Request for Amendment No. 11 of the Site Certificate for the Port Westward Generating Project

Submitted to
Oregon Department of Energy

April 2019

Prepared by

Portland General Electric

Tetra Tech

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Acronyms and Abbreviations

ASC	Application for Site Certificate
CCCP	Columbia County Comprehensive Plan
CCI	Cornforth Consultants Inc.
Council	Energy Facility Siting Council
CUP	Conditional Use Permit
dBa	A-weighted decibels
BESS	Battery Energy Storage System
DOGAMI	Oregon Department of Geology and Mineral Industries
EPC	Engineering, Procurement and Construction
ft	Feet/foot
HVAC	Heating Ventilation and Air Conditioning
IBC	International Building Code
Li	Lithium
msl	Mean sea level
MW	Megawatt
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
PWGP	Port Westward Generating Plan
PGE	Portland General Electric
POI	Point of Interconnect
PUC	Public Utility Commission
RFA	Request for Amendment
SCADA	Supervisory Control and Data Acquisition
SSPC	Salem Smart Power Center

1 Introduction

In 2002, the Energy Facility Siting Council (Council) issued a Site Certificate (Site Certificate) to Portland General Electric Company (PGE) for the Port Westward Generating Plant (PWGP, Facility). PWGP is a natural gas plant in Columbia County, Oregon, northeast of the City of Clatskanie. The Site Certificate authorizes PGE to construct and operate two separate units at PWGP. Unit 1 is a 411 megawatt (MW) base load natural gas combined cycle combustion turbine plant that went into commercial operation in June 2007. Unit 2 is a 220 MW non-base load, natural gas-fired power plant comprised of 12 reciprocating internal combustion engines. Unit 2 went into commercial operation in December 2014.

In the 2015 Oregon Legislative session, PGE assisted in drafting House Bill 2193, which directs electric companies, if authorized by the Public Utility Commission (PUC), to submit proposals to develop energy storage systems and procure authorized projects by 2020. In November 2017, PGE filed its project proposal with the PUC for five energy storage projects, diverse in size, location and application. The changes proposed in this Request for Amendment No. 11 (RFA 11) are to implement one of the five proposed projects.

PGE is submitting RFA 11 to add a 4-6 MW battery energy storage system (BESS)within the fence line of the PWGP. The proposed BESS is a test project to better understand the range of grid services a generation-connected BESS can provide to PGE's system. These services are described in Section 4.

The analysis areas for RFA 11 are based on the boundary of the PWGP energy facility site and the spoils disposal area (Figure 1). This site and spoils disposal area boundary does not include the transmission line (ODOE, personal communication, March 29, 2019 and April 4, 2019).

In addition to the changes associated with the BESS, PGE is proposing several other changes to existing Site Certificate conditions that are not specific to the BESS:

1. Minor corrections/clarifications to the facility descriptions in Section C.1(a) and C.1(b) of the Site Certificate.
2. Modification of Condition D.6(7) to reflect that all fuel and chemical storage will be in paved spill containment areas with a curb, or appropriately sized and compatible secondary containment to allow for the use of secondary containment options that do not require installation of permanent pavement. (Section 8.3)
3. Modification to the revegetation success criteria and the Revegetation and Noxious Weed Control Plan as discussed with ODOE and ODFW on February 9, 2019. (Section 8.7)
4. Modification of Condition D.8(11) pertaining to wetland buffers. (Section 8.7)
5. Removal of Condition D.9(9) related to bald eagles. (Section 8.8)

When necessary, justifications for these proposed changes are in the applicable standard sections below.

This RFA provides the Council with information required under Oregon Administrative Rule (OAR) 345-027-0060 to review and consider the proposed changes to PWGP.

2 Need for Amendment – OAR 345-027-0050

OAR 345-027-0050 Changes Requiring an Amendment

Except for changes allowed under OAR 345-027-0053 of this rule, an amendment to a site certificate is required to:

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(4) Design, construct or operate a facility in a manner different from the description in the site certificate if the proposed change:

(a) Could result in a significant adverse impact that the Council has not addressed in an earlier order and the impact affects a resource or interest protected by a Council standard;

(b) Could impair the certificate holder's ability to comply with a site certificate condition; or

(c) Could require a new condition or a change to a condition in the site certificate.

Response: PGE is submitting an amendment request per OAR 345-027-0050(4)(c), because PGE proposes to modify existing site certificate conditions. In analyzing the "three coulds" test, PGE determined that the proposed battery storage will not result in any "significant adverse impact that the Council has not addressed in an earlier order" and will not "impair [PGE's] ability to comply with a site certificate condition." As explained further in Section 4, PGE proposes to add battery storage solely within already-disturbed areas of the existing site boundary. The Council has previously evaluated the Facility's impacts in those areas and imposed conditions to mitigate any adverse impacts. Except as specifically proposed in this RFA, PGE will continue to comply with all existing site conditions. Table 1 provides a summary of existing conditions that are applicable to the BESS.

Table 1. Standards and Laws Relevant to BESS.

Standard	Related Site Certificate Conditions
OAR 345-022-0000 General Standard of Review	F.1(3) – Compliance during all phases F.2(3) – Notification of environmental impacts F.2(4) – Implement compliance plan F.2(5) – Submit semi-annual construction report F.2(6) – Submit annual report

Standard	Related Site Certificate Conditions
	F.2(7) – Reference excerpts from other state, federal or local agency reports F.2(8) – Notification of changes in major milestones F.2(9) – Exchange copies of correspondence with other agencies F.2(10) – Notification of occurrences involving the facility within 72 hours G(1) – General arrangement shall be substantially as shown in the ASC G(2) – Construct related and supporting facilities in approved areas
OAR 345-022-0010 Organizational Expertise	D.2(1) – Notification of change of ownership D.2(2) – Notification of contractor identity D.2(3) – Notification if using a third-party operator D.2(4) – Responsibility of non-compliance D.2(5) – Contractually require contractors comply with site certificate D.2(6) – Obtain all necessary state and local permits or approvals
OAR 345-022-0020 Structural Standard	D.5(1) – Avoid dangers to human safety presented by seismic hazards D.5(3) – Submit geotechnical reports D.5(5) – Compliance with building codes D.5(6) – Notification of geological observations D.5(7) – Notification of geological observations D.5(8) – Avoid dangers to human safety presented by non-seismic hazards
OAR 345-022-0022 Soil Protection	D.6(1) – Restore vegetation D.6(2) – Control wind and water soil erosion D.6(3) – Limit construction during excessively wet conditions D.6(4) – Monitor for erosion impacts 12 months post construction D.6(5) – Implement follow-up restoration if necessary D.6(6) – Remove trapped sediment from erosion control measures D.6(7) – Contain fuel and chemical storage D.6(8) – Design indoor spill containment to hold 110 percent of liquids D.6(9) – Design outdoor spill containment to hold 110 percent of liquids and storm event
OAR 345-022-0030 Land Use	D.4(2) – Submit site plan D.4(4) – Obtain all appropriate land use permits
OAR 345-022-0040 Protected Areas	No applicable conditions to the Facility.
OAR 345-022-0050	D.3(1) – Retire facility when cease operations

Standard	Related Site Certificate Conditions
Retirement and Financial Assurance	D.3(2) – Prepare final retirement plan D.3(3) – Prevention of non-restorable site D.3(5) – Letter of credit to restore site to non-hazardous condition D.3(6) – Describe status of retirement fund in annual report D.3(7) – Prepare construction material management and monitoring plan D.3(8) – Prepare operational material management and monitoring plan D.3(9) – Perform Phase 1 investigations every 10 years D.3(10) – Correct deficiencies identified in Phase 1 investigation D.3(11) – Report releases of hazardous substances within one working day D.3(12) – Remedy release within six months or increase letter of credit D.3(13) – Commit funds from salvaged equipment to site restoration D.3(14) – Pay actual cost of retirement, regardless of estimated amount D.3(15) – Requirements for final retirement plan submittal
OAR 345-022-0060 Fish and Wildlife Habitat	D.8(1) – Avoid/minimize construction in areas of native vegetation and mitigate impacts to wildlife D.8(2) – Minimize impacts to vegetation and habitat D.8(4) – Prohibit equipment from entering streams, except as indicated D.8(5) – Use existing roads D.8(6) – Conduct blue heron rookery survey D.8(7) – Confirm breeding status of Crims Island bald eagles D.8(8) – Protect nesting birds, perform walk-down of site, train construction personnel regarding avian awareness D.8(10) – Proper use of herbicides near riparian areas or waterways D.8(11) – Wetland and waterway buffer D.8(12) – Setbacks for river, stream and emergent vegetation D.8(14) – Restore temporary disturbances D.8(15) – Minimize riparian vegetation disturbance D.8(18) – Implement mitigation measures specified in site certificate
OAR 345-022-0070 Threatened and Endangered Species	No applicable conditions to BESS
OAR 345-022-0080 Scenic Resources	D.10(1) – Move equipment from construction area when no longer needed D.10(2) – Control dust through application of water D.10(3) – Use directing and shielding devices on lights during construction D.10(4) – Use directing and shielding devices on lights during operation

Standard	Related Site Certificate Conditions
	D.10(5) – Submit outdoor lighting plan D.10(6) – Paint structures with low-glare point
OAR 345-022-0090 Historic, Cultural and Archaeological Resources	D.11(2) – Train construction personnel in identification of cultural items D.11(3) – Inadvertent discovery requirements D.11(4) – Allow monitoring by tribes during earth-moving activities D.11(5) – Allow for periodic onsite monitoring by tribes during construction
OAR 345-022-0100 Recreation	No applicable conditions to the Facility
OAR 345-022-0110 Public Services	D.13(1) – Provide chemical toilet services D.13(5) – Coordinate carpooling program for concurrent construction D.13(6) – Coordinate staggered shift schedule for concurrent construction D.13(7) – Use barge and railroad deliveries when possible D.13(8) – Construction fir protection system according to applicable codes
OAR 345-022-0120 Waste Minimization	D.14(1) – Separate recyclable materials D.14(2) – Segregate waste materials and proper disposal D.14(3) – Dispose of all temporary structures not need for operation D.14(4) – Convey all stormwater to allow for percolation
OAR 345-024-0550 and 0590 Carbon Dioxide Standards	No applicable conditions to BESS
OAR 340-035-0035 Noise	E.1.a(1) – Schedule heavy construction during daylight hours E.1.a(2) – Equip all combustion engines with exhaust mufflers E.1.a(3) – Establish noise complaint response system
Removal-Fill Law	E.1.b(3) – Clearly stake wetland boundaries

3 Certificate Holder Information – OAR 345-027-0060(1)(a)

OAR 345-027-0060 Preliminary Request for Amendment

(1) To request an amendment to the site certificate required by OAR 345-027-0050(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

(a) The name of the facility, the name and mailing address of the certificate holder, and the name, mailing address, email address and phone number of the individual responsible for submitting the request.

Response: PGE demonstrates compliance with this standard in Sections 3.1 through 3.3.

3.1 Name of Facility

Port Westward Generating Project

3.2 Name and Mailing Address of Certificate Holder

Portland General Electric Company
121 SW Salmon Street, 3WTC0403
Portland, OR 97204

3.3 Name and Address of the Individual Responsible for Submitting the Request

Arya Behbehani
Senior Director Environmental & Licensing Services
Portland General Electric Company
121 SW Salmon Street, 3WTC0403
Portland, OR 97204
(503) 464-8141
Arya.Behbehani@pgn.com

4 Project Description – OAR 345-027-0060(1)(b)

OAR 345-027-0060 Preliminary Request for Amendment

(1) To request an amendment to the site certificate required by OAR 345-027-0050(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

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(b) A detailed description of the proposed change, including:

(A) a description of how the proposed change affects the facility,

(B) a description of how the proposed change affects those resources or interests protected by applicable laws and Council standards, and

(C) the specific location of the proposed change, and any updated maps and/or geospatial data layers relevant to the proposed change.

Response: The Port Westward BESS will add 4-6 MW of battery energy storage at PWGP. The BESS will be a related or supporting facility adjacent to the switchyard within the existing fence line of the energy facility site (Figure 1). The proposed locations identified in Figure 1 are the expected locations for the BESS and laydown areas. However, the analysis presented in RFA 11 and the conclusion the Council reaches for each standard applies to the entire area within the fence line of PWGP and would support locating the BESS anywhere within the fence line.

Temporary construction laydown and parking areas also will be within the existing fence line. There will be no permanent or temporary disturbances caused by these laydown areas because they are already permanently disturbed and graveled. Also, no temporary or permanent roads will be built; all construction traffic will use existing access roads. A spoils disposal area located outside the fence line may be used during construction (Figure 1). This spoils disposal area is a previously-approved temporary disturbance area PGE used during construction of PWGP Units 1 and 2, which the Council approved in Request for Amendment 3.

The BESS will be factory built with batteries, enclosures, power conversion systems (inverters), an interconnection system, step-up transformers, battery management system, energy management system, fire detection and suppression, and all required programming for integration. The point of interconnect (POI) will be the switchgear in the existing switchyard. The BESS will connect to PGE's general transmission grid through the electric bus for Unit 2's Block 1, which connects to three engines. The transmission grid will recharge the BESS, and the BESS will discharge back to the grid when it is not used as spinning reserve for the Block 1 engines. The transmission grid includes generation from PWGP Unit 1 and Unit 2 and PGE's Beaver Generating facility to the southwest (Figure 1).

The batteries will be sited in a 100 foot (ft) x 90 ft paved area and stored in modular containers that are approximately 40 ft x 10 ft x 10 ft in dimension. The number of modular containers, inverters, and transformers and their layout will depend on the final design, but all components will fit within the proposed battery storage areas indicated on Figure 1. Each modular container will include a heating ventilation and air conditioning (HVAC) system and fire detection and suppression system. Depending on the technology, there may also be pumps and electrolyte storage tanks. All wiring will be in underground conduits. The BESS will not be staffed for operations and maintenance. However, it will be designed to be completely automated and report failure problems through SCADA (Supervisory Control and Data Acquisition) to PGE operators.

PGE is considering two battery options: lithium-ion batteries and flow batteries.

Lithium-Ion Batteries

A lithium-ion battery is a rechargeable, solid-state battery that stores energy in a solid electrode material, such as metal. Each battery cell has a cathode (a positive electrode), an anode (a negative electrode), and an electrolyte as the conductor. The anode material is typically graphite. The cathode material varies, and it defines the battery. Common cathode materials for a utility-scale battery storage system include Li cobalt oxide (lithium

cobaltate), Li manganese oxide (Li manganate), Li iron phosphate, Li nickel manganese Cobalt (NMC), and Li nickel cobalt aluminum oxide (NCA).

The electrolyte is the transport medium that allows lithium ions carrying the battery's charge to flow freely between the cathode and anode. The electrolyte is an organic solvent with dissolved lithium salt. Its composition depends on the selected cathode and anode combination. It is also what makes the battery flammable.

Flow Batteries

A flow battery is a rechargeable battery that stores energy in electrolyte liquids. The battery uses two liquids, one with a negatively charged cathode and one with a positively charged anode. These electrodes are separated by a membrane. When charging, the electrons are pulled from the positive solution and pushed into the negative solution. When the battery turns on, the electron flow reverses. Flow batteries come in a variety of chemistries: vanadium, iron chromium, zinc bromine, zinc iron and the batteries can be redox, hybrid, and membraneless.

Regardless of battery technology, fire suppression that meets the battery chemistry requirements will be built into the system. The fire alarm system will both detect and suppress fire. The fire suppression system will be able to contain a fire within the BESS enclosure for an adequate and reasonable amount of time to allow emergency services to arrive on site. A fire alarm panel at the BESS will connect to the PWGP Control Room so that operators are able to receive, acknowledge, and silence alarms.

Containment of leaks or spills of hazardous material will be incorporated into the battery container design. Additionally, the BESS will have multiple transformers. If the transformers are oil-filled and trigger EPA's Spill Prevention, Control, and Countermeasure (SPCC) requirements for containment, they will be kept in secondary containment.

Construction of the BESS is anticipated to start no later than the third quarter of 2020 and will end within one year of its start.

PGE further demonstrates compliance with this standard in Sections 4.1 through 4.3.

4.1 OAR 345-027-0060(1)(b)(A) How proposed change affects the facility

The BESS will not significantly alter PGE's operations of the PWGP. The BESS is a test project to better understand the range of grid services a generation-connected battery storage system can provide to PGE's system. The BESS may provide the services described in Table 2.

PGE also proposes five minor alterations to Site Certificate conditions. As discussed in this RFA, the proposed changes to the Site Certificate conditions will not impact PGE's operation of the PWGP or undermine the Council's previous findings. PGE will continue to operate the PWGP in compliance with all other existing Site Certificate conditions.

Table 2. Services the Port Westward Battery Energy Storage System may provide.

Category	Service	Description
Ancillary Services	Spinning Reserve	The portion of unloaded synchronized resource capacity that is immediately responsive to system frequency and that is capable of being loaded in 10 minutes and is capable of running for at least 60 minutes from the time it reaches its award capacity.
Ancillary Services	Non-spinning Reserve	The portion of resource capacity that is capable of being synchronized and ramping to a specified load in 10 minutes (or is capable of being interrupted in 10 minutes) and is capable of running (or being interrupted) for at least sixty 60 minutes from the time it reaches its award capacity.
Primary Control	Frequency Response	Online energy resource initial response to maintain interconnection frequency within predefined bounds by arresting frequency deviations and supporting frequency until restored to the scheduled value.
Ancillary Services	Regulation	Online energy resources that continuously respond to direct digital control signals in an upward and downward direction to match, on a real-time basis, demand and resources, consistent with established NERC BAL-001 reliability standard. Regulation is used to control the operating level of a resource within a prescribed area in response to a change in system frequency, tie line loading, or the relation of these to each other so as to maintain the target system frequency and/or the established Interchange with other Balancing Authority Areas within the predetermined Regulation Limits. Regulation includes both an increase in Energy production by a resource or decrease in Energy consumption by a resource (Regulation Up) and a decrease in Energy production by a resource or increase in Energy consumption by a resource (Regulation Down).
Ancillary Services	Black Start Service	Black start service is the ability of a generating unit to start without an outside electrical supply and is necessary to help ensure the reliable restoration of the grid following a blackout.
Ancillary Services	Voltage Support	A resource which can contribute reactive power resources onto the grid to maintain a desired transmission system voltage or to maintain voltage stability.
Bulk Energy	Generation Peaking Capacity to meet Planning Margin	A resource that is available to meet the Load Serving Entity's peak demand forecast plus any fixed planning margin for contingency. The resource reduces the need to procure new peaking power plants.
Ancillary Services	Load Following	Security-constrained economic dispatch of energy resources responding to CAISO signals on a 5-minute basis by varying their power output within a prescribed area to maintain appropriate balance of a Balancing Area's net load (demand) and resource (energy).

4.2 OAR 345-027-0060(1)(b)(B) How proposed change affects resources / interest protected by applicable laws and council standards

The changes proposed in RFA 11 will not create significant new impacts affecting those resources and interests protected by the Council's siting standards and will not alter the basis of the Council's previous findings that the Facility complies with all applicable laws and standards. To the extent that the BESS could affect protected resources and interests, PGE demonstrates that the Facility will continue to comply with the all applicable laws and Council standards in Sections 5 through 8 of this RFA.

4.3 OAR 345-027-0060(1)(b)(C) Location of proposed change

Figure 1 shows the location of the BESS and areas that will be used during construction. The BESS will be constructed within the fence line of PWGP in a disturbed area; the area is roughly 0.2 acre and is asphalted. Additionally, two graveled areas within the fence line may be used for construction laydown. The only site that is outside the fence line and may be used during construction is the spoils disposal area. PGE leases and maintains this area.

5 Applicable Division 21 Requirements – OAR 345-027-0060(1)(c)

OAR 345-027-0060 Preliminary Request for Amendment

(1) To request an amendment to the site certificate required by OAR 345-027-0050(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

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(c) References to any specific Division 21 information that may be required for the Department to make its findings.

Response: Per the First Amended Project Order issued November 5, 2001, PGE demonstrates compliance with applicable requirements of Division 21 in Sections 5.1 through 5.2.

5.1 OAR 345-021-0010(e) Permits Required and Applicable Requirements

(e) Exhibit E. Information about permits needed for construction and operation of the facility, including:

(A) Identification of all federal, state and local government permits related to the siting of the proposed facility, a legal citation of the statute, rule or ordinance governing each permit, and the name, mailing address, email address and telephone number of the agency or office responsible for each permit.

(B) A description of each permit, the reasons the permit is needed for construction or operation of the facility and the applicant's analysis of whether the permit should or should not be included in and governed by the site certificate.

(C) For any state or local government agency permits, licenses or certificates that are proposed to be included in and governed by the site certificate, evidence to support findings by the Council that construction and operation of the proposed facility will comply with the statutes, rules and standards applicable to the permit. The applicant may show this evidence:

(i) In Exhibit J for permits related to wetlands.

(ii) In Exhibit O for permits related to water rights.

(D) For federally-delegated permit applications, evidence that the responsible agency has received a permit application and the estimated date when the responsible agency will complete its review and issue a permit decision.

(E) If the applicant relies on a state or local government permit or approval issued to a third party, identification of any such third-party permit and for each:

(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the third party for access to the resource or service to be secured by that permit.

(ii) Evidence that the third party has, or has a reasonable likelihood of obtaining, the necessary permit.

(iii) An assessment of the impact of the proposed facility on any permits that a third party has obtained and on which the applicant relies to comply with any applicable Council standard.

(F) If the applicant relies on a federally-delegated permit issued to a third party, identification of any such third-party permit and for each:

(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the third party for access to the resource or service to be secured by that permit.

(ii) Evidence that the responsible agency has received a permit application.

(iii) The estimated the date when the responsible agency will complete its review and issue a permit decision.

(G) The applicant's proposed monitoring program, if any, for compliance with permit conditions.

Response: The Final Order on the Application for Site Certificate (ASC) and subsequent amendments identified the federal, state, and local government permits related to the siting of the Facility, which were incorporated into Site Certificate conditions as necessary. The addition of

battery storage does not require any different permits from those previously identified, nor any new Site Certificate conditions for permits that were previously considered by the Council.

Table 3 lists the permits and regulations that are applicable to the PGWP and identifies their applicability to the BESS. As demonstrated in Table 3, the addition of battery storage does not separately require any new permits not previously addressed by the Council.

Table 3. List of Facility Permits and Applicability to the Port Westward Battery Energy Storage System.

Permit or Applicable Requirement	Agency	Rule or Statute	Applicability
Title V Air Permit or Air Contaminant Discharge Permit (ACDP)	Department of Environmental Quality	Clean Air Act, Title V (42 U.S.C. Section 7661); Oregon Administrative Rule (OAR) Chapter 340, Division 216	Federal permit. Not applicable to the BESS because there will be no air emissions from BESS components.
Water Pollution Control Facilities Permit (WPCF)	Department of Environmental Quality	Oregon Revised Statutes (ORS) 468B; OAR Chapter 340, Division 45	Not applicable because construction and operation of the BESS will not adversely impact the site's sewage collection and treatment systems. WPCF requirements are not applicable to the system since no other wastewater will be generated by the BESS during construction or operation. PWGP no longer requires, and therefore, no longer maintains a WPCF Permit due to rule changes in OAR 340-071 that allowed for the termination of the WPCF permit. The septic system is now under the oversight of Columbia County. (See Section 10.3)
National Pollutant Discharge Elimination System (NPDES) Industrial Discharge	Department of Environmental Quality	Clean Water Act, Section 402	PWGP maintains an agreement with the Port of Columbia County to discharge industrial wastewaters through the Port of Columbia County's NPDES permit. No modifications to this agreement are required since no wastewater will be generated by the BESS during construction or operation.

Permit or Applicable Requirement	Agency	Rule or Statute	Applicability
General National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge 1200-C permit and Erosion and Sediment Control Plan	Department of Environmental Quality	Clean Water Act, Section 402 (33 U.S.C. Section 122); 40 CFR Section 122; ORS 468 and 468B; OAR Chapter 340, Divisions 14, 41, 45, 52, and 55	Construction of the BESS will not disturb more than 1 acre; therefore, no NPDES permit will be required.
Removal/Fill Permit	Department of State Lands	ORS 196.795 through 196.990, OAR Chapter 141, Division 085	Not applicable to the BESS because no wetlands or waters of the state will be disturbed by construction or operation of the BESS.
Fire Protection Program	Oregon State Fire Marshal's Office	ORS 476 and 480, OAR Chapter 837, Divisions 40 and 90	Applicable to the BESS because the Facility will be required to comply with the Oregon Fire Code, per Site Certificate Condition D.13.
Hazardous materials containment and transport	Oregon Department of Transportation	49 Code of Federal Regulations 173.185; ORS 453.825	Applicable to the BESS if batteries containing hazardous materials, including lithium-ion, are selected.
Radioactive materials transport	Oregon State Health Division	ORS Chapter 453; OAR Chapter 333, Divisions 100-119	Not applicable to the BESS because no radioactive materials will be transported or used at the site.
Potable water supply	Oregon State Health Division	ORS Chapter 448	Not applicable to the BESS because no modifications will be made to the potable water system.
State Highway Approach Permit	Oregon Department of Transportation	ORS 374.305	Not applicable to the BESS because no new state highway approach will be required.

Permit or Applicable Requirement	Agency	Rule or Statute	Applicability
Program addressing design and safety standards for natural gas pipelines and electric transmission lines	Oregon Public Utilities Commission, Safety Section	ORS Chapter 757; OAR Chapter 860, Division 24	Not applicable to the BESS because no electric transmission lines will be constructed or modified as part of BESS construction.
Regulations of building, structure design and construction practices	Oregon Building Codes Division/Columbia County	ORS Chapters 455, 476, and 479; OAR Chapter 918, Divisions 440 and 460; 2014 Oregon Structural Specialty Code Chapter 1, Section 105.1; Chapter 34, Section 3403	Applicable to the BESS during construction; must adhere to mechanical, structural and energy efficiency specialty requirements, public health and safety building code requirements, and electrical safety and fire code requirements as implemented through Columbia County Land Development Services - Building Department.
Conditional Use Permit	Columbia County	Columbia County Zoning Ordinance – Sections 680, 1503	Applies to the BESS, which is a new accessory use to an existing industrial use and is a conditionally allowed use in the underlying zone.

5.2 Additional Statutes & Rules – OAR 345-021-0010(cc)

(cc) Exhibit CC. Identification, by legal citation, of all state statutes and administrative rules and local government ordinances containing standards or criteria that the proposed facility must meet for the Council to issue a site certificate, other than statutes, rules and ordinances identified in Exhibit E, and identification of the agencies administering those statutes, administrative rules and ordinances. The applicant shall identify all statutes, administrative rules and ordinances that the applicant knows to be applicable to the proposed facility, whether or not identified in the project order. To the extent not addressed by other materials in the application, the applicant shall include a discussion of how the proposed facility meets the requirements of the applicable statutes, administrative rules and ordinances.

Response: There are no additional statutes and rules that are applicable to the construction and operation of BESS.

6 Site Certificate Revisions – OAR 345-027-0060(1)(d)

OAR 345-027-0060 Preliminary Request for Amendment

(1) To request an amendment to the site certificate required by OAR 345-027-0050(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

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(d) The specific language of the site certificate, including conditions, that the certificate holder proposes to change, add or delete through the amendment.

Response: Proposed Site Certificate revisions are presented in the redlined Site Certificate included as Attachment 7 and discussed in the appropriate Standards in Section 8 through 10.

Proposed changes to the site descriptions in Section C.1.a and C.1b of the site certificate that do not otherwise correspond to a specific Standard are described in this section.

In previous site descriptions non-base load generation was included as a type of power augmentation technology. PGE proposes a change to the first paragraph of Section C.1.a. so that non-base load generation is listed individually and not included as a type of power augmentation technology. This change also requires a corresponding change under the Fuel Use section of C.1.a.

Previous site descriptions starting with the Seventh Amended Site Certificate are missing one dimensional length for the turbine building, PGE has added the missing dimension of 150 feet in the third paragraph of Section C.1.a.

PGE proposes a change to the tenth paragraph of Section C.1.a to more accurately reflect the types and sizes of water tanks installed at the Facility. Originally PGE described a total of three water tanks in this section; one fire/water service water tank and two demineralized water storage tanks. Ultimately three tanks were constructed but there are two fire/water service tanks and one demineralized water storage tank.

PGE identified an error in the Natural Gas Pipeline Section of C.1.b related to the capacity of the Kelso-Beaver Pipeline; past descriptions stated the pipeline had a capacity of 193,000 decatherms per day, the correct capacity is 200,913 decatherms per day. The Kelso-Beaver Pipeline is not a related or supporting facility; therefore, this correction does not impact any capacities associated with the Facility.

7 List of Applicable Standards and Other Laws – OAR 345-027-0060(1)(e)

OAR 345-027-0060 Preliminary Request for Amendment

(1) To request an amendment to the site certificate required by OAR 345-027-0050(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

** * **

(e) A list of the Council standards and all other laws - including statutes, rules and ordinances - applicable to the proposed change, and an analysis of whether the facility, with the proposed change, would comply with those applicable laws and Council standards. For the purpose of this rule, a law or Council standard is "applicable" if the Council would apply or consider the law or Council standard under OAR 345-027-0075(2).

