable silt and fine sandy loams over basalt. The area receives approximately 9 inches of precipitation annually. The generating station will be located primarily in shrub-steppe habitat on the eastern edge of a large agricultural area that is dominated by irrigation circles.

[~~4~~3] The Plan approved in the Council's Final Order included forbs and sagebrush as part of the seed mix, but were removed from the initial seed mix after consultation with local weed control staff.

~~The transmission line will pass between the irrigation circles of the agricultural area in the ROW and re-enter shrub-steppe habitat approximately 7.5 miles west of the generating station.~~ The agricultural lands are typically used for rotating crop production, including potatoes, onions, and corn. ~~A majority of the shrub-steppe rangeland along the western end of the transmission line ROW is currently being used for grazing. Areas of the transmission line ROW nearer to the agricultural fields are being used for grazing or are weedy areas being used for farm waste disposal with a few patches of weedy shrub habitat.~~ The shrub-steppe habitat located toward the eastern end of the project, including areas near the generating facility, is rangeland that is no longer being grazed. ~~One perennial stream, one intermittent stream, and several acres of~~ Wwetlands are present within the project area but will be avoided by construction altogether and will therefore not require revegetation.

Much of the native shrub-steppe vegetation within the project boundary has been modified by livestock grazing and past wildfires. Functional mature shrub-steppe habitat is patchy. It consists of low-stature rabbitbrush-dominated shrub lands with patches of big sagebrush and native grasses, and varying degrees of non-native invasive grass and forb species.

## 4 REVEGETATION METHODS

Soil preservation and preparation techniques that are essential to a successful revegetation program, including topsoil segregation, erosion control, and noxious weed control, will begin prior to, or at the start of, construction. Other restoration and revegetation measures will be initiated immediately after construction and other disturbances to project areas are completed. Re-seeding activities may need to be delayed, depending on the season or on weather condition, but will always occur as soon as appropriate after construction.

The project will employ the following general restoration and revegetation steps to meet short- and long-term goals:

- Re-seed construction soil disturbance areas to restore vegetation;
- Pre-treat state-designated noxious weeds, as appropriate and practical, in temporary soil disturbance areas, with an emphasis on treatment of roadsides that will be used frequently throughout project construction;
- Prevent introduction of seeds and minimize dispersal of state-designated noxious weeds by following appropriate and standard methods of abatement, including BMPs for washing project-related vehicles and equipment, especially for vehicles newly arriving at the project site. Implement documentation procedure for ensuring that applicable vehicles are washed before use on site;
- Use proper soil management techniques, including stripping, stockpiling, and reapplying topsoil (generally defined as the upper 6 to 12 inches of soil where biological activity is concentrated) to establish surface conditions that will enhance development of diverse, stable, and self-generating plant communities. Topsoil management will apply to all areas of the project where excavation, grading, or other construction activities could result in mixing of soil layers;
- Establish stable surface and drainage conditions and use standard erosion control devices and techniques to minimize soil erosion and sedimentation, including the installation of silt fencing, straw bales, mulch, straw wattle, erosion control fabric, and slope breakers, as appropriate;
- Use certified weed-free straw bales, straw mulch, hydromulch, and/or other appropriate weed-free mulch materials for soil erosion and sediment control measures;

- Prevent introduction of seeds from plants that are listed by Oregon or on the U.S. Department of Agriculture federal list (PLANTS website) as noxious or invasive weeds;
- Establish terrain compatible with the surrounding landscape (recontouring) that emphasizes restoration of existing drainage and landform patterns, to the extent practical; and
- Minimize construction impacts in the project area by, where practical and safe, limiting grading and clearing to avoid impacts to native vegetation and wildlife habitat.

## ~~4.1 Revegetation of Agricultural Cropland~~

~~No disturbance of actively cultivated land is anticipated. However, if cropland is disturbed, the site certificate holder will coordinate with the landowner and, as necessary, restore croplands to original grade and contour and repair any agricultural drainage systems that are impacted by construction. Individual landowners would be consulted when determining the proper seed mix to be used during re-seeding activities on agricultural lands. The primary goal of cropland revegetation would be to return croplands to a condition consistent with typical fallow or pre-planting conditions. If necessary, in coordination with the landowner, an appropriate cover crop would be planted to hold the site until the next crop planting rotation. Cultivated agricultural areas are successfully revegetated if the replanted areas achieve crop production comparable to adjacent non-disturbed cultivated areas. The site certificate holder shall consult with the landowner or farmer to determine whether these areas have been successfully revegetated and shall report to the Oregon Department of Energy (ODOE) and ODFW on the success of revegetation in these areas.~~

## ~~4.4~~4.1 Revegetation of Shrub-Steppe Rangeland

Shrub-steppe rangeland is the primary non-agricultural vegetation type present in the project area. ~~Although many of the areas with this~~Much of this habitat is ~~are~~ considered marginal in quality due the presence of invasive weeds, ~~grazing,~~ and past fires~~, and frequent disturbance. (e.g., areas between irrigation circles along transmission line route), there are some patches of moderate quality habitat (e.g., west of the agriculture area along the transmission line route).~~

*Seed Mix*

The site certificate holder will use a seed mixture consisting of native grass species known to provide erosion control and wildlife forage benefits. Seed mixture selection was based on consultation with ODFW (2010b), online guidance provided by ODFW for the restoration of burned areas in northeastern Oregon (ODFW 2010a), and consultation with County weed control staff (2013). The current seed mix (Table 1) may be altered at the request of landowners, the Oregon Department of Energy (the Department)~~ODOE~~, and ODFW.

Plant materials (seed and nursery stock) used in revegetation must be adapted to the conditions of the site in order to have the best chance of germinating and long-term survival. All plant materials shall meet the following requirements, pending approval by ODFW and the Morrow ~~and Gilliam~~ County Weed Department~~s~~:

- Seed and nursery stock shall be "source identified." The original source for the plant material should be Columbia Plateau Ecoregion (north-central Oregon State). The seed should be a locally adapted biotype, adapted to conditions similar to the project site.
- Seed shall be certified "weed free", indicating there are no noxious weeds in the seed.
- Seed application rates shall be based on pure live seed per pound, which is passed upon purity and germination testing.
- Seed shall be tested within 120 days of application for purity, germination, and noxious weed content. Inert matter should not exceed 10%. A tetrazolium test may be performed on forb species, which are limited in availability in order to assess viability of the seed before it is used.

**Table 1 Seed Mix for Temporarily Disturbed Project Areas in Shrub-Steppe Habitat**

| Common Name | Scientific Name | PLS lbs/ Acre[1,2] | Description/ Purpose |
|---|---|---|---|
| Secar bluebunch wheatgrass | *Pseudoregneria spicata* | 7 | (N) (EC) (F) |
| Sherman big bluegrass | *Poa ampla* | 2 | (N) (F) |
| Great Basin wildrye * | *Elymus cinereus* | 1.5 | (N) (EC) (F) |
| Needle and thread grass* | *Hesperostipa comata* | 1.5 | (N) (EC) (F) |

(N) = Native, (I) = Introduced, (EC) = Erosion Control, (F) = Forage
* Optional species depending on site and availability
[1] PLS= pure live seed
[2] Final lbs/acre may change at the request of the landowner or ODFW

- ~~Seed and nursery stock shall be "source identified." The original source for the plant material should be Columbia Plateau Ecoregion (north-central Oregon State). The seed should be a locally adapted biotype, adapted to conditions similar to the project site.~~
- ~~Seed shall be certified "weed free", indicating there are no noxious weeds in the seed.~~
- ~~Seed application rates shall be based on pure live seed per pound, which is passed upon purity and germination testing.~~
- ~~Seed shall be tested within 120 days of application for purity, germination, and noxious weed content. Inert matter should not exceed 10%. A tetrazolium test may be performed on forb species, which are limited in availability in order to assess viability of the seed before it is used.~~

Areas of temporary disturbance will be graded to be consistent with existing topography and drainage patterns as soon as possible after the final construction ground disturbance and, if necessary, areas compacted by construction activities shall be ripped to a depth of 12" where feasible and roughened to provide maximum seed-soil contact. Re-seeding may not be necessary or appropriate in some areas, including places where vegetation has been flattened but not crushed and those where little or no vegetation was present prior to construction. Areas will be evaluated to determine whether re-seeding or other revegetation techniques are required to return the area to preconstruction vegetation conditions.

### ~~4.5~~4.2 Seed Planting Methods and Schedule

Re-seeding of temporary disturbance areas will be conducted during the appropriate season and as weather conditions allow. The recommended seed mixture (Table 1) will be applied at an approximate rate of 8 to 12 pounds/acre and will be dependent on the method of seeding used. Seeds will be applied using either manual or mechanical methods, depending on factors such as the size of the area to be re-seeded and risk for further disturbance due to the use of planting equipment (e.g., tractor or all-terrain vehicle). In addition, the project may employ either broadcasting or drilling techniques as appropriate and feasible. Straw mulch, hydromulch, and/or other appropriate weed-free mulch material may be applied as needed immediately after seeding. The site certificate holder anticipates using the restoration and re-seeding guidelines provided in this P~~p~~lan; however, the methods and timing could be altered at the request of landowners, the Department~~ODOE~~, ODFW, and ODA.

Disturbed areas will be re-seeded as soon as possible after final construction disturbance in each area. Broadcasting or seed drilling methods will be used according to which method is most appropriate for the disturbance area. Crews will attempt to conduct all re-seeding during the period from February through early April for construction disturbances that occurred during the winter and early spring. For areas where construction is completed outside of the winter or spring periods, re-seeding will be delayed until the months of October or November. If final construction and soil restoration is not completed at a time that allows immediate re-seeding during one of the two periods listed above (winter/spring or fall), the areas will be mulched or otherwise treated to minimize erosion, if necessary, until seeding can be conducted.

A combination of broadcast seeding, drill seeding, and hydroseeding shall be used to apply the seed; the choice of method will depend on slope and other site conditions. For example, drill seeding and broadcast seeding should be used as appropriate on areas with a slope of less than 3:1, and hydroseeding should be used on areas with a slope of greater than 3:1. Seeding rates (pounds of pure live seed per acre) must be adjusted according to the seeding method used. For hydroseeding, green-dyed, wood-fiber mulch shall be added to the slurry mixture at a rate of 1,000 pounds per acre. In addition to serving as a carrying agent for the seed, the biodegradable green mulch serves as a tracer for visually checking distribution to ensure complete and uniform coverage of the disturbed areas.

### ~~4.6~~4.3 Weed Control Strategies

Weed control will be a priority throughout pre-construction, construction and revegetation ~~of the site~~activities and should begin early to prevent infestations and development of substantial weed seed reservoirs in the soil. Emphasis will be placed on avoiding infestations and controlling populations of state-listed and county-listed noxious weeds known to occur on the site. Toward that end, a pre-construction survey of all construction disturbance areas (both permanent and temporary) will be conducted, and all noxious weeds located will be treated at least once prior to start of construction. Follow-up surveys and control treatments will be conducted in conjunction with the five-year annual monitoring program described in this Plan.