Response: As relevant to this RFA, OAR 345-027-0075(2)(c) requires the Council to find that "the facility, with the proposed change, complies with the applicable laws or Council standards that protect a resource or interest that could be affected by the proposed change." The changes proposed in RFA 11 will not create significant new impacts affecting those resources and interests protected by the Council's siting standards and will not alter the basis of the Council's previous findings that the Facility complies with all applicable laws and standards. To the extent that the BESS could affect protected resources and interests, PGE demonstrates that the Facility will continue to comply with the following laws and Council standards:

8 Division 22 Standards – OAR 345-027-0060(1)(e)

8.1 Organizational Expertise OAR 345-022-0010

OAR 345-022-0010 Organizational Expertise

(1) To issue a site certificate, the Council must find that the applicant has the organizational expertise to construct, operate and retire the proposed facility in compliance with Council standards and conditions of the site certificate. To conclude that the applicant has this expertise, the Council must find that the applicant has demonstrated the ability to design, construct and operate the proposed facility in compliance with site certificate conditions and in a manner that protects public health and safety and has demonstrated the ability to restore the site to a useful, non-hazardous condition. The Council may consider the applicant's experience, the applicant's access to technical expertise and the applicant's past performance in constructing, operating and retiring other facilities, including, but not limited to, the number and severity of regulatory citations issued to the applicant.

** * **

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. PGE demonstrates its ability to design, construct, and operate the proposed battery storage in compliance with all site certificate conditions and in a manner that protects public health and safety and restore the site to a useful non-hazardous condition after retiring the battery storage components.

PGE's Experience Operating Battery Storage

PGE is a fully integrated energy company based in Portland, Oregon, serving 863,000 customers in 51 cities. PGE generates electricity from plants we own and purchases power on the wholesale market. We operate wholly and jointly own 3 hydroelectric, 4 natural gas, 1 coal, and 2 wind generating plants and 17 solar sites. For 129 years, PGE has been delivering energy to Oregonians.

In the *Final Order on the Application*[1], the Council found that the certificate holder has the organizational expertise to construct, operate and retire the PWGP in compliance with Council standards and the conditions of the Site Certificate. Subsequently in the *Final Order on Amendment #7*[2], the Council found that the certificate holder has the organizational expertise to construct, operate, and retire Unit 2 in compliance with Council standards and the conditions of the Site Certificate. RFA 11 addresses incorporation of a BESS, which is a new component of the Facility, and this section specifically addresses PGE's experience with energy storage systems.

Since May 2013, PGE has operated and maintained the Salem Smart Power Center (SSPC), a 5-MW, 1.25 MWhr lithium ion battery inverter system in Salem, Oregon. This system was built as part of the Pacific Northwest Smart Grid Demonstration Project, a U.S. Department of Energy research effort. The SSPC is unique in that it is a laboratory where research and development projects were conducted while at the same time it is an operating grid asset used to enhance system reliability.

The SSPC is autonomous; no PGE employees are staffed at the center. Instead, PGE remotely monitors and controls day-to-day battery operations. The SSPC uses a comprehensive state-of-the-art fire protection system that incorporates detection, alarms, and suppression. A similar tiered system will be installed at the BESS as appropriate for the selected battery technology. The SSPC and its POI, a nearby PGE substation, are located in a mixed-use area with residential homes one block away. PGE has operated the center for five years with no fires and no regulatory citations or complaints or concerns from neighbors.

Therefore, Council may find that with approval of RFA 11, the certificate holder continues to comply with the organizational expertise standard.

[1] Final Order on the Application. 2002. Pg. 43.
[2] Final Order on Amendment #7. 2010. Pg. 10.

Public Health and Safety ORS 469.310

Under ORS 469.310, the Council is charged with ensuring that the "siting, construction and operation of energy facilities shall be accomplished in a manner consistent with protection of the public health and safety." Further, ORS 469.401(2) provides that "the site certificate shall contain conditions for the protection of the public health and safety." The Council previously found in the Final Order on the Application and in subsequent amendments that the siting, construction, and operation of the Facility are consistent with the requirements of ORS 469.310[3]. Site certificate conditions address cooling tower fogging and icing, transmission line construction, coordination with the Oregon Public Utilities Commission, and construction of the natural gas pipeline. Construction and operation of the BESS will not alter the certificate holder's ability to comply with these conditions. No new cooling tower, transmission line, or natural gas pipeline components will be constructed as part of the modifications proposed under RFA 11.

PGE will apply its experience with the SSPC to safely operate and maintain the BESS. From designing, constructing, and safely operating the SSPC, PGE has developed a comprehensive understanding of how to operate a lithium-ion battery inverter system to accomplish an intended purpose. That experience directly translates to PGE's safe management of either lithium-ion or flow battery storage systems at the BESS.

The BESS will be located within an area with multiple layers of security, which the public will be unable to enter. The first security layer is either a guard station or badge-access crossing gate that all vehicles entering the Port Westward Industrial Area must pass through. Within the complex, PWGP sits within a fenced area that requires badge access or Control Room-approved entry. Within PWGP, the BESS will also be fenced and require badged entry or the switchyard fence will be expanded to include the BESS within the switchyard footprint and fence. PGE has proposed new switchyard dimensions in Section C.1.a of the Site Certificate to reflect the potential fence realignment. Access will be limited to only PGE personnel who have received appropriate training and approved maintenance contractors. The shipping modules, in which the batteries will be stored, may have keyed entry.

The BESS will be designed to be automated and report problems to PGE Operators. Autonomous monitoring will include power, thermal, and security monitoring, and depending on technology, gas monitoring. The autonomous monitoring will be connected to the PWGP Control Room, which is manned 24 hours a day. PWGP staff will receive classroom and hands-on training covering the operation and maintenance of the system from the contractor.

The changes proposed under RFA 11 do not alter the certificate holder's ability to protect public health and safety. Therefore, Council may find that with the modifications proposed under RFA 11, PWGP continues to comply with the requirements of ORS 469.310.

[3] Final Order on the Application. 2002. Pg 158; Final Order on Amendment #7. 2010. Pg 34; Final Order on Amendment #10. 2013. Pg 40.

PGE has not yet selected a prime engineering, procurement and construction (EPC) contractor to construct and maintain the proposed BESS. PGE will enter into a contract with a qualified contractor or major equipment manufacturer who will partner with a qualified contractor. Maintenance will be provided by PGE or a third party. PGE will require any contractors to comply with all Site Certificate conditions. PGE will operate the BESS.

Site Retirement

The Council previously found that PGE is able to restore the site to a useful, nonhazardous condition following permanent cessation of construction or operation of the Facility. PGE demonstrates compliance with this standard in Sections 8.6.

8.2 Structural Standard OAR 345-022-0020

OAR 345-022-0020 Structural Standard

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that:

> *(a) The applicant, through appropriate site-specific study, has adequately characterized the seismic hazard risk of the site; and*
>
> *(b) The applicant can design, engineer, and construct the facility to avoid dangers to human safety and the environment presented by seismic hazards affecting the site, as identified in s[u]bsection (1)(a);*
>
> *(c) The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soils hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility; and*
>
> *(d) The applicant can design, engineer and construct the facility to avoid dangers to human safety and the environment presented by the hazards identified in subsection (c).*

** * **

Response: The Council previously found that the existing Facility complies with the Structural Standard in the Final Order on the ASC and each of the 10 amendments. In the Final Order on the ASC, the Council found with the imposition of the eight conditions in Section D.5, that the Facility met the Structural Standard[4]. In the Final Order on Amendment 5, the Council found that with the incorporation of a ninth structural condition (Condition D.5(9)), that the Structural Standard was met[5]. In the Final Order on Amendment 7, the Council found that the design, construction, and

[4] Final Order on the Application. 2002. Pg. 56-64.
[5] Final Order for Amendment No. 5. Pg. 6.

operation of the reconfigured Unit 2 would meet the Council's Structural Standard, taking into account the conditions adopted in Section D.5 of the Site Certificate[6].

The Structural Standard application requirements described under OAR 345-021-0010(1)(h) have been modified since Amendment 10 was processed. As relevant, an applicant must now provide the following additional information:

> OAR 345-021-0010(1)(h)(F)
>
> *(i) An explanation of how the applicant will design, engineer, construct and operate the facility to integrate disaster resilience design to ensure recovery of operations after major disasters.*
>
> *(ii) An assessment of future climate conditions for the expected life span of the proposed facility and the potential impacts of those conditions on the proposed facility.*

Because the existing Facility has already been constructed in accordance with prior findings, the new information requirements do not apply to the existing Facility. The amendments do not alter the basis for the Council's findings that the construction and operation of the existing Facility is consistent with the Structural Standard. Additionally, PGE demonstrates that construction and operation of the BESS would not significantly alter the basis for the Council's prior findings that the Facility complies with the Structural Standard, including the new information requirements to the extent that they apply to the BESS. See Section 4 of this RFA for the full project description.

Battery Storage System

PGE previously provided evidence regarding the site-specific requirements of the Structural Standard in Exhibit H of the ASC and the subsequent amendments, as well as through compliance with Site Certificate conditions requiring additional site-specific geotechnical studies. Previous geotechnical studies were conducted by Cornforth Consultants Inc. (CCI) in 2002 for Unit 1 and by Black & Veatch in 2013 for Unit 2. As discussed during a consultation meeting with the Oregon Department of Geology and Mineral Industries (DOGAMI) held on March 15, 2019, the previously provided evidence for geotechnical data and borings are still valid (Attachment 1). However, DOGAMI noted that design requirements have changed since the 2002 study and requested that the contractor's engineer of record address the liquefaction potential and seismic hazards relevant to a magnitude 9 earthquake (Cascadia event) using current and updated information. The BESS will be designed to current codes and the seismic design data will be based on current code values. If geotechnical reports are completed by the contractor, DOGAMI asks that they conform to the guidelines of the Oregon State Board of Geologist Examiners and are submitted to Oregon Department of Energy (ODOE) and DOGAMI. It will be up to the contractor selected to determine if additional geotechnical investigation information to design the foundation for the BESS is needed. If additional geotechnical investigation information is gathered, PGE will provide the information to

[6] Final Order on Amendment No. 7. Pg. 11-12.

ODOE and DOGAMI for the record. PGE proposes a new Site Certificate Condition D.5(10). The proposed new condition is as follows:

> ***D.5(10) If additional geotechnical investigations are performed for the design of the BESS, the Certificate Holder shall provide the Department and DOGAMI with a report containing the results of the investigation. The report shall conform to Oregon State Board of Geologist Examiners Guideline for Preparing Engineering Geologic Reports [Amendment No. 11]***

The addition of a BESS will be within the fence line of the existing Facility; construction of the BESS would not modify previously approved structures. In addition, the modular BESS structures will be designed to current codes, such as the International Building Code (IBC) and other required codes, as determined by the contractor's engineer of record for the design. The State of Oregon uses the 2012 IBC, with current amendments by the Oregon Structural Specialty Code (ICC 2014). Pertinent design codes as they relate to geology, seismicity, and near-surface soil are contained in the IBC Chapter 16, Section 1613, with slight modifications by the current amendments of the State of Oregon. The BESS will be designed to meet standards required by these design codes and will be inherently less prone to providing a risk to human safety since the structures will be in a modular container close to the ground and supported on a foundation.

The Disaster Resilience Design – OAR 345-021-0010(1)(h)(F)(i)

The BESS itself will potentially enhance the Facility's disaster resilience after certain major disasters, by providing battery storage for the PWGP and neighboring Beaver Generating Facility. To address integrating disaster resilience design to ensure recovery of operations after major disasters, PGE identifies the BESS as a test project to better understand the range of grid services that energy storage systems can provide for system resiliency. This project will help determine how energy storage could work in regard to resiliency, capacity, ancillary services (frequency variation, etc.), outage mitigation, and power reliability. As discussed above, the contractor's engineer of record will be required to design the BESS according to current codes. Because the BESS is a related or supporting facility the disaster resiliency of the BESS is dependent on the disaster resiliency of the Facility. For example, if during a Cascadia Subduction Zone event the natural gas pipelines to the Facility are damaged and the Facility become inoperable until the natural gas pipelines are repaired the resiliency of the BESS is low compared to the amount of time the facility would be without fuel.

Future Climate Conditions – OAR 345-021-0010(1)(h)(F)(ii)

Recent research indicates that more intense storms, heatwaves, and more frequent fires may be expected with a changing climate. From a structural perspective, the existing Facility was designed to withstand non-seismic geological hazards. As such, inclusion of a BESS at the existing Facility should also be able to withstand the potential for changes in climatic conditions (e.g., increased rainfall or temperature changes that could cause geological changes). As discussed in the DOGAMI

consultation meeting held on March 15, 2019, PGE has addressed flooding hazards to the existing Facility by participating as a member of the local drainage district. PGE has evaluated the extent and the weaknesses of the existing levee, and how, if the levee were breached, a flood would impact the Facility. Subsequently, PGE has made improvements. This and any other improvements made at the existing Facility will apply to the BESS, as it is within the fence line of the existing Facility. Utilizing LIDAR the elevation of the BESS location was determined to be approximately 21 to 22 feet mean sea level (msl), overall the Facility elevation is approximately 20 to 22 feet msl. The levee immediately adjacent to the Facility has an elevation of approximately 24 feet msl; however, there are portions of the levee remote and to the south of the Facility that have an elevation of approximately 16.5 feet msl. Based on Federal Emergency Management Agency Effective data that is the basis of the National Flood Insurance Program regulations and flood insurance requirements, the 100-year flood event near the Facility would be 16 feet msl. If the levee system was over topped at its low point, the breach would occur approximately 4 miles south of the Facility and the Facility is located 4 to 6 feet above flood levels.

The changes proposed under RFA 11 do not affect previous Council findings on the Structural Standard, and the information provided here demonstrates that construction and operation of the BESS would not significantly alter the basis for the Council's prior findings that the Facility complies with the Structural Standard. Therefore, the Council may find that, with the modifications proposed under RFA 11, PWGP continues to comply with the Structural Standard.

8.3 Soil Protection – OAR 345-022-0022

OAR 345-022-0022 Soil Protection

To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in a significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. PGE will comply with all Site Certificate conditions, as modified, related to Soil Protection in Section D.6 of the Site Certificate that are applicable to RFA 11.

Ground Disturbance

All soil impacts from the BESS will be in existing disturbed areas, which the Council has already addressed through its previous findings and site conditions incorporating those findings. The Council previously found that PWGP complies with the Soil Protection Standard in the Final Order on the Application[7] and subsequent amendments. The BESS will be installed within the fence line of

[7] Final Order on the Application. 2002. Pg. 70.

the Facility in an area that is currently paved, which limits the opportunity for soil erosion, soil compaction, and chemical spills on soils. Ground improvements may be made to the proposed battery storage area to improve foundation support and seismic resistance. Also, the existing asphalt may be removed, disposed of and new asphalt applied during ground improvements. If the soil were to be contaminated from leaking equipment during these improvements, it would be removed and properly disposed of in compliance with all applicable laws and regulations, and the leaking equipment would be repaired. The ground improvements will be limited in extent and should not adversely affect on-site soils and fill.

Spoils from ground improvements may be disposed of in the spoils disposal area. This area was used during construction of Units 1 and 2 and then re-seeded with a native seed mix. The spoils disposal area will be accessed from existing paved and gravel roads limiting the amount of soil compaction that will need to be addressed during revegetation. In total, PGE proposes to disturb less than one acre of soil, including ground disturbance at the BESS proposed battery storage area, the spoils disposal area during construction, and areas needed to maneuver equipment.

Chemical Containment

The BESS will be factory built and the batteries will be fully enclosed when they arrive at the Facility, which minimizes the risk for spills during construction. Additionally, the contractor will store all chemicals in a manner appropriate for minimizing contamination and consistent with all applicable laws and regulations.

If a battery were to leak or spill fluid during a potential equipment malfunction or improper handling, that fluid would be contained within the modular containers, which act as secondary containment. Consequently, the design of the battery system minimizes the risk of chemicals escaping the container.

Additionally, the Facility's design effectively prevents any release of fluid into the environment, if a fluid did reach the ground surface. The site of the BESS is paved asphalt and the entire Facility is graded so that all storm water remains on-site and flows to one of four on-site storm water retention ponds, where it is contained and can be cleaned up. The risk that a chemical leak could potentially adversely impact soils outside the Facility is de minimis.

PGE proposes a minor modification to Site Certificate Condition D.6(7) to allow for the use of secondary containment options that do not require installation of permanent pavement. The proposed change to the condition is as follows:

> *D.6(7) The Certificate Holder shall contain all fuel and chemical storage in paved spill containment areas with a curb, **or appropriately sized and compatible secondary containment. [Amendment No. 11]***

8.4 Land Use – OAR 345-022-0030

OAR 345-022-0030 Land Use

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

(2) The Council shall find that a proposed facility complies with section (1) if:

** * **

(b) The applicant elects to obtain a Council determination under ORS 469.504(1)(b) and the Council determines that:

(A) The proposed facility complies with applicable substantive criteria as described in section (3) and the facility complies with any Land Conservation and Development Commission administrative rules and goals and any land use statutes directly applicable to the facility under ORS 197.646(3);

(B) For a proposed facility that does not comply with one or more of the applicable substantive criteria as described in section (3), the facility otherwise complies with the statewide planning goals or an exception to any applicable statewide planning goal is justified under section (4); or

(C) For a proposed facility that the Council decides, under sections (3) or (6), to evaluate against the statewide planning goals, the proposed facility complies with the applicable statewide planning goals or that an exception to any applicable statewide planning goal is justified under section (4).

** * **

Response: The Council previously found that the Facility complies with the Land Use Standard. As stated in the Final Order on the ASC[8], PGE elected to have the Council make the land use determination for the Facility under ORS 469.504(1)(b) and OAR 345-022-0030(2)(b). The Council found that the Facility, as amended through RFA 10, complies with the applicable substantive criteria from the Columbia County Comprehensive Plan (CCCP) and land use regulations. Compliance with the CCCP and County land use regulations is required by the statewide planning goals in effect on the date the application is submitted. The Facility also must comply with any Land Conservation and Development Commission administrative rules and goals, as well as any land use statutes directly applicable to the Facility.

As stated in Section 1, RFA 11 involves only the aspects of the Facility located within the fence line and the spoils disposal area; it does not include the transmission line. Therefore, PGE addresses the Land Use Standard accordingly, and does not review the transmission line or features other than those identified in Section 1.

[8] Final Order on the Application. 2002. Pg. 53.

In its evaluation of the Facility under the Land Use Standard (OAR 345-022-0030) in the ASC, and in subsequent requests for amendments, the Council considered the applicable, substantive criteria. Specifically pertinent to RFA 11, this includes the CCCP (adopted 1984 and amended through 2013) and the Columbia County Zoning Ordinance (CCZO; adopted 1984 and amended through 2017). The CCCP and CCZO have not had changes to the applicable sections that would impact the Council's prior findings under the Land Use Standard. The changes to these documents either do not apply to the location or zoning of the Facility site, or to the land use classification of the Facility or the Facility improvements.[9] The Columbia County Planning Manager provided a preliminary review and input on applicable substantive criteria for RFA 11 (M. Laird personal communication, March 29 2019). PGE has addressed the applicable substantive criteria for RFA 11 in Attachment 2 and has summarized the findings herein.

The changes to the Facility that are proposed in RFA 11 are entirely in the Port Westward Industrial Area and land use jurisdiction of Columbia County. The Port Westward Industrial Area is zoned Resource Industrial – Planned Development (RIPD). The Facility is interior to the Port Westward Industrial Area: surrounded by RIPD zoning on three sides and the river on the fourth side. Columbia County took an exception to Statewide Planning Goal 3, Agriculture, to zone land outside of the Urban Growth Boundary as industrial land for the Port Westward Industrial Area. The Port Westward Exception Statement is included as part of the CCCP[10], and discusses the site's existing character and facilities, history, and surrounding uses. The Port Westward Exception Statement demonstrates that the Port Westward Industrial Area is ideally suited for the Rural Industrial designation and industrial development that is consistent not only with its proximity to the Columbia River, but other existing facilities as well. In the Final Order of November 8, 2002, the Council found[11]:

> *The RIPD zone provides a zone that conditionally allows industrial development on rural lands provided they use the surrounding natural resources. As discussed above with respect to the CCZO §§ 681 and 683, the energy facility will use the natural resources available at the Port Westward tract consistent with the Resource Industrial Development element of the*

[9] CCCP Amendments Since RFA 10:

- Ordinance No. 2013-2; Effective Date January 2010 – Tide Creek Rock Zone Change Forest Agriculture to Surface Mining

CCZO Amendments Since RFA 10:

- Ordinance No. 2015-04; Effective Date: November 25, 2015 - Amends to Establish Regulations for Marijuana Related Land Uses
- Ordinance No. Order 2-2016; Effective Date: January 13, 2016 - Corrects Scrivener's Errors in Ordinance No. 2015-04
- Ordinance No. 2017-2; Effective Date: October 10, 2017 - Adopting the Columbia County Transportation System Plan and Related Amendments to the Columbia County Comp Plan, Zoning Ordinance, and Subdivision and Partitioning Ordinance
- Ordinance No. 2018-2; Effective Date: June 12, 2018 - Amends Columbia County Zoning Ordinance Pertaining to Marijuana Related Land Uses in Unincorporated Columbia County

[10] CCCP. Pg. 116–132.

[11] Final Order on the Application. 2002. Attachment D. Pg. 35.

Comprehensive Plan. For the reasons outlined above with respect to the Industrial Development element and CCZO §§ 681 and 683, the facility is consistent with the policies of the Resource Industrial Development element as well.

The Council has consistently found in subsequent amendments that the Facility is consistent with the purpose and provisions of the RIPD zone[12] as a conditionally allowed use in its review of compliance with the Land Use standard.

The changes proposed in RFA 11 will add related or supporting facilities to the Facility: accessory uses to an existing industrial use on a site zoned and developed for industrial use. The BESS will be entirely within the fence line of the Facility, on previously developed impervious surface and will not change the developed footprint of the Facility. The BESS will be relatively minor in size, scope, and effect compared to the existing, already built Facility (Figure 1) and will be visually subordinate to the Facility. As described throughout RFA 11 and in Attachment 2, there will be no new offsite impacts that affect the greater rural surroundings; there will be no significant changes to noise impacts (Section 10.1), public services including transportation (Section 8.12), natural resources (including wetland and waters, Section 10.2), floodplain (see Attachment 2) or soils (Section 8.3). The BESS and temporary construction use of areas previously approved in the Site Certificate for those uses (laydown areas, parking, and spoils disposal) are consistent with the identified goals and future uses of the Port Westward Industrial Area and RIPD zone. Moreover, PGE has addressed RFA 11's specific, applicable, and substantive criteria, including applicable standards for the RIPD zone, in Attachment 2.

The changes to the Facility proposed in RFA 11 would not alter the basis of the Council's previous findings. PGE will comply with all existing Site Certificate conditions related to land use that are applicable to RFA 11, such as in Section D.4 of the Site Certificate. As described herein and in Attachment 2, the changes proposed in RFA 11 comply with all applicable substantive criteria. PGE proposes modification to Site Certificate Condition D.4(2) to require an updated site plan be provided to Columbia County. The proposed change to the condition is as follows:

D.4(2) Before beginning construction of the energy facility, the Certificate Holder shall submit a site plan to Columbia County as part of its building permit application. ***Before beginning construction of the BESS, the Certificate Holder shall submit an updated site plan to Columbia County to reflect the addition of the BESS as a related or supporting facility. [Amendment No. 11]****.*

Therefore, the Council can find that the Facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission. For the reasons discussed above, the Council can find that, with approval of RFA 11, the Facility continues to comply with the Land Use Standard.

[12] Final Order on Amendment #10. 2013. Pg. 17.

8.5 Protected Areas – OAR 345-022-0040

OAR 345-022-0040 Protected Areas

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

(a) National parks, including but not limited to Crater Lake National Park and Fort Clatsop National Memorial;

(b) National monuments, including but not limited to John Day Fossil Bed National Monument, Newberry National Volcanic Monument and Oregon Caves National Monument;

(c) Wilderness areas established pursuant to The Wilderness Act, 16 U.S.C. 1131 et seq. and areas recommended for designation as wilderness areas pursuant to 43 U.S.C. 1782;

(d) National and state wildlife refuges, including but not limited to Ankeny, Bandon Marsh, Baskett Slough, Bear Valley, Cape Meares, Cold Springs, Deer Flat, Hart Mountain, Julia Butler Hansen, Klamath Forest, Lewis and Clark, Lower Klamath, Malheur, McKay Creek, Oregon Islands, Sheldon, Three Arch Rocks, Umatilla, Upper Klamath, and William L. Finley;

(e) National coordination areas, including but not limited to Government Island, Ochoco and Summer Lake;

(f) National and state fish hatcheries, including but not limited to Eagle Creek and Warm Springs;

(g) National recreation and scenic areas, including but not limited to Oregon Dunes National Recreation Area, Hell's Canyon National Recreation Area, and the Oregon Cascades Recreation Area, and Columbia River Gorge National Scenic Area;

(h) State parks and waysides as listed by the Oregon Department of Parks and Recreation and the Willamette River Greenway;

(i) State natural heritage areas listed in the Oregon Register of Natural Heritage Areas pursuant to ORS 273.581;

(j) State estuarine sanctuaries, including but not limited to South Slough Estuarine Sanctuary, OAR chapter 142;

(k) Scenic waterways designated pursuant to ORS 390.826, wild or scenic rivers designated pursuant to 16 U.S.C. 1271 et seq., and those waterways and rivers listed as potentials for designation;

(l) Experimental areas established by the Rangeland Resources Program, College of Agriculture, Oregon State University: the Prineville site, the Burns (Squaw Butte) site, the Starkey site and the Union site;

(m) Agricultural experimental stations established by the College of Agriculture, Oregon State University, including but not limited to:

Coastal Oregon Marine Experiment Station, Astoria.

Mid-Columbia Agriculture Research and Extension Center, Hood River.

Agriculture Research and Extension Center, Hermiston.

Columbia Basin Agriculture Research Center, Pendleton.

Columbia Basin Agriculture Research Center, Moro.

North Willamette Research and Extension Center, Aurora.

East Oregon Agriculture Research Center, Union.

Malheur Experiment Station, Ontario.

Eastern Oregon Agriculture Research Center, Burns.

Eastern Oregon Agriculture Research Center, Squaw Butte.

Central Oregon Experiment Station, Madras.

Central Oregon Experiment Station, Powell Butte.

Central Oregon Experiment Station, Redmond.

Central Station, Corvallis.

Coastal Oregon Marine Experiment Station, Newport.

Southern Oregon Experiment Station, Medford.

Klamath Experiment Station, Klamath Falls.

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

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

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

** * **

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. Council previously found that PWGP, as modified by

prior amendments, complies with the Protected Areas standard[13]. The analysis of potential impacts from the Facility on Protected Areas relies on an assessment of how Facility noise, traffic, water use, wastewater disposal, visual impacts, and hazardous materials may affect the specific Protected Areas listed in OAR 345-022-0040.

The protected areas analysis area extends 20 miles from the PWGP fence line and spoils disposal area (Figure 2). The BESS will not be located within any protected areas described in OAR 345-022-0040; however, there are protected areas within the 20-mile analysis area (Table 4). Two sites identified for RFA 11 were not included in previous RFAs: Barnes State Park and the ODFW and Clatsop Economic Development Council Blind Slough Net Pen. Both sites are 18 miles from the BESS.

A few sites included in RFA 7 were misidentified as state parks but are city and county parks (Ray More Park, Big Creek County Park, and Hudson Parcher County Park). Also, the Kalama Trap and Coweeman Rearing Ponds #1 and #2, identified in RFA 7, are no longer active, and the Germany Creek Project is completed. Consequently, these sites are not included in Table 4.

The closest protected area to the BESS is the Crims Island Unit of the Julia Butler Hansen Refuge for the Columbian White-Tailed Deer. Crims Island is 0.5 miles from the BESS and is separated from PWGP by the Bradbury Slough of the Columbia River. This site was addressed in the Final Order on Amendment 7 of March 12, 2010[14]. The Council found:

> *The new above-ground structures proposed by PGE would be similar in type and much smaller than those constructed for Unit 1. Therefore, the findings in the Final Orders apply to the structures proposed for Unit 2. The Council finds that the findings in the Final Orders are sufficient to demonstrate compliance with the Protected Areas Standard.*

The Council incorporated these findings in the Final Order of August 23, 2013 for Amendment 10. The facility changes proposed in RFA 11 do not affect the Council's previous findings. The Crims Island Unit is the closest protected area to the PWGP, and it has not been adversely impacted by the Facility. As described in other sections of RFA 11, construction and operation of the BESS will not significantly alter Facility noise, traffic, water use, wastewater disposal, visual impacts, or hazardous materials use from the previous analyses. Noise from the BESS is described in Section 7.1 of RFA 11. Traffic, wastewater disposal, and water use are described in Section 5.12. Scenic resources and visual impacts are described in Section 5.9, and hazardous materials are described in Section 5.13. Because there will be no significant difference in Facility operations in regard to these resources, the Council may rely on its prior analysis to find that the Facility as modified by RFA 11 will not adversely impact protected areas and will continue to comply with OAR 345-022-0040.

[13] Final Order on the Application. 2002. Pg. 74; Final Order on Amendment #7. 2010. Pg. 15; Final Order on Amendment #10. 2013. Pg. 20.
[14] Final Order on Amendment #7. 2010. Pg. 14.

Table 4. Protected Areas within the 20-mile analysis area for the Port Westward Battery Energy Storage System Project.

Protected Area	Distance and Direction (direct path) from BESS
Abernathy Fish Tech Center	3.5 miles, NNE
Barnes State Park	18.1 miles, NE
Beaver Creek Hatchery	8.2 miles, WNW
Big Creek Hatchery	19.7 miles, W
Bradley State Scenic Viewpoint	12.6 miles, W
Blind Slough Net Pen	18.3 miles, W
Elochoman Hatchery	8.2 miles, NW
Fallert Creek Hatchery	19.9, miles, ESE
Gnat Creek Hatchery	15.1 miles, W
Julia Butler Hansen Refuge 1	12.2, miles, WNW
Julia Butler Hansen Refuge 2	0.5 miles, NE
Julia Butler Hansen Refuge 3	4.1 miles, SW
Julia Butler Hansen Refuge 4	3.6 miles, SW
Julia Butler Hansen Refuge 5	8.8 miles, WSW
Julia Butler Hansen Refuge 6	12.9 miles, WNW
Lewis and Clark National Wildlife Refuge	15.2 miles, WNW
OSU Research Forest Blodgett Tract	9.5 miles, SW
Seaquest State Park	18.5 miles, ENE
Trojan Rearing Ponds	17.1 miles, SE

NNE – North Northeast, NE – Northeast, WNW – West Northwest, W – West, NW – Northwest, ESE – East Southeast, W – West, SW – Southwest, WSW – West Southwest, ENE – East Northeast, SE – Southeast

8.6 Retirement and Financial Assurance – OAR 345-022-0050

OAR 345-022-0050 Retirement and Financial Assurance

To issue a site certificate, the Council must find that:

(1) The site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility.

(2) The applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.

Response: In the Final Order on the ASC[15], the Council found that the Facility site could be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the Facility. In accordance with Site Certificate Condition D.3(5), a letter of credit for the existing Facility is currently maintained and updated annually. In the most recent update (for 2019), the letter of credit stood at $10,840,325. The Council has previously adopted other conditions in Section D.3 of the Site Certificate to ensure compliance with the Retirement and Financial Assurance Standard. These conditions require retirement of the Facility upon permanent cessation of operations (Condition D.3(1)) in accordance with a retirement plan (Condition D.3(2)), along with related annual reporting requirements (Condition D.3(6)). The BESS will not alter the Council's basis for those findings. PGE will continue to comply with all site certificate conditions, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS.

The Council previously found that PGE is able to restore the site to a useful, nonhazardous condition following permanent cessation of construction or operation of the Facility. The BESS may be decommissioned before the Facility ceases operations. To the extent that additional or separate retirement and restoration processes may be used on a different timeline from the rest of the Facility, the BESS site will be restored by using the following procedures, and final disposition of all materials will be accomplished using legal and permitted methods:

- If lithium-ion batteries are selected, they will be removed, packaged, and transported to an offsite disposal or recycling facility.
- If flow batteries are selected, they will be removed as modules containing electrolyte fluid, packaged, and transported to an offsite disposal or recycling facility. Electrolyte fluids may be nonhazardous, or may be classified as hazardous liquid, depending on the final technology selected. For purposes of estimating disposal costs, PGE assumes that disposal of hazardous liquid will be required.
- Remaining above ground system components and structures will then be dismantled using industry standard methods and transported to an offsite disposal/recycling facility.
- Concrete pads/foundations may be broken to a maximum of 3 feet below grade, excavated, and transported to an offsite disposal/recycling facility or left in place until the final decommissioning of the Facility.
- Underground utilities will be removed to a maximum of 3 feet below grade and transported to an offsite disposal/recycling facility or left in place until the final decommissioning of the Facility.
- The area will be returned to pre-construction conditions, which consists of an asphalt surface. To the extent that additional restoration may be indicated, it will be conducted at the time of final decommissioning of the Facility and is not included in this cost estimate.

Attachment 3 provides detailed cost estimates for decommissioning of the BESS. The first estimate reflects decommissioning costs should a lithium-ion BESS be selected, and totals $136,763. The

[15] Final Order on the Application. 2002. Pg. 64.

second estimate reflects anticipated costs should a flow BESS be selected. Because of the volume of water and the assumption that it could be classified as hazardous waste, decommissioning the flow system is significantly more expensive, totaling $637,635. PGE has previously demonstrated—and continues to demonstrate—the ability to obtain a bond or letter of credit through annual adjustments to the Letter of Credit for the existing Facility, in accordance with Site Certificate Condition D.3(5). No new bank letter is provided with this amendment request. Either a separate letter of credit or combined letter of credit with the existing Facility will be obtained for the BESS prior to construction. PGE has proposed minor changes to Site Certificate Conditions D.3(5)(f), D.3(7), D.3(8), D.3(11), and D.3(13) in Attachment 7. PGE has proposed new Site Certificate Condition D.3(17) to require a bond or letter of credit be provided prior to beginning construction. The proposed new condition is as follows:

> ***D.3(17) Before beginning construction of the BESS authorized by the Eleventh Amended Site Certificate, the Certificate Holder shall submit a bond or letter of credit, or increase the existing bond or letter of credit, in the amount of $136,763 for a lithium-ion BESS and $637,635 for a flow BESS, adjusted as described under D.3.5(f) and D.3.5(g) [Amendment No. 11].***

Because there are existing conditions requiring recalculation of the retirement cost and updates to annual bonding, and the amount required to retire the BESS is only a small portion of the amount of the current bond, there is no reason to submit an updated letter demonstrating ability to obtain a bond or letter of credit. Accordingly, RFA 11 makes no changes that alter the basis for the Council's earlier findings; therefore, the Council may find that OAR 345-022-0050 is met.

8.7 Fish and Wildlife Habitat – OAR 345-022-0060

OAR 345-022-0060 Fish and Wildlife Habitat

To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are consistent with:

(1) The general fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025(1) through (6) in effect as of February 24, 2017, and

(2) For energy facilities that impact sage-grouse habitat, the sage-grouse specific habitat mitigation requirements of the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-415-0025(7) and OAR 635-140-0000 through -0025 in effect as of February 24, 2017.

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. Council previously found that the Facility, as modified through RFA 10, meets the Fish and Wildlife Habitat Standard[16].

[16] Final Order on the Application. 2002. Pg. 84; Final Order on Amendment #10. 2013. Pg. 23.

Changes to the Facility proposed in RFA 11 will not result in additional habitat impacts, and therefore the Facility continues to satisfy the standard without need for additional habitat mitigation. The BESS will be sited on a paved area (Habitat Category 6) inside the fence line of the Facility. If installation of the BESS requires soil removal, the spoils may be placed on a small portion of the spoils disposal area used during Unit 1 and Unit 2 construction. Spoils placement would involve temporary disturbance of a Category 4 grassland area that was previously disturbed during Unit 2 construction in 2014 and is currently revegetating. The previously disturbed grassland area would be revegetated per Site Certificate requirements and no habitat mitigation would be required.

Indirect impacts to wildlife habitat, such as disturbance from high noise activities, are not expected but would be avoided or minimized by existing Site Certificate measures, including:

- Employee and contractor environmental awareness training to minimize wildlife disturbance [Condition D.8(1)]
- Pre-construction surveys to locate blue heron rookeries [Condition D.8(6)] and
- Bald eagle nests [Condition D.8(7)]
- Bird nests and protected species within construction disturbance areas [Condition D.8(8), as amended]
- Restoration of temporary disturbance areas and control of invasive non-native plants [Condition D.8(14) & (20)]

A PGE biologist conducted a recent survey (Andrew Bidwell, April 2, 2019) for blue heron rookeries and raptor nests within 0.25 mile of the analysis area. No heron rookeries were found. A red-tailed hawk nest, occupied by an apparently incubating adult, was found in a poplar stand approximately 100 ft south of the spoils pile. Several osprey nesting platforms are located within 0.25 mile of the analysis area. These sites have been occupied by osprey in past years, but this 2019 survey was too early in the osprey breeding season to confirm current status. A bald eagle nest occupied by an apparently incubating adult was located approximately 0.4 mile west of the analysis area in riparian forest just west of the western oil dock access. An adult bald eagle was perched above the lower Crims Island nest, more than 0.5 mile southeast of the analysis area, but no bird was visible on the nest at the time of survey. Birds nesting in these locations are accustomed to industrial activity at the site and are unlikely to be disturbed by the level of construction disturbance anticipated for the BESS. Regardless, PGE will conduct pre-construction surveys and consult with ODFW and USFWS as appropriate regarding appropriate buffer distances and disturbance minimization measures for any active raptor nests in proximity to the project if construction occurs during the breeding season. PGE has proposed minor modifications to Site Certificate Condition D.8(8) to clarify that the condition is applicable to construction of the BESS and D.8(14) to update reference to the Revegetation and Noxious Weed Control Plan.

PGE proposes that the language related to revegetation success criteria be removed from Site Certificate Condition D.8(26) and included, with modifications as appropriate and approved by Oregon Department of Fish and Wildlife (ODFW) and ODOE, in the Revegetation and Noxious Weed

Control Plan[17]. PGE proposes a new Condition D.8(28) to require the development and implementation of a Revegetation and Noxious Weed Control Plan. The proposed new condition is as follows:

> ***D.8(28) The Certificate Holder shall develop and implement a Revegetation and Noxious Weed Control Plan. The Revegetation and Noxious Weed Control Plan must be approved by the Department prior to construction and 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.***

After the fourth year of monitoring PWGP Unit 2 revegetation areas, the success criteria have proven unrealistic to achieve, and ODFW has concurred (meeting with Sarah Reif, Feb 19, 2019) that the criteria in Condition D.8(26) are too stringent considering the previous condition of temporarily disturbed areas (i.e., non-native grassland) and the existing condition of undisturbed areas in the project vicinity. Moving the success criteria in Condition D.8(26) to the Revegetation and Noxious Weed Control Plan will allow PGE to modify success criteria and monitoring methods, as approved by ODFW and ODOE, with the objective of more realistically achievable criteria that still clearly document habitat uplift. A proposed redline of the former Revegetation and Invasive Species Monitoring Plan (PGE 2006) is attached in Attachment 4a and a clean version is in Attachment 4b.

Along with Condition D.8(26), PGE proposes that all conditions related to revegetation [Conditions D.8(19) – D.8(24)] be removed from the Site Certificate and placed in the Revegetation and Noxious Weed Control Plan. Attachment 4a indicates where each of these Conditions have been placed within the Revegetation and Noxious Weed Control Plan. Proposed new Condition D.8(28) would require PGE to implement the Revegetation and Noxious Weed Control Plan included as Attachment 4b to this RFA. Any changes to the revegetation requirements contained in the plan would require approval of ODOE and ODFW, and the Council retains the authority to approve, reject, or modify any amendment of the plan; therefore, removal of the revegetation conditions from the Site Certificate and placement in the Revegetation and Noxious Weed Control Plan does not alter the Council's basis for its previous findings that the Facility complies with the standard.

Condition D.8(11) of the site certificate requires PGE to locate chemical storage, servicing of construction and maintenance equipment and vehicles, and overnight storage of wheeled vehicles at least 330 feet from any wetland or waterway. PGE requests that this condition be modified to clarify that it applies only to the transmission line. The 330-ft buffer is not an industry standard. Neither the Oregon Department of State Lands or Army Corps of Engineers require buffers for the activities described in this condition. The Facility site is relatively flat and grading within the fence

[17] Formerly the Revegetation and Invasive Species Monitoring Plan

line is designed so that all storm water remains on-site and flows to one of four on-site storm water retention ponds, where it is contained and can be cleaned up. Existing site certificate conditions regarding the storage of fuel and chemicals protect the soil and wetlands surrounding the Facility site. PGE's proposed modification to Site Certificate Conditions D.8(11) is as follows:

> *D.8(11) The Certificate Holder shall locate chemical storage, servicing of construction and maintenance equipment and vehicles, and overnight storage of wheeled vehicles* ***associated with construction and maintenance of the transmission line*** *at least 330 feet from any wetland or waterway. [Amendment No. 11]*

8.8 Threatened and Endangered Species – OAR 345-022-0070

OAR 345-022-0070 Threatened and Endangered Species

To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:

> *(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:*
>
> > *(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or*
> >
> > *(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and*
>
> *(2) For wildlife that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. Council previously found that the Facility, as amended, meets the Threatened and Endangered Species standard[18].

No state threatened or endangered plant species have been found during previous surveys of the Facility, and none are likely to occur in the developed and previously disturbed habitat categories to be impacted by the BESS. Table 5 updates current known status of threatened, endangered, and candidate species with potential to occur in the vicinity of the analysis area.

[18] Final Order on the Application. 2002. Pg. 92; Final Order on Amendment #7. 2010. Pg. 22; Final Order on Amendment #10. 2013. Pg. 25.

Regarding wildlife, it is possible that the federally-threatened Columbian white-tailed deer (*Odocoileus virginianus leucurus)* could forage at the spoils disposal site. However, the spoils site is not part of mapped Columbian white-tailed deer habitat, and the very small area (<1 acre) of temporary disturbance would not significantly alter the availability of foraging habitat in the vicinity. In addition, indirect impacts, such as disturbance from high noise activities, to Columbian-white tailed deer that could be using habitat in the vicinity are not expected but would be avoided or minimized by existing site certificate measures, including:

- Employee and contractor environmental awareness training to minimize wildlife disturbance [Condition D.8(1)]; and
- Restoration of temporary disturbance areas and control of invasive non-native plants [Condition D.8(14) & (20)].

PGE proposes that Condition D.9(9) be deleted. The condition requires PGE to obtain a Biological Opinion from the U.S. Fish and Wildlife Service before starting construction during the bald eagle nesting period. However, the bald eagle is no longer a federally listed species; therefore, Biological Opinions for this species are no longer applicable.

The changes proposed in RFA 11 will not alter the basis for Council's previous findings and therefore Council may rely on its prior analysis to conclude that the Facility, as modified by RFA 11, continues to comply with OAR 345-022-0070.

Table 5. State and Federal Listed, Candidate and Proposed Species with the Potential to Occur1 Within the Vicinity of the Port Westward Energy Project and Potential for Impact from the Proposed BESS

Species	**Federal Status**	**State Status**	**Occurrence**	**Impacts**
Columbia white-tailed deer *Odocileus virginanus leucurus*	Endangered	Sensitive Critical	Yes	No
Fisher *Pekania pennant*	Proposed Threatened	Sensitive Critical	No	No
North American wolverine *Gulo gulo luscus*	Proposed Threatened	Threatened	No	No
Red tree vole *Arborimus longicaudus*	Candidate	No status	No	No
Northern spotted owl *Strix occidentalis caurina*	Threatened	Threatened	No	No
Marbled murrelet3 *Brachyramphus marmoratus*	Threatened	Threatened	No	No
Streaked horned lark *Eremophila alpestrtis strigata*	Threatened	No status	No	No

Species	Federal Status	State Status	Occurrence	Impacts
Yellow-billed cuckoo *Coccyzus americanus*	Threatened	No status	No	No
Howellia *Howellia aquatilis*	Threatened	Threatened	No	No
Nelson's checker-mallow *Sidalcea nelsoniana*	Threatened	Threatened	No	No
Howell's montia *Montia howellii*	Species of Concern	Candidate	No	No
Tall bugbane *Cimicifuga elata*	Species of Concern	Candidate	No	No

[1]Potential for occurrence based on searches of the USFWS IPaC database (https://ecos.fws.gov/ipac/) for the areas within 300ft and five miles of the Site Boundary and a query of the Oregon Biological Information Center (ORBIC) database for known species occurrences within two miles of the Site Boundary (ORBIC, April 2019, Biotics Rare Species Database).
[2]Fish species were listed in the ASC Table Q-1 but have been removed from this table due to no potential for the Battery Storage project to impact aquatic habitat.
[3]Critical habitats for the marbled murrelet and streaked horned lark occur within five miles of the project site, but not within 300ft of the project boundary.

8.9 Scenic Resources – OAR 345-022-0080

OAR 345-022-0080 Scenic Resources

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic resources and values identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area described in the project order.

** * **

Response: Council previously found that the Facility, as modified through Amendment #10, complies with the Scenic Resources Standard[19]. This finding was based on an analysis of applicable federal and local land use management plans. The prior analysis focused on resources described in the CCCP. Because the analysis area extends into the state of Washington, Wahkiakum County and Cowlitz County plans also were reviewed. Although the CCCP was last updated in November 2013, after Amendment #10 was processed, there have been no changes to scenic areas identified in the plan since the last review.

The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. The analysis area for scenic resources is the area within five miles of the PWGP fence line and spoils disposal area. PGE reviewed the CCCP. The plan identifies five scenic

[19] Final Order on the Application. 2002. Pg. 96; Final Order on Amendment #7. 2010. Pg. 23; Final Order on Amendment #10. 2013. Pg. 26.

sites, two scenic highways, and two scenic views (Table 6). Only one resource falls within the five-mile analysis area: a one-mile section of Highway 47 between Pittsburg and Clatskanie (Figure 3). This section of highway is 4.8 miles from the PWGP, and the BESS will not be visible to it because of the modular containers' low profile . The BESS will not adversely impact this section of the highway.

PGE also reviewed the comprehensive plans for Cowlitz and Wahkiakum counties in Washington for scenic resources. The comprehensive plans for these counties do not designate areas of scenic value.

PGE called and sent letters to representatives of the Confederated Tribes of the Warm Springs Indian Reservation of Oregon, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of the Siletz Indian Reservation of Oregon, and the Chinook Tribe in Washington. The letters notified the representatives of our plans to install a BESS and requested their input on the BESS and scenic areas within the analysis area. As of the submitting of this application, the Confederated Tribes of the Warm Springs Indian Reservation of Oregon has responded to the letter with a request for additional investigations if there is significant ground disturbance (Attachment 5).

Table 6. Scenic resources identified in the Columbia County Comprehensive Plan (Columbia County 1984, updated Nov. 2013).

Resource	Site	Distance (direct path) & Direction from BESS
Scenic Sites	Beaver Creek Falls	5.1 miles, SSE
	Carcus Creek Falls	13.1 miles, SSE
	Lava Creek Falls	12.3 miles, S
	Clatskanie River (Apiary Falls to Carcus Creek)	12.1-9.9 miles, SSE
	Scaponia Recreation Site	22.9 miles, S
Scenic Highways	Hwy. 30 between Deer Island and Rainier	12.8-22.7 miles, ESE-SE
	Hwy. 47 between Washington County Line and Treharne Pittsburg and Clatskanie	 18.7 miles, S 4.8 miles, SSW
Scenic Views	Wayside north of Rainier on Hwy. 30	9.7 miles, ESE
	Wayside north of Rainier on Old Columbia River Hwy.	10 miles, ESE

SSE - South Southeast, SSW – South Southwest, S - South, ESE - East Southeast, SE - Southeast

In the Final Order on the Application and subsequent amendments, the certificate holder had not previously located any federal management plans to include in the scenic resources analysis. However, during the current analysis, the certificate holder determined that two units of the Julia Butler Hansen Refuge for the Columbian White-Tailed Deer, a national wildlife refuge—the Crims Island Unit and Wallace Island Unit (Figure 3) are inside the analysis area. A comprehensive conservation plan and environmental impact statement for the refuge was finalized in 2010 (USFWS 2010). PGE reviewed this plan and the units are not managed for any scenic resources. Nevertheless, the BESS will not alter PWGP's existing features that are visible to the units or create

additional significant visual impacts. The Crims Island Unit is directly across from the PWGP, separated by the Bradbury Slough, but existing buildings at PWGP block the BESS from view of the island. The Wallace Unit is near the extent of the five-mile analysis area and the 10 ft high BESS will not be visible.

The BESS would have a lower profile than existing structures and would be inside the Facility fence line and adjacent to other similar structures. Although one new management plan was identified during this analysis, it does not provide for management of any scenic resources. There have been no modifications to the other management plans that alter the management of scenic resources described in the Final Order on the Application and subsequent amendments. Therefore, the facility changes proposed in RFA 11 do not affect the basis of the Council's prior findings regarding the Facility's compliance with the Scenic Resources Standard and the Council may conclude that the Facility, as modified by RFA 11, continues to meet OAR 345-022-0080.

8.10 Historic, Cultural and Archaeological Resources – OAR 345-022-0090

OAR 345-022-0090 Hist.: Cultural and Archaeological Resources

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to:

> *(a) Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;*
>
> *(b) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in 358.905(1)(c); and*
>
> *(c) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c).*

** * **

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. PGE will comply with all existing Site Certificate conditions related to Cultural and Archaeological Resources in Section D.11 of the Site Certificate that are applicable to RFA 11.

Exhibit S of the Application for Site Certificate[20] included an analysis of potential historic, cultural, and archaeological resources in the vicinity of the energy facility site. As documented in the exhibit, there was one prehistoric archaeological site within the analysis area that may be eligible for listing in the National Register of Historic Places but was not in the construction impact area. Additionally, a mechanical auger survey in the vicinity of the energy facility site did not find evidence of cultural

[20] Application for Site Certificate. Exhibit S. 2001. Pg. S-1.

deposits, supporting the determination that construction and operation of the proposed facility would have no effect on historic, cultural, or archaeological resources.

A cultural survey of the spoils disposal area was completed in 2001 as part of the Water Discharge Alignment Reroute for PWGP. The disposal area was discussed with John Pouley of SHPO on January 11, 2019, and he confirmed no additional surveys of the area are necessary because of the nature of the site and the disturbance.

PGE will comply with all existing Site Certificate conditions related to Cultural and Archaeological Resources in Section D.11 of the Site Certificate that are applicable to RFA 11. The facility changes proposed in RFA 11 do not affect the basis for the Council's prior findings and therefore Council may conclude that the Facility continues to comply with OAR 345-022-0090.

8.11 Recreation – OAR 345-022-0100

OAR 345-022-0100 Recreation

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of a facility, taking into account mitigation, are not likely to result in a significant adverse impact to important recreational opportunities in the analysis area as described in the project order. The Council shall consider the following factors in judging the importance of a recreational opportunity:

(a) Any special designation or management of the location;

(b) The degree of demand;

(c) Outstanding or unusual qualities;

(d) Availability or rareness;

(e) Irreplaceability or irretrievability of the opportunity.

** * **

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS.

The analysis area for recreational opportunities is a 5-mile radius from the PWGP fence line. Our analysis has shown that the recreational sites and opportunities have not changed greatly from the last analysis in the ASC. No federal or state parks occur within the analysis area. There are two county parks, two city parks, a boat ramp owned and operated by the Oregon Department of Fish and Wildlife, a technology center operated by the US Fish and Wildlife Service, and two points of interest (Table 7 & Figure 4). One new site was added, a city park – the Willow Grove Boat Ramp and Park. It is in Longview, WA, and is 4.2 miles from the BESS.

Existing recreational opportunities within the analysis area include the Columbia River, Clatskanie River, and numerous sloughs within the area from Clatskanie to Quincy. There have been no changes

to the previously analyzed recreational opportunities that modify the relevant factors of management, demand, unusual qualities, rareness, or irreplaceability. The proposed BESS will not adversely impact any existing facilities within the analysis area and there will be no loss of recreational use. The proposed modifications to PWGP will not detract from recreational opportunities generally available in the vicinity such as fishing, waterfowl hunting, hiking, cycling, and boating. Hunting and other recreational activities are not allowed in the Port Westward Industrial Area.

Facility changes proposed in RFA 11 do not affect the basis for the Council's previous findings, and there have been no changes to the recreational resources that would alter the analysis of Facility impacts on those resources. The modifications proposed under RFA 11 will not adversely affect any recreational resources within the analysis area. Therefore, the Council may find that the Facility, as modified by RFA 11, will continue to comply with OAR 345-022-0100.

Table 7. Recreational sites and opportunities within the five-mile analysis area for the Port Westward Battery Energy Storage System.

Recreation Site	Type	Distance (direct path) and direction
Abernathy Fish Tech Center	Technology Center	3.5 miles, NNE
Abernathy Point	Point of Interest	0.9 miles, NNE
Beaver Boat Ramp and Park	County Park	5.2 miles, SSW
Clatskanie City Park	City Park	5.3 miles, SWW
County Line Park	County Park	2.3 miles, W
Mayger Boat Ramp	Boat Ramp	3.4 miles, ESE
Mill Creek	Point of Interest	0.7 miles, N
Willow Grove Boat Ramp and Park	City Park	4.2 miles, E

NNE – North Northeast, SSW – South Southwest, W – West, ESE – East Southeast, N – North, E – East

8.12 Public Services – OAR 345-022-0110

OAR 345-022-0110 Public Services

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.

** * **

Response: The Council previously analyzed the existing Facility's impacts to public services in the Final Order on the ASC, Final Order on Amendment 7, and Final Order on Amendment 10.

In the Final Order on the ASC, the Council found that, with the imposition of conditions in Section D.13, the design, construction, and operation of the Facility were not likely to result in significant adverse impacts to public services listed in OAR 345-022-0110(1).[21]

In the Final Order on Amendment 7, the Council found that, with the incorporation of a revised Condition D.13(2), the design, construction, and operation of Unit 2 were not likely to result in significant adverse impacts to public services listed in OAR 345-022-0110(1).[22]

The Council imposed no new conditions or revisions in the Final Order on Amendment 10. Columbia County staff had commented on RFA 10, stating that they did not have any public service concerns.[23] Individual public services were last evaluated in Final Order on the Application, and subsequent amendments found that the Facility complied with the public service standard OAR 345-022-0110(1).

The addition of battery storage does not alter the basis for the analysis conducted to support issuance of the Site Certificate and subsequent amendments and would not alter the potential impacts of the Facility on the public services listed in OAR 345-022-0110(1). Construction of the BESS would involve a maximum of 20 employees, and an average of 10 employees over a 12-month construction schedule. No new, permanent employees would be required on-site to operate the Facility. The addition of the BESS adds another element to the analysis for fire protection, but existing Site Certificate conditions are sufficient to meet the Public Services Standard, as described below. Additionally, the BESS will be restricted from public access through fencing and security, will have a technology-appropriate fire detection and suppression system, and will be operated and maintained by trained and skilled personnel. The existing Facility Emergency Response Plan will be updated to include the BESS.

8.12.1 Sewers/Sewage Treatment

In the Final Order on the ASC, the Council found that construction and operation of the Facility would not result in any significant adverse impact on the ability of local sewage collection and treatment systems to serve their other users.[24] The BESS will not alter the Council's basis for that finding. PGE installed an engineered septic system that can accommodate 500 gallons per day. This system will be sufficient to accommodate temporary needs during construction, and PGE will hire a contractor to provide chemical toilet facilities during construction of the BESS, should the need arise, in compliance with Condition D.13(1). There may be a small, temporary increase in demand on sewage services during construction of the proposed BESS; no new on-site staff are planned for

[21] Final Order on the Application. 2002. Pg. 103-114.
[22] Final Order for Amendment No. 7. 2010. Pg. 24.
[23] Final Order on Amendment No. 10. 2013. Pg. 29.
[24] Final Order on the Application. 2002. Pg. 103-104.

operation and maintenance of the BESS and, therefore, no long-term impacts to sewer collection and treatment are anticipated.

8.12.2 Water

In the Final Order on the ASC, the Council found that construction and operation of the Facility would not result in any significant adverse impact on the ability of the local water system to serve its other users.[25] The BESS will not alter the Council's basis for that finding. Water will continue to be obtained from the Port Westward intake under an existing water right. The water right has a permitted point of diversion on Bradbury Slough, where PGE currently withdraws water and where it would continue to withdraw for the proposed BESS. PGE owns and operates the existing intake structure, which was enhanced with the addition of pumps. This system will continue to supply water to the Facility.

Water amounts needed for the construction and operation of the proposed BESS are predicted to be minimal and will not require water supply in excess of that permitted by PGE's existing water right. Water for dust suppression, if needed, will be minimal and obtained from existing PWGP water taps. No new staff will be hired to support the Facility, and no water will be needed on an ongoing basis. An aerosol or chemical-based fire suppression system specific to the BESS may be installed. If the fire suppression system uses water, it would be obtained with a single withdrawal from the existing water right and would not increase water demand for the Port Westward plant on an ongoing basis. Due to the water amounts predicted for operation and maintenance of the proposed BESS, no new impacts to water service will occur.