The ODA has identified noxious weeds occurring in ~~Gilliam and~~ Morrow County~~ies~~. ODA has designated two categories of noxious weeds, "A" list species and "B" list species. Weeds designated on the "A" list are species of known economic importance which occur in the state in small enough infestations to make eradication or containment possible or are rare species not known to occur in the state but which have a presence in neighboring states, making future occurrence seem possible. Weeds on the "B" list are weeds of economic importance which are regionally abundant, but may have limited distribution in some areas. Listed species identified during recent site surveys (2010–2017) at the Carty Generating Station have~~did~~ not include~~d~~ any ODA "A" list species, but have~~did~~ include~~d~~ the ODA "B" list species diffuse knapweed (*Centaurea diffusa*), yellow star-~~-~~thistle (*Centaurea solstitialis*), ~~and broadleaf pepperweed~~Canada thistle (*Cirsium arvense*), and bull thistle (*Cirsium vulgare*), perennial pepperweed (*Lepidium latifolium*), Scotch thistle (*Onopordum acanthium*), and alkali swainsonpea (*Sphaerophysa salsula)*. The Morrow County weed list classifies yellow star-thistle as an "A" list species at the county level. Rush skeletonweed (*Chondrilla juncea*) is another county "A" list species that is present in the area and has high potential to occur on the site. Morrow County considers both yellow starthistle and rush skeletonweed as high priority for treatment.

## 5 MONITORING PROGRAM

The site certificate holder will monitor the revegetated ~~non-agricultural~~ areas ~~of the project (i.e., shrub-steppe rangeland)~~ according to the schedule described below. ~~Restored and revegetated agricultural areas would also be monitored according to the schedule unless otherwise requested by the landowner. The monitoring schedule and potential remedial actions for agriculture areas would be conducted in agreement with the landowner in a way that causes the least disturbance to agricultural activity.~~ The purpose of monitoring is to evaluate long-term soil stability, vegetation composition and cover, and occurrence of noxious and invasive weeds within areas disturbed during construction. In order to

properly assess the progress of vegetation establishment, the certificate holder shall maintain a record of revegetation work. ~~for both cropland and wildlife habitat areas.~~ The certificate holder shall use experienced and properly trained personnel ("investigators") to conduct the monitoring required under this Plan. The professional qualifications of the investigators are subject to approval by the ~~Oregon Department of Energy (ODOE or "~~Department~~")~~.

## 5.1 Monitoring Procedures

Annual surveys will be conducted for a period of five years to monitor revegetation success and invasive species control needs at ~~the plant~~ construction disturbance areas~~site and areas disturbed during transmission line construction~~. A representative sample (at least 50%) of all disturbance sites will be monitored for revegetation success. Revegetation monitoring will begin in the first year following initial revegetation of temporary disturbance areas and continue annually for five years or until monitored sites are suitably revegetated according to the criteria described below. Each monitored soil disturbance site will be visited at least once within the first year following revegetation, and annual surveys will be conducted as needed for five years. If needed, additional monitoring (beyond five years) of any problem revegetation sites will be scheduled in coordination with ODFW and the Department~~ODOE~~.

During revegetation surveys, a qualified biologist will collect the following information:

- Confirmation that all areas requiring revegetation have been seeded;
- Success of vegetation establishment
    a) Percentage of total vegetative cover in two categories (grasses and shrubs/forbs) (ocular estimate)
    b) Percentage of bare soil (ocular estimate);
- Presence of invasive plant species (species listed as noxious under the ODA Noxious Weed Control Program, including "A", "B", and "T" listed weeds), and density estimates by species if present; and,
- Presence of erosion problems that require further mitigation measures.

## 5.2 Remedial Action and Maintenance

Following each of the surveys described above, the site certificate holder will conduct remedial measures as needed to address remaining soil impacts and revegetation requirements not achieved through initial plantings. The nature of the remedial actions will depend on the problems that arise. On an annual basis as part of the annual report on the facility, the certificate holder shall report to the Department the investigator's recommendations and any remedial actions taken. The Department may require reseeding or other remedial measures in those areas that do not meet the success criteria. Common remediation measures will include:

- Reseeding of select areas where significant areas of bare soil remain after establishment of initial seeding;
- Determining the cause of low plant survival and implementation of actions appropriate to the cause of mortality (this may include selection of an alternate species better adapted to conditions at the site);
- Control of noxious weed/invasive plant species by qualified personnel using appropriate methods for the target species (e.g., herbicides applied according to label requirements if herbicides required);
- Repair of erosion control structures; and
- Soil decompaction.

The site certificate holder will make every attempt to implement the recommended remedial actions as soon as possible, considering the season, weather conditions, and other site-dependent constraints. The site certificate holder will document revegetation progress and remedial actions in an annual Revegetation and Noxious Weed Control Monitoring Report to ODFW and the Department~~ODOE~~ (see section 4.4 below).

If a wildlife habitat area is damaged by fire during the first five years following initial seeding, the certificate holder shall work with the landowner to restore the damaged area. The certificate holder shall continue to report on revegetation progress during the remainder of the five-year period. The certificate holder shall report the damage caused by fire and the cause of the fire, if known.

### 5.3 Revegetation Success Criteria

~~The r~~Revegetation ~~of non-agricultural areas (i.e., shrub-steppe rangeland)~~ will generally be considered successful when the revegetated areas support non-noxious plant communities that are similar in vegetation percent cover and erosion potential comparable to surrounding undisturbed areas. When the site certificate holder determines that an area of the project has been successfully restored by satisfying all success criteria, this will be stated in the annual revegetation report. If ODFW and the Department~~ODOE~~ concur, the site certificate holder will conclude that it has no further obligation to perform revegetation activities in that area of the project.

The goal for each soil disturbance site will be a minimum of 40 percent vegetation cover (of seeded vegetation and desirable naturally recruiting species and excluding invasive plant/noxious weed cover) and no ongoing erosion issues. Vegetation percent cover goals may be adjusted to match the typical percent cover in surrounding undisturbed areas. Reseeding or replanting efforts will occur, in consultation with ODFW, in any area where monitoring identifies a restoration failure. Reseeding or replanting efforts will occur, in consultation with ODFW, in any area where monitoring identifies a restoration failure.

The following criteria will be used to determine success of revegetation efforts:

1. The vegetation percent cover by native species and desirable non-native species (both seeded and naturally recruited) is 40 percent or more, or not significantly less than the percent vegetation cover of surrounding undisturbed areas.
2. Noxious weeds are absent or constitute only a small percentage (<5%) of vegetation otherwise dominated by native or desirable non-native species.
3. The percentage of bare soil (excluding rocky areas) in the sample plot is not significantly greater than the percentage of bare soil in surrounding undisturbed areas.

### 5.4 Reporting

The site certificate holder will provide an annual Revegetation and Noxious Weed Control Monitoring Report for five years or until success criteria is achieved following initial revegetation of construction disturbance areas. Each annual report will contain a summary of field data collected during field visits and include an assessment of whether revegetation efforts are meeting the success criteria. The reports will also document remedial actions (e.g., seeding, noxious weed control, and repair of erosion control structures) taken to date, additional remedial actions planned for areas that are not trending towards success, and the anticipated dates of completion of each of these actions.

### 5.5 Amendment of Plan

This Plan may be amended from time to time by agreement of the certificate holder and the Oregon Energy Facility Siting Council (Council). Such amendments may be made without amendment of the site certificate. The Council authorizes the Department to agree to amendments to this Plan. The Department shall notify the Council of all amendments, and the Council retains the authority to approve, reject, or modify any amendment of this Plan agreed to by the Department.

## 6 REFERENCES

Oregon Department of Fish and Wildlife. 2010a. Rehabilitating Habitat. ODFW website: http://www.dfw.state.or.us/fire/fire_rehab.asp. Accessed on December 15, 2010.

_____. 2010b. Personal communication between Lucas Meek of Ecology and Environment, Inc. and Travis Schultz of ODFW. Email correspondence dated December 8, 2010.

~~EFSC (~~Oregon Energy Facility Siting Council~~)~~. 2007. Biglow Canyon Wind Farm: Revegetation Plan. March 10, 2007. http://www.oregon.gov/ENERGY/SITING/docs/BCWOa2B.pdf

_____. 2013. Carty Generating Station project site field visit with Dave Pranger (Morrow County) and Don Farrar (Gilliam County), October 2, 2013.

# EXHIBIT Q – Request for Amendment No. 1

# THREATENED AND ENDANGERED SPECIES

OAR 345-021-0010(q) and OAR 345-022-0070

**TABLE OF CONTENTS**



**FIGURES**

## Q.1 INTRODUCTION

**OAR 345-021-0010(1)(q)** *Information about threatened and endangered plant and animal species that may be affected by the proposed facility, and providing evidence to support a finding by the Council as required by OAR 345-022-0070.*

Response: This exhibit provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(q) in support of the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station (RFA). The analysis area for threatened and endangered plant and animal species includes all areas within the amended Site Boundary and within 5 miles from the amended Site Boundary. This exhibit addresses the federal and state endangered, threatened, and candidate plant and wildlife species that may be affected by construction and operation of the Carty Solar Farm (as defined in Exhibit B). The Application for Site Certificate (ASC) provides information regarding presence, natural history, survey methods, potential impacts, and monitoring of federal and state endangered, threatened, and candidate plant and wildlife species associated with the Carty Generating Station as originally proposed.

## Q.2 IDENTIFICATION OF THREATENED AND ENDANGERED SPECIES POTENTIALLY OCCURING IN THE ANALYSIS AREA

**OAR 345-021-0010(q)(A)** *Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2), ORS 564.105(2) or 16 USC § 1533 that may be affected by the proposed facility.*

Response: Ecology and Environment, Inc. (E & E) used the U.S. Fish and Wildlife Service's Information for Planning and Conservation (IPaC) tool to identify species protected under the Endangered Species Act; the IPaC results indicate that no federally threatened, endangered, or candidate species occur in the analysis area (i.e., within 5 miles of the amended Site Boundary; USFWS 2017).

E & E evaluated the Oregon Department of Fish and Wildlife's (ODFW's) (2017) list of "Threatened, Endangered, and Candidate Fish and Wildlife Species," Oregon Biodiversity Information Center's data (ORBIC 2016), and the Oregon Wildlife Explorer (Oregon State University Libraries and Press and Institute for Natural Resources 2014). Based on these resources, E & E determined that the Washington ground squirrel (*Urocitellus washingtoni*; [WGS]) is the only state-listed wildlife species that may occur in the analysis area.

E & E also reviewed ranges and habitat requirements for the Oregon Department of Agriculture's (ODA's) threatened, endangered, and candidate plants and determined that the threatened Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*) is the only ODA-listed plant species that could occur in the analysis area (NatureServe Explorer 2015; ODA 2016;

ORBIC 2016; USDA 2016). Refer to Section Q.5.2 of the ASC for further details on this species' natural history. Refer to Section Q.3 below for further discussion of Lawrence's milkvetch as it pertains to this RFA.

## Q.3 THREATENED AND ENDANGERED SPECIES OCCURRENCE IN THE ANALYSIS AREA AND POTENTIAL IMPACTS BY THE AMENDED FACILITIES

**OAR 345-021-0010(1)(q)(B)** *For each species identified under 345-021-0010(1)(q)(A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it.*

Response:

### Washington Ground Squirrel

*Occurrence in the Analysis Area*

Based on E & E's field surveys and review of recent aerial imagery, approximately 40–50% of the land within the analysis area consists of shrub-steppe or grassland habitats (see Figure Q-1). Although many of these areas are situated in close proximity to agricultural lands or developed areas, and are likely to consist of somewhat disturbed habitats (e.g., with presence of noxious weeds or other non-native plants), many of these areas may still provide suitable habitat for WGS. Areas with potential suitable WGS habitat include the areas to the north, east, and south of the amended Site Boundary. The amended Site Boundary is located on the western margin of a large expanse of shrub-steppe and grassland habitat (over 70,000 acres of the Boardman Conservation Area and Naval Weapon Systems Training Facility). This area is the largest and most densely occupied WGS area in Oregon (USFWS 2018).