8.12.3 Solid Waste Management

In the Final Order on the ASC, the Council found that construction and operation of the Facility would not have a significant adverse impact on the capacity of solid waste facilities in the analysis area.[26] The BESS will not alter the Council's basis for that finding. Solid waste for the Facility will continue to be hauled to a transfer station in St. Helens, where the waste is compacted before being transferred to the River Bend Landfill in McMinnville, Oregon. Although the BESS will consist of self-contained storage containers, and therefore will generate little waste during construction, a relatively small amount of waste would be generated in the form of packaging materials and construction debris (e.g., waste concrete from foundation construction).

Any excess soil produced during construction would be either trucked offsite or disposed of at the pre-approved spoils disposal area. During operation, a small amount of waste could be periodically generated in the form of batteries requiring replacement. When the BESS is decommissioned, materials, including battery cell components, will be recycled to the extent practicable. Retirement of the BESS will produce waste in the form of materials that cannot be recycled but will be small in

[25] Final Order on the Application. 2002. Pg. 104.
[26] Final Order on the Application. 2002. Pg. 104-105.

comparison to the overall Facility. Due to the waste amounts predicted, and with no new permanent on-site staff planned for the proposed BESS, significant new impacts to solid waste management are not anticipated.

8.12.4 Housing

In the Final Order on the ASC, the Council found that, although the availability of permanent housing in the analysis area is limited, sufficient housing is available in the local area to accommodate the construction and operation of the Facility.[27] The BESS will not alter the Council's basis for that finding. Housing is currently available around the Facility, primarily near the local areas of Longview and Kelso, Washington. An estimated 1,586 housing units were available in 2017 in the communities of Prescott and Rainier in Oregon (60 units) and Kelso and Longview in Washington (1,526 units); all these communities are within commutable distance.[28] These vacant units will be sufficient to accommodate the small number of new temporary employees during construction. There may be a small, temporary increase in housing demand during construction of the proposed BESS; no new on-site staff are planned for operation and maintenance of the proposed BESS, and therefore no long-term impacts to housing are anticipated.

8.12.5 Traffic Safety

In the Final Order on the ASC, the Council found that construction and operation of the Facility, with appropriate mitigation measures, would not adversely affect traffic in the analysis area.[29] The BESS will not alter the Council's basis for that finding. Site Certificate Conditions D.13(2) – D.13(7) (as written in the Final Order on the ASC) and the Amended Traffic Improvement Agreement will continue to be enforced for the proposed BESS. Any transportation and supply routes for the BESS are anticipated to be the same as previously approved by the Council. There will be a small, temporary increase in traffic during construction of the proposed BESS; however, no additional on-site staff are planned for operation and maintenance of the proposed BESS. Approximately 40 delivery vehicles would be needed during construction to deliver containers, electrical equipment, and concrete to the site. The proposed BESS will generate minimal amounts of additional traffic because it will not require the ongoing, regular restocking of supplies or removal of waste products. Therefore, no long-term impacts to traffic are anticipated as a result of construction and operation of the BESS.

8.12.6 Police Protection

In the Final Order on the ASC, the Council found that the construction and operation of the Facility would not place significant additional demand on local police protection services.[30] The BESS will

[27] Final Order on the Application. 2002. Pg. 105.
[28] U.S. Census Bureau. 2017. American Community Survey 5-Year Estimates. http://factfinder.census.gov/.
[29] Final Order on the Application. 2002. Pg. 105-111.
[30] Final Order on the Application. 2002. Pg. 111-112

not alter the Council's basis for that finding. The Columbia County Sheriff's Department and Oregon State Police will continue to provide the Facility with first-response police protection. The Facility will remain fenced and have staff on-site 24 hours per day. There will be a potential small, temporary increase in demand on law enforcement services during construction of the proposed BESS; no new on-site staff are planned for operation and maintenance of the BESS, and therefore no long-term impacts to police protection are anticipated.

8.12.7 Fire Protection

In the Final Order on the ASC, the Council found that construction and operation of the Facility would not significantly affect the Clatskanie Rural Fire Department's ability to provide fire protection service within the analysis area.[31] The BESS will not alter the Council's basis for that finding.

If lithium-ion batteries are chosen, the addition of the BESS introduces a new element that could pose a fire hazard; flow batteries do not present a flammability hazard. Lithium-ion battery systems are designed to prevent fire by detailed electronic monitoring of battery function, so that the electrical connection to the batteries will be shut down if battery function or temperature is outside of the allowable operating range, and operators will be alerted to respond to anomalies before they become unsafe. In the unlikely event that a fire does occur, the systems are designed to prevent the spread of fire between battery modules by virtue of their physical arrangement and by employing barriers within the enclosure. Enclosures have adequate internal fire protection and temperature control to contain the heat and flames. Water has also been shown to be an effective fire suppressant for lithium-ion batteries due to its ability to both extinguish the fire and remove excess heat. Depending on the final design of the BESS, a gas-pressured deluge system or dry pipe system may be installed. If selected, a gas-pressured deluge system is designed to simultaneously discharge water from all sprinkler heads as soon as the system is activated. An independent detector system (such as a heat detector or smoke detector) will control system activation. A dry pipe system, in which the installation pipe work is permanently charged with gas under pressure above the alarm valve, is often installed in cold climates where pipes could freeze. In such a system, the gas pressure drops when a sprinkler head opens, allowing the dry pipe valve to open and admit water to the system.

In addition, the following measures will be implemented for lithium-ion battery systems to minimize fire and safety risks:

- The battery systems will be stored in completely contained, leak-proof modules, each with a heating, ventilation, and air conditioning system; a fire detection and suppression system; and an underground conduit to contain all wiring.

[31] Final Order on the Application. 2002. Pg. 112-113.

- Operations and maintenance staff will conduct frequent inspections of the battery systems according to the manufacturer's recommendations.
- Per Condition D.13(8), battery storage and fire protection systems will comply with applicable standards specified by the Columbia County building department through the permitting process, which will include the Uniform Fire Code, as amended by Oregon and the National Fire Protection Association standards, and all other applicable fire protection standards in effect at the time of construction.
- The Facility's existing Emergency Response Plan will be modified as appropriate with response procedures specific to the BESS in the event of an emergency such as a fire.

The proposed on-site fire protection measures are consistent with battery manufacturer recommendations and with fire codes applicable to battery storage systems. The Facility will be designed to be completely automated and report failure problems via SCADA to PGE operators. A fire alarm panel at the BESS will connect to the Facility Control Room so that operators are able to receive, acknowledge, and silence alarms and initiate the appropriate human response. The Clatskanie Rural Fire Department and the St. Helens Fire District will continue to provide service to the Facility.

Transportation of lithium-ion batteries is subject to 49 Code of Federal Regulations 173.185 – Department of Transportation Pipeline and Hazardous Material Administration. The regulations include requirements for the prevention of a dangerous evolution of heat, short circuits, and damage to the terminals, and require that no battery come in contact with other batteries or conductive materials. Adherence to the requirements and regulations, personnel training, safe interim storage, and segregation from other potential waste streams will minimize any public hazard related to transport, use, or disposal of the batteries.

The on-site fire protection measures incorporated in the BESS are expected to meet fire protection needs associated with the Facility, without generating significant new service demands on the local fire districts. Therefore, the Council may conclude that addition of the BESS does not result in significant new impacts on local fire protection providers.

8.12.8 Health Care

In the Final Order on the ASC, EFSC found that the construction and operation of the Facility would not adversely affect medical services in the analysis area.[32] The BESS will not alter the Council's basis for that finding. The nearest hospital, the St. Johns Medical Center in Longview, Washington, will continue to accommodate the Facility and provide ambulance and life flight services within the analysis area. Emergency medical services will continue to be provided by the Clatskanie Rural Fire Department. Additionally, there are numerous full-service medical facilities in the City of Portland that are accessible by life flight in less than half an hour. No new on-site staff are planned for

[32] Final Order on the Application. 2002. Pg. 113.

operation and maintenance of the proposed BESS; therefore, no long-term impacts to health care are anticipated.

8.12.9 Schools

In the Final Order on the ASC, EFSC found that the construction and operation of the Facility would not adversely affect school districts in the analysis area.[33] The BESS will not alter the Council's basis for that finding. The Facility is within the Clatskanie School District, which operates an elementary school and a middle/high school; both schools are still found to be operating below their designed capacities. The BESS will not cause the demand for schools to increase because no new, permanent on-site staff are planned for the proposed BESS; therefore, the BESS will not create additional impacts to schools.

8.12.10 Conclusion

Construction, operation and maintenance, and retirement of the BESS will not alter the Facility's impact on public services, and the proposed changes do not alter the basis for the Council's previous findings that the Facility complies with the Public Services Standard. The Facility, as modified by RFA 11, will not result in any new significant adverse impacts to the ability of public and private providers within the analysis area to provide services. Therefore, the Council can find that the Facility as modified by RFA 11 will continue to comply with the Public Services Standard under OAR 345-022-0110.

8.13 Waste Minimization OAR 345-022-0120

OAR 345-022-0120 Waste Minimization

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that, to the extent reasonably practicable:

> *(a) The applicant's solid waste and wastewater plans are likely to minimize generation of solid waste and wastewater in the construction and operation of the facility, and when solid waste or wastewater is generated, to result in recycling and reuse of such wastes;*
>
> *(b) The applicant's plans to manage the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility are likely to result in minimal adverse impact on surrounding and adjacent areas.*

** * **

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. PGE proposes a minor modification to Condition

[33] Final Order on the Application. 2002. Pg. 113.

D.14(2) to address the potential use of lithium-ion battery cells. The proposed change to the condition is as follows:

> *D.14(2) During construction, operation and retirement of the energy facility, the Certificate Holder shall segregate all used oil, mercury-containing lights**;** and lead-acid, **lithium-ion,** and nickel cadmium batteries, store such materials on-site, and deliver such materials to a recycling firm specializing in the proper disposal of such materials.*

Construction of the BESS will generate concrete waste from the construction of concrete pads for container and inverter support, erosion control materials, and packaging materials. Paints, adhesives, and lubricants may also be used during construction. However, the quantity of these chemicals brought onsite will be limited because of the size of the BESS. The contractor will be responsible for disposing of the chemicals after construction. If excess soil is produced during construction, it would be transported offsite or disposed of at the spoils disposal area, which the Council approved in the Final Order on Amendment No. 3.

Operation of the BESS may generate incidental waste from the repair or replacement of electrical equipment, as well as periodic replacement of the batteries. PGE expects lithium-ion batteries to last between 7 and 10 years and flow-batteries to last between 10 and 20 years. Self-contained battery components (modules) will be removed and disposed of/recycled by a qualified vendor as needed to keep the Facility operational. Battery modules will be transported intact. The modules will be recycled or disposed as appropriate within the approved destination facility. PGE does not anticipate the routine, on-site storage of spent batteries.

Potentially hazardous materials associated with the BESS would be the lithium battery cells if selected, which could contain lithium-ion electrolyte gel or liquid. If flow batteries are selected, they may contain hazardous electrolyte fluid. The fire suppression system could contain fire-suppressing chemicals. Containment of leaks or spills of hazardous material will be incorporated into the battery container design. Distribution transformers may contain either a natural ester or mineral oil. Oils will be managed in accordance with the existing site SPCC plan.

Non-hazardous materials associated with the BESS include the battery module cases, storage racks, the electrical wiring used to connect the battery modules to the switchgear, up to five 10-foot by 40-foot metal containers, at least two transformers and one bi-directional inverter for each container, one cooling system for each container, and electrical cabling to connect the container systems to the transformers, inverters, and the substation.

The information provided here demonstrates that construction and operation of the BESS would not significantly alter the basis for the Council's prior findings that the Facility complies with the Waste Minimization Standard. Solid waste and wastewater would be managed to minimize generation of these materials and to recycle them where practicable. No new significant adverse impact on surrounding and adjacent areas would occur as a result of accumulation, storage, disposal, and transportation of waste generated by the BESS. Therefore, the Council may find that the Facility, as modified by RFA 11, continues to comply with the Waste Minimization Standard under OAR 345-022-0120.

9 Division 24 Standards – OAR 345-027-0060(1)(e)

OAR 345-024-0500 General

To issue a site certificate, the Council must find that the energy facility complies with any applicable carbon dioxide emissions standard adopted by the Council or enacted by statute. The Council shall adopt standards for fossil-fueled power plants and may adopt carbon dioxide emission standards for other energy facilities that emit carbon dioxide.

Response: The BESS will not alter carbon dioxide emissions from the Facility and, therefore, does not alter the Council's basis for finding that the Facility complies with carbon dioxide emission standards. PGE demonstrates compliance with carbon dioxide emissions standards in Sections 9.1 through 9.2.

9.1 Carbon Dioxide Standard for Base Load Gas Plants - OAR 345-024-0550

OAR 345-024-0550 Standard for Base Load Gas Plants

To issue a site certificate for For a base load gas plant designed with power augmentation technology as defined in OAR 345-001-0010, the Council shall apply the standard for a non-base load power plant, as described in OAR 345-024-0590, to the incremental carbon dioxide emissions from the designed operation of the power augmentation technology. The Council shall determine whether the base load carbon dioxide emissions standard is met as follows:

(1) The Council shall determine the gross carbon dioxide emissions that are reasonably likely to result from the operation of the proposed energy facility. The Council shall base such determination on the proposed design of the energy facility. The Council shall adopt site certificate conditions to ensure that the predicted carbon dioxide emissions are not exceeded on a new and clean basis.

(2) For any remaining emissions reduction necessary to meet the applicable standard, the applicant may elect to use any of the means described in OAR 345-024-0560, or any combination thereof. The Council shall determine the amount of carbon dioxide or other greenhouse gas emissions reduction that is reasonably likely to result from the applicant's offsets and whether the resulting net carbon dioxide emissions meet the applicable carbon dioxide emissions standard. The amount of greenhouse gas emissions means the pounds of carbon dioxide and the carbon dioxide equivalent of other greenhouse gases. For methane, one pound of methane is equivalent to 25 pounds of carbon dioxide. For nitrous oxide, one pound of nitrous oxide is equivalent to 298 pounds of carbon dioxide.

(3) If the applicant elects to comply with the standard using the means described in OAR 345-024-0560(2), the Council shall determine the amount of greenhouse gas emissions reduction that is reasonably likely to result from each of the proposed offsets. In making this determination, the Council shall not allow credit for offsets that have already been allocated or awarded credit for greenhouse gas emissions reduction in another regulatory setting. The fact that an applicant or other parties involved with an offset may derive benefits from the offset other than the reduction of greenhouse gas emissions is not, by itself, a basis for withholding credit for an offset. The Council shall base its determination of the amount of greenhouse gas emission reduction on the following criteria and as provided in OAR 345-024-0680:

(a) The degree of certainty that the predicted quantity of greenhouse gas emissions reduction will be achieved by the offset.

(b) The ability of the Council to determine the actual quantity of greenhouse gas emissions reduction resulting from the offset, taking into consideration any proposed measurement, monitoring and evaluation of mitigation measure performance.

(c) The extent to which the reduction of greenhouse gas emissions would occur in the absence of the offsets.

(4) Before beginning construction, the certificate holder shall notify the Department of Energy in writing of its final selection of a gas turbine vendor and shall submit a written design information report to the Department sufficient to verify the facility's designed new and clean heat rate and its nominal electric generating capacity at average annual site conditions for each fuel type. In the report, the certificate holder shall include the proposed limits on the annual average number of hours of facility operation on distillate fuel oil, if applicable. In the site certificate, the Council may specify other information to be included in the report. The Department shall use the information the certificate holder provides in the report as the basis for calculating, according to the site certificate, the amount of greenhouse gas emissions reductions the certificate holder must provide under OAR 345-024-0560.

Response: In the Final Order on the ASC, the Council found that the design, construction, and operation of PWGP complies with the Carbon Dioxide Standard for Base Load Gas Plants. In the Final Order on Amendment 10, the Council found that the Facility continues to comply with the standard. After issuing the Final Order on Amendment 10, the Council amended OAR 345-024-0590, in 2018. The BESS does not emit carbon dioxide or alter any part of the Facility that emits carbon dioxide and, therefore, does not alter the Council's basis for those findings.

The facility changes proposed in RFA 11 do not alter the Council's prior findings regarding the Facility's compliance with the Carbon Dioxide Standard for Base Load Gas Plants; therefore, the Facility continues to comply.

9.2 Carbon Dioxide Standard for Non-Base Load Power Plants - OAR 345-024-0590

OAR 345-024-0590 Standard for Non-Base Load Power Plants

To issue a site certificate for a non-base load power plant, the Council must find that the net carbon dioxide emissions rate of the proposed facility does not exceed 0.614 pounds of carbon dioxide per kilowatt-hour of net electric power output, with carbon dioxide emissions and net electric power output measured on a new and clean basis. For a base load gas plant designed with power augmentation technology as defined in OAR 345-001-0010, the Council shall apply this standard to the incremental carbon dioxide emissions from the designed operation of the power augmentation technology. The Council shall determine whether the carbon dioxide emissions standard is met as follows:

(1) The Council shall determine the gross carbon dioxide emissions that are reasonably likely to result from the operation of the proposed energy facility. The Council shall base such determination on the

proposed design of the energy facility, the limitation on the hours of generation for each fuel type and the average temperature, barometric pressure and relative humidity at the site during the times of the year when the facility is intended to operate. For a base load gas plant designed with power augmentation technology, the Council shall base its determination of the incremental carbon dioxide emissions on the proposed design of the facility, the proposed limitation on the hours of generation using the power augmentation technology and the average temperature, barometric pressure and relative humidity at the site during the times of the year when the facility is intended to operate with power augmentation technology. The Council shall adopt site certificate conditions to ensure that the predicted carbon dioxide emissions are not exceeded on a new and clean basis; however, the Council may modify the parameters of the new and clean basis to accommodate average conditions at the times when the facility is intended to operate and technical limitations, including operational considerations, of a non-base load power plant or power augmentation technology or for other cause.

(2) For any remaining emissions reduction necessary to meet the applicable standard, the applicant may elect to use any of the means described in OAR 345-024-0600 or any combination thereof. The Council shall determine the amount of carbon dioxide or other greenhouse gas emissions reduction that is reasonably likely to result from the applicant's offsets and whether the resulting net carbon dioxide emissions meet the applicable carbon dioxide emissions standard. The amount of greenhouse gas emissions means the pounds of carbon dioxide and the carbon dioxide equivalent of other greenhouse gases. For methane, one pound of methane is equivalent to 25 pounds of carbon dioxide. For nitrous oxide, one pound of nitrous oxide is equivalent to 298 pounds of carbon dioxide.

(3) If the applicant elects to comply with the standard using the means described in OAR 345-024-0600(2), the Council shall determine the amount of greenhouse gas emissions reduction that is reasonably likely to result from each of the proposed offsets. In making this determination, the Council shall not allow credit for offsets that have already been allocated or awarded credit for greenhouse gas emissions reduction in another regulatory setting. The fact that an applicant or other parties involved with an offset may derive benefits from the offset other than the reduction of greenhouse gas emissions is not, by itself, a basis for withholding credit for an offset. The Council shall base its determination of the amount of greenhouse gas emission reduction on the following criteria and as provided in OAR 345-024-0680:

> *(a) The degree of certainty that the predicted quantity of greenhouse gas emissions reduction will be achieved by the offset.*
>
> *(b) The ability of the Council to determine the actual quantity of greenhouse gas emissions reduction resulting from the offset, taking into consideration any proposed measurement, monitoring and evaluation of mitigation measure performance.*
>
> *(c) The extent to which the reduction of greenhouse gas emissions would occur in the absence of the offsets.*

(4) Before beginning construction, the certificate holder shall notify the Department of Energy in writing of its final selection of an equipment vendor and shall submit a written design information report to the Department sufficient to verify the facility's designed new and clean heat rate and its nominal electric generating capacity at average annual site conditions for each fuel type. For a base load gas plant designed with power augmentation technology, the certificate holder shall include in the report information sufficient to verify the facility's designed new and clean heat rate, tested under

parameters the Council orders pursuant to section (1), and the nominal electric generating capacity at average site conditions during the intended use for each fuel type from the operation of the proposed facility using the power augmentation technology. The certificate holder shall include the proposed limit on the annual average number of hours for each fuel used, if applicable. The certificate holder shall include the proposed total number of hours of operation for all fuels, subject to the limitation that the total annual average number of hours of operation per year is not more than 6,600 hours. In the site certificate, the Council may specify other information to be included in the report. The Department shall use the information the certificate holder provides in the report as the basis for calculating, according to the site certificate, the gross carbon dioxide emissions from the facility and the amount of greenhouse gas emissions reductions the certificate holder must provide under OAR 345-024-0600.

(5)

> *(a) Every five years after commencing commercial operation, the certificate holder shall report to the Council the facility's actual gross carbon dioxide emissions. The certificate holder shall calculate actual gross carbon dioxide emissions using the new and clean heat rate and the actual hours of operation on each fuel during the five-year period or shall report to the Council the actual measured or calculated carbon dioxide emissions as reported to either the Oregon Department of Environmental Quality or the U.S. Environmental Protection Agency pursuant to a mandatory carbon dioxide emissions reporting requirement.*
>
> *(b) The certificate holder shall specify its election of method used to measure or calculate carbon dioxide emissions in the notification report described at section (4) of this rule. That election, once made, shall apply for each five year period unless the site certificate is amended to allow a different election. If the certificate holder calculates actual carbon dioxide emissions using the new and clean heat rate and the actual hours of operation, the certificate holder shall also report to the Council the facility's actual annual hours of operation by fuel type. If the actual gross carbon dioxide emissions exceed the projected gross carbon dioxide emissions for the five-year period calculated under section (4), the certificate holder shall offset any excess emissions for that period and shall offset estimated future excess carbon dioxide emissions using the monetary path as described in OAR 345-024-0600(3) and (4) or as approved by the Council.*

(6) For a base load gas plant designed with power augmentation technology, every five years after commencing commercial operation, the certificate holder shall report to the Council the facility's actual hours of operation using the power augmentations technology for each fuel type. If the actual gross carbon dioxide emissions, calculated using the new and clean heat rate, tested under parameters the Council orders pursuant to section (1), and the actual hours of operation using the power augmentation technology on each fuel during the five-year period exceed the projected gross carbon dioxide emissions for the five-year period calculated under section (4), the certificate holder shall offset any excess emissions for that period and shall offset estimated future excess carbon dioxide emissions using the monetary path as described in OAR 345-024-0600(3) and (4) or as approved by the Council.

Response: In the Final Order on the ASC, the Council found that the design, construction, and operation of the PWGP complies with the Carbon Dioxide Standard for Non-Base Load Gas Plants. In

the Final Order on Amendment 10, the Council found that the Facility continued to comply with the standard. In the Final Order on Amendment 7, the Council adopted additional findings and Site Certificate conditions to address the construction and operation of Unit 2 as a non-base load power plant. After issuing the Final Order on Amendment 10, the Council amended OAR 345-024-0590, in 2018. The BESS does not emit carbon dioxide or alter any part of the facility that emits carbon dioxide and, therefore, does not alter the Council's basis for its previous findings or trigger an analysis under the new standard.

The facility changes proposed in RFA 11 do not alter the Council's prior findings regarding PWGP's compliance with the Non-Base Load Power Plant Carbon Dioxide Standard; therefore, the Facility continues to comply.

10 Other Applicable Requirements – OAR 345-027-0060(1)(e)

10.1 Noise Control Regulations

OAR 340-035-0035 Noise Control Regulations for Industry and Commerce

(1) Standards and Regulations:

** * **

(b) New Noise Sources:

(A) New Sources Located on Previously Used Sites. No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies.

Response: The BESS will not alter the Council's basis for its previous findings that the Facility complies with the standard, and the Facility will continue to comply with the standard if the Council approves the proposed addition of the BESS. All new noise impacts will comply with DEQ's applicable noise control standards.

Noise from construction activities associated with BESS will generally be of lesser magnitude and duration than construction of Units 1 and 2. Noisy construction activities will be limited to daytime hours. In the event nighttime construction is required for specific activities, such as certain interconnections where it is advantageous to de-energize when electrical demands are minimal, activities will be of limited duration and limited to operations such as wire splicing, which would not exceed the existing noise limits summarized in Table 8.

Table 8. Port Westward Noise Limits

Site	Description	Noise Limit (L_{50}, dBA)
1	18645 Hermo Road (Oregon)	50
2	80869 Kallunki Road (Oregon)	43
5	128 Kathy Road (Washington)	50
6	108 Kathy Road (Washington)	44
7	233 Eagle Crest Drive (Washington)	48

dBA = decibel (A-weighted scale)

The BESS will add components to PWGP that emit a low level of sound compared to the equipment already operating at Port Westward. Operation of the entire BESS, including inverters associated HVAC and transformers, is specified to yield a sound level of no more than 65 decibels (A-weighted scale) (dBA) at 50 feet. This is similar in sound level to individuals standing 3 feet from each other having a normal conversation (Loudness Comparison Chart). Table 9 adds the predicted BESS system noise to the existing operational sound levels documented at Port Westward by an Oregon Professional Engineer (CH2M HILL Engineers, Inc., 2015). The BESS sound predictions only consider geometric spreading losses and do not account for potential additional reductions afforded by shielding from intervening structures, terrain nor atmospheric absorption. The results summarized in Table 9 document that the addition of BESS is predicted to comply with the Site Certification Condition E.1.a.7.

Given the low level of sound associated with the construction and operation of BESS, no changes to the Conditions of Certification addressing noise are proposed, and no additional operational sound monitoring is required.

Table 9. BESS and Port Westward Operational Sound Levels (L50, dBA)

Site	Description	PW1 + PW2 + Ambient	BESS	BESS + PW1 + PW2 + Ambient	Noise Limit (L50, dBA)	Comply with Limit
1	18645 Hermo Road (Oregon)	34	24	34	50	Yes
2	80869 Kallunki Road (Oregon)	36	24	36	43	Yes
5	128 Kathy Road (Washington)	40	23	40	50	Yes
6	108 Kathy Road (Washington)	39	24	39	44	Yes
7	233 Eagle Crest Drive (Washington)	42	26	42	48	Yes

10.2 Removal-Fill Law

A removal-fill permit is required if an activity that will fill or remove 50 cubic yards or more of material in a wetland or water of the state. (ORS 196.795-196.990 and OAR 141-085). PGE completed wetland surveys in the areas around the BESS and the spoils disposal area (Attachment 6). The surveys concluded there are no wetlands or waterways located within the proposed location of the BESS or the spoils disposal area. Consequently, a removal-fill permit is not needed for the changes proposed in RFA 11.

10.3 Water Pollution Control Facilities Permit

When the Facility initially obtained a Site Certificate the development of an onsite sewage treatment system incorporating a septic tank, dosing tank, and bottomless sand filter was considered a form of wastewater discharge that required a Water Pollution Control Facilities (WPCF) Permit from DEQ. The WPCF permit is a state level permit that falls under Council jurisdiction. The Site Certificate included two Conditions related to the WPCF permit; Condition E.1.d(1) required PGE to demonstrate before beginning construction that DEQ had issued a permit allowing for on-site sanitary waste disposal and Condition E.1.d(2) requires PGE to comply with state laws and rules applicable to WPCF Permits that are adopted in the future. In March of 2014 PGE received a letter from DEQ to inform PGE of revisions to OAR 340-071 that allowed for the termination of the WPCF permit and conversion to oversight by Columbia County provided specific requirements were met. PGE provided the necessary documentation and forms to DEQ and the WPCF permit was terminated. PGE has proposed a modification to the Wastewater Section in Section C.1.a to reflect that the septic system is now under the oversight of Columbia County. PGE is not proposing any modifications to the site certificate conditions related to WPCF permit because Condition E.1.d(1) was complied with before beginning construction and PGE will continue to comply with Condition E.1.d(2) if changes to state laws and rules result in a WPCF permit being required in the future.

11 Property Owners List – OAR 345-027-0060(1)(f)

OAR 345-027-0060 Preliminary Request for Amendment

(1) To request an amendment to the site certificate required by OAR 345-027-0050(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

** * **

(f) An updated list of the owners of property located within or adjacent to the site of the facility, as described in OAR 345-021-0010(1)(f).

Response: This list is provided in Attachment 8.

12 References

CH2M HILL Engineers, Inc. 2015. *Port Westward 2: Operational Noise Compliance*. Submitted to ODOE by PGE to satisfy Port Westward 2's Site Certificate Noise Condition E.1.a.7. January 23.

Columbia County. 1984. Columbia County Comprehensive Plan. http://www.co.columbia.or.us/departments/land-development-services-main/planning. Accessed February 2019.

Loudness Comparison Chart. South Redding 6-Lane Project. http://www.dot.ca.gov/dist2/projects/sixer/loud.pdf. Accessed March 2019.

USFWS (U.S. Fish and Wildlife Service). 2010. Lewis and Clark National Wildlife Refuge (N.W.R), Julia Butler Hansen Refuge for the Columbian White-tailed Deer, Comprehensive Conservation Plan: Environmental Impact Statement. U.S. Fish and Wildlife Service. Ilwaco, Washington. https://www.fws.gov/refuge/julia_butler_hansen/conservation/comprehensive_conservation_plan.html. Accessed March 2019.

Proposed Laydown Area

Port Westward Unit 2

Port Westward Unit 1

Proposed Laydown Area

Proposed Battery Storage Area

Bradbury Slough

Global Clatskanie

Beaver Generating Facility

Existing Spoils Disposal Area

Site Location Map

Map Features

- Proposed Battery Storage Area
- Energy Facility Site Boundary
- Proposed Laydown Area

0 175 350
Feet

N W E S

Portland General Electric
Portland, Oregon

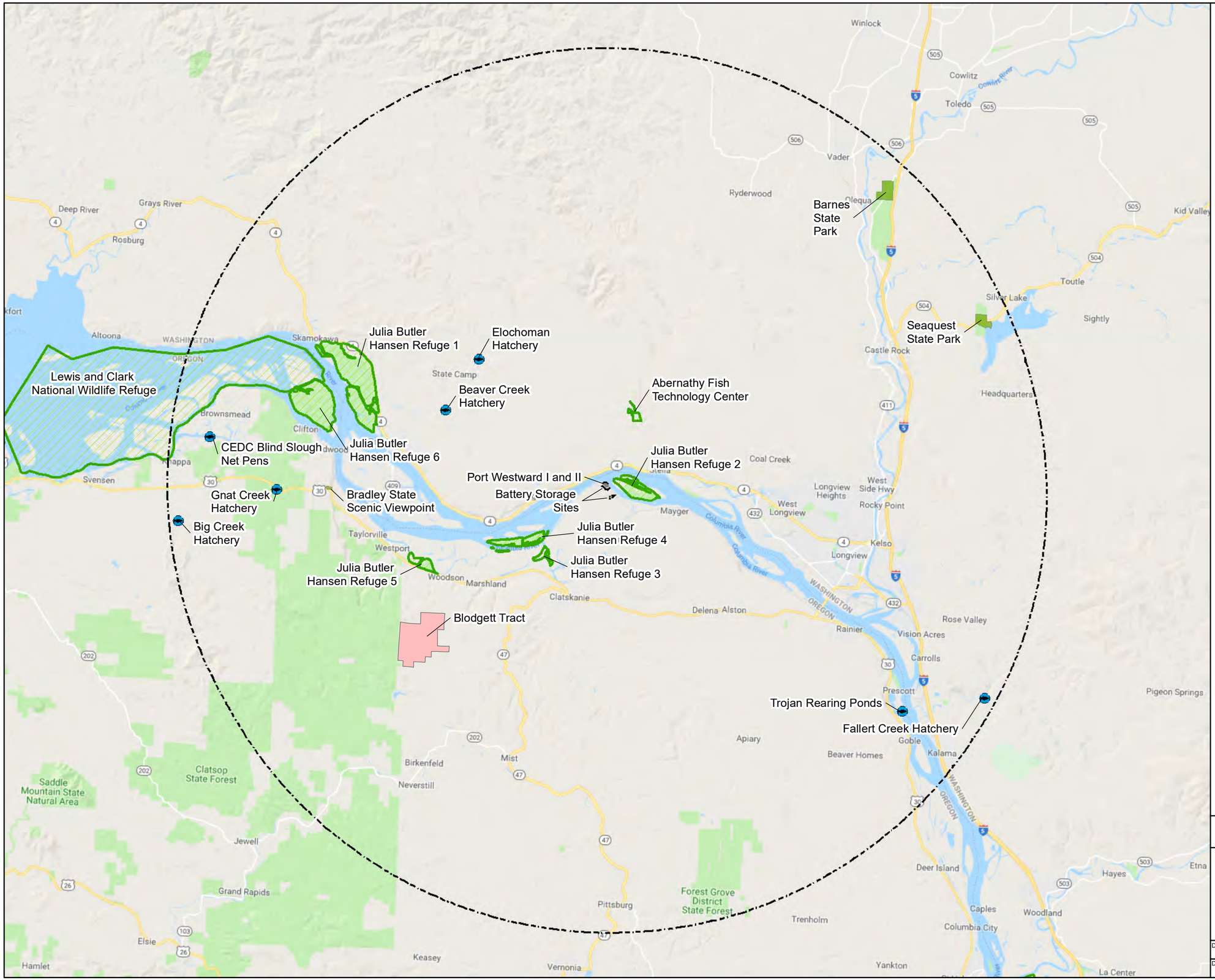
Figure 1

Proposed Battery Storage Site Map

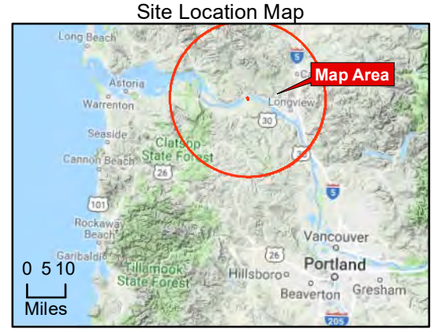
Port Westward Generating Project

Date:	Drawn By:	Rev.:
4/11/2019	J.B. Hoy	

Drawing File: J:\Port_Westward\PW2\Maps\PW2_Battery_Storage_Site.mxd



Site Location Map



Map Features

- Battery Storage Sites
- 20-Mile Analysis Area
- Fish Hatchery
- National Park
- State Park
- U.S. Fish and Wildlife Site
- OSU Research Forest

0 2.5 5
Miles

Portland General Electric
Portland, Oregon

Figure 2

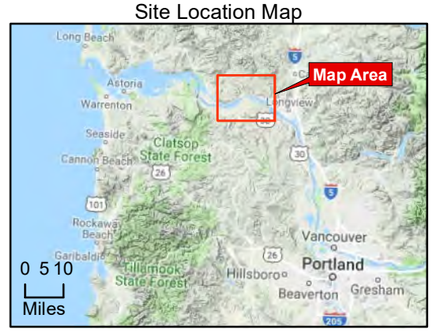
Proposed Battery Storage Protected Area Map

Port Westward Generating Project

Date:	Drawn By:	Rev.:
4/11/2019	J.B. Hoy	

Drawing File: J:\Port_Westward\PW2\Maps\PW2_Battery_Storage_Protected.mxd

Site Location Map



Map Features

- Battery Storage Sites
- 5-Mile Analysis Area
- U.S. Fish and Wildlife Site
- Scenic Highway

0 3,000 6,000
Feet

PGE

N
W E
S

Portland General Electric

Portland, Oregon

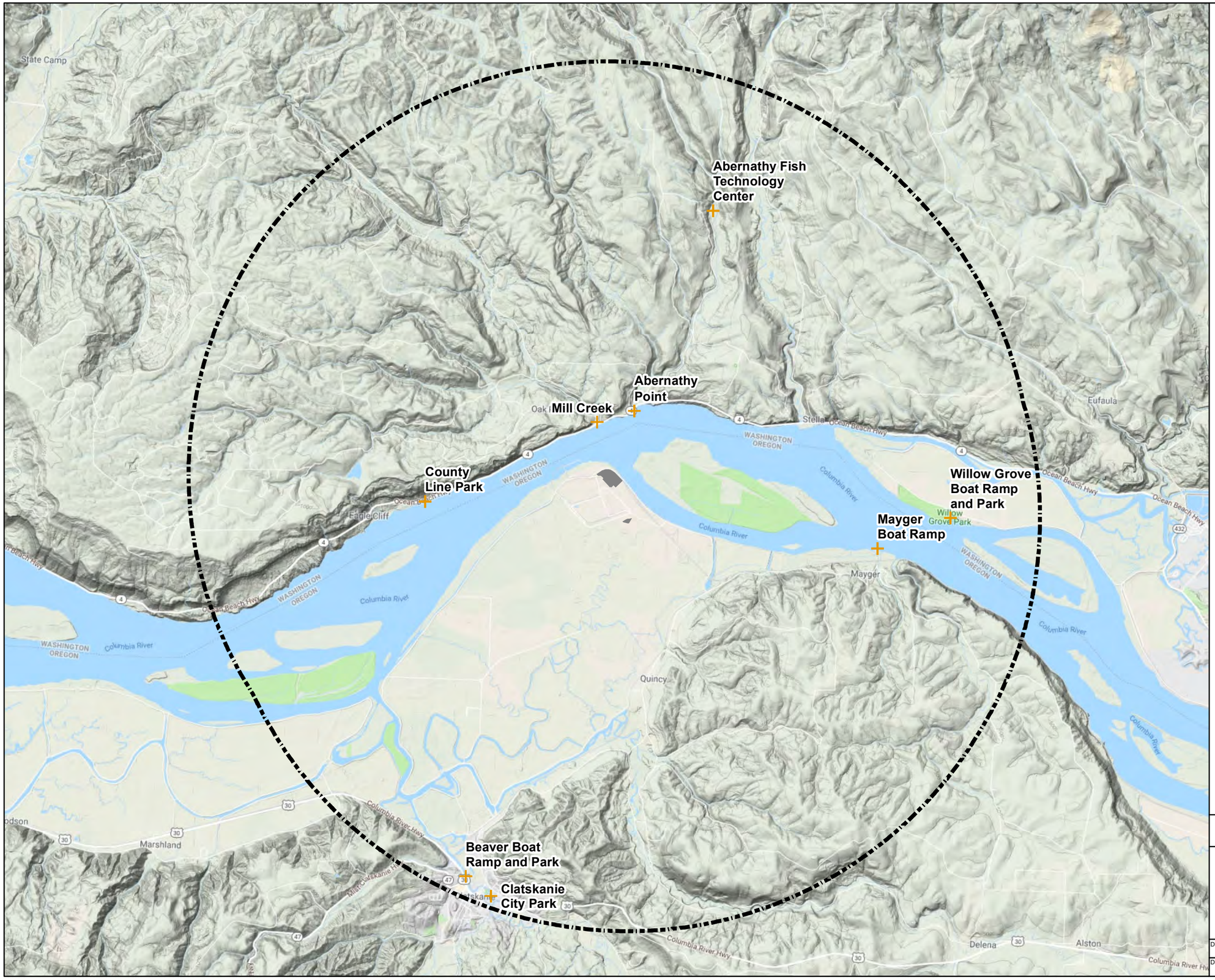
Figure 3

Proposed Battery Storage Scenic Resources Map

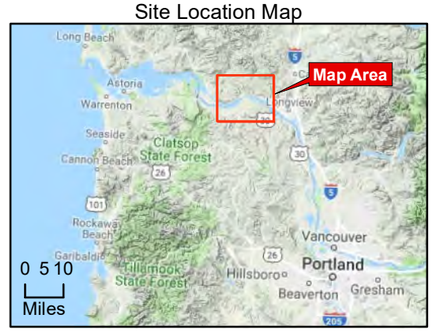
Port Westward Generating Project

Date:	Drawn By:	Rev.:
4/11/2019	J.B. Hoy	

Drawing File: J:\Port_Westward\PW2\Maps\PW2_Battery_Storage_Scenic.mxd



Site Location Map



Map Features

- Battery Storage Sites
- 5-Mile Analysis Area
- Recreation Site

0 3,000 6,000
Feet

Portland General Electric
Portland, Oregon

Figure 4

Proposed Battery Storage Recreation Sites Map

Port Westward Generating Project

Date:	Drawn By:	Rev.:
4/11/2019	J.B. Hoy	

Drawing File: J:\Port_Westward\PW2\Maps\PW2_Battery_Storage_Rec_Sites.mxd

Attachment 1. DOGAMI Consultation

Consultation notes will be provided at a later date as supplemental information to RFA No.11

Attachment 2. Land Use: Applicable Substantive Criteria

Table of Contents

List of Appendices

1.0 Introduction and Overview

This attachment demonstrates that the Port Westward Generating Project (Facility), with the changes proposed in RFA 11, continues to comply with applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted, and with any Land Conservation and Development Commission (LCDC) administrative rules and goals and any land use statutes directly applicable to the Facility. The changes to the Facility proposed in RFA 11 would not alter the basis of the Energy Facility Siting Council's (the Council) previous findings. Portland General Electric Company (PGE) will comply with all existing Site Certificate conditions related to land use that are applicable to RFA 11, as referenced herein.

The Columbia County Planning Manager provided a preliminary review and input on applicable, substantive criteria for Request for Amendment 11 (RFA 11; pers. comm., M. Laird, March 29, 2019) (See Appendix A). PGE, as the certificate holder, has addressed the applicable substantive criteria herein. PGE understands that after submittal of RFA 11, the Oregon Department of Energy will reach out to the local jurisdiction (Columbia County) for comment. If the Council issues a Final Order approving an Amended Site Certificate, PGE and the Columbia County will then follow the procedures outlined under Oregon Revised Statutes (ORS) 469.401(3), below, for local permit issuance:

> *Subject to the conditions set forth in the site certificate or amended site certificate, any certificate or amended certificate signed by the chairperson of the council shall bind the state and all counties and cities and political subdivisions in this state as to the approval of the site and the construction and operation of the facility. After issuance of the site certificate or amended site certificate, any affected state agency, county, city and political subdivision shall, upon submission by the applicant of the proper applications and payment of the proper fees, but without hearings or other proceedings, promptly issue the permits, licenses and certificates addressed in the site certificate or amended site certificate, subject only to conditions set forth in the site certificate or amended site certificate. After the site certificate or amended site certificate is issued, the only issue to be decided in an administrative or judicial review of a state agency or local government permit for which compliance with governing law was considered and determined in the site certificate or amended site certificate proceeding shall be whether the permit is consistent with the terms of the site certificate or amended site certificate. Each state or local government agency that issues a permit, license or certificate shall continue to exercise enforcement authority over the permit, license or certificate.*

2.0 Description of Proposed Development

The following development activities are proposed in RFA 11 and addressed in this land use analysis. These activities are located within the Site Boundary or areas that have been previously approved for use by the Facility:

1. New related and supporting facility: The Port Westward Battery Energy Storage System (BESS) will add 4 to 6 megawatts of battery energy storage at the Facility. The BESS will be a related and supporting facility adjacent to the switchyard within the existing fence line of the Facility site (see RFA 11, Figure 1).

   This BESS will be a factory-built, fully functioning BESS with batteries, power conversion systems (inverters), an interconnection system, and step-up transformers. The point of interconnection will be the switchgear in the existing switchyard, where the BESS will connect to PGE's general transmission grid and to a Unit 2 generator for the Block 1 engines (six engines total). However, the transmission grid will recharge the BESS, and the BESS will discharge back to the grid when it is not used as spinning reserve for the Unit 2 generator. The transmission grid includes generation from Unit 1 and Unit 2, and from PGE's Beaver Generating Facility.

   The batteries will be stored in modular containers that are approximately 44 feet by 10 feet. The containers will be sited within a 100-foot by 90-foot area that is currently paved. The number of modular containers, inverters, and transformers, as well as their layout, will be determined in the final design, but all components will fit within the existing Facility footprint. Each modular container will include an HVAC system and a fire detection and suppression system. All wiring will be in underground conduit. The BESS will not be staffed for operations and maintenance; it will be designed to be completely automated and report failure problems via (supervisory control and data acquisition) SCADA technology to remote PGE operators.

2. Use of approved related or supporting facilities, construction staging and laydown areas, and spoils disposal area:

   a. Temporary construction staging and laydown will be within the existing fence line. There will be no permanent or temporary disturbances caused by these areas because they are already permanently disturbed and graveled. These areas will also be used for construction parking. No temporary or permanent roads will be built; all construction traffic will use existing access roads.

   b. A spoils disposal area located outside the fence line may be used during construction (See RFA 11, Figure 1). Excess soil from the construction site will be spread across the spoils site. The spoils site will be revegetated in accordance with existing Site Certificate conditions.

3.0 Columbia County Land Use Regulations

All development activities addressed in RFA 11 are located entirely within Columbia County's planning jurisdiction. As a result, these facilities will be subject to the provisions of the Columbia County Zoning Ordinance (CCZO). The applicable sections of the CCZO are addressed below.[1] The Facility is in the Port Westward Industrial Park, which is zoned by Columbia County as Resource Industrial Planned Development (RIPD).

3.1 Section 680 Resource Industrial – Planned Development

CCZO § 681 Purpose:

The purpose of this district is to implement the policies of the Comprehensive Plan for Rural Industrial Areas. These provisions are intended to accommodate rural and natural resource related industries, which:

681.1 Are not generally labor intensive;

In the Final Order on the ASC (November 8, 2002), the Council found:

> *The energy facility will employ about 25 employees during plant operations. Therefore, it is not a labor-intensive operation. The related and supporting facilities will require periodic maintenance and monitoring, but will not require additional employees and are therefore not labor intensive.*[2]

The BESS is not labor intensive; it will not be staffed for operations and maintenance, and therefore will not increase employment on the site. The temporary construction staging and laydown areas, as well as the spoils disposal area, will be used only in conjunction with construction of the BESS, not operation.

681.2 Are land extensive;

In the Final Order of the ASC (November 8, 2002) the Council found:

> *The energy facility site will encompass about 19 acres and is, therefore, a land-extensive use. Although the primary reason for locating a 1.5 mile segment of the transmission line in the RIPD zone is to allow connection with the energy facility, that 1.5 mile segment of the transmission line is itself a land-extensive use. Similarly, although the primary reason for locating a 3,600 foot segment of the Trojan option in the RIPD zone is to allow connection with the Trojan Nuclear Plant (which is itself located in the RIPD zone), that 3,600 foot segment is also land extensive.*[3]

[1] Note, only the applicable sections to RFA 11 are included. Hence, there may be numerical gaps in the standards addressed.
[2] Final Order on the Application. 2002. Attachment D. Pg. 4.
[3] Final Order on the Application. 2002. Attachment D. Pg. 4.

The BESS will be sited within the developed area of the Facility site and will not remove land from the existing energy-site. Therefore, RFA 11 will not affect prior findings by the Council, as the Facility has already been determined to be a land-extensive use.

681.3 Require a rural location in order to take advantage of adequate rail and/or vehicle and/or deep water port and/or airstrip access;

In the Final Order of the ASC (November 8, 2002) the Council found:

> *The energy facility requires a rural location to use the Columbia River and Bradbury Slough as a water source, and to take advantage of the existing facilities, including the existing intake structure on the Columbia River/Bradbury Slough and the natural gas pipeline. The site also affords access to the Burlington Northern and Santa Fe Railway Astoria-to-Portland branch line and an existing dock on the Columbia River, which will be used during construction or operation. The transmission line is not itself dependent upon the rural location. The transmission line is, however, a necessary component of the proposed energy facility, which is itself locationally dependent.*[4]

These Council findings apply to the development activities in the RIPD zone that are part of RFA 11 because they are accessory and supportive of the Facility.

681.4 Complement the character and development of the surrounding rural area;

In the Final Order of the ASC (November 8, 2002) the Council found:

> *The energy facility will be located in the Port Westward Industrial Park. The exception statement for the Port Westward tract in the County's Comprehensive Plan reflects that the anticipated uses of the area would be industrial in nature and take advantage of the existing services, including the proximity to the river. Examples listed in the Plan include an oil refinery, a coal port, and a petrochemical tank farm. The primary existing use at the Port Westward Industrial Park is another energy facility (the Beaver Generating Plant). The available infrastructure includes a dock on the Columbia River, a water intake system, railroad tracks, and a natural gas pipeline. The proposed energy facility will use this existing infrastructure during construction and/or operation. Therefore, the energy facility use will complement the existing character and development of the area.*[5]

All of the development activities of RFA 11 will be within the Site Boundary or in areas previously used for development of the Facility. The BESS will be entirely with the existing fence line of the Facility, on previously developed impervious surface, and will not change the developed footprint of the Facility. The BESS will be relatively minor in size, scope, and effect compared to the existing, already built Facility (see RFA 11, Figure 1), and it will be visually subordinate to the Facility.

The Facility site is surrounded by RIPD zoning on three sides and the river on one side. As described throughout this RFA, there will be no off-site impacts from RFA 11 that affect the rural

[4] Final Order on the Application. 2002. Attachment D. Pg. 5.
[5] Final Order on the Application. 2002. Attachment D. Pg. 5.

surroundings; there will be no changes to noise impacts (see RFA 11, Section 10.1), public services (see RFA 11, Section 8.12), natural resources (including wetlands and other waters, see RFA 11 Section 10.2); fish and wildlife habitat, Section 8.7; and threatened and endangered species, see Section 8.8), and soils protection (see RFA 11 Section 8.3). Therefore, there will be no perceptible change to the character and development of the surrounding area from the changes proposed in RFA 11.

681.5 Are consistent with the rural facilities and services existing and/or planned for the area; and

In the Final Order of the ASC (November 8, 2002) the Council found:

> *The energy facility use is consistent with existing or planned facilities and services. Process water will be provided from the existing PGE intake structure on Columbia River/Bradbury Slough under water rights held by the Port of St. Helens. PGE will construct a short gas pipeline lateral to connect the energy facility to the existing K-B gas pipeline. The Port of St. Helens will build a separate industrial wastewater system to serve all Port Westward industries. The energy facility will use a new on-site septic system. The energy facility will also have an on-site fire protection system. The Clatskanie Drainage District will continue to handle storm water drainage. The transmission lines themselves will not require any rural services.*[6]

The 2002 findings apply equally to the proposed development activities in RFA 11. The BESS will be an accessory use to the Facility. The BESS will have an internal fire protection system that will include alarms and suppression systems that meet the chemistry requirements of the BESS. The fire suppression system will contain a fire for a minimum of 90 minutes, providing ample time to respond to an alarm. A fire alarm panel at the BESS will connect to the Facility Control Room so that operators are able to receive, acknowledge, and silence alarms and initiate human response. Per Condition D.13(8), battery storage and fire protection systems will comply with applicable standards specified by the Columbia County building department through the permitting process, which will include the Uniform Fire Code, as amended by Oregon and the National Fire Protection Association standards, and all other applicable fire protection standards in effect at the time of construction. The proposed changes do not increase the need for public facilities or services in the area. See Section 8.12 of RFA 11.

681.6 Will not require facility and/or service improvement at significant public expense.

The BESS will be situated entirely on disturbed areas within the existing fence line. There will be no additional employees, access changes or any other change to the Facility that would require facility and service improvements of significant public expense (see also Section 8.12of RFA 11).

> *The uses contemplated for this district are not appropriate for location within Urban Growth Boundaries due to their relationship with the site-specific resources noted in the Plan and/or due to their hazardous nature.*

[6] Final Order on the Application. 2002. Attachment D. Pg. 6.

The Facility has been operational since 2007 and is on a property zoned for industrial use. The development activities proposed in RFA 11 are accessory uses dependent on the location of the energy facility itself. Therefore, the proposed changes in RFA 11 are not appropriate for location within the Urban Growth Boundary due to their relationship with the site-specific resources the Facility relies upon, such as water from the Columbia River and Bradbury Slough, the existing water intake structure, the K-B pipeline, the Burlington Northern Railway Astoria-to-Portland branch line, and the existing dock on the Columbia River.

3.1.1 CCZO § 683 Uses Permitted Under Prescribed Conditions

> *683: The following uses may be permitted subject to the conditions imposed for each use:*
>
> ***CCZO § 683.1***
>
> *Production, processing, assembling, packaging, or treatment of materials;*
>
> *research and development laboratories; and storage and distribution of services*
>
> *and facilities subject to the following findings:*

In the Final Order on the ASC, the Council found:

> *The energy facility is permitted subject to the prescribed conditions because it is a use that involves the production of electricity through the processing of a material (natural gas) as well as the distribution of that electricity as a service.*[7]

The BESS will be integral to the storage and distribution of electricity produced at the Facility, and therefore is in its own right a use permitted under prescribed conditions in the RIPD zone. In addition, CCZO § 683.2 permits "accessory buildings" under specific standards. The BESS satisfies the requirements for an accessory building for the reasons set forth below.

> *A. The requested use conforms with the goals and policies of the Comprehensive Plan — specifically those policies regarding rural industrial development and exceptions to the rural resource land goals and policies.*

Columbia County's Comprehensive Plan provides that the goal of the Resource Development zoning designation is "to provide for industrial development on rural lands when such development can be shown to support, use, or in some manner be dependent upon the natural resources of the area." The Port Westward Exception Statement provides that the Rural Industrial designation at the Port Westward Industrial Park "is intended to take advantage of the location on the Columbia River, the existing dock facilities, railroad, and urban services."

In the Final Order on the ASC, the Council found:

> *The energy facility fulfills the Comprehensive Plan goal because it is an industrial use that is dependent on the Columbia River and the Bradbury Slough as a water source. It fulfills the purpose of the exception by taking advantage of its proximity to the Columbia River, existing*

[7] Final Order on the Application. 2002. Attachment D. Pg. 11.

> *K-B pipeline, and existing rail and dock facilities, and the opportunity to locate a heavy industrial use away from potentially incompatible uses within an urban area. As an integral part of the energy facility, the transmission line also complies with both the Comprehensive Plan policies regarding rural industrial development and the exception statement for the Port Westward tract.*[8]

The proposed changes for the Facility in RFA 11 take advantage of the location for the same reasons identified in the Council's 2002 findings. Policy 3 of the Resource Industrial Development section of the Comprehensive Plan provides that industrial development on lands zoned RIPD should be restricted to uses that meet the criteria in CCZO § 681. For the reasons outlined above with respect to CCZO § 681, the proposed changes included in this amendment request meet each of these criteria.

> *B. The potential impact upon the area resulting from the proposed use has been addressed and any adverse impact will be able to be mitigated considering the following factors:*
>
> > *B.1 Physiological characteristics of the site (i.e., topography, drainage, etc.) and the suitability of the site for the particular land use and improvements;*
> >
> > *B.2 Existing land uses and both private and public facilities and services in the area;*
> >
> > *B.3 The demonstrated need for the proposed use is best met at the requested site considering all factors of the rural industrial element of the Comprehensive Plan.*

The Council approved the location of the energy facility at Port Westward Industrial Park in the Final Order on the ASC (November 8, 2002), and addressed consistency with applicable land use standards in Attachment D to the Final Order. The factors of the rural industrial element of Columbia County's Comprehensive Plan are addressed in response to CCZ0 §§ 681 and 683.1.A. The BESS is a related or supporting component to the Facility that will be within the fence line in a previously disturbed area. The BESS must be located near the Facility in order to serve its purpose to store energy generated from the Facility. The construction staging and laydown areas provide convenient and efficient locations for use during construction that are within the Site Boundary, have been previously used for the Facility, and do not require any new permanent or temporary disturbance of undeveloped land. The spoils disposal area has also been previously used for the Facility.

Existing land uses and facilities within the Port Westward Industrial Park include the Beaver Generating Plant, transmission lines, a 1,250-foot dock adjacent to the Columbia River, railroad tracks, a 1.3-million-barrel tank farm, a water supply system that draws from the Bradbury Slough, and the K-B gas pipeline. The existing uses are not sensitive to the impacts of the proposed changes from RFA 11 because the proposed development activities will be within the existing fence line of the operating Facility or in the spoils disposal area that was previously used and approved for the Facility. Therefore, the proposed changes in this amendment request would not increase the

[8] Final Order on the Application. 2002. Attachment D. Pg. 7.

demand on public or private facilities and services in the area beyond the level already addressed by the Council. See also Section 8.12 of RFA 11.

> *C. The requested use can be shown to comply with the following standards for available services:*
>
> > *C.1 Water shall be provided by an on-site source of sufficient capacity to serve the proposed use, or a public or community water system capable of serving the proposed use.*

The Council has previously found that adequate water is available for the energy facility through (1) the Port of St. Helens water right, which authorizes diversion of up to 30 cubic feet per second (cfs) from the Columbia River/Bradbury Slough for municipal and industrial use and (2) PGE's existing industrial water right at the Facility. The proposed changes will not require additional water consumption, which would remain within the limit established in the Site Certificate. See also Section 8.12 of RFA 11.

> > *C.2 Sewage will be treated by subsurface sewage system, or community or public sewer system, approved by the County Sanitarian and/or the State DEQ.*

There will be no change to the sewage system as part of RFA 11.

> > *C.3 Access will be provided to a public right-of-way constructed to standards capable of supporting the proposed use considering the existing level of service and the impacts caused by the planned development.*

There will be no changes to access as part of RFA 11.

> > *C.4 The property is within, and is capable of being served by, a rural fire district; or, the proponents will provide on-site fire suppression facilities capable of serving the proposed use. On-site facilities shall be approved by either the State or local Fire Marshal.*

In the Final Order of the ASC (November 8, 2002) the Council found[9]:

> *The energy facility will use an approved on-site, high-pressure fire protection system. The energy facility site is also served by the Clatskanie Rural Fire Department. With on-site fire suppression facilities, the services of the Department will be adequate to meet the needs of the energy facility. The transmission line will not require such services. The transmission line will, however, have a safety corridor of 125 feet and the area will be kept cleared as required by applicable safety standards, including the National Electrical Safety Code.*

The BESS will have an internal fire protection system that will include alarms and fire suppression systems that meet the battery chemistry requirements of the BESS. The fire suppression system will contain a fire for a minimum of 90 minutes, providing ample time to respond to an alarm. A fire alarm panel at the BESS will connect to the Facility Control Room so that operators are able to receive, acknowledge, and silence alarms and initiate human response. Through compliance with

[9] Final Order on the Application. 2002. Attachment D. Pg. 10.