The shrub-steppe and grassland habitats in the analysis area on lands to the north, east, south, and southwest of the amended Site Boundary have historically and recently supported WGS populations. The areas generally coincide with the areas depicted on Figure Q-1 as recent Category 1, 2, and 3 habitat for WGS (i.e., the areas northeast of the amended Site Boundary and the areas south and southwest of the amended Site Boundary on the Boardman conservation area). Areas farther to the east on the Naval Weapons Systems Training Facility also are known to support WGS populations (U. S. Department of the Navy 2015). Figure Q-2 depicts available WGS data within 1–2 miles of the amended Site Boundary from 2013–2017. While much of the habitat in these areas appears to be suitable for WGS, the data show variation in the size and location of active sites from year to year.

The only historical WGS occurrences within the amended Site Boundary are located in the far northeastern portion of the amended Site Boundary, in the areas east of Tower Road and north of the Boardman Power Plant's raised railroad grades. In other parts of the analysis area, historical

WGS occurrences were documented near the amended Site Boundary but not within it. These include records of active WGS sites as close as 35 to 45 feet south of the amended Site Boundary near the Carty Solar Farm in 2005 and 2013, and as close as 275 feet east of the amended Site Boundary near the Carty Reservoir in 2005. No WGS activity has been found within the proposed Carty Solar Farm site during the two documented surveys of the site (1999 and 2016).

E & E conducted WGS field surveys in March and April of 2016 within the Carty Solar Farm, and within an additional 1,000-foot buffer area (see Figure Q-3). Per a request from the ODFW in 2016, E & E also spot-checked four sites within 1,500 meters of the amended Site Boundary that were reported as being active WGS sites in 2013 by the Nature Conservancy (TNC). In addition, as requested by ODFW, E & E incorporated data from surveys conducted in 2016 and 2017 by the Portland General Electric Company (PGE) and in 2016 by TNC as part of routine Multi-Species Candidate Conservation Agreement implementation, where survey areas fell within 1,500 meters of the amended Site Boundary (TNC 2016). Refer to Exhibit Q in the ASC for further details regarding WGS natural history. Refer to the 2016 Biological Resources Survey Report in Exhibit P, Appendix P-1, of this RFA for further details of the 2016 WGS survey methods and results for surveys conducted by E & E. Results from surveys conducted by E & E as well as PGE and TNC are summarized below.

E & E did not observe active WGS colonies during the 2016 surveys. In 2016, E & E did observe signs of an inactive colony (unmaintained burrows with some aged scat) that most likely was active in 2014 or 2015, located east of Carty Reservoir and beyond the amended Site Boundary (see Figure Q-2). Refer to Appendix P-1 of this RFA's Exhibit P for full 2016 survey details.

PGE's 2013, 2016, and 2017 surveys detected active WGS colonies in the amended Site Boundary north of the Boardman Plant's raised railroad grade, as well as in areas farther to the north and east of the amended Site Boundary (see Figure Q-2). PGE's 2017 survey also documented an active WGS colony beyond the amended Site Boundary, about 1,070 feet northeast of Routes 2b and 3b for the Carty Solar Farm interconnection transmission line (see Exhibit B, Figure B-4). This site is the closest active WGS site from the proposed Carty Solar Farm documented in any of the 2016 or 2017 surveys.

TNC's 2013 survey data showed active WGS sites in the analysis area, including in areas to the north, east, and south of the amended Site Boundary (note that TNC did not conduct surveys within the amended Site Boundary). As described above, E & E spot-checked four of these locations in 2016 but found no signs of current WGS activity. TNC's 2016 surveys also identified active WGS sites in areas northeast of the amended Site Boundary (see Figure Q-2). In addition, TNC's 2016 surveys detected active WGS sites approximately 0.6 miles south of the Carty Solar Farm site, in an area not covered by E & E's 2016 surveys or spot checks.

Figure Q-2 depicts WGS colonies active in the analysis area in 2016 and 2017, as well as colonies that were active when originally observed from 2013 to 2015, but were found to be

inactive in 2016. Refer to Section Q.5.1 of the ASC for further information regarding the nature, extent, location, and timing of WGS activity in the analysis area.

*Potential Impacts*

Although active WGS colonies were detected in the amended Site Boundary in 2013, 2016, and 2017 (north of Boardman Plant's raised railroad grade), none have been detected in any Carty Solar Farm areas (i.e., areas where future ground disturbance may occur). The closest active colony from the Carty Solar Farm is approximately 1,070 feet northeast of the amended Site Boundary (near Routes 2b and 3b of the Carty Solar Farm interconnection transmission line). This proposed project component is beyond the typical 785-foot distance used to designate active, Category 1 WGS habitat (see Figure Q-2, and Figure P-1 in Exhibit P). Construction disturbance in this area would be minimal, and would involve a relatively short duration of construction and small areas of permanent and temporary ground disturbance. As discussed in Exhibit P, The construction of power lines may also increase predation of wildlife, including WGS, in the analysis area. PGE would coordinate with ODFW on the appropriate implementation of Site Certificate Condition 10.16—use of perch-preventing structures—which would minimize the potential for increased predation in areas identified as Category 1 habitat for WGS.

WGS colonies have never been documented within the Carty Solar Farm, its associated interconnection transmission line routes, or in the unused areas within the amended Site Boundary that are adjacent to the Carty Solar Farm generation facility site (i.e., the Site Boundary expansion areas). Although TNC reported an active WGS site 45 feet south of the Carty Solar Farm site in 2013, E & E found no evidence of current activity in 2016. In addition, wildfires occurred in this area in 2015 and 2017, possibly lowering the short-term value of the habitat in this area for WGS.

Given the lack of active or historical colonies within the Site Boundary expansion areas, the absence of recent activity in the areas immediately south of the Carty Solar Farm in 2016, and the decrease of habitat quality due to multiple recent fires near the Carty Solar Farm, PGE does not expect WGS to be present near the Carty Solar Farm. Consistent with current site certificate conditions, PGE would conduct additional field surveys prior to and during all of the years when construction occurs and, per Site Certificate Condition 10.20, coordinate with ODFW regarding appropriate mitigation measures should new active WGS burrows become established within 785 feet of the Site Boundary. Therefore, it is not likely that construction or operation of the Carty Solar Farm would cause direct impacts on WGS.

Some indirect impacts on WGS may occur because of the construction of the Carty Solar Farm, such as the loss of suitable, but currently unoccupied, WGS habitat. Although some temporary disturbance areas used as laydown or parking areas would be restored at the end of construction, permanent disturbance areas would be lost for the life of the project (30 years or more). No

active, Category 1 habitat would be affected by construction of the Carty Solar Farm (see Figure Q-1).

As described in Section Q.5.1 of the ASC, WGS are usually found in native grassland and shrub-steppe habitats that occur over silt loam soils, particularly Warden and Sagehill soils (USFWS 2018). Large portions of the proposed Carty Solar Farm and its associated interconnection transmission line routes are composed only of low to moderate quality habitats (Categories 4 to 6), and are almost entirely on Sagehill soils (see Figure I-1 in Exhibit I), but most of these areas may still be suitable for WGS (see Figure P-1 in Exhibit P for a depiction of habitat types and categories in the analysis area). Over 70,000 contiguous acres of suitable WGS habitat (i.e., the Boardman Conservation Area and Naval Weapon Systems Training Facility) are located in the immediate vicinity of the project, and construction of the Carty Solar Farm would be expected to result in no net loss of habitat quantity or quality with the implementation of ODFW's (2014) Fish and Wildlife Habitat Mitigation Policy. As part of its mitigation approach, PGE plans to protect and enhance a nearby parcel of suitable habitat where PGE has documented numerous WGS activity sites in recent years. Refer to Sections P.3, P.4, P.8, and Appendix P-3 of Exhibit P for further discussion of habitat types and locations and habitat mitigation for construction of the amended facilities.

**Lawrence's Milkvetch**

*Occurrence in the Analysis Area*

In 2009 and 2010, E & E conducted habitat/vegetation community surveys within the original Site Boundary. In 2016, E & E conducted habitat/vegetation community surveys at the Carty Solar Farm site (see Figure Q-3). Although PGE did not design these investigations to specifically target Lawrence's milkvetch, documenting the presence of this species was a secondary objective. E & E observed two milkvetch species during the 2016 surveys, but determined that they were not Lawrence's milkvetch. The milkvetch species observed did not fit the description of Lawrence's milkvetch due primarily to substantial difference in floral characters. PGE has not found evidence of the occurrence of this subspecies within the amended Site Boundary or the analysis area. The nearest recorded observations for this species are approximately 8 to 10 miles east of the Carty Reservoir in 1976 and 20 miles southeast of the Carty Solar Farm in 1955 (Oregon Flora Project 2016).

Despite the absence of documented specimens within the amended Site Boundary, Lawrence's milkvetch could occur on site, but habitat conditions within the amended Site Boundary do not closely match the subspecies preferred conditions. Lawrence's milkvetch typically occurs on dry, grassy slopes in sandy or stony clay basalt-derived soil, usually in association with bluebunch wheatgrass (*Pseudoroegneria spicata*)-Idaho fescue (*Festuca idahoensis*) grassland on the Columbia Plateau of northern Oregon at 2,000 to 3,600 feet above mean sea level (ODA 2018; NatureServe Explorer 2017). Areas within the amended Site Boundary range from about 600 feet to 800 feet above mean sea level and do not support bluebunch wheatgrass-Idaho fescue

communities. The grassland communities present on site are either heavily degraded by cheatgrass (*Bromus tectorum*) or are undergoing post-burn succession and have little cover by bluebunch wheatgrass or Idaho fescue.

*Potential Impacts*

Given that the surveys conducted to date have shown no detections, the lack of available historical records within the analysis area, and the general absence of preferred habitats for this subspecies in the amended Site Boundary, direct or indirect impacts on Lawrence's milkvetch as a result of construction or operation of the Carty Solar Farm are not likely. Given the very low probability that Lawrence's milkvetch occurs on site, PGE does not plan to conduct any targeted surveys for this species. However, biologists conducting preconstruction surveys for WGS during the year of construction would also search for this subspecies as a secondary objective, if the timing of the survey coincides with the appropriate period to survey for Lawrence's milkvetch (i.e., May through August; ODA 2018). If any observations of Lawrence's milkvetch are made, PGE would immediately report the findings to the ODA, with the goal of developing appropriate mitigation measures to reduce or avoid impacts on this species.