Condition D.13(8), battery storage and fire protection systems will comply with applicable standards specified by the Columbia County building department through the permitting process, which will include the Uniform Fire Code, as amended by Oregon and the National Fire Protection Association standards, and all other applicable fire protection standards in effect at the time of construction. Therefore, the development activities associated with the proposed changes in this amendment request do not affect the findings previously adopted by the Council under this standard.

CCZO § 683.2 Accessory buildings may be allowed if they fulfill the following requirements:

For the purposes of addressing this standard, the BESS is a building according to *CCZO§ 100.13 Building: Any structure used or intended for supporting or sheltering any use or occupancy.*

A. If attached to the main building or separated by a breezeway, they shall meet the front and side yard requirements of the main building.

The BESS will not be attached to the main building.

B. If detached from the main building, they must be located behind the main building or a minimum of 50 feet from the front lot or parcel line, whichever is greater.

The BESS will not be behind the main building but will be at minimum 50 feet from the front lot or parcel line. The BESS needs to be located adjacent to the switchyard to store energy, as needed, prior to transmitting the energy. In addition, in the Final Order on the ASC, the Council found:

> *The 19-acre site provides adequate space for all site improvements and incorporates setbacks from any potential surrounding uses.*[10]

See also Section 685, response below which discusses setbacks for the site.

C. Detached accessory buildings shall have a minimum setback of 50 feet from the rear and/or side lot or parcel line.

CCZO § 100.54 defines "lot" as: "A unit of land that is created by a subdivision of land. Lots are created from and are located in subdivision plats." CCZO § 100.77 defines "parcel" as: "A unit of land created by a partitioning of land. Parcel is also used generically to describe a unit of land." There are no "lots" created by subdivision in the vicinity of the PWGP. The BESS will be more than 50 feet from the nearest parcel line – for Partition Plat 2007-28 -- as shown in Figure 2.1.

CCZO § 683.3 Signs as provided in Chapter 1300.

CCZO § 1300 regulates the establishment, alteration, or expansion of any sign in any district in Columbia County. CCZO § 1313 provides the specific standards for signs in commercial and industrial districts. The proposed changes in the amendment request would not involve signage.

CCZO § 683.4 Off street parking and loading as provided in Chapter 1400.

[10] Final Order on the Application. 2002. Attachment D. Pg. 11.

For a manufacturing use, CCZO § 1416.5 requires one parking space per employee on the largest shift. The changes proposed in the amendment request would not increase the number of employees and therefore would not affect parking or loading needs at the Facility.

3.1.2 CCZO § 685 Standards

> *685.1 The minimum lot or parcel size for uses allowed under Section 682 shall be 38 acres.*

This criterion is not applicable. The BESS is an accessory use and is allowed under CCZO § 683.

> *685.2 The minimum lot or parcel size, average lot or parcel width and depth, and setbacks for uses allowed under Section 683, shall be established by the Planning Commission and will be sufficient to support the requested rural industrial use considering, at a minimum the following factors:*
>
> > *A. Overall scope of the project. Should the project be proposed to be developed in phases, all phases shall be considered when establishing the minimum lot size.*
> >
> > *B. Space required for off-street parking and loading and open space, as required.*
> >
> > *C. Setbacks necessary to adequately protect adjacent properties.*

PGE is not proposing any change to size or location of the Facility site or Site Boundary that have previously been approved by the Council. The BESS would be within the existing fence line of the Facility, and temporary uses to construct the Facility will be at sites previously approved in the Site Certificate. As noted above, in the Final Order on the ASC, the Council found:

> *The 19-acre site provides adequate space for all site improvements and incorporates setbacks from any potential surrounding uses.*[11]

The parcel size is adequate to accommodate the BESS, which will be located on an area that is paved, but otherwise available for this use without expansion of the Site Boundary and the BESS will be set farther back from the lot lines than existing Facility building and structures.

> *685.3 Access shall be provided to a public right-of-way of sufficient construction to support the intended use, as determined by the County Roadmaster.*

In the Final Order of the ASC (November 8, 2002) the Council found:

> *An existing county road, Kallunki Road, provides access to the Port Westward tract. This road is capable of supporting all traffic that would be generated by the operation of the energy facility. PGE and the County have identified improvements and mitigation measures needed to address transportation-related impacts during*

[11] Final Order on the Application. 2002. Attachment D. Pg. 11.

> *construction and have entered into an agreement by which PGE will be funding its share of those improvements.*[12]

There will be no changes to access as part of RFA 11. Therefore, proposed changes within the RIPD zone as part of this amendment request do not affect the Council's prior findings with respect to the availability or adequacy of access to a public right-of-way.

3.2 Special Districts, Overlay Districts and Special Provisions

3.2.1 CCZO § 1100 Flood Hazard Overlay

1103 Application:

1103.1 This zone shall apply to all areas of special flood hazards within the jurisdiction of Columbia County.

1105 Development Permit

1105.1 A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 1104. The permit shall be for all structures allowed by the underlying zone, including manufactured homes, as set forth in the "Definitions", and for all development including fill and other activities, also set forth in the "Definitions". The following exceptions apply for the storage of equipment or materials:

A. any temporary storage within any zoning district, and

B. permanent storage connected with residential use located out of the floodway.

The FEMA flood map for the Facility is shown on FEMA panel 41009C0050D, effective November 26, 2010**.** All Facility features except for the north laydown area will be located outside of special flood hazard areas. The north laydown area is exempt from requiring a development permit in a special flood hazard area per CCZO § 1105(1)(B) because it is both temporary and for storage of construction materials.

3.2.2 CCZO § 1400 Off-Street Parking and Loading

1401 General Provisions: At the time of the erection of a new building, or an addition to an existing building, or any change in the use of an existing building, structure, or land which results in an intensified use by customers, occupants, employees, or other persons, off-street parking and loading shall be provided according to the requirements of this section.

The Facility is generally only accessed by employees. The proposed BESS will generate minimal amounts of additional traffic because it will not require the ongoing, regular restocking of supplies or removal of waste products. The BESS will function autonomously and not require any additional employees, nor will it require a loading area. The BESS will be remotely monitored and will not

[12] Final Order on the Application. 2002. Attachment D. Pg. 11.

intensify the use of the site by employees. Therefore, there will be no need for any additional off-street parking or loading facilities.

3.2.3 CCZO § 1450 Transportation Impact Analysis

1450 Transportation Impact Analysis: A Transportation Impact Analysis (TIA) must be submitted with a land use application at the request of the Public Works Director or if the proposal is expected to involve one or more of the conditions in 1450.1 (below) in order to minimize impacts on and protect transportation facilities, consistent with Section 660-012-0045(2)(b) and (e) of the State Transportation Planning Rule.

1450.1 Applicability – A TIA shall be required to be submitted to the County with a land use application at the request of the Roads Department Director or if the proposal is expected to involve one (1) or more of the following:

A. Changes in land use designation, or zoning designation that will generate more vehicle trip ends.

B. Projected increase in trip generation of 25 or more trips during either the AM or PM peak hour, or more than 400 daily trips.

C. Potential impacts to intersection operations.

D. Potential impacts to residential areas or local roadways, including any non-residential development that will generate traffic through a residential zone.

E. Potential impacts to pedestrian and bicycle routes, including, but not limited to school routes and multimodal roadway improvements identified in the TSP.

F. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, thereby creating a safety hazard.

G. A change in internal traffic patterns may cause safety concerns.

H. A TIA is required by ODOT pursuant with OAR 734-051.

I. Projected increase of five trips by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) per day, or an increase in use of adjacent roadways by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) by 10 percent.

The proposed changes in RFA 11 will not change zoning or land use of the Facility. Any transportation and supply routes are anticipated to be the same as those previously approved by the Council. There will be no changes to access, intersections, or road improvements needed. There will be a small, temporary increase in traffic during the construction of the proposed BESS; however, no additional on-site staff are planned for operation and maintenance of this facility. Approximately 40 delivery vehicles would be needed during construction to deliver containers, electrical equipment, and concrete to the site. The proposed BESS will generate only minimal

amounts of operational traffic because it will not require the ongoing, regular restocking of supplies or removal of waste products.

Because of the limited amount, type, and duration of construction traffic, there will be no impacts to the local or state road network, including multimodal routes or adjacent land uses. Therefore, no long-term impacts to traffic are anticipated as a result of construction and operation of the BESS. The BESS will not change traffic patterns internal to the site. PGE has reviewed the list of thresholds for a TIA in CCZO § 1450(1), above, and determined that the proposed changes in RFA 11 do not require a TIA.

3.3 Section 1500 Discretionary Permits

3.3.1 CCZO § 1503 Conditional Uses

1503 Conditional Uses:

> *1503.5 Granting a Permit: The Commission may grant a Conditional Use Permit after conducting a public hearing, provided the applicant provides evidence substantiating that all the requirements of this ordinance relative to the proposed use are satisfied and demonstrates the proposed use also satisfies the following criteria:*

Pursuant to CCZO § 1503.5, the Certificate Holder must demonstrate that the proposed changes also satisfy the following criteria:

> *A. The use is listed as a Conditional Use in the zone which is currently applied to the site;*

In the Final Order of the ASC (November 8, 2002) the Council found:

> *The energy facility is permitted subject to the prescribed conditions because it is a use that involves the production of electricity through the processing of a material (natural gas) as well as the distribution of that electricity as a service. The construction staging area is an accessory to the energy facility use. The other related and supporting facilities are also permitted under prescribed conditions within the RIPD zone. Each of the three pipelines facilitates the production of electricity. The transmission line distributes that electricity.*[13]

The BESS is an accessory use and related and supporting facility to the approved and operational Facility and therefore satisfies CCZO § 1503.5.A for the reasons stated in the Council's 2002 findings.

> *B. The use meets the specific criteria established in the underlying zone;*

The proposed changes satisfy the applicable criteria in the RIPD zone (CCZO §§681, 683 and 685), as described above.

> *C. The characteristics of the site are suitable for the proposed use considering size, shape, location, topography, existence of improvements, and natural features;*

[13] Final Order on the Application. 2002. Attachment D. Pg. 11.

The BESS is suitable for the characteristics of the site because the parcel size is adequate to accommodate the BESS, which will be located on an area that is paved but otherwise available for this use without expansion of the Site Boundary or increasing the Facility footprint. The BESS needs to be located adjacent to the switchyard to store energy, as needed, prior to transmitting the energy. Because it will be within the developed footprint of the Facility, the BESS will not impact natural features.

D. The site and proposed development is timely, considering the adequacy of transportation systems, public facilities, and services existing or planned for the area affected by the use;

The site and proposed development as part of RFA 11 are timely considering the adequacy of the transportation systems, public facilities, and services existing or planned for the area. The proposed development as part of RFA 11 will be within the developed footprint of the Facility. The BESS will not be staffed for operations and maintenance; it will be designed to be completely automated and report failure problems via SCADA to PGE operators. There will be no access changes as part of the proposed changes. See RFA 11, Figure 1.

E. The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs, or precludes the use of surrounding properties for the primary uses listed in the underlying district;

Permitted uses in the RIPD zone include farm use and the management, production and harvesting of forest products. Uses allowed under prescribed conditions include industrial uses such as the production and processing of materials, laboratories, or storage and distribution of services. The Port Westward Exception Statement in Columbia County's Comprehensive Plan designates this area as being appropriate for industrial uses. The accessory and temporary uses proposed as part of RFA 11 will not alter the character of the surrounding area because they will either be within the existing fence line of the developed Facility or in an area already approved or used for the Facility (soils disposal area).

F. The proposal satisfies the goals and policies of the Comprehensive Plan, which apply to the proposed use;

The applicable Comprehensive Plan goals and policies as identified by Columbia County are addressed in Section IV, below.

G. The proposal will not create any hazardous conditions.

The Site Certificate requires compliance with conditions governing structural safety (Section D.5) and Public Health and Safety (Section E.1.c). Each modular container will include a HVAC system and a fire detection and suppression system. All wiring will be in underground conduit. The BESS will not be staffed for operations and maintenance; it will be designed to be completely automated and report failure problems via SCADA to PGE operators. In addition, Soil Protection Conditions D.6(7)-(9) of the Site Certificate, provide conditions related to hazardous materials spill control. No additional conditions are necessary to ensure that the proposed changes in this amendment

request will not create any hazardous conditions. See also RFA 11 Sections 8.1 Public Health and Safety, 8.13 Waste Minimization, Section 8.2 Structural Standard, and Section 8.12 Public Services.

3.4 Other Columbia County Zoning Provisions

Certain CCZO standards apply within Columbia County's jurisdiction regardless of the zoning designation:

- CCZO § 1170 - Riparian Corridors, Wetlands, Water Quality, and Fish and Wildlife Habitat Overlay Zone
- CCZO § 1180 - Wetland Area Overlay
- CCZO § 1190 – Big Game Habitat Overlay
- CCZO § 1550 – Site Design Review

Applicable standards in each of these Sections are discussed below.

3.4.1 CCZO § 1170 - Riparian Corridors, Wetlands, Water Quality and Fish and Wildlife Habitat Overlay Zone

1171 Purpose.

A. The purpose of this Section is to protect and restore water bodies and their associated riparian corridors, thereby protecting and restoring the hydrological, ecological and land conservation function these areas provide. Specifically, this Section is intended to protect habitat for fish and other aquatic life, protect habitat for wildlife, protect water quality for human uses and for aquatic life, control erosion and limit sedimentation, prevent property damage during floods and storms, protect native plant species, and conserve the scenic and recreational values of riparian areas.

B. This Section meets the above purpose by prohibiting structures and other development from riparian areas around fish-bearing lakes, rivers, streams and associated wetlands, and by prohibiting vegetation removal and/or other vegetative alterations in riparian corridors. In cases of hardship, the Section provides a procedure to reduce the riparian corridor boundary. Alteration of the riparian corridor boundary in such cases shall be offset by appropriate restoration or mitigation, as stipulated in this Section.

C. For the purposes of this Section, "development" includes buildings and/or structures which require a building permit under the State of Oregon Uniform Building Code, as amended, or any alteration in the riparian corridor by grading, placement of fill material, construction of an impervious surface, including paved or gravel parking areas or paths, and any land clearing activity such as removal of trees or other vegetation.

[…]

E. The provisions of this riparian protection overlay zone do not exempt persons or property from state or federal laws that regulate protected lands, water, wetland or habitat areas. In addition to the restrictions and requirements of this Section, all proposed development activities within any wetland area may be subject to applicable state and federal agency standards, permits and approval. The applicant shall be responsible for contacting the appropriate state or federal agencies to determine whether all applicable development requirements have been met.

1172 Riparian Corridor Standards:

A. The inventory of Columbia County streams contained in the Oregon Department of Forestry Stream Classification Maps specifies which streams and lakes are fish-bearing. Fish-bearing lakes are identified on the map entitled, "Lakes of Columbia County." A copy of the most current Stream Classification Maps is attached to the Comprehensive Plan, Technical Appendix Part XVI, Article X(B) for reference. Based upon the stream and lake inventories, the following riparian corridor boundaries shall be established:

1. Lakes. Along all fish-bearing lakes, the riparian corridor boundary shall be 50-feet from the top-of-bank, except as provided in CCZO Section 1 172(A)(5), below.

2. Fish-Bearing Streams, Rivers and Sloughs (Less than1000 cfs). Along all fish-bearing streams, rivers, and sloughs with an average annual stream flow of less than 1,000 cubic feet per second (cfs), the riparian corridor boundary shall be 50-feet from the top-of-bank, except as provided in CCZO Section 1172(A)(5), below. Average annual stream flow information shall be provided by the Oregon Water Resources Department.

3. Fish-Bearing and Non-Fish-Bearing Streams, Rivers and Sloughs (Greater than 1000 cfs). Along all streams, rivers, and sloughs with an average annual stream flow greater than 1,000 cubic feet per second (cfs), the riparian corridor boundary shall be 75-feet upland from the top-of bank, except as provided in CCZO Section 1172(A)(5), below. Average annual stream flow information shall be provided by the Oregon Water Resources Department.

4. Other rivers, lakes, streams, and sloughs. Along all other rivers, streams, and sloughs, the riparian corridor boundary shall be 25 feet upland from the top-of-bank, except as provided in CCZO Section 1172(A)(5), below.

5. Wetlands. Where the riparian corridor includes all or portions of a significant wetland, as identified in the State Wetlands Inventory and Local Wetlands Inventories, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland. Significant wetlands are also regulated under provisions in the Wetland Overlay Zone, Columbia County Zoning Ordinance, Section 1180.

B. Distance Measurement.

> *1. Except as provided in Subsection 1172(5) above, the measurement of distance to the riparian corridor boundary shall be from the top-of-bank. In areas where the top-of-bank is not clearly delineated, the riparian corridor boundary shall be measured from the ordinary high water level, or the line of non-aquatic vegetation, whichever is most landward.*

Condition D.8(12) of the Site Certificate requires compliance with the standards of CCZO § 1172. The only riparian corridor boundary in the vicinity of the Facility is the Columbia River and the Bradbury Slough. Both of these water bodies meet the definition of Fish-Bearing and Non Fish-Bearing Streams, Rivers and Sloughs (Greater than 1,000 cfs). The required riparian corridor boundary for these resources is 75 feet upland from the top of bank. The changes proposed in RFA 11 would be located more than 75 feet from the top of bank and on previously developed land. In addition, there are roads and railroad tracks between the waterways and the proposed changes (See also RFA 11, Attachment 6).

3.4.2 CCZO § 1173 Activities Prohibited within the Riparian Corridor Boundary

> *In addition to the prohibitions in the underlying zone, the following activities are prohibited within a riparian corridor boundary, except as provided for in Subsections 1175 and 1176 of this Section:*
>
> > *A. The alteration of a riparian corridor by grading, placement of fill material, and/or impervious surfaces, including paved or gravel parking areas, or paths, and/or the construction of buildings or other structures which require a building permit under the State of Oregon Uniform Building Code, as amended.*
> >
> > *B. The removal of riparian trees or vegetation.*

The changes proposed in RFA 11 are not within the riparian corridor for the Columbia River and Bradbury Slough. Therefore, they do not involve impacts to riparian vegetation.

3.4.3 CCZO § 1175 Permitted Uses and Activities

> *Notwithstanding the prohibitions set forth in Subsection 1173 above, the following activities are allowed within the riparian corridor boundary:*
>
> *A. The following riparian vegetation may be removed within the riparian corridor boundary:*
>
> > *1. Trees and vegetation in danger of falling and/or posing a hazard to life and property. If no hazard will be created, such trees or other vegetation, once felled, shall be left in place in the riparian area.*

The proposed changes will not be within the riparian corridor.

> *B. The following development is allowed within the riparian corridor boundary:*
>
> > *[…]*

3. Fencing and signs, not including billboards.

4. Drainage facilities, utilities and irrigation pumps.

5. Water related and water dependent uses.

As discussed above, changes proposed in this amendment request would not be located within riparian corridors protected under this ordinance.

3.4.4 CCZO § 1177 Permitted Uses and Activities

Requirements for new activities and development identified in Subsection 1175 and 1176, above, shall be allowed in the riparian corridor boundary subject to the following requirements:

A. All applicable permits from state and federal agencies, such as the Oregon Division of State Lands (DSL) and Oregon Department of Fish and Wildlife (ODFW) must be obtained by the land owner prior to commencing the use or activity.

B. For activities and development for which land use permits, building permits, grading permits, variances or stormwater/erosion control permits are required, the County shall provide notification to ODFW of the proposed development activity. The County shall consider the recommendations of ODFW, including any mitigation recommendations, prior to issuance of permits and may condition permit approval on recommended measures to mitigate loss of fish and wildlife habitat pursuant to applicable provisions of OAR Chapter 635, Division 415.

No new development or activities are proposed within the riparian corridor. Moreover, under applicable statutes and the Council's rules, this request for amendment is provided to the Oregon Department of Fish and Wildlife for review and comment. This is equivalent to the process required by this section of the CCZO. See also Sections 8.7 and 8.8 of RFA 11.

3.4.5 CCZO § 1180 Wetland Area Overlay

CCZO § 1181 Purpose:

The purpose of this zone is to protect significant wetland within the identified Wetland Areas as shown on the State Wetland Inventory and Local Wetland Inventories, from filling, drainage, or other alteration which would destroy or reduce their biological value. The Wetland Area Overlay does not apply to land legally used for commercial forestry operations or standard farm practices, both of which are exempt from these wetland area corridor standards. The use of land for commercial forestry is regulated by the Oregon Department of Forestry. The use of land for standard farm practices is regulated by the Oregon Department of Agriculture, with riparian area and water quality issues governed by ORS 568.210 to ORS 568.805.

The proposed location of the BESS is a developed are with impervious surface; no wetlands are present. PGE completed wetland surveys in the areas around the BESS and the spoils disposal area (RFA 11, Attachment 6). The surveys concluded that there are no wetlands or waterways located within these areas. Therefore, the proposed changes in this amendment request would not impact wetlands. See also Section 10.2 of RFA 11.

3.4.6 CCZO § 1190 Big Game Habitat Overlay

CCZO § 1191 Purpose:

To protect sensitive habitat areas for the Columbian White-tailed Deer and other Big Game by limiting uses and development activities that conflict with maintenance of the areas. This section shall apply to all areas identified in the Comprehensive Plan as a Major and Peripheral Big Game Range or Columbian White-tailed deer range, as shown on the 1995 Beak Consultant's Map, entitled "Wildlife Game Habitat" in the Comprehensive Plan in Appendix Part XVI, Article VIII(A).

The proposed changes in RFA 11 are not in the Big Game Habitat Overlay. Therefore, this standard does not apply.

3.4.7 CCZO § 1550 Site Design Review

The Site Design Review process shall apply to all new development, redevelopment, expansion, or improvement of all community, governmental, institutional, commercial, industrial and multi-family residential (4 or more units) uses in the County.

The standards applicable in Site Design Review for RFA 11 are set forth in CCZO § 1562, which addresses buffering, screening and fencing, and CCZO § 1563, which provides general standards of approval. In addition, PGE will submit a site plan to Columbia County as part of its building permit application consistent with Certificate Conditions D.4(2).

3.4.8 CCZO § 1562 Landscaping: Buffering, Screening and Fencing

These standards address protection of existing vegetation, use of buffering and screening to reduce impacts on adjacent uses that are of a different type, and standards for fencing and walls.

CCZO § 1562 A. General Provisions:

1. Existing plant materials on a site shall be protected to prevent erosion. Existing trees and shrubs may be used to meet landscaping requirements if no cutting or filling takes place within the dripline of the trees or shrubs.

2. All wooded areas, significant clumps or groves of trees, and specimen conifers, oaks or other large deciduous trees, shall be preserved or replaced by new plantings of similar size or character.

With respect to protection of vegetation, the BESS site and the temporary staging and laydown areas are located in areas that are currently paved. The spoils disposal area may be cleared of some vegetation prior to use but will be revegetated after construction activities have been completed, as required by the Site Certificate, specifically Section D.8. Fish and Wildlife Conditions 20-24.

The Site Certificate also includes conditions in Section D.6 Soil Protection for erosion control.

CCZO § 1562 B. Buffering Requirements

1. Buffering and/or screening are required to reduce the impacts on adjacent uses which are of a different type. When different uses are separated by a right of way, buffering, but not screening, may be required.

The purpose of the buffering and screening standards is to reduce impacts on adjacent uses that are of a different type. The Facility is surrounded by parcels with the same zoning (RIPD). The proposed changes at the Facility do not need to be buffered or screened from adjacent uses, because adjacent uses are not of a different type. They are similarly industrial in nature and would not be adversely affected by the addition of BESS to the Facility, as proposed.

The screening requirements are not applicable in the absence of differing uses and because proposed changes will not materially alter the visual setting of the Facility. The BESS will be relatively minor in size, scope, and effect compared to the existing built Facility (see RFA 11, Figure 1); it will be visually subordinate to the Facility

CCZO § 1562 D. Fences and Walls

1. Fences, walls or combinations of earthen berms and fences or walls up to four feet in height may be constructed within a required front yard. Rear and -265- DR side yard fences, or berm/fence combinations behind the required front yard setback may be up to six feet in height.

2. The prescribed heights of required fences, walls, or landscaping shall be measured from the lowest of the adjoining levels of finished grade.

3. Fences and walls shall be constructed of any materials commonly used in the construction of fences and walls such as wood, brick, or other materials approved by the Director. Corrugated metal is not an acceptable fencing material. Chain link fences with slats may be used if combined with a continuous evergreen hedge.

4. Re-vegetation: Where natural vegetation or topsoil has been removed in areas not occupied by structures or landscaping, such areas shall be replanted to prevent erosion.

The proposed changes in this amendment request do not include any new fences or changes to existing and approved external site fences. In the Site Certificate, Section D.8. Fish and Wildlife Conditions 20-24-address revegetation following construction or other disturbance.

3.4.9 CCZO § 1563 Standards for Approval

> *A. Flood Hazard Areas: See CCZO § 1100, Flood Hazard Overlay Zone. All development in Flood Hazard Areas must comply with State and Federal Guidelines.*

The changes proposed in this amendment request will be located outside flood hazard areas or are exempt from requiring a development permit in the special flood hazard area because they are for temporary storage (construction laydown area).

> *B. Wetlands and Riparian Areas: Alteration of wetlands and riparian areas shall be in compliance with State and Federal laws.*

As discussed in this amendment request, the proposed changes will not have any additional impact on wetlands or riparian areas. See also RFA 11, Attachment 6.

> *C. Natural Areas and Features: To the greatest practical extent possible, natural areas and features of the site shall be preserved.*

The BESS will be entirely within the fence line of the Facility, on previously developed impervious surface and will not change the developed footprint of the Facility. Section D.8. Fish and Wildlife Conditions 20-24of the Site Certificate address revegetation following construction or other disturbance.

> *D. Historic and Cultural sites and structures: All historic and culturally significant sites and structures identified in the Comprehensive Plan, or identified for inclusion in the County Periodic Review, shall be protected if they still exist.*

The proposed changes would not affect any historic resources identified because they would all be within the existing fence line or in areas previously used and approved for use by the Facility.

> *E. Lighting: All outdoor lights will be shielded so as not to shine directly on adjacent properties and roads.*

There will be no change to outdoor lighting as part of the changes proposed in RFA 11.

> *F. Energy Conservation: Buildings should be oriented to take advantage of natural energy saving elements such as the sun, landscaping and landforms.*
>
> The purpose of the BESS is to support the efficiency of the energy system it is therefore consistent with the energy conservation standard *G. Transportation Facilities: Off-site auto and pedestrian facilities may be required by the Planning Commission, Planning Director or Public Works Director consistent with the Columbia County Road Standards and the Columbia County Transportation Systems Plan.*

The BESS will not require any additional employees. Therefore, there will be no need for any off-site auto or pedestrian facilities.

4.0 Columbia County Comprehensive Plan

Columbia County's Comprehensive Plan contains policies that address overall planning goals adopted by the county. Although the policy statements do not contain specific substantive criteria, the relevant polices to RFA 11 are discussed below for purposes of completeness.

4.1 Economy

Goals:

1. To strengthen and diversify the economy of Columbia County and insure stable economic growth.

The Council found in the Final Order of the ASC (November 8, 2002) that:

> *The energy facility represents a substantial increase in the energy resource base of Columbia County. Moreover, the energy facility is expected to operate for at least 30 years, providing a stable contribution to the County's economy. The energy facility will employ about 25 employees during operation, and is expected to operate for at least 30 years. Additionally, during construction, the facility would generate about 300 jobs.*[14]

The changes proposed in this amendment request do not alter the estimated energy facility operating life or the estimates of employment during energy facility construction or operation.

2. To utilize Columbia County's natural resources and advantages for expanding and diversifying the economic base.

The Council found in the Final Order of the ASC (November 8, 2002) that:

> *The energy facility will take full advantage of the Columbia River to expand the County's industrial base. The energy facility will withdraw water from the Bradbury Slough under a water right held by the Port of St. Helens. The energy facility will make use of that resource, combined with the use of existing facilities and infrastructure on the Port Westward site (including an interstate natural gas pipeline, water intake, rail access, and transmission corridor), to expand and diversify the County's economic base.* [15]

The changes proposed in this amendment request do not alter the validity of this finding.

8. Reserve valuable industrial sites for industrial use.

The changes proposed in this amendment request take advantage of a valuable industrial site that is zoned to allow industrial use. Moreover, the temporary use of the laydown areas and the disposal of excess soil in the spoils disposal area will not preclude future industrial use of those areas.

[14] Final Order on the Application. 2002. Attachment D. Pg. 33.
[15] Final Order on the Application. 2002. Attachment D. Pg. 33.

4.2 Industrial Development

Goals:

1. To strengthen and diversify the economy of Columbia County and insure stable economic growth.

2. To utilize Columbia County's natural resources and advantages for expanding and diversifying the industrial base.

3. To encourage industrial growth in Columbia County to diversify its economy. New industry should locate to take maximum advantage of existing public and private investments.