## Q.4 DESCRIPTION OF MEASURES PROPOSED TO AVOID OR REDUCE ADVERSE IMPACTS ON SPECIES

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

Response: The applicant would implement measures to avoid or reduce adverse impacts on WGS and their habitat, as outlined in the existing Site Certificate conditions and revised Carty Generating Station Wildlife and Habitat Monitoring and Mitigation Plan, Exhibit P, Appendix P-3, of this RFA. The habitat impacts resulting from construction of the Carty Solar Farm would be mitigated through habitat conservation efforts, including habitat enhancements in a Habitat Mitigation Area for the Carty Solar Farm to mitigate sagebrush habitat removal. Refer to Exhibit P and Appendix P-3 for details.

No additional construction-phase measures to avoid potential impacts on Lawrence's milkvetch are proposed, as surveys and desktop analysis of historical locations and habitat availability indicate that the species is not likely to occur within the amended Site Boundary.

## Q.5 EFFECTS ON THE SURVIVAL OR RECOVERY OF LAWRENCE'S MILKVETCH

**OAR 345-021-0010(1)(q)(D)** *For each plant species identified under 345-021-0010(1)(q)(A), a description of how the proposed facility, including any mitigation measures, complies with the*

*protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).*

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

Response: PGE does not expect that the Lawrence's milkvetch would occur within the amended Site Boundary; therefore, the construction and operation of the Carty Solar Farm is not likely to cause a significant reduction in the likelihood of survival or recovery of this subspecies.

## Q.6 EFFECTS ON THE SURVIVAL OR RECOVERY OF WASHINGTON GROUND SQUIRRELS

**OAR 345-021-0010(1)(q)(F)** *For each animal species identified under 345-021-0010(1)(q)(A), a description of significant potential impacts of the proposed facility on the continued existence of such species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

Response: As stated in Section Q.3, direct impacts on WGS during construction of the Carty Solar Farm are not likely, as colonies have never been documented within these areas. Construction and operation of the Carty Solar Farm could result in indirect impacts on WGS by removing potentially suitable, unoccupied habitat; however, implementation of the measures described in the Wildlife and Habitat Monitoring and Mitigation Plan would result in no net loss of habitat quantity or quality, and even a net benefit for some habitat types. For these reasons, the construction and operation of the Carty Solar Farm would not be likely to cause a significant reduction in the likelihood of survival or recovery of the WGS.

## Q.7 MONITORING PROGRAM

**OAR 345-021-0010(1)(q)(G)** *Applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.*

Response: Appendix P-3 of Exhibit P describes PGE's proposed monitoring and mitigation program, including monitoring WGS within the project boundary and the Habitat Mitigation Area and enhancements to current and potential WGS habitat within the Habitat Mitigation Area. PGE would not implement monitoring for Lawrence's milkvetch specifically, as PGE does not expect the subspecies to occur within the amended Site Boundary.

## Q.8 REFERENCES


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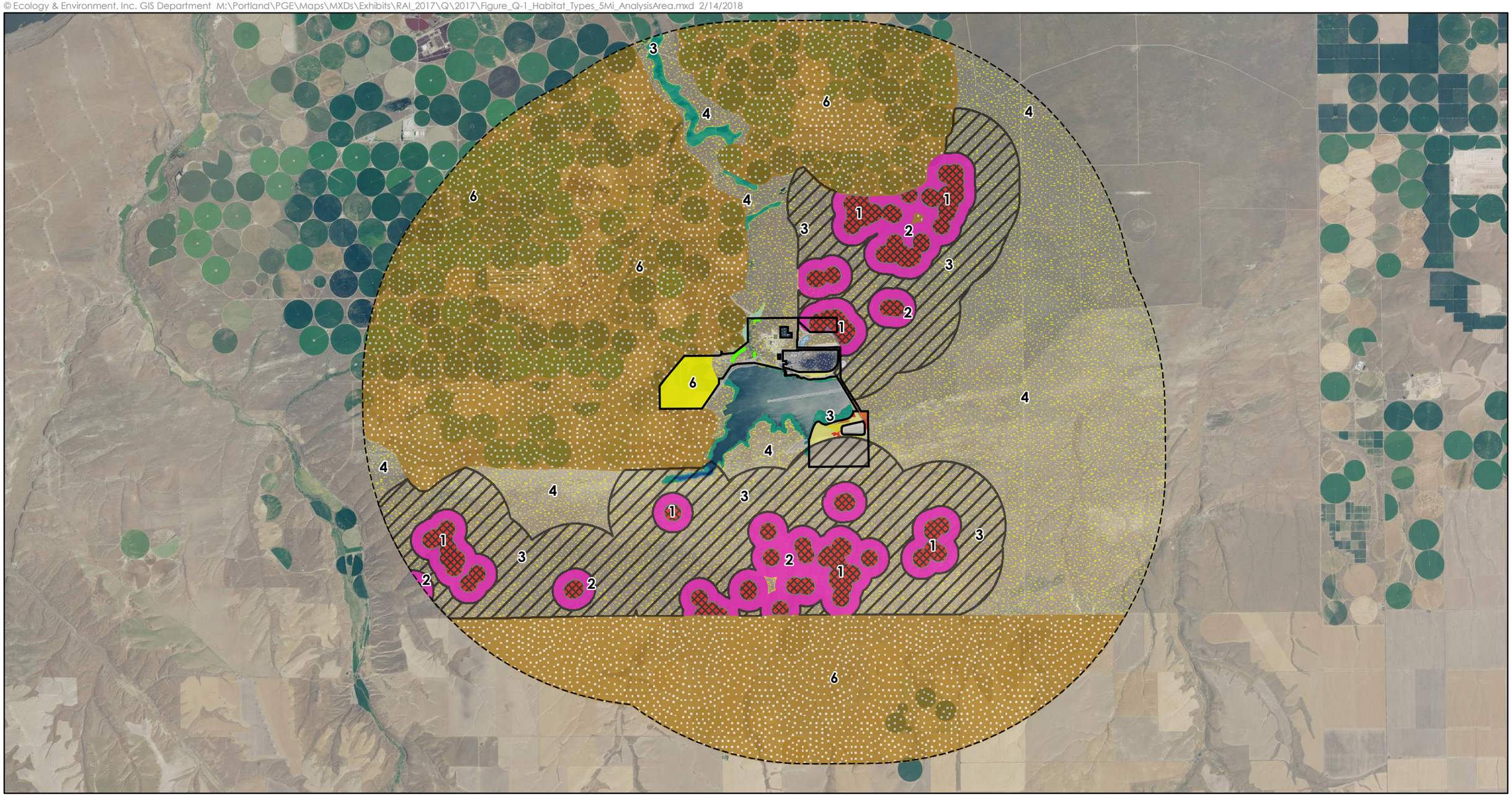


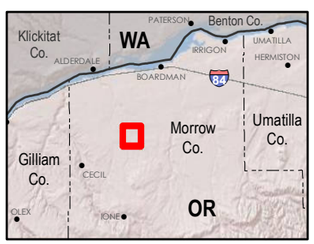


- Amended Site Boundary
- 5-Mile Analysis Area
- Field Delineated Wetland

**Habitat Types Field-Mapped or Extrapolated in 2016**

- Agriculture
- Artificial pond
- Broom snakeweed shrubland
- Cheatgrass savannah
- Developed
- Grassland (degraded)
- Grassland (post-burn)
- Shrub Steppe
- Riparian Forest
- Riparian meadow (disturbed)
- Riparian scrub wetland
- Sagebrush steppe
- Sagebrush steppe (disturbed)
- Category 1 Habitat (Essential, Limited & Irreplaceable) - WGS 2016 and/or 2017 occupied range
- Category 2 Habitat (Essential and Limited) - Potential WGS Habitat within 300m of category 1 habitat
- Category 3 Habitat (Important and Limited) - Potential WGS Habitat within 1,200m of category 2 habitat

**Habitat Types Original Site Boundary**

- Agriculture Cropland

Note: Under habitat types within five miles, shrub steppe habitats and grassland habitats are combined into the "Shrub Steppe" habitat type.

N

1:100,000

0 1 2 Miles



# Figure Q-1
# Habitat Types in the 5-Mile Analysis Area

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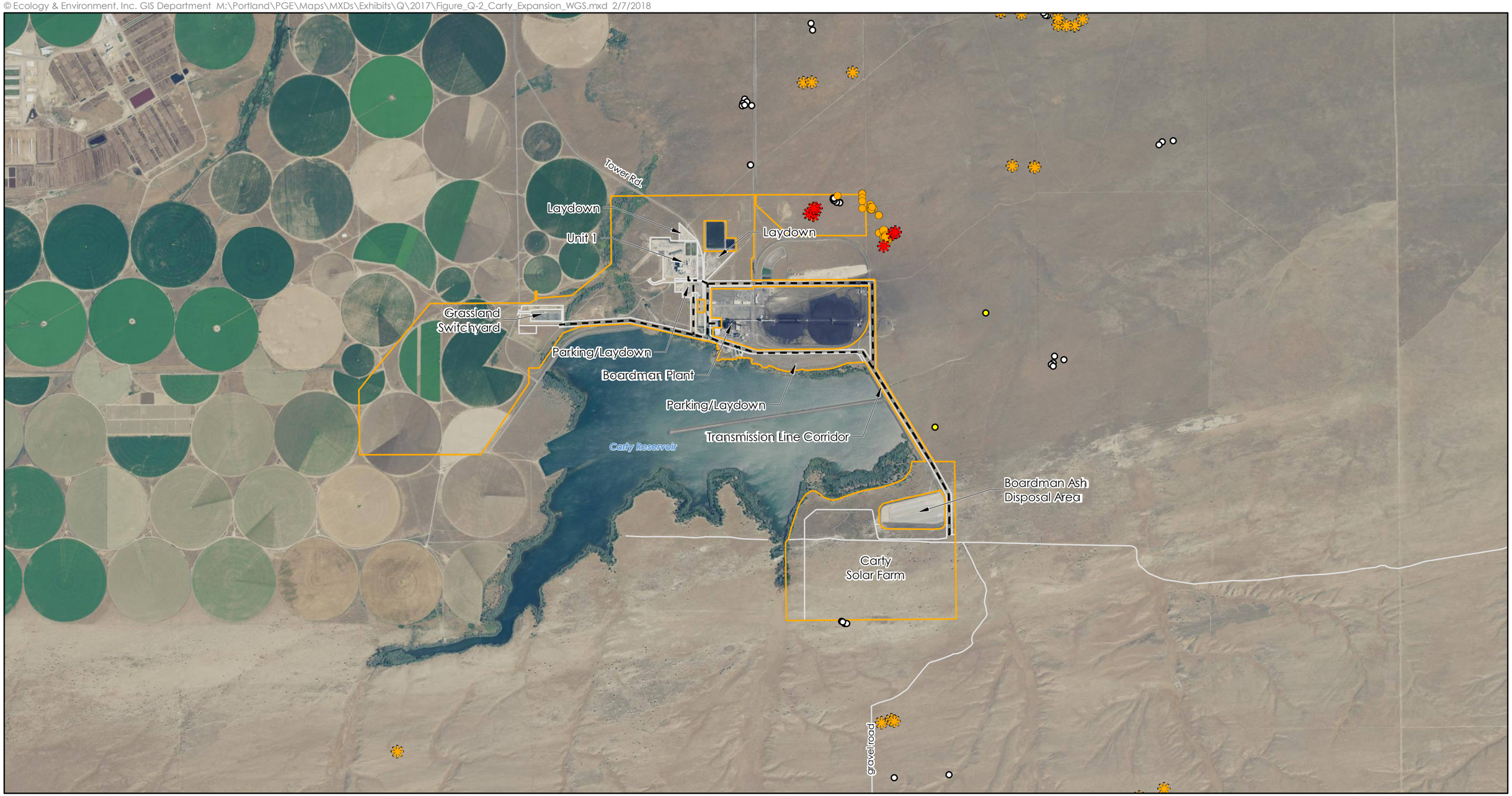
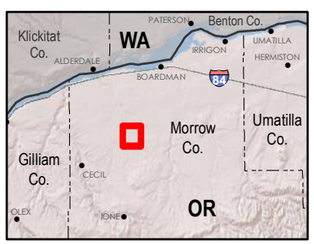
February 2018




- Transmission Line Options
- Amended Site Boundary
- Existing or Proposed Project Disturbance Areas
- Gravel Road

**Washington Ground Squirrel Colonies***

Active Colony at Most Recent Survey
- 2017
- 2016

Inactive Colony at Most Recent Survey (last active date)
- 2016
- 2014-2015
- 2013

*Data Source: Includes field Observations by Ecology and Environment, Inc., Portland General Electric Company, and The Nature Conservancy (TNC). TNC data collected on the Boardman Conservation Area are from randomly sampled survey units.