The changes proposed in RFA11 meet and support these goals because they will continue industrial development on a site zoned and used for industrial use that will result in construction jobs. As discussed above, the Facility site takes advantage of Columbia County's natural resources, and is thereby consistent with the Economy element of the Comprehensive Plan.

Policies:

It shall be a policy of the County to establish, implement, and maintain an industrial program which:

9. Assures land which is already used as industrial or irrevocably committed to industry shall be so designated.

The Council found in the Final Order of the ASC (November 8, 2002) that: *The Port Westward Exception Statement reflects that the Port Westward Industrial Park is designated for industrial use due to its historic use for industrial purposes and its suitability for future industrial use. The Exception Statement identifies potential future uses of the property. All of the uses listed are industrial uses that would take advantage of the surrounding natural resources or facilities.*[16]

The changes proposed in RFA 11 do not affect the continued validity of this finding.

12. Is consistent with the exception statements for those sites requiring an exception to the applicable resource goal.

Columbia County took an exception to Statewide Planning Goal 3, Agriculture to zone land outside of the Urban Growth Boundary as industrial land. The Port Westward Exception Statement is included as part of the Columbia County Comprehensive Plan. The Exception Statement discusses the site's existing character and facilities, history, and surrounding uses. The Exception Statement demonstrates that the Port Westward site is ideally suited for further industrial development that is consistent with its proximity to the Columbia River as well as other existing facilities. The changes proposed in this amendment request are consistent with the identified goals and future uses of the Port Westward tract.

[16] Final Order on the Application. 2002. Attachment D. Pg. 35

4.3 Resource Industrial Development

Goal:

It is a goal of the County to provide for industrial development on rural lands when such development can be shown to support, utilize, or in some manner be dependent upon, the natural resources of the area.

The Council found in the Final Order of the ASC (November 8, 2002) that: *The RIPD zone provides a zone that conditionally allows industrial development on rural lands provided they use the surrounding natural resources. As discussed above with respect to the CCZO §§ 681 and 683, the energy facility will use the natural resources available at the Port Westward tract consistent with the Resource Industrial Development element of the Comprehensive Plan. For the reasons outlined above with respect to the Industrial Development element and CCZO §§ 681 and 683, the facility is consistent with the policies of the Resource Industrial Development element as well.*[17]

The changes proposed in this amendment request do not alter the continued validity of this finding.

4.4 Public Facilities and Services

Goal:

To plan and develop a timely, orderly, and efficient arrangement of public services as a framework for urban and rural development.

Policies:

It shall be the County policy to:

4. Encourage new development on lands within urban growth boundaries or built and committed exception areas.

The Port Westward Industrial Park is a "committed" exception area. Therefore, the changes proposed as new development implement this policy.

13. Support a level of fire safety and service in all areas of the County sufficient to minimize the risk of fire damage to life and property.

Condition D.13(8) of the Site Certificate requires that the certificate holder:

… construct a fire protection system within the buildings and yard areas of the energy facility site that meets the requirements of the Uniform Fire Code, as amended by Oregon and the National Fire Protection Association standards, and all other applicable fire protection standards in effect at the time of construction.

With this condition, the facility minimizes the risk of fire damage to life and property. In addition, the BESS will have an internal fire protection system that will include alarms and fire suppression

[17] Final Order on the Application. 2002. Attachment D. Pg. 35.

systems that will meet the battery chemistry requirements of the BESS. The fire suppression system will contain a fire for a minimum of 90 minutes, providing ample time to respond to an alarm. A fire alarm panel at the BESS will connect to the Facility Control Room so that operators are able to receive, acknowledge, and silence alarms and initiate human response.

4.5 Open Space, Scenic and Historic Areas, and Natural Resources

Energy Sources

> The Council found in the Final Order of the ASC (November 8, 2002) that: *The Comprehensive Plan lists the Trojan Nuclear Plant, the Beaver Generating Plant, and the natural gas wells in the Mist area as the primary sources of energy in the County. The Trojan Plant is no longer producing energy. The energy facility will significantly enhance the electrical generating capacity of the County.*[18]

The BESS will enhance the electrical production effectiveness and efficiency for a key energy source in Columbia County.

Habitat

Protection of habitat is implemented through CCZO § 1170 (Riparian Corridors, Wetlands, Water Quality, and Fish and Wildlife Habitat Protection Overlay Zone), CCZO § 1180 (Wetland Area Overlay) and CCZO § 1190 (Big Game Habitat Overlay). Compliance with those standards is addressed above in the discussion of the respective sections of the CCZO. See also Sections 8.7, 8.8, and 10.2 of RFA 11.

Wetlands

Protection of wetlands is implemented through CCZO § 1180 (Wetland Area Overlay). Compliance with those standards is addressed above in the discussion of CCZO § 1180. The changes proposed in this amendment request would not impact wetlands. See also Section 10.2 of RFA 11.

Riparian Areas

Protection of riparian corridors is addressed above in the discussion of CCZO § 1170.

Air, Land, and Water Resources

Goal:

To maintain and improve land resources and the quality of the air and water of the County.

The facility as proposed will satisfy this goal through its compliance with all applicable federal and state standards. See also Section 5.1 and Section 7 of RFA 11.

Policies:

It shall be the policy of Columbia County to:

[18] Oregon Energy Facility Siting Council, Final Order on the Application for Site Certificate for Port Westward Generating Project, November 8, 2002, Attachment D, p. 11

1. Work with the appropriate State and Federal agencies to insure that State and Federal water, air, and land resource quality standards are met.

The proposed changes do not affect compliance with state or federal water, air and land quality standards, except during construction. PGE maintains an agreement with the Port of Columbia County (formerly the Port of St. Helens) to discharge industrial wastewaters through the Port of Columbia County's National Pollutant Discharge Elimination System permit. No modifications to this agreement are required since no wastewater will be generated by the BESS during construction or operation. See Section 5.1 of RFA 11.

2. Comply with all applicable State and Federal standards and regulations regarding noise pollution.

The BESS will not affect compliance with state noise regulations. See Section 10.1 of RFA 11.

5.0 Directly Applicable State Provisions, Applicable Administrative Rules

OAR 345-022-0030(2)(b)(A) requires the Facility to comply with new or amended statewide planning goals, LCDC administrative rules, and land use statutes that are directly applicable to the energy project under ORS 197.646(3). In the Final Order, the only "directly applicable statewide planning goals, LCDC administrative rules or land use statutes applied to exclusive farm use (Statewide Planning Goal 3) zones and forestry (Statewide Planning Goal 4) zones.[19] There are no goals, rules or statutes directly applicable to uses within the RIPD zone.

6.0 Federal Land Management Plans

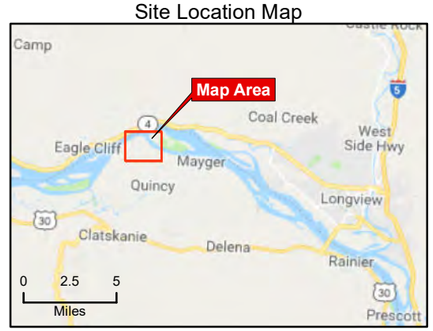
The Facility is not located on lands under federal land use jurisdiction. As a result, there are no federal land management plans applicable to this amendment request.

7.0 Conclusion

Based on the foregoing analysis, the PGE has demonstrated compliance with all applicable substantive criteria in Columbia County's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and were in effect on the date the application was submitted, as well as any statewide planning goals, LCDC administrative rules and land use statutes directly applicable to the Facility.

[19] Final Order on the Application. 2002. Attachment D. Pg. 44-49.

Site Location Map



Map Features

- Proposed Battery Storage Area
- Energy Facility Site Boundary
- PGE Lease Boundary

0 400 800
Feet

N
W E
S

Portland General Electric
Portland, Oregon

Figure 2.1

Proposed Battery Storage Setback Area

Port Westward Generating Project

Date:	Drawn By:	Rev.:
4/8/2019	J.B. Hoy	

Drawing File: J:\Port_Westward\PW2\Maps\PW2_Battery_Storage_Lease.mxd

Appendix A. Columbia County Comments on Substantive Criteria

From: Matt Laird
To: Solsby, Anneke
Cc: Deborah Jacob
Subject: Re: PGE Port Westward Generating Facility - Proposed Battery Storage
Date: Friday, March 29, 2019 11:02:10 AM

Hi Anneke,

It was nice to talk with you on the phone today. As we discussed, besides the criteria that you have listed below, I would also add the following:

CCZO Sec. 1100
CCZO Sec. 1400
CCZO Sec. 1450

As far as local land use process is concerned, we would typically request a pre-application conference followed by a Type II Design Review. The Pre-Application conference can be waived if it is determined to be un-necessary, but can often be quite helpful in order to get an early preview of the comments you might receive from the County Departments during the Design Review Process.

Feel free to contact me if you would like to discuss this matter further.

Cordially,

Matt Laird,
Planning Manager
Columbia County
503-397-7217

From: Deborah Jacob
Sent: Tuesday, March 26, 2019 3:56 PM
To: Solsby, Anneke; Matt Laird
Subject: Re: PGE Port Westward Generating Facility - Proposed Battery Storage

Anneke,

Thank you for providing this additional information to Columbia County Land Development Services concerning the applicable land use criteria for the proposed amendment (RFA 11) of the PGE Port Westward Generating Facility that was originally authorized in 2002.

It appears that in previous amendments have been processed by the County Planning Manager. Consequently, I am forwarding your email to my supervisor, Matt Laird who is the Columbia County Planning Manager, for him to respond to this current request. I expect Matt to be contacting you in the near future if he needs additional information and/or clarification .

Best regards,

Deborah S. Jacob
Planner III
503-397-7260

From: Solsby, Anneke <Anneke.Solsby@tetratech.com>
Sent: Tuesday, March 26, 2019 12:43:38 PM
To: Deborah Jacob
Cc: Fossum, Linnea; Richard H. Allan; Erica.Amt@pgn.com
Subject: PGE Port Westward Generating Facility - Proposed Battery Storage

Hello, Deborah,

Thank you for taking the time to talk with me yesterday regarding the PGE Port Westward Generating Facility, an energy facility under Energy Facility Siting Council (EFSC) jurisdiction. The Facility first received a site certificate from EFSC in 2002 and since then has requested 10 amendments to the site certificate. As discussed, PGE is proposing to add battery storage to the Facility. Therefore, we are in the process of preparing the eleventh request to the site certificate (RFA 11) to add battery storage to the Facility to submit to the Oregon Department of Energy (ODOE). ODOE's Siting Division is technical staff to EFSC and administers the site certificate application and amendment process. Please see the attached for a description for the Port Westward Battery Energy Storage System (PWBESS) and associated site map. For your use, please also see attached tax lot map (SECTION 15 T.8N. R.4W. W.M. Tax lot 100) and link to online GIS map: https://geo.maps.arcgis.com/home/webmap/viewer.html?webmap=5f58fa2370004bf6b42cafe8187badae&find=Port%20Westward%20Generating%20Project&mapOnly=true.

As part of RFA 11, we need to address the applicable land use criteria from the affected local government's acknowledged comprehensive plan and land use ordinances. Below is a list of sections of the Columbia County Zoning Ordinance (CCZO; adopted 1984 and amended thru 2018) and Columbia County Comprehensive Plan (adopted 1984 and amended thru 2011) that we are addressing for RFA 11 which were also addressed as part of the original site certificate application and subsequent amendments. Are there other land use standards or ordinances that should be addressed?

- CCZO Section 680 Resource Industrial – Planned Development
- CCZO § 683 Uses Permitted Under Prescribed Conditions
- CCZO § 685 Standards
- CCZO § 1503 Conditional Uses
- CCZO § 1170 Riparian Corridors, Wetlands, Water Quality and Fish and Wildlife Habitat Overlay Zone
- CCZO § 1173 Activities Prohibited within the Riparian Corridor Boundary
- CCZO § 1175 Permitted Uses and Activities
- CCZO § 1177 Permitted Uses and Activities
- CCZO § 1180 Wetland Area Overlay
- CCZO § 1190 Big Game Habitat Overlay
- CCZO § 1550 Site Design Review
- CCZO § 1562 Landscaping: Buffering, Screening and Fencing
- Columbia County Comprehensive Plan Sections:
    - Economy

Industrial Development

- Resource Industrial Development
- Public Facilities and Services
- Open Space, Scenic and Historic Areas, and Natural Resources

In addition, please provide copies of conditional use or other land use permits for the Port Westward Generating Facility. Please let me know if you have any questions or need additional information.

Thank you!

Anneke Solsby | **Environmental Planner**
Anneke.Solsby@tetratech.com

Tetra Tech | **Portland**
1750 SW Harbor Way, Suite 400 | Portland, OR 97201
Direct: 503.721.7217 | Fax: 503.227.1287 | Cell: 503.860.9076

Attachment 3. Decommissioning Costs

Decommissioning Estimate – Lithium-Ion Batteries

CBS Outline Report
TETRA TECH EC, INC.
Job Code: Port Westward
Description: Energy Storage Decommissioning Estimate

From Cost Item: . **To Cost Item: .**

Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	User Defined 1
1	PORT WESTWARD BESS REMOVAL					
1.1	Mob / Demob	1.00	Lump Sum	23,779.34	23,779.34	
1.1.1	Equipment Mob	1.00	Lump Sum	20,300.00	20,300.00	
1.1.2	Crew Mob & Site Setup	1.00	Day	1,739.67	1,739.67	
1.1.3	Crew Demob & Site Cleanup	1.00	Day	1,739.67	1,739.67	
1.2	Field Management	4.00	Week	11,674.55	46,698.22	
1.3	UG Utility & Ground Removal	2.00	Day	1,202.19	2,404.37	
1.5	6 MW Energy Storage System Removal - Lithium Ion	1.00	Lump Sum	25,385.61	25,385.61	
1.5.1	Battery Removal & Disposal	6.00	MW	2,577.45	15,464.70	
1.5.1.1	Remove Batteries, Load For Transport	5.00	Day	1,737.94	8,689.70	
1.5.1.2	Transport Batteries	1.00	Each	1,375.00	1,375.00	
1.5.1.2.1	Trucking - Per Load	1.00	Each	1,375.00	1,375.00	
1.5.1.3	Disposal Fee's	27.00	Ton	200.00	5,400.00	
1.5.2	Structure & Components Removal	2.00	Each	2,300.00	4,600.00	
1.5.2.1	Trucking - Per Load	2.00	Each	2,000.00	4,000.00	
1.5.2.2	Disposal Cost	20.00	Ton	30.00	600.00	
1.5.3	Concrete foundation Breaking & Excavation	33.00	Cubic Yard	124.96	4,123.57	
1.5.4	Concrete Transport Offsite	33.00	Cubic Yard	36.28	1,197.34	
1.6	Restoration Pavement	2,400.00	Square Feet	4.00	9,600.00	
1.7	Home Office, Project Management (5% Of Cost)	1.00	Lump Sum	5,393.40	5,393.40	
1.8	Contractor Contingency (5% Of Cost)	1.00	Lump Sum	5,663.05	5,663.05	
1.9	Contractor OH & Fee (15% Of Cost)	1.00	Lump Sum	17,838.60	17,838.60	
Total:	**PORT WESTWARD BESS REMOVAL**				**136,762.59**	
Grand Total:					**136,762.59**	

Estimate Summary
TETRA TECH EC, INC.
Job Code: Port Westward
Description: Energy Storage Decommissioning Estimate

CBS Position Code	Quantity	UM	Description	Days	UM/Day	Cost Source	Currency	Unit Cost	Total Cost
1	1.00	Lump Sum	PORT WESTWARD BESS REMOVAL	35.00	0.03	Detail	U.S. Dollar	136,762.59	136,762.59
1.1	1.00	Lump Sum	Mob / Demob	2.00	0.50	Detail	U.S. Dollar	23,779.34	23,779.34
1.1.1	1.00	Lump Sum	Equipment Mob	0.00	0.00	Detail	U.S. Dollar	20,300.00	20,300.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
UERNTRLG	Rental Equip Transp-Large		2.00	Each	U.S. Dollar	10,000.00	20,000.00
UERNTRSM	Rental Equip Transp-Small		2.00	Each	U.S. Dollar	150.00	300.00

1.1.2	1.00	Day	Crew Mob & Site Setup	1.00	1.00	Detail	U.S. Dollar	1,739.67	1,739.67

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L060100	GENERAL LABORER	20.00	2.00	Each (hourly)	U.S. Dollar	38.04	760.75
L010101	OPERATOR	20.00	2.00	Each (hourly)	U.S. Dollar	48.95	978.93

1.1.3	1.00	Day	Crew Demob & Site Cleanup	1.00	1.00	Detail	U.S. Dollar	1,739.67	1,739.67

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L060100	GENERAL LABORER	20.00	2.00	Each (hourly)	U.S. Dollar	38.04	760.75
L010101	OPERATOR	20.00	2.00	Each (hourly)	U.S. Dollar	48.95	978.93

1.2	4.00	Week	Field Management	24.00	0.17	Detail	U.S. Dollar	11,674.55	46,698.22

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L90FXX02	Field - Proj Superintendent	240.00	1.00	Each (hourly)	U.S. Dollar	83.18	19,963.68
RPUTRK05	F-250 4X4 3/4 TON PICKUP	480.00	2.00	Each (hourly)	U.S. Dollar	11.07	5,311.20
L90FXX03	Field - SHSO	240.00	1.00	Each (hourly)	U.S. Dollar	89.26	21,423.34

1.3	2.00	Day	UG Utility & Ground Removal	2.00	1.00	Detail	U.S. Dollar	1,202.19	2,404.37

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L010101	OPERATOR	20.00	1.00	Each (hourly)	U.S. Dollar	48.95	978.93
L060100	GENERAL LABORER	20.00	1.00	Each (hourly)	U.S. Dollar	38.04	760.75
RBACKH09	Deere 710J BACKHOE, 1.62CY	20.00	1.00	Each (hourly)	U.S. Dollar	33.24	664.70

1.5	1.00	Lump Sum	6 MW Energy Storage System Removal - Lithium Ion	7.00	0.14	Detail	U.S. Dollar	25,385.61	25,385.61
1.5.1	6.00	MW	Battery Removal & Disposal	5.00	1.20	Detail	U.S. Dollar	2,577.45	15,464.70
1.5.1.1	5.00	Day	Remove Batteries, Load For Transport	5.00	1.00	Detail	U.S. Dollar	1,737.94	8,689.70

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L060100	GENERAL LABORER	200.00	4.00	Each (hourly)	U.S. Dollar	38.04	7,607.45
RLIFTS05	JCB 508C, 8,000lbs FRKLFT	50.00	1.00	Each (hourly)	U.S. Dollar	21.65	1,082.25

Notes: **********
12 modules per 163.7 KW, for a total of 444 modules.
Modules are flammable, and must be carefuly packaged for transport.
****

1.5.1.2	1.00	Each	Transport Batteries	0.00	0.00	Detail	U.S. Dollar	1,375.00	1,375.00
1.5.1.2.1	1.00	Each	Trucking - Per Load	0.00	0.00	Detail	U.S. Dollar	1,375.00	1,375.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USTRUCKING	Trucking Sub		1,375.00	Each	U.S. Dollar	1.00	1,375.00

1.5.1.3	27.00	Ton	Disposal Fee's	0.00	0.00	Detail	U.S. Dollar	200.00	5,400.00

CBS Position Code	Quantity	UM	Description	Cost Item Days	Cost UM/Day	Cost Source	Currency	Unit Cost	Total Cost
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USDISPOSAL	Disposal Fee's				5,400.00	Each	U.S. Dollar	1.00	5,400.00

Notes: **********
12 modules per 163.7 KW, for a total of 444 modules.
Each module is 119 lbs, for a total of 27 tons of modules.
****

1.5.2	2.00	Each	Structure & Components Removal	0.00	0.00	Detail	U.S. Dollar	2,300.00	4,600.00
1.5.2.1	2.00	Each	Trucking - Per Load	0.00	0.00	Detail	U.S. Dollar	2,000.00	4,000.00
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USTRUCKING	Trucking Sub				4,000.00	Each	U.S. Dollar	1.00	4,000.00

Notes: **********
Containers w/contents to be transported by flat bed semi
to local recycle/disposal facility
****

1.5.2.2	20.00	Ton	Disposal Cost	0.00	0.00	Detail	U.S. Dollar	30.00	600.00
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USDISPOSAL	Disposal Fee's				600.00	Each	U.S. Dollar	1.00	600.00

Notes: **********
2 containers w/contents, assumed to weigh 10 tons each
****

1.5.3	33.00	Cubic Yard	Concrete foundation Breaking & Excavation	1.00	33.00	Detail	U.S. Dollar	124.96	4,123.57

Notes: **********
Assumed that each container will be supported by concrete footings
****

1.5.4	33.00	Cubic Yard	Concrete Transport Offsite	1.00	33.00	Detail	U.S. Dollar	36.28	1,197.34
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
RDUTRK06	CAT D350D, 18CY-24CY			10.00	1.00	Each (hourly)	U.S. Dollar	74.29	742.90
L080940	TEAMSTER			10.00	1.00	Each (hourly)	U.S. Dollar	45.44	454.44
1.6	2,400.00	Square Feet	Restoration Pavement	0.00	0.00	Detail	U.S. Dollar	4.00	9,600.00
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USMISC	Misc Sub				9,600.00	Each	U.S. Dollar	1.00	9,600.00

Notes: **********
Disturbed areas to be restored with compacted base
and asphalt pavement
****

1.7	1.00	Lump Sum	Home Office, Project Management (5% Of Cost)	0.00	0.00	Detail	U.S. Dollar	5,393.40	5,393.40
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USMARKUP5	5% Markup				107,868.00	Each	U.S. Dollar	0.05	5,393.40
1.8	1.00	Lump Sum	Contractor Contingency (5% Of Cost)	0.00	0.00	Detail	U.S. Dollar	5,663.05	5,663.05
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USMARKUP5	5% Markup				113,261.00	Each	U.S. Dollar	0.05	5,663.05
1.9	1.00	Lump Sum	Contractor OH & Fee (15% Of Cost)	0.00	0.00	Detail	U.S. Dollar	17,838.60	17,838.60
Resource Code	**Description**			**Hours**	**Quantity**	**UM**	**Currency**	**Unit Cost**	**Total Cost**
USMARKUP	15% Markup				118,924.00	Each	U.S. Dollar	0.15	17,838.60
Report Total:					35.00				136,762.59

CBS Position Code	Quantity	UM	Description	Cost Item Days	Cost UM/Day	Cost Source	Currency	Unit Cost	Total Cost
Category									**Total**
Labor									56,407.59
Rented Equipment									10,184.95
Subcontract									70,170.05

Decommissioning Estimate – FLOW Batteries

CBS Outline Report
TETRA TECH EC, INC.
Job Code: Port Westward
Description: Energy Storage Decommissioning Estimate

From Cost Item: . **To Cost Item: .**

Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	User Defined 1
1	PORT WESTWARD BESS REMOVAL					
1.1	Mob / Demob	1.00	Lump Sum	23,779.34	23,779.34	
1.1.1	Equipment Mob	1.00	Lump Sum	20,300.00	20,300.00	
1.1.2	Crew Mob & Site Setup	1.00	Day	1,739.67	1,739.67	
1.1.3	Crew Demob & Site Cleanup	1.00	Day	1,739.67	1,739.67	
1.2	Field Management	4.00	Week	11,674.55	46,698.22	
1.3	UG Utility & Ground Removal	2.00	Day	1,202.19	2,404.37	
1.4	6 MW Energy Storage System Removal	1.00	Lump Sum	420,434.11	420,434.11	
1.4.1	Battery Removal & Disposal	6.00	MW	68,418.87	410,513.20	
1.4.1.1	Remove Batteries, Load For Transport	600.00	Each	86.90	52,138.20	
1.4.1.2	Trucking - Per Load	49.00	Each	1,375.00	67,375.00	
1.4.1.3	Disposal Fee's	1,455.00	Ton	200.00	291,000.00	
1.4.2	Structure & Components Removal	2.00	Each	2,300.00	4,600.00	
1.4.2.1	Trucking - Per Load	2.00	Each	2,000.00	4,000.00	
1.4.2.2	Disposal Cost	20.00	Ton	30.00	600.00	
1.4.3	Concrete foundation Breaking & Excavation	33.00	Cubic Yard	124.96	4,123.57	
1.4.4	Concrete Transport Offsite	33.00	Cubic Yard	36.28	1,197.34	
1.5	Restoration Pavement	2,400.00	Square Feet	4.00	9,600.00	
1.6	Home Office, Project Management (5% Of Cost)	1.00	Lump Sum	25,145.80	25,145.80	
1.7	Contractor Contingency (5% Of Cost)	1.00	Lump Sum	26,403.10	26,403.10	
1.8	Contractor OH & Fee (15% Of Cost)	1.00	Lump Sum	83,169.75	83,169.75	
Total:	**PORT WESTWARD BESS REMOVAL**				**637,634.69**	
Grand Total:					**637,634.69**	

Estimate Summary
TETRA TECH EC, INC.
Job Code: Port Westward
Description: Energy Storage Decommissioning Estimate

CBS Position Code	Quantity	UM	Description	Days	UM/Day	Cost Source	Currency	Unit Cost	Total Cost
			Cost Item						
1	1.00	Lump Sum	PORT WESTWARD BESS REMOVAL	60.00	0.02	Detail	U.S. Dollar	637,634.69	637,634.69
1.1	1.00	Lump Sum	Mob / Demob	2.00	0.50	Detail	U.S. Dollar	23,779.34	23,779.34
1.1.1	1.00	Lump Sum	Equipment Mob	0.00	0.00	Detail	U.S. Dollar	20,300.00	20,300.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
UERNTRLG	Rental Equip Transp-Large		2.00	Each	U.S. Dollar	10,000.00	20,000.00
UERNTRSM	Rental Equip Transp-Small		2.00	Each	U.S. Dollar	150.00	300.00

1.1.2	1.00	Day	Crew Mob & Site Setup	1.00	1.00	Detail	U.S. Dollar	1,739.67	1,739.67

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L060100	GENERAL LABORER	20.00	2.00	Each (hourly)	U.S. Dollar	38.04	760.75
L010101	OPERATOR	20.00	2.00	Each (hourly)	U.S. Dollar	48.95	978.93

1.1.3	1.00	Day	Crew Demob & Site Cleanup	1.00	1.00	Detail	U.S. Dollar	1,739.67	1,739.67

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L060100	GENERAL LABORER	20.00	2.00	Each (hourly)	U.S. Dollar	38.04	760.75
L010101	OPERATOR	20.00	2.00	Each (hourly)	U.S. Dollar	48.95	978.93

1.2	4.00	Week	Field Management	24.00	0.17	Detail	U.S. Dollar	11,674.55	46,698.22

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L90FXX02	Field - Proj Superintendent	240.00	1.00	Each (hourly)	U.S. Dollar	83.18	19,963.68
RPUTRK05	F-250 4X4 3/4 TON PICKUP	480.00	2.00	Each (hourly)	U.S. Dollar	11.07	5,311.20
L90FXX03	Field - SHSO	240.00	1.00	Each (hourly)	U.S. Dollar	89.26	21,423.34

1.3	2.00	Day	UG Utility & Ground Removal	2.00	1.00	Detail	U.S. Dollar	1,202.19	2,404.37

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L010101	OPERATOR	20.00	1.00	Each (hourly)	U.S. Dollar	48.95	978.93
L060100	GENERAL LABORER	20.00	1.00	Each (hourly)	U.S. Dollar	38.04	760.75
RBACKH09	Deere 710J BACKHOE, 1.62CY	20.00	1.00	Each (hourly)	U.S. Dollar	33.24	664.70

1.4	1.00	Lump Sum	6 MW Energy Storage System Removal	32.00	0.03	Detail	U.S. Dollar	420,434.11	420,434.11
1.4.1	6.00	MW	Battery Removal & Disposal	30.00	0.20	Detail	U.S. Dollar	68,418.87	410,513.20
1.4.1.1	600.00	Each	Remove Batteries, Load For Transport	30.00	20.00	Detail	U.S. Dollar	86.90	52,138.20

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
L060100	GENERAL LABORER	1,200.00	4.00	Each (hourly)	U.S. Dollar	38.04	45,644.70
RLIFTS05	JCB 508C, 8,000lbs FRKLFT	300.00	1.00	Each (hourly)	U.S. Dollar	21.65	6,493.50

Notes: **********
Flow batteries are assumed to conist of individual 10KW
self contained units, 100 units per MW, 4850 lbs. per unit.
Removal and ready for transport: 30 crew minutes per unit.
****

1.4.1.2	49.00	Each	Trucking - Per Load	0.00	0.00	Detail	U.S. Dollar	1,375.00	67,375.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USTRUCKING	Trucking Sub		67,375.00	Each	U.S. Dollar	1.00	67,375.00

Notes: **********
Flow batteries are assumed to conist of individual 10KW
self contained units, 100 units per MW, 4850 lbs. per unit.
Total battery weight for 6 MW - 1455 tons
Trucking @ 30 tons per load
****