N

1:35,000

0 0.5 1 Miles



# Figure Q-2
## Washington Ground Squirrel 2013 - 2017 Known Activity Areas

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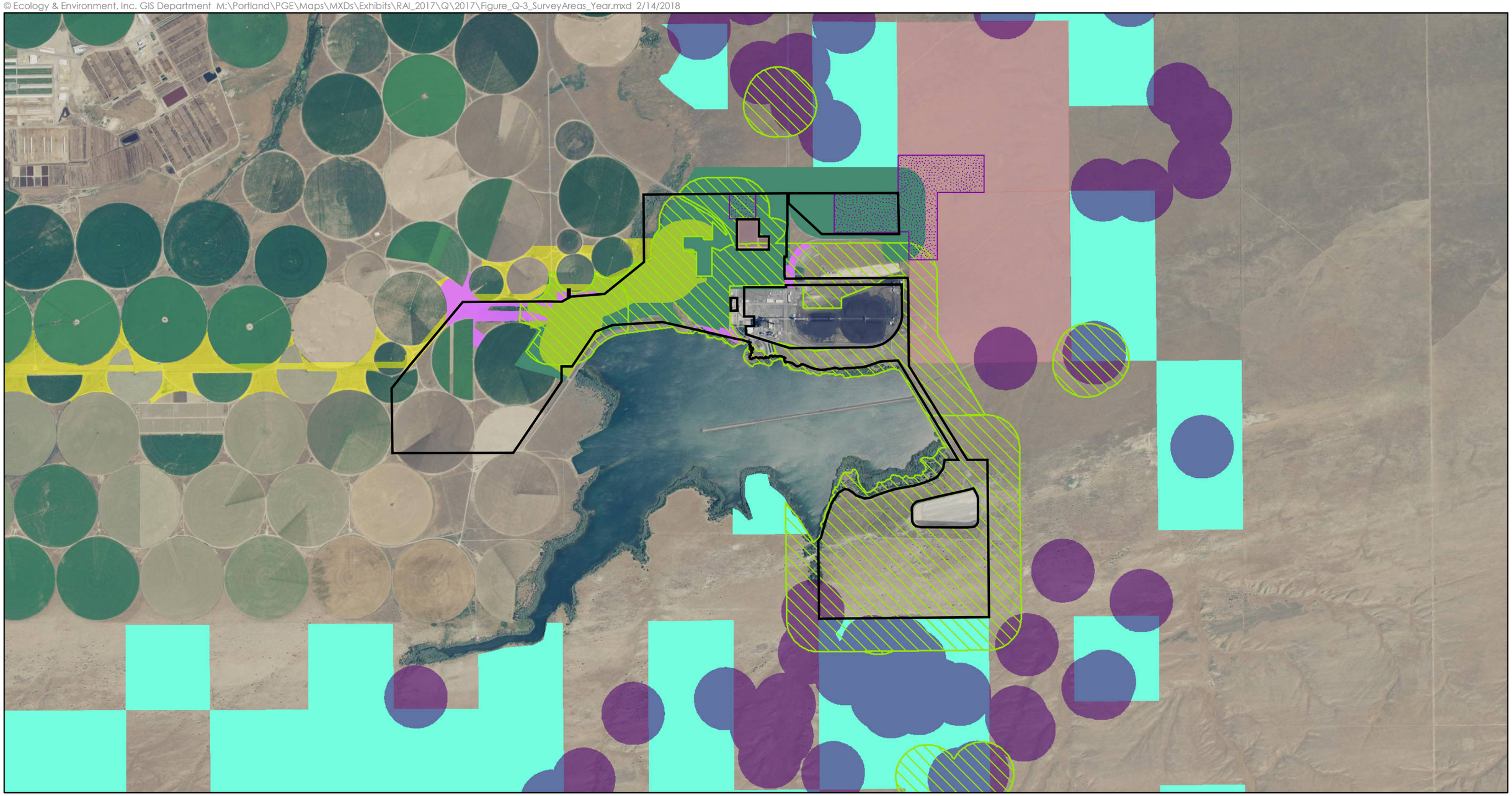
Portland General Electric Company
February 2018




Amended Site Boundary

2013 to 2017 Biological Survey Areas

- TNC's 2013 Survey Areas
- 2013 (E&E): Carty Generating Station
- 2014 (E&E): Carty Generating Station
- 2015 (E&E): Carty Lateral Project
- 2016 (E&E): Carty Generating Station
- 2016 (PGE): on-going studies
- 2016 (TNC): on-going studies
- 2017 (PGE): on-going studies

Note: TNC survey areas are a random sample of survey units and do not represent a complete survey of the BCA.

N

1:35,000

0 0.5 1 Miles



# Figure Q-3
# 2013 to 2017 Survey Areas

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# EXHIBIT R – Request for Amendment No. 1

## SCENIC RESOURCES

OAR 3450021-0010(l)(r)

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### FIGURES

## R.1 SUMMARY

**OAR 345-021-0010(1)(r)** *An analysis of significant potential impacts of the proposed facility, if any, on scenic resources identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0080.*

Response: This exhibit provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(r) in support of the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station. The analysis area for scenic resources includes the area within the amended Site Boundary and 10 miles from the amended Site Boundary.

## R.2 LIST OF PLANS ADDRESSING LANDS

**OAR 345-021-0010(1)(r)(A)** *A list of the local, tribal and federal plans that address lands within the analysis area.*

Response: Portland General Electric Company (PGE) identified and reviewed four plans meeting the specifications of OAR 345-021-0010(1)(r)(A) that address lands within the 10-mile analysis area, which includes two county-level plans and two federal plans. These plans include the updated Gilliam County Comprehensive Plan (Gilliam County 2017), the updated Morrow County Comprehensive Plan (Morrow County 2013), the Bureau of Land Management John Day Basin Resource Management Plan (BLM 2015), and the Umatilla National Wildlife Refuge Comprehensive Conservation Plan (USFWS 2008). Although OAR 345-021-0010(1)(r)(A) does not specify that state plans be reviewed, PGE also identified and reviewed the Oregon Department of Transportation 1999 Highway Plan: Including Amendments November 1999 through May 2015 (ODOT 2015). PGE is not aware of any other local, tribal, or federal plans that address lands within the analysis area.

## R.3 IDENTIFICATION OF SCENIC RESOURCES

**OAR 345-021-0010(1)(r)(B)** *Identification and description of the scenic resources identified as significant or important in the plans listed in (A), including a copy of the portion of the management plan that identifies the resource as significant or important.*

Response: PGE reviewed the plans listed in Section R.2 and identified one scenic resource in the analysis area that may qualify as significant or important: the Blue Mountain Scenic Byway (State Route 74) (ODOT 2015). A small portion of this scenic byway traverses the western edge of the analysis area (see Figure R-1).

## R.4 POTENTIAL IMPACTS ON SCENIC RESOURCES

**OAR 345-021-0010(1)(r)(C)** *A description of significant potential adverse impacts to the scenic resources identified in (B).*

Response: The Blue Mountain Scenic Byway is the only important scenic resource identified within the analysis area. The byway lies about 7 miles west of the amended Site Boundary at its closest point. The Carty Solar Farm would not be visible from the Blue Mountain Scenic Byway. The solar arrays would be under 10 feet tall, and the electrical inverters would be under 11 feet tall. The solar farm interconnection transmission line would be constructed using approximately 70-foot-tall wooden poles. In addition, no loss of vegetation or alteration of the landscape associated with the Carty Solar Farm would affect the scenic value of the byway. Therefore, PGE expects that the Carty Solar Farm would not have any significant impacts on visual resources.

## R.5 MEASURES TO AVOID, REDUCE, OR MITIGATE IMPACTS

**OAR 345-021-0010(1)(r)(D)** *The measures the applicant proposes to avoid, reduce or otherwise mitigate any significant adverse impacts.*

Response: Because the Carty Solar Farm would have no significant adverse impacts on scenic resources, no additional measures would be necessary to avoid or minimize impacts.

## R.6 MAP OF SCENIC RESOURCES

**OAR 345-021-0010(1)(r)(E)** *A map or maps showing the location of the scenic resources described under (B).*

Response: Figure R-1 presents important scenic resources within the analysis area (i.e., Blue Mountain Scenic Byway) in relation to the amended Site Boundary.

## R.7 MONITORING OF SCENIC RESOURCES

**OAR 345-021-0010(1)(r)(F)** *The applicant's proposed monitoring program, if any, for impacts to scenic resources.*

Response: No significant adverse impacts would occur on scenic resources (i.e., Blue Mountain Scenic Byway); therefore, PGE does not propose a monitoring program.

## R.8 REFERENCES


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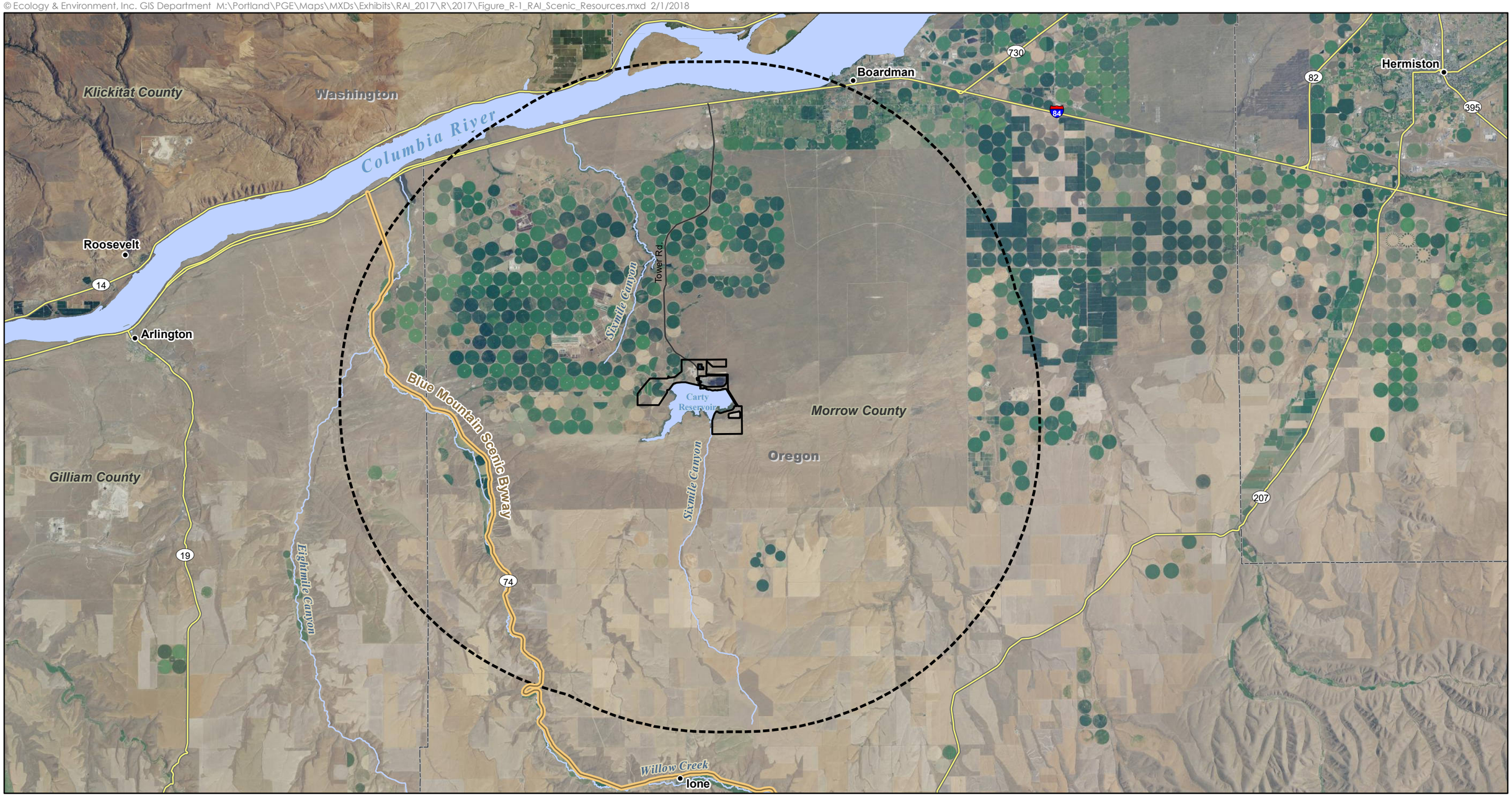



- Amended Site Boundary
- 10 Mile Analysis Area
- Scenic Byway
- Open Water

N

1:200,000

0 1 2 4 Miles

Credits: Copyright:© 2014 Esri
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Figure R-1
Important Scenic Resources

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Portland General Electric Company
February 2018

# EXHIBIT S – Request for Amendment No. 1

# HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES

OAR 345-021-0010(1)(s)

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## APPENDICES

## S.1 INTRODUCTION

**OAR 345-021-0010(1)(s)** *Information about historic, cultural, and archaeological resources providing evidence to support a finding by the Council as required by OAR 345-022-0090, including:*

Response: This exhibit provides the information required by Oregon Administration Records (OAR) 345-021-0010(1)(s) in support of the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station (RFA). The analysis area for historic, cultural, and archaeological resources is the area within the amended Site Boundary. The Application for Site Certificate provides information regarding the cultural resources potentially present in the original Site Boundary for the Carty Generating Station. This exhibit provides information regarding the historic, cultural, and archaeological resources within the Site Boundary expansion areas (i.e., the Carty Solar Farm as defined in Exhibit B). The Site Boundary expansion areas are addressed in the associated cultural resources technical report prepared by Willamette Cultural Resources Associates, Ltd. (WillametteCRA) in 2016 (Solimano and Taylor 2016), which was submitted separately as a confidential document to prevent public disclosure of protected archaeological site location information.

To identify historic, cultural, and archaeological resources within the Site Boundary expansion areas, WillametteCRA conducted a records review followed by a pedestrian and shovel probe survey. The records review included the area within and near the Site Boundary expansion areas, and the field survey was conducted within the Site Boundary expansion areas. The results of WillametteCRA's studies are summarized below. A more detailed description of the methods and results of WillametteCRA's cultural resource survey and recommendations regarding the resources' eligibility for listing in the National Register of Historic Places (NRHP) can be found in the cultural resource technical report (Solimano and Taylor 2016).

The associated cultural resources technical report for Exhibit S was prepared for the previous draft of this RFA, submitted to the Oregon Department of Energy in August 2016. Therefore, information references to Units 2 and 3 within the cultural resources technical report are no longer relevant to Portland General Electric Company's (PGE's) amendment request and are not incorporated into the evaluation of compliance with applicable Council standards.

## S.2 HISTORIC AND CULTURAL RESOURCES LISTED, OR POSSIBLY ELIGIBILE FOR LISTING, ON THE NATIONAL REGISTER OF HISTORIC PLACES

**OAR 345-021-0010(1)(s)(A)** *Historic and cultural resources within the analysis area that have been listed, or would likely be eligible for listing, on the National Register of Historic Places;*

Response: No historic or cultural resources within the project area have been listed, or would likely be eligible for listing, on the NRHP.

## S.3 ARCHAEOLOGICAL OBJECTS AND SITES ON PRIVATE LANDS WITHIN THE ANALYSIS AREA

**OAR 345-021-0010(1)(s)(B)** *For private lands, archaeological objects, as defined in ORS 358.905(1)(a), and archaeological sites, as defined in ORS 358.905(1)(c), within the analysis area;*

Response: Background research identified one precontact site, 35MW19, within the Site Boundary expansion areas and a second precontact site, 35MW15, immediately adjacent to the Site Boundary expansion areas. During its 2016 field investigation at the site, WillametteCRA did not relocate 35MW19 and shovel probing confirmed that 35MW15 does not extend into the Site Boundary expansion areas (Solimano and Taylor 2016). These two sites are discussed below.

Within the analysis area, WillametteCRA identified and recorded two archaeological resources. Both were isolated finds and fall under the definition of an archaeological object under Oregon Revised Statutes (ORS) 358.905(1)(a). These two resources are described below, along with information regarding their attributes that was used to make recommendations regarding their NRHP eligibility.

### Isolates

The Oregon State Historic Preservation Office (SHPO) defines archaeological isolates, in part, as nine or fewer artifacts found in a given location that can be associated with a particular activity that occurred in the past (Oregon SHPO 2007). Archaeological isolates fall within the definition of archaeological objects. Two isolates were identified in the analysis area during the current survey, one a prehistoric artifact and the other a historic-period artifact. One isolate (Isolate 1) was a single cryptocrystalline silicate stemmed projectile point found on the surface. The other isolate (Isolate 2) was an amber glass bottle base also found on the surface. The ground surface around both isolates was thoroughly surveyed, and no other artifacts were identified. Three shovel probes were excavated around Isolate 1, and no cultural material was identified. No shovel probes were excavated around Isolate 2. No further work is recommended at the isolate locations because they do not appear to be part of larger archaeological sites, and they are

recommended not eligible for listing in the NRHP as they are not likely to contribute information important in history or prehistory.

**Sites**

The Oregon SHPO defines archaeological sites, in part, as 10 or more artifacts found in a given location that can be associated with a particular activity that occurred in the past (Oregon SHPO 2007). One previously identified archaeological site is located within the analysis area. The prehistoric archaeological site (35MW19) is a lithic scatter that was recorded as containing a few scattered lithic flakes and a stone knife fragment (Cole 1977). Archaeological Investigations Northwest, Inc. (AINW) conducted evaluative test excavations at 35MW19 (Bajdek and Ozbun 2016). No archaeological materials were found on the surface or in the 30 units excavated, each comprising an area of 50 square centimeters. The field investigation included shovel probing within the analysis area outside of the defined boundaries of the archaeological site; WillametteCRA did not relocate 35MW19.

A second previously recorded site, 35MW15, is located outside of but adjacent to the analysis area. Site 35MW15 consists of lithic flakes and formed tools, including, but not limited to, projectile points, bifaces, and scrapers. The field investigation included shovel probing within the analysis area outside of the defined site boundaries. No archaeological material was identified, confirming that 35MW15 does not extend into the analysis area.

No additional artifacts associated with these sites were identified during WillametteCRA's work. No new archaeological sites were identified during the current survey.

## S.4 ARCHAEOLOGICAL OBJECTS AND SITES ON PUBLIC LANDS WITHIN THE ANALYSIS AREA

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

Response: The analysis area is located entirely on private property. No archaeological or historic resources were identified on public lands.

## S.5 SIGNIFICANT POTENTIAL IMPACTS OF CONSTRUCTION, OPERATION, AND RETIREMENT OF THE FACILITY ON HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES

**OAR 345-021-0010(1)(s)(D)** *The significant potential impacts, if any, of the construction, operation, and retirement of the proposed facility on the resources described in paragraphs (A), (B), and (C) and a plan for protection of those resources that includes at least the following:*

## S.5.1 Methodology

**OAR 345-021-0010(1)(s)(D)(i)** *A description of any discovery measures, such as surveys, inventories, and limited subsurface testing work, recommended by the State Historic Preservation Officer and the National Park Service of the U.S. Department of Interior for the purpose of locating, identifying, and assessing the significance of resources listed in paragraphs OAR 345-021-0010(1)(s)(A), OAR 345-021-0010(1)(s)(B), and OAR 345-021-0010(1)(s)(C).*

Response: WillametteCRA's methods for the cultural resource survey included a records review (S.5.1.1) and field survey (S.5.1.2).

### S.5.1.1 Records Review

WillametteCRA conducted a records review of the Oregon SHPO online database to identify previous archaeological and historical studies and to determine if any archaeological resources had been previously recorded within the analysis area and its vicinity. The literature review also included regional and local environmental histories, ethnographic studies, and documents pertaining to local European American history. The results of the records review, which are described in detail in WillametteCRA's technical report (Solimano and Taylor 2016), are summarized below.

One previously recorded archaeological site is present within the analysis area. Site 35MW19, also known as "The Northwestern Outlet Site," is a prehistoric lithic scatter consisting of flakes and a knife. The site was identified during a University of Oregon survey in the 1970s (Cole 1977). Most recently, AINW conducted evaluative test excavations at 35MW19 (Bajdek and Ozbun 2016). No archaeological materials were found on the surface or in the thirty 50 square centimeter units excavated. AINW recommended 35MW19 as not eligible for listing on the NRHP.

A second previously recorded archaeological site is located adjacent to the analysis area. Site 35MW15 is a prehistoric debris scatter consisting of lithic flakes and formed tools.

Records at the Oregon SHPO identified several archaeological inventory and testing efforts, as well as numerous archaeological resources within a 1-mile radius of the analysis area

### S.5.1.2 Field Surveys

Following the records review, WillametteCRA conducted a pedestrian field survey and shovel testing within the Site Boundary expansion areas. WillametteCRA undertook an intensive pedestrian survey of the project lands and shovel probing in the vicinity of previously recorded sites 35MW15 and 35MW19, and around Isolate 1. Fieldwork occurred between April 5 and 9, 2016. The archaeological field investigations were carried out in conformance with Oregon SHPO standards and guidelines (Oregon SHPO 2007).

All of the analysis area was surveyed using 20-meter interval transects. Transect intervals were widened in areas covered in gravel for parking, graded, or disturbed by utility installation and consequently where ground surface visibility was low or accessibility was limited. In these areas, transects were wider and more meandering. Additionally, after the initial systematic pedestrian survey, substantially closer transects were used near previously recorded sites to re-inspect the ground surface.

Shovel probes were approximately 40 centimeters in diameter at about 20-meter intervals. Probes were excavated to between 50 and 80 centimeters deep, with a sample (16 of the 32 shovel probes) of those augered to between 100 or 200 centimeters, depending on sediments. Depth of augering was mainly determined by sediments.

Ground surface visibility was generally high in all areas without recent modification or construction. In many areas, eroded dunes provided extensive exposure. All survey activities were documented in field notes and on maps. Resources and survey conditions were fully described and photographed. Resource locations and boundaries were mapped both on paper maps and with hand-held Trimble global positioning system (GPS) units, with submeter accuracy. All identified archaeological resources were documented according to appropriate state standards. For previously recorded resources, the resource's documentation was checked for accuracy, and changes were noted.

### S.5.2 Survey and Inventory Results

**OAR 345-021-0010(1)(s)(D)(ii)** *The results of surveys, inventories, and subsurface testing work recommended by the state and federal agencies listed in subparagraph (i), together with an explanation by the applicant of any variations from the survey, inventory, or testing recommended;*

Response: As a result of the records review and cultural resource fieldwork, three cultural resources were identified within the analysis area. These resources consist of one previously recorded archaeological site (35MW19) and two previously unrecorded archaeological isolates (Isolate 1 and Isolate 2).

The previously recorded archaeological site, 35MW19, was recorded during a survey for the Carty Reservoir (Cole 1977). It was described as including scattered lithic flakes and a stone tool. No evidence of archaeological site 35MW19 was found during the current pedestrian survey or shovel testing of the analysis area. Close interval pedestrian transects were walked throughout the recorded archaeological site boundaries within the analysis area, and 11 shovel tests were excavated east of the archaeological site, outside of the known site boundaries. WillametteCRA observed no evidence of 35MW19 within the analysis area during the current field investigation. Furthermore, recent test excavations within the recorded site boundaries by AINW produced no evidence of 35MW19 (Bajdek and Ozbun 2016). This 2016 AINW study was conducted under a Oregon SHPO Archaeological Permit, the methodology for which was approved in advance of the survey by Oregon SHPO and identified stakeholders. AINW

conducted an intensive level pedestrian survey followed by excavation of 30, 50 by 50 centimeters square shovel test units. No cultural material was identified during the survey. It was determined that site 35MW19 does not retain intact archaeological deposits and does not contain archaeological features. The site lacked integrity due to prior construction activities and was recommended not eligible for listing in the NRHP. Therefore, AINW recommended a finding of "No Historic Properties Affected." In a letter dated, June 13, 2016 (see Appendix S-1), Oregon SHPO concurred with the findings and determined that a good faith effort has been made and that site 35MW19 is not eligible for listing in the NRHP. Based on the previous work by AINW and Oregon SHPO concurrence, WillametteCRA recommended that the site is not eligible for listing on the NRHP and that the site need not be avoided for future developments. Based on the surveys conducted by WillametteCRA for this RFA, surveys conducted by AINW in 2016, and concurrence from Oregon SHPO that 35MW19 is not eligible for inclusion to the NRHP, PGE requests that site certificate conditions 11.1 and 11.6(a) be removed from the site certificate.

The two archaeological isolates identified during the current fieldwork—a precontact projectile point (Isolate 1) and historic-period bottle base (Isolate 2)—are recommended not eligible for listing on the NRHP. The information potential of these resources has been largely exhausted during recording, and no further work is recommended at either location. They are not significant under any criteria and therefore not eligible for listing on the NRHP.

Construction of the Project will proceed within the current analysis areas within the framework of an Inadvertent Discovery Procedure. Should the design plans change or the project area expand into any new areas, additional archaeological surveys may be necessary to determine whether archaeological resources are present in the Site Boundary expansion areas.

### S.5.3 Measures Designed to Prevent Destruction of Historic, Cultural, and Archaeological Resources

**OAR 345-021-0010(1)(s)(D)(iii)** *A list of measures to prevent destruction of the resources identified during surveys, inventories, and subsurface testing referred to in subparagraph (i) or discovered during construction; and*

Response: Construction of the new and modified facilities will proceed within the framework of PGE's Inadvertent Discovery Procedure in the event that archaeological resources or human remains are discovered. PGE's Inadvertent Discovery Procedure is included as Appendix S-2.

### S.5.4 Permit Application

**OAR 345-021-0010(1)(s)(D)(iv)** *A completed copy of any permit applications submitted pursuant to ORS 358.920. Notwithstanding OAR 345-021-0000(4), the applicant shall include copies of the permit applications as part of the site certificate application. If the same information required by subparagraphs (i) through (iii) above is contained in the permit applications, then the applicant may provide cross-references to the relevant sections of the permit applications in substitution.*

Response: No permit applications are required or have been submitted at this time.

## S.6 PROPOSED MONITORING PROGRAM

**OAR 345-021-0010(1)(s)(E)** *The applicant's proposed monitoring program, if any, for impacts to historic, cultural, and archaeological resources during construction, operation and retirement of the proposed facility;*

Response: Intensive-level surveys, including systematic subsurface testing, have not indicated the presence of cultural material or features in the proposed project area. However, PGE understands that there will remain a possibility of subsurface deposits. For this reason, no formal monitoring is planned at this time. PGE's Inadvertent Discovery Procedure will be adhered to during the course of this project. Additionally, PGE staff working on this project has had intensive cultural resources awareness training and will be equipped to contact a professional archaeologist should evidence for cultural material emerge. However, if the Tribe would like to have a Tribal monitor on site during specific ground disturbing activities, PGE could certainly coordinate that.

## S.7 REFERENCES

Bajdek, Brennan P., and Terry L. Ozbun. 2016. Archaeological Evaluation of Site 35MW19 for Portland General Electric, Morrow County, Oregon. Archaeological Investigations Northwest, Inc. Report No. 3622. Submitted to Portland General Electric, Oregon.

Cole, David L. 1977. Archaeological Research in the Carty and Pebble Springs Reservoir Areas in the Columbia Plateau of Oregon. University of Oregon, Museum of Natural History, Eugene. Submitted to Portland General Electric Company, Portland.

Oregon SHPO (Oregon State Historic Preservation Office). 2007. Guideline for Conducting Field Archaeology in Oregon. Oregon State Historic Preservation Office, Salem, Oregon.

Solimano, Paul, and Breanne Taylor. 2016. Archaeological Inventory for the PGE Carty Expansion Project, Morrow County, Oregon. WillametteCRA Report No. 16-13, Portland, Oregon. Submitted to Portland General Electric, Oregon.

# Appendix S-1

## Oregon SHPO Case No. 16-0855
## Concurrence Letter

Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org

June 13, 2016

Ms. Mini Sharma-Ogle
Portland General Electric
121 SW Salmon St., WTC3BR5
Portland, OR 97204

RE: SHPO Case No. 16-0855
PGE, Evaluation of site 35MW19 for road work at Boardman generating facility
road improvements
3N 24E 33, Morrow County

Dear Ms. Sharma-Ogle:

Our office recently received a report of archaeological investigations for the project referenced above. The report has been assigned SHPO Report# 28159 and added to the SHPO Library. We have reviewed the report and concur that a good faith effort has been implemented and that 35MW19 is not eligible for inclusion to the National Register of Historic Places. The project will have no effect on any significant archaeological objects or sites. Based on the information provided, additional archaeological research is not anticipated for this project.

In the unlikely event additional archaeological objects or sites (i.e., historic or prehistoric) are encountered during project implementation, all ground disturbance at the location should cease immediately until a professional archaeologist can be contacted to evaluate the discovery. Under state law (ORS 358.905-955 & ORS 97.740) archaeological sites, objects and human remains are protected on both public and private land in Oregon. If you have not already done so, be sure to consult with all appropriate Indian tribes regarding your proposed project. If you have any questions regarding any future discovery or this letter, feel free to contact me at your convenience.

Sincerely,

Matt Diederich

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577
Matthew.Diederich@oregon.gov

# Appendix S-2

## Inadvertent Discovery Procedure

**Portland General Electric Company**
*121 SW Salmon Street • Portland, Oregon 97204*

# Cultural Resources Inadvertent Discovery Procedure

**Updated: September 2016**

**Portland General Electric Company**
*121 SW Salmon Street • Portland, Oregon 97204*

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**Portland General Electric Company**
*121 SW Salmon Street • Portland, Oregon 97204*

## 1.0 Purpose

Most inadvertently discovered cultural resources occur during ground-disturbing activities associated with facilities development, maintenance, or improvement. This procedure provides a protection and mitigation protocol, until an appropriate resolution as to the treatment of the discovery has been reached.

### 1.1 Scope

1.1.1 The scope of this procedure is to minimize impacts to cultural resources while minimizing the impact to the project.

1.1.2 This procedure outlines appropriate steps for PGE employees and their contractors when cultural resources are inadvertently or unanticipatedly discovered during work.

1.1.3 Inadvertent discoveries are categorized into “definitely human remains” and “not definitely human remains” and the steps to be followed are distinct for the two categories. This procedure applies to all PGE personnel and PGE contractors

## 2.0 Responsibilities

### 2.1 Site Personnel: All PGE Personnel and Contractors

2.1.1 Stops work when an inadvertent discovery of a cultural resource is made.

2.1.2 Contacts appropriate personnel and protects the area per the procedure.

### 2.2 Site Management

2.2.1 Ensures all plant/facility employees have received the cultural resources sensitivity training.

2.2.2 Contacts PGE’s Cultural Resources Specialist to discuss adequate protection for the discovery until a professional in-field assessment of the discovery is made.

2.2.3 Follows any additional management plan guidance specific to PGE project facilities.

### 2.3 Cultural Resource Specialist

2.3.1 Conducts preliminary in-field assessment of the discovery.

2.3.2 Coordinates with PGE security as required.

2.3.3 Notifies appropriate agencies and/or Tribes within 24 hours of the discovery.

2.3.4 Provides direction and support services to affected personnel.

2.3.5 Engages an external consultant if required.

## 3.0 Definitions and Acronyms

### 3.1 Definitions

3.1.1 **Cultural Resources:** Physical evidence of past human activity (site, object, structure, natural feature or landscape) considered significant by a group of people traditionally associated with it. Cultural Resources are defined as being fifty years or older.

3.1.2 **Cultural Resources Location:** The location of the remains of a significant event, prehistoric or historic occupation or activity, whether standing, ruined, or vanished, and possessing historical, cultural, or archaeological value. These include artifacts (lithic or stone tools or fragments of tools, ceramic vessels, animal remains, can/bottle scatters, farm equipment), features (remnants of walls, glyphs, cooking hearths or trash middens) or ecological evidence (pollens representing plants that were in the area when the activities occurred).

3.1.3 **Inadvertent discoveries/finds:** Cultural resources found unexpectedly during construction or maintenance activities.

### 3.2 Acronyms

ELS: Environmental and Licensing Services

SHPO: Oregon State Historic Preservation Office

## 4.0 Precautions and Limitations

### 4.1 Precautions

4.1.1 Determine that the area of the inadvertent find is safe to work in before implementing protection measures.

4.1.2 The inadvertent find should not be photographed, handled or removed until a professional archaeologist is contacted or on site.

4.1.3 If the inadvertent find is clearly human, it must be treated with respect.

### 4.2 Limitations

4.2.1 This procedure is limited to the treatment of unanticipated identification of cultural resources in the course of a PGE action/operation.

## 5.0 Procedure

### 5.1 Prerequisite Actions

5.1.1 Field personnel and supervisors must complete the required Environmental Compliance Training provided by ELS that includes cultural sensitivity training.

### 5.2 Procedure

5.2.1 Initial Response

5.2.1.1 If an inadvertent discovery of a cultural resource is made, all work within the area of discovery shall cease immediately.

5.2.1.2 If the discovery is definitively human remains, contact PGE Security and ELS immediately within 2 hours or as reasonably practical:

1) PGE Security. They are responsible for contacting local law enforcement to determine whether the find is forensic, i.e. recent death requiring a criminal investigation.

2) PGE's Cultural Resource Specialist (ELS). Use Contact List (A01).

5.2.1.3 If the discovery is not definitively human remains, PGE's personnel who uncovered the find or their supervisor will contact PGE's Cultural Resources Specialist (ELS) immediately and within two hours of discovery or as soon as practical. PGE's Security need not be contacted.

5.2.1.4 PGE site personnel will flag off an area approximately 200 feet around the discovery, if possible. The area of work stoppage must be large enough to provide for the security, protection, and integrity of the discovery.

5.2.1.5 PGE personnel must promptly protect the discovery from continued exposure to the weather and from public view. This may be accomplished by the use of a clean tarp or other fabric.

5.2.2 Assessment

5.2.2.1 If the local law enforcement has been contacted by PGE Security, law enforcement will conduct an assessment to determine if it is a crime scene.

5.2.2.2 Once local law enforcement has determined that the discovery is not related to a crime scene or that the finds are definitively not modern, PGE's Cultural Resources Specialist will conduct an on-site assessment of the inadvertent discovery.

1) PGE's Cultural Resources Specialist will ensure that all work has halted in the vicinity of the find, that the protection buffer has been created and is adequate, and that the inadvertent discovery continues to be treated with respect and protected from further disturbance.

2) If the discovery has been determined non-modern human remains by law enforcement, PGE's Cultural Resource Specialist will contact the State's Physical Anthropologist for further guidance.

3) If the discovery is not human remains but a cultural resource, PGE's Cultural Resources Specialist will contact the State Historic Preservation Officer and area Tribes within 24 hours of the discovery.

4) PGE's Cultural Resources Specialist will inform Site Management of a reasonable time frame within which construction or maintenance activity can resume at the location of discovery.

5) PGE's Cultural Resources Specialist will inform Program Manager of the inadvertent discovery within 24 hours of the find.

## 5.3 Post-Performance Activity

5.3.1 PGE's Cultural Resources Manager will coordinate further archaeological fieldwork and reporting required to complete documentation of the inadvertent find.

5.3.2 If Tribes require repatriation of any cultural resources, PGE's Cultural Resources Specialist will coordinate the effort with stakeholders jointly identified by the State Historic Preservation Office, Tribes, and PGE within a reasonable time frame.

5.3.3 PGE will follow appropriate laws and management plan procedures to assure the proper treatment and care of the discovery.

5.3.4 PGE's Cultural Resources Specialist will confirm with Site Management when the area is cleared for work to resume.

## 6.0 References and Source Requirements

### 6.1 References

6.1.1 Protection under Oregon State law (ORS 97.740-994 and 358.905-961)

6.1.2 Deaths requiring investigation in OR (ORS 146.090 & .095)

6.1.3 Inadvertent Discoveries in WA (RCWs 68.50.645, 27.44.055, and 68.60.055)

6.1.4 Native American Graves Protection and Repatriation Act (NAGPRA) (43 CFR 10).

6.1.5 Some PGE facilities (All hydro plants, Trojan, and Tucannon River Wind Farm) also have site-specific plans or direction related to the management of cultural resources.

## 7.0 Appendix

A01: Cultural Resources Discovery Contact List

| Contact | Affiliation | Mobile Number | Office Number | Email | Schedule |
|---|---|---|---|---|---|
| On Duty | PGE Security | 503-464-8196 | - | - | 24/7 |
| Mini Sharma-Ogle | PGE Cultural Resource Specialist | 850-491-6333 | **503-464-BONE (503-464-2663)** | Mini.sharma-ogle@pgn.com | 24/7 |
| Dennis Griffith | State Archaeologist/ Oregon SHPO | 208-334-3847 | 503-986-0674 | dennis.griffin@state.or.us | Mon-Fri-7.30-3.30 |
| Sgt. Chris Allori | Oregon Law Enforcement | 503-731-4717 (Desk) | 503-708-6461 (mobile) | 503-731-3030 (dispatch) | Dispatch 24/7 |
| Sheriff Rocky Miller | Washington Law Enforcement | 509-383-2518 | - | - | Dispatch 24/7 |
| Dr. Veronica Vance | Oregon Physical Anthropologist, | 971-673-8200 (main office) | 971-673-8220 (Dispatch) | - | Dispatch 24/7 |
| Dr. Guy Tasa | Washington State Physical Anthropologist | 360-586-3534 | 360-790-1633 | Guy.tasa@dahp.wa.gov | Mon-Fri-8-4 |

# EXHIBIT T – Request for Amendment No. 1

## RECREATION

OAR 345-021-0010(1)(t)

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### FIGURES

## T.1 SUMMARY

**OAR 345-021-0010(1)(t)** *Information about the impacts the proposed facility would have on important recreational opportunities in the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0100.*

Response: This exhibit provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(t) in support of the Request for Amendment No. 1 of the Site Certificate for the Carty Generating Station (RFA). The analysis area for recreation resources includes the area within the amended Site Boundary and 5 miles from the amended Site Boundary.

## T.2 DESCRIPTION OF RECREATIONAL OPPORTUNITIES

**OAR 345-021-0010(1)(t)(A)** *A description of the recreational opportunities in the analysis area that includes information on the factors listed in OAR 345-022-0100(1) as a basis for identifying important recreational opportunities.*

Response: Portland General Electric Company (PGE) reviewed publicly available resources to determine which recreational opportunities are present in the analysis area. The only important recreational opportunity identified within the analysis area is the Oregon National Historic Trail, which runs east-west approximately 2.1 miles south of the proposed Carty Solar Farm. Access to the Oregon National Historic Trail varies with each site and landowner, and the National Park Service (2015) has developed an auto tour route to view many segments of the trail.

PGE reviewed the following resources:

- "Find a Park," Oregon Parks and Recreation Department website (OPRD 2018)
- "Oregon National Historic Trail: Accessibility," National Park Service website, (National Park Service n.d.)
- "Recreation in Morrow County," Morrow County website (Morrow County n.d.)
- Gilliam County Comprehensive Plan (Gilliam County 2017)
- Morrow County Comprehensive Land Use Plan (Morrow County 2011)

## T.3 POTENTIAL IMPACTS

**OAR 345-021-0010(1)(t)(B)** *A description of any significant potential adverse impacts to the important opportunities identified in (A).*

Response: Construction and operation of the Carty Solar Farm would not result in substantial impacts on the Oregon Historic National Trail. The following sections provide more details regarding the potential impacts of the Carty Solar Farm on recreation resources.

### T.3.1 Noise

Construction-related noises are listed as exempt from the rules of OAR 340-035-0035(1) by OAR 340-035-0035(5); however, construction-related noises associated with activities proposed in the RFA are expected to be less than 50 A-weighted decibels at a distance of 5 miles, which complies with the most restrictive OAR 340-35-035 "Table 8" daytime or nighttime limit of 50 A-weighted decibels. The Oregon Historic National Trail is over 2 miles from the Carty Solar Farm, which is not expected to produce significant noise during operations; therefore, PGE does not expect noise-related impacts on the Oregon National Historic Trail during construction or operations.

### T.3.2 Visual

The Carty Solar Farm would not have any tall features; the solar arrays would be up to 10 feet tall and the solar site inverters would be under 10.5 feet tall. The Carty Solar Farm would be located over 2 miles from the trail, in gently rolling terrain. For these reasons, PGE does not expect visual impacts on the Oregon National Historic Trail during construction or operations.

### T.3.3 Traffic

Construction and operations personnel would access the Carty Solar Farm via Tower Road from Interstate 84, to the north. The Oregon National Historic Trail is not accessed via Tower Road. The nearest segments of the Oregon National Historic Trail are accessed from State Route 74, 9 miles west of Tower Road on Interstate 84, or from Bombing Range Road, 8 miles to the east of Tower Road on Interstate 84. Based on the distance of the access routes to the trail from Tower Road, PGE does not expect traffic-related impacts on the Oregon National Historic Trail.

## T.4 PROPOSED MEASURES

**OAR 345-021-0010(1)(t)(C)** *A description of any measures the applicant proposes to avoid, reduce or otherwise mitigate the significant adverse impacts identified in (B).*

Response: The Carty Solar Farm would not have significant, adverse impacts on recreational opportunities; therefore, PGE does not propose measures to avoid, reduce, or mitigate impacts.

## T.5 MAP OF RECREATIONAL OPPORTUNITIES

**OAR 345-021-0010(1)(t)(D)** *A map of the analysis area showing the locations of important recreational opportunities identified in (A).*

Response: Figure T-1 depicts the analysis area and the location of the Oregon National Historic Trail relative to the Carty Solar Farm and the amended Site Boundary.

## T.6 PROPOSED MONITORING

**OAR 345-021-0010(1)(t)(E)** *The applicant's proposed monitoring program, if any, for impacts to important recreational opportunities.*

Response: The Carty Solar Farm would not have significant, adverse impacts on recreational opportunities; therefore, PGE does not propose a monitoring program.

## T.7 REFERENCES


Gilliam County. 2017. Gilliam County Comprehensive Plan and Land Zoning Ordinance. Planning Department. http://www.co.gilliam.or.us/zoning.html. Accessed December 7, 2017.

Morrow County. Not dated. Recreation in Morrow County. Planning Department. http://www.co.morrow.or.us/planning/page/recreation-morrow-county. Accessed December 8, 2017.

Morrow County. 2011. Morrow County Comprehensive Land Use Plan. Chapter 9: Recreation Element. Planning Commission. http://www.co.morrow.or.us/sites/default/files/fileattachments/planning/page/991/8_of_19_-_mc_comp_plan_-_goal_8.pdf . Accessed December 7, 2017.

National Park Service. Not dated. Parks: Oregon. https://www.nps.gov/state/or/index.htm . Accessed December 5, 2017.

National Park Service. 2015. Oregon National Historic Trail: Accessibility. https://www.nps.gov/oreg/planyourvisit/accessibility.htm. Accessed December 14, 2017.

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Columbia River
Washington
Oregon
Gilliam County
Morrow County
Morrow County
Umatilla County
Blue Mountain Scenic Byway
Oregon Historic Trail
84
82
74
207
19


Amended Site Boundary
5 Mile Analysis Area
Historic and Scenic Trail
Scenic Byway

N

1:150,000

0 1 2 3 Miles



Figure T-1
Recreational Opportunities

Request for Amendment No. 1
Carty Generating Station Site Certificate
Portland General Electric Company
February 2018