CBS Position Code	Quantity	UM	Description	Days	Cost UM/Day	Cost Source	Currency	Unit Cost	Total Cost
			Cost Item						
1.4.1.3	1,455.00	Ton	Disposal Fee's	0.00	0.00	Detail	U.S. Dollar	200.00	291,000.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USDISPOSAL	Disposal Fee's		291,000.00	Each	U.S. Dollar	1.00	291,000.00

Notes: **********
Flow batteries are assumed to conist of individual 10KW
self contained units, 100 units per MW, 4850 lbs. per unit.
Total battery weight for 6 MW - 1455 tons
****

1.4.2	2.00	Each	Structure & Components Removal	0.00	0.00	Detail	U.S. Dollar	2,300.00	4,600.00
1.4.2.1	2.00	Each	Trucking - Per Load	0.00	0.00	Detail	U.S. Dollar	2,000.00	4,000.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USTRUCKING	Trucking Sub		4,000.00	Each	U.S. Dollar	1.00	4,000.00

Notes: **********
Containers w/contents to be transported by flat bed semi
to local recycle/disposal facility
****

1.4.2.2	20.00	Ton	Disposal Cost	0.00	0.00	Detail	U.S. Dollar	30.00	600.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USDISPOSAL	Disposal Fee's		600.00	Each	U.S. Dollar	1.00	600.00

Notes: **********
2 containers w/contents, assumed to weigh 10 tons each
****

1.4.3	33.00	Cubic Yard	Concrete foundation Breaking & Excavation	1.00	33.00	Detail	U.S. Dollar	124.96	4,123.57

Notes: **********
Assumed that each container will be supported by concrete footings
****

1.4.4	33.00	Cubic Yard	Concrete Transport Offsite	1.00	33.00	Detail	U.S. Dollar	36.28	1,197.34

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
RDUTRK06	CAT D350D, 18CY-24CY	10.00	1.00	Each (hourly)	U.S. Dollar	74.29	742.90
L080940	TEAMSTER	10.00	1.00	Each (hourly)	U.S. Dollar	45.44	454.44

1.5	2,400.00	Square Feet	Restoration Pavement	0.00	0.00	Detail	U.S. Dollar	4.00	9,600.00

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USMISC	Misc Sub		9,600.00	Each	U.S. Dollar	1.00	9,600.00

Notes: **********
Disturbed areas to be restored with compacted base
and asphalt pavement
****

1.6	1.00	Lump Sum	Home Office, Project Management (5% Of Cost)	0.00	0.00	Detail	U.S. Dollar	25,145.80	25,145.80

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USMARKUP5	5% Markup		502,916.00	Each	U.S. Dollar	0.05	25,145.80

1.7	1.00	Lump Sum	Contractor Contingency (5% Of Cost)	0.00	0.00	Detail	U.S. Dollar	26,403.10	26,403.10

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USMARKUP5	5% Markup		528,062.00	Each	U.S. Dollar	0.05	26,403.10

1.8	1.00	Lump Sum	Contractor OH & Fee (15% Of Cost)	0.00	0.00	Detail	U.S. Dollar	83,169.75	83,169.75

Resource Code	Description	Hours	Quantity	UM	Currency	Unit Cost	Total Cost
USMARKUP	15% Markup		554,465.00	Each	U.S. Dollar	0.15	83,169.75

CBS Position Code	Quantity	UM	Description	Cost Item Days	Cost UM/Day	Source	Currency	Unit Cost	Total Cost
Report Total:				60.00					637,634.69

Category	Total
Labor	94,444.84
Rented Equipment	15,596.20
Subcontract	527,593.65

Attachment 4a. Redline Version Revegetation and Noxious Weed Control Plan

Style Definition: TOC 1: Font: Not Bold

Revegetation and ~~Invasive Species Monitoring~~Noxious Weed Control Plan
Port Westward Generating Project

Submitted by:

Portland General Electric

~~October 2006~~Revision 1, April 2019

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1.0 INTRODUCTION

Portland General Electric Company (PGE) began commercial operation of Unit 1 of the Port Westward Generating Project (PGWP Unit1) in June 2007. Construction of PGWP Unit 2 began in May 2013 and the project started commercial operation on December 30, 2014. Major soil disturbance activities associated with plant site preparation and construction included rough grading, excavation, filling, stockpiling, and final grading. Following the completion of construction activity, erosion control and revegetation measures were conducted as required in the original site certificate (Unit 1) and tenth amended site certificate (Unit 2) issued by the Oregon Energy Facility Siting Council (OR-EFSC 2006, 2013) and consistent with the project Erosion and Sediment Control Plan and the original Revegetation and Invasive Species Monitoring Plan (RISMP, PGE 2006).

Revegetation and monitoring of temporary disturbance areas associated with PGWP Unit 1 was conducted in 2007 through 2011 (PGE 2011). Monitoring of PWGP Unit 2 temporary disturbance areas is in progress, with the initial five-year monitoring program to be completed in 2019 (PGE 2018).

Construction of PGWP Unit 2 began in May 2013 and the project started commercial operation on December 30, 2014. Major soil disturbance activities associated with plant site preparation and construction included rough grading, excavation, filling, stockpiling, and final grading. Following the completion of construction activity, erosion control and revegetation measures were conducted as required in the tenth Amended Site Certificate issued by the Oregon Energy Facility Siting Council (OR-EFSC 2013) and consistent with the project's Erosion and Sediment Control Plan (Black and Veatch 2013) and the Revegetation and Invasive Species Monitoring Plan (RISMP, PGE 2006).

~~Portland General Electric is scheduled to complete construction of the Port Westward Generating Project by March 2007. Construction site preparation activities included installing stone columns, clearing and grubbing, and excavation work. Subsequent construction and site stabilization activities include constructing new structures and equipment, installing buried water and gas lines, regrading the site, installing a plant access road, seeding soil disturbance areas outside of the power block area, and putting down aggregate surfacing inside the power block area. Soil disturbing activities include rough grading, excavation, filling, stockpiling, and final grading. The above construction activities, including equipment staging areas, construction trailers and temporary parking areas occur over approximately 20 acres at the immediate plant construction site. Potential soil disturbance areas also include approximately 14 acres of pipeline corridor, and a 13.5 acre spoils stockpiling and disposal site.~~

~~The Port Westward to Trojan Transmission Line portion of the Project will be completed by October 31, 2006. Transmission line construction consisted of right-of-way clearance, erecting steel transmission towers on concrete piers, and stringing conductors between towers. Ground-disturbing construction activities consisted of minor leveling, foundation excavation, concrete placement, pulling of conductor wire, and associated construction vehicle disturbance and staging of equipment/materials. Total work area along the right-of-way, including soil disturbance areas, staging areas and work areas, is estimated to be 24 acres, distributed among 103 tower foundation sites. There also were some limited soil disturbance impacts and vegetation~~

~~clearing in riparian areas associated with right-of-way clearance and temporary stream crossings for construction vehicles.~~

~~During all construction activity, PGE implemented mitigation measures as required by the Project Site Certificate issued by the Oregon Facility Siting Council and as described in the Generating Plant and Transmission Line Sediment and Erosion Control Plans. The Project Site Certificate includes specific measures for revegetation of soil and riparian disturbance areas following completion of the Project. The Site Certificate also requires follow-up monitoring of soil and riparian disturbance areas for revegetation success, soil erosion issues, and invasive plant species.~~

This revised revegetation monitoring plan ~~This Revegetation and Invasive Species Monitoring Plan~~ will apply to completion of revegetation monitoring for Unit 2 construction as well as revegetation and monitoring of any additional temporary disturbance areas that result from construction of the Port Westward Battery Storage project (Amendment 11)~~covers the Port Westward Generating Project, including the generating plant construction site, associated pipeline construction, and the Port Westward to Trojan Transmission line.~~ The plan ~~reviews revegetation measures conducted to date,~~ specifies methods and schedule for evaluating the success of revegetation measures and implementing follow-up remedial measures (reseeding~~, replanting of native woody species,~~ and invasive species control) as necessary, and details revegetation success criteria and reporting requirements. ~~As required by the Site Certificate, T~~the plan is being submitted for approval by the Oregon Department of Energy (Department) as required by the Site Certificate,~~. prior to commencement of monitoring work.~~

2.0 REVEGETATION MEASURES

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Following construction, PGE will implement~~ed~~ the revegetation measures stipulated in the Site Certificate. As appropriate at specific locations, revegetation measures include~~d~~:

- Reseeding of all soil disturbance areas to restore vegetation;
- Application of mulch and straw wattles to prevent soil erosion during vegetation re-establishment.~~;~~
- ~~Revegetation of disturbed riparian areas with appropriate plant species;~~
- ~~Planting of native woody species (according to the Typical Re-vegetation Plan, ASC, Exhibit Q, Page Q-6.1) in riparian shrub and forest habitat where canopy cover of less than 25 percent resulted from construction impacts.~~

PGE plans to use the following seed mix for revegetation of any upland disturbance areas associated with the battery storage project or for any necessary follow-up seedings of the Unit 2 revegetation areas. This seed mix may be changed with concurrence of ~~Prior to reseeding disturbance areas, PGE obtained~~ Oregon Department of Fish and Wildlife (ODFW) and the Department. ~~concurrence for the use of the following seed mixes as appropriate for each disturbance site:~~

~~Riparian Area Mix~~Upland Mix (50% grasses, 35% perennial flowers, 15% annual flowers)

California Brome - *Bromus carinatus*
California oatgrass (*Danthonia californica*)
Red fescue (*Festuca rubra*)
Streambank Lupine - *Lupinus rivularis*
California Poppy - *Eschscholzia californica*
Farewell to Spring - *Clarkia amoena*
Western Yarrow - *Achillea millefolium*
Lance Self-heal - *Prunella vulgaris v. lanceolata*
Baby Blue Eyes - *Nemophila menziesii*

~~46% Blue Wildrye~~
~~38% Native Red Fescue~~
~~12% Tufted Hairgrass~~
~~2% Western Mannagrass~~
~~2% American Sloughgrass~~

~~Riparian and/or upland mix~~
~~60% Blue Wildrye~~
~~30% Native Red Fescue~~
~~10% California Brome~~

~~40% Delaware Dwarf Perennial Ryegrass~~
~~20% Creeping Red Fescue~~
~~20% Annual Ryegrass~~
~~10% Highland Bentgrass~~
~~10% New Zealand White Clover~~

~~Pasture mix~~
~~30% Orchardgrass~~
~~30% Perennial Ryegrass~~
~~20% Bronson Tall Fescue~~
~~10% Annual Ryegrass~~
~~5% Tuuka Timothy~~
~~5% Kentucky Bluegrass~~

~~Erosion Control Mix~~

3.0 MONITORING METHODS AND SCHEDULE

~~During the 12 months following completion of construction for each project phase (i.e. transmission line and generating plant), at least two surveys will be conducted of all construction disturbance areas to evaluate the success of revegetation measures and identify any soil erosion concerns.~~ Annual surveys will be conducted for a period of five years to monitor revegetation success and invasive species control needs at ~~the plant construction site and at riparian areas disturbed during transmission line construction.~~all temporary disturbance areas impacted by project construction. The five-year monitoring period for Unit 2 disturbance areas will be completed in 2019, after which PGE will consult with ODFW and ODOE regarding success criteria (See Section 5.0).

~~3.1 Initial Monitoring Survey~~ (January/February 2007)

~~Following approval of this plan by the Department, PGE will conduct an initial monitoring survey of transmission line construction disturbance areas and any soil disturbance areas at the generating plant site where construction has been completed to date.~~ All revegetation~~construction~~ areas will be visually surveyed by a qualified PGE biologist. During ~~the first~~each annual monitoring visit, the surveyor will collect the following information:

Commented [AB1]: Possibly include more diverse mix with input from seed suppliers informed by site conditions.

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Commented [AB2]: Seed mix subject to change following input from seed suppliers and approval by ODFW/ODOE.

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- Confirmation that all areas requiring revegetation have been seeded;
- Success of vegetation establishment as measured by:~~,~~

~~a)~~ Percent ~~total~~ vegetative cover by species; percent bare soil; and percent other ground covers (i.e., gravel or litter) (ocular estimate using 10, randomly-located, $1m^2$ sampling quadrats in each revegetation area). Paired plots may also be used to compare sampling results to vegetation in nearby undisturbed areas;~~,~~

~~b) Percent bare soil (ocular estimate);~~

- Presence of invasive plant species (species listed as noxious under the Oregon Department of Agriculture Noxious Weed Control Program), and density estimates by species if present (in sampling quadrats and overall ocular estimated by revegetation area);
- Presence of erosion problems that require further mitigation measures.~~; and,~~
- ~~Status of native woody species plantings in riparian corridors,~~

~~a) Confirmation of adequate initial planting density,~~

~~b) Percent survival of planted native woody species.~~

~~3.2 Second Monitoring Survey~~ ~~(May-June 2007)~~

~~All construction disturbance areas will be surveyed in spring 2007 to confirm vegetation establishment and note any areas that require further measures. Data collection will consist of the same information collected during the initial survey. This survey will also serve as the first of five annual monitoring surveys for revegetation success and invasive plant species in riparian revegetation areas (annual surveys described below).~~

~~3.3 Third Monitoring Survey (as required)~~

~~This monitoring survey will be conducted at all areas where less than two surveys have been conducted to date (such as generation plant areas that were not covered in the November-December 2006 surveys), and at any sites where ongoing problems exist (i.e., soil erosion problems, significant areas of bare soil where seeded vegetation failed to establish, less than 80 percent survival of planted native woody species in riparian areas). This survey will focus on ensuring that all sites have been properly stabilized and revegetated prior to the 2007-2008 rainy season.~~

~~3.4 Annual Monitoring Surveys~~

~~Starting in 2007, PGE will conduct annual surveys for five years. Surveys will be conducted in the spring (May/June) of each year. The purpose of the surveys will be to:~~

~~1) Monitor the success of riparian area revegetation efforts; and,~~

~~2) Monitor for the presence of invasive plant species in 1) riparian areas and wetlands along the transmission line right-of-way, and 2) in areas temporarily disturbed by construction of the~~

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~~raw water, gas, and process water discharge lines, in the temporary construction staging and laydown area northwest of the energy facility site, and in the soils disposal site.~~

~~Annual surveys will be conducted by a qualified PGE biologist, and the following information will be collected:~~

- ~~Percent survival of planted native woody species;~~
- ~~Presence of erosion problems that require further mitigation measures; and,~~
- ~~Presence of invasive plant species and density estimates by species if present.~~

4.0 FOLLOW-UP RESTORATION MEASURES

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Following each of the surveys described above, PGE will conduct follow-up measures as needed to address remaining soil impacts and revegetation requirements not achieved through initial plantings. Such follow-up measures may include:

- Reseeding of select areas where significant areas of bare soil remain after establishment of initial seeding;
- ~~Planting of additional native woody species in riparian revegetation areas where an 80 percent survival was not achieved; and,~~
- Control of invasive plant species by qualified personnel using appropriate methods for the target species (i.e. herbicides applied per label requirements if herbicides required).

5.0 REVEGETATION SUCCESS CRITERIA

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Revegetation will generally be considered successful when the revegetated areas support non-noxious plant communities that are at a minimum 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 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 80 percent vegetation cover (of seeded vegetation and desirable, naturally-recruiting species and excluding invasive plant/noxious weed cover) and no ongoing erosion issues. Reseeding or replanting efforts will occur, in consultation with ODFW and the Department, in any area where monitoring identifies a restoration failure.

Commented [AB4]: Condition D.8(19) included here. Remove from Site Cert.

Commented [AB5]: D.8(24) included here and in last sentence of Section 6 below. Remove from Site Cert.

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 (i.e., non-noxious weeds, both seeded and naturally recruited) is 80 percent or more, or the native species component is not significantly less than the native species percent 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 <10%, or not

significantly greater than the percentage of bare soil in surrounding undisturbed areas.

4. Vegetation percent cover goals may be adjusted to match the typical percent cover in nearby undisturbed areas as measured with paired monitoring plots.

~~5.0~~6.0 REPORTING SCHEDULE

~~Beginning in 2007 and continuing through 2010,~~ Within one year after completion of construction of any phase of the facility PGE shall provide a summary report to ODFW and the Department that identifies the revegetation actions it took and the results of revegetation monitoring conducted to that time. PGE will submit an annual report to ODFW and the Department by December 31 of each year during the five-year monitoring period required for each revegetation area. ~~In 2011,~~ tThe final annual report will be submitted within three months of the final annual monitoring survey~~, as required in the Site Certificate~~. ~~The~~ Aannual reports will identify revegetation actions taken in construction disturbance areas at the Port Westward Generating Project, the results of vegetation monitoring, and invasive species control measures implemented to date. The final annual report will document achievement of success criteria, or, if criteria have not been met, propose additional mitigation and monitoring measures to be implemented.

Commented [AB6]: D.8(22) included here. Remove from Site Cert.

Commented [AB7]: D.8(21) included here. Remove from Site Cert.

Commented [AB8]: D.8(23) included hear. Remove from Site Cert.

7.0 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.

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Attachment 4b. Clean Version Revegetation and Noxious Weed Control Plan

Revegetation and Noxious Weed Control Plan
Port Westward Generating Project

Submitted by:

Portland General Electric

Revision 1, April 2019

TABLE OF CONTENTS

1.0 INTRODUCTION

Portland General Electric Company (PGE) began commercial operation of Unit 1 of the Port Westward Generating Project (PGWP Unit1) in June 2007. Construction of PGWP Unit 2 began in May 2013 and the project started commercial operation on December 30, 2014. Major soil disturbance activities associated with plant site preparation and construction included rough grading, excavation, filling, stockpiling, and final grading. Following the completion of construction activity, erosion control and revegetation measures were conducted as required in the original site certificate (Unit 1) and tenth amended site certificate (Unit 2) issued by the Oregon Energy Facility Siting Council (OR-EFSC 2006, 2013) and consistent with the project Erosion and Sediment Control Plan and the original Revegetation and Invasive Species Monitoring Plan (RISMP, PGE 2006).

Revegetation and monitoring of temporary disturbance areas associated with PGWP Unit 1 was conducted in 2007 through 2011 (PGE 2011). Monitoring of PWGP Unit 2 temporary disturbance areas is in progress, with the initial five-year monitoring program to be completed in 2019 (PGE 2018).

This revised revegetation monitoring plan will apply to completion of revegetation monitoring for Unit 2 construction as well as revegetation and monitoring of any additional temporary disturbance areas that result from construction of the Port Westward Battery Storage project (Amendment 11). The plan specifies methods and schedule for evaluating the success of revegetation measures and implementing follow-up remedial measures (reseeding and invasive species control) as necessary, and details revegetation success criteria and reporting requirements. The plan is being submitted for approval by the Oregon Department of Energy (Department) as required by the Site Certificate.

2.0 REVEGETATION MEASURES

Following construction, PGE will implement the revegetation measures stipulated in the Site Certificate. As appropriate at specific locations, revegetation measures include:

- Reseeding of all soil disturbance areas to restore vegetation;
- Application of mulch and straw wattles to prevent soil erosion during vegetation re-establishment.

PGE plans to use the following seed mix for revegetation of any upland disturbance areas associated with the battery storage project or for any necessary follow-up seedings of the Unit 2 revegetation areas. This seed mix may be changed with concurrence of Oregon Department of Fish and Wildlife (ODFW) and Department concurrence.

Upland Mix (50% grasses, 35% perennial flowers, 15% annual flowers)

California Brome - *Bromus carinatus*
California oatgrass (*Danthonia californica*)
Red fescue (*Festuca rubra*)
Streambank Lupine - *Lupinus rivularis*
California Poppy - *Eschscholzia californica*
Farewell to Spring - *Clarkia amoena*
Western Yarrow - *Achillea millefolium*
Lance Self-heal - *Prunella vulgaris v. lanceolata*
Baby Blue Eyes - *Nemophila menziesii*

3.0 MONITORING METHODS AND SCHEDULE

Annual surveys will be conducted for a period of five years to monitor revegetation success and invasive species control needs at all temporary disturbance areas impacted by project construction. The five-year monitoring period for Unit 2 disturbance areas will be completed in 2019, after which PGE will consult with ODFW and ODOE regarding success criteria (See Section 5.0).

All revegetation areas will be visually surveyed by a qualified PGE biologist. During each annual monitoring visit, the surveyor will collect the following information:

- Confirmation that all areas requiring revegetation have been seeded;
- Success of vegetation establishment as measured by: percent vegetative cover by species; percent bare soil; and percent other ground covers (i.e., gravel or litter) (ocular estimates using 10, randomly-located, $1m^2$ sampling quadrats in each revegetation area). Paired plots may also be used to compare sampling results to vegetation in nearby undisturbed areas;
- Presence of invasive plant species (species listed as noxious under the Oregon Department of Agriculture Noxious Weed Control Program), and density estimates by species if present (in sampling quadrats and overall ocular estimated by revegetation area); and
- Presence of erosion problems that require further mitigation measures.

4.0 FOLLOW-UP RESTORATION MEASURES

Following each of the surveys described above, PGE will conduct follow-up measures as needed to address remaining soil impacts and revegetation requirements not achieved through initial plantings. Such follow-up measures may include:

- Reseeding of select areas where significant areas of bare soil remain after establishment of initial seeding;
- Control of invasive plant species by qualified personnel using appropriate methods for the target species (i.e. herbicides applied per label requirements if herbicides required).

5.0 REVEGETATION SUCCESS CRITERIA

Revegetation will generally be considered successful when the revegetated areas support non-noxious plant communities that are at a minimum 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 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 80 percent vegetation cover (of seeded vegetation and desirable, naturally-recruiting species and excluding invasive plant/noxious weed cover) and no ongoing erosion issues. Reseeding or replanting efforts will occur, in consultation with ODFW and the Department, 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 (i.e., non-noxious weeds, both seeded and naturally recruited) is 80 percent or more, or the native species component is not significantly less than the native species percent 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 <10%, or not significantly greater than the percentage of bare soil in surrounding undisturbed areas.
4. Vegetation percent cover goals may be adjusted to match the typical percent cover in nearby undisturbed areas as measured with paired monitoring plots.

6.0 REPORTING SCHEDULE

Within one year after completion of construction of any phase of the facility PGE shall provide a summary report to ODFW and the Department that identifies the revegetation actions it took and the results of revegetation monitoring conducted to that time. PGE will submit an annual report to ODFW and the Department by December 31 of each year during the five-year monitoring period required for each revegetation area. The final annual report will be submitted within three months of the final annual monitoring survey. Annual reports will identify revegetation actions taken in construction disturbance areas at the Port Westward Generating Project, the results of vegetation monitoring, and invasive species control measures implemented to date. The final annual report will document achievement of success criteria, or, if criteria have not been met, propose additional mitigation and monitoring measures to be implemented.

7.0 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.

Attachment 5. Scenic Resources Tribal Notification

From:	Christian Nauer
To:	Mini Ogle
Cc:	Robert Brunoe
Subject:	Re: Port Westward Battery Storage project
Date:	Wednesday, March 06, 2019 4:45:56 PM
Attachments:	PastedGraphic-1.pdf
Importance:	High

Dear Mini,

Thank you for the opportunity to provide comment on the Port Westward Battery Storage Project.

General Comment:

As the technical reviewer for NHPA Section 106 and other cultural resource issues for the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO), the CTWSRO Tribal Historic Preservation Office (THPO) has concerns with the potential effects to historic properties or cultural resources within the Project APE. The Project APE is within the areas of concern for the CTWSRO.

Project-specific Comment(s):

In consideration of the scope of the Project (no ground disturbance), this office has no comments on the Project at this time.

If, however, I am not reading this right, and there is significant ground disturbance, this office would like to recommend additional investigations in order to cosider potential Project effects on historic properties or cultural resources. There are several precontact sites in the area and the Project APE is within a landform that has a high potential for containing sites. Please get back to me if you have questions, or would like to further qualify the Project scope of work. This office has no information at this time on traditional use areas or potential visual impacts related to the Project.

Thanks again for your consideration,

Christian Nauer, MS

Archaeologist
Confederated Tribes of the Warm Springs Reservation of Oregon
Branch of Natural Resources

christian.nauer@ctwsbnr.org

Office 541.553.2026
Cell 541.460.8448

Standard Disclaimers:

*The Confederated Tribes of the Warm Springs Reservation of Oregon have reserved treaty rights in Ceded Lands, as well as Usual and Accustomed and Aboriginal Areas, as set forth through the Treaty with the Middle Tribes of Oregon, June 25, 1855.

*Please know that review by the Tribal Historic Preservation Office does not constitute Government-to-Government consultation. Please ensure that appropriate Government-to-Government consultation is made with the Confederated Tribes of the Warm Springs Tribal Council.

> On Feb 7, 2019, at 10:29 AM, Mini Ogle <Mini.Sharma-Ogle@pgn.com> wrote:
>
> Good Morning Bobby,
>
> This is a follow-up a to a voice mail I left you last week regarding PGE's proposed battery storage system at our existing Port Westward project. Attached is a formal letter of consultation and two maps that may be relevant as you peruse this project. As always, I appreciate your time and effort in reviewing this project.
>
> Please let me know if I can provide any other information at this time.
>
> Sincerely,
>
> Mini
>
> <image001.png>Mini Sharma-Ogle
> Archaeologist- Senior Environmental Specialist
> Diversity, Equity & Inclusion Consultant
> Portland General Electric
> 121 SW Salmon Street 3WTC0403| Portland, OR 97204
>
> Office: 503-464-8657|Cell: 850-491-6333
>
> For Cultural Resources Inadvertent Discoveries please call: 503-464-BONE

<PW2_Battery_Storage_Site.pdf><PW2_Battery_Storage_Scenic.pdf><Tribal Consultation Letter_Warm Springs.docx>

Attachment 6. Port Westward Battery Energy Storage System Wetland Delineation Report

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: https://apps.oregon.gov/DSL/EPS/program?key=4.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.** A single PDF of the completed cover from and report may be e-mailed to: **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information

☐ Applicant ☒ Owner Name, Firm and Address:
Port of Columbia County
Attn: Sean Clark
PO Box 190
Columbia City, OR 97018

Business phone # (503) 410-5915
Mobile phone # (optional)
E-mail:

☒ Authorized Legal Agent, Name and Address (if different):
Colin MacLaren, PWS, Wetland Ecologist
Portland General Electric - environmental Services
121 SW Salmon St., 3WTC0403
Portland, OR 97204

Business phone # (503) 464-8061
Mobile phone # (optional) (503) 407-1923
E-mail: colin.maclaren@pgn.com

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Colin MacLaren **Signature:** Colin MacLaren

Date: 03/19/2019 Special instructions regarding site access: Secured area. Contact PGE for access

Project and Site Information

Project Name: Port Westward Battery Energy Storage System

Latitude: 46.1708 Longitude: -123.1690
decimal degree - centroid of site or start & end points of linear project

Proposed Use:
Battery energy storage facility

Tax Map # 8041500
Tax Lot(s) 500

Tax Map #
Tax Lot(s)

Project Street Address (or other descriptive location):
81566 Kalluniki Road. North end of Kallunki Road at Port Westward generation facility, northeast of Clatskanie, OR

Township T8N Range R4W Section 22 QQ

Use separate sheet for additional tax and location information

City: n/a County: Columbia

Waterway: n/a River Mile:

Wetland Delineation Information

Wetland Consultant Name, Firm and Address:

Phone #
Mobile phone # (if applicable)
E-mail:

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.

Consultant Signature: Date: 03/18/2019

Primary Contact for report review and site access is ☐ Consultant ☐ Applicant/Owner ☒ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No Study Area size: Total Wetland Acreage:

Check Applicable Boxes Below

☐ R-F permit application submitted
☐ Mitigation bank site
☐ Industrial Land Certification Program Site
☐ Wetland restoration/enhancement project (not mitigation)
☐ Previous delineation/application on parcel
If known, previous DSL # _____

☒ Fee payment submitted $ _____
☐ Fee ($100) for resubmittal of rejected report
☐ Request for Reissuance. See eligibility criteria. (no fee)
DSL # _____ Expiration date _____
☐ LWI shows wetlands or waters on parcel
Wetland ID code _____

For Office Use Only

DSL Reviewer: _____ Fee Paid Date: ___/___/___ DSL WD # _____

Date Delineation Received: ___/___/___ Scanned: ☐ Electronic: ☐ DSL App.# _____

PORT WESTWARD BATTERY ENERGY STORAGE SYSTEM
WETLAND DELINEATION REPORT

PORT WESTWARD PROJECT
Columbia County, OR
Township 8 North, Range 4 West, Section 22
Tax Map 8041500, Lot 500

Prepared by

Portland General Electric Company
Environmental & Licensing Services
121 SW Salmon St.
Portland, Oregon 97204

March 2019

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1.0 INTRODUCTION

Portland General Electric Company (PGE) is proposing to construct a battery energy storage system at its Port Westward Generating Plant located at 81566 Kalluniki Road in Columbia County, Oregon (Figure 1). The land is owned by the Port of Columbia County (formerly Port of St. Helens). PGE holds a long-term lease to the property.

The Port Westward is a natural gas plant. Unit 1 began power generating operations in 2007 and Unit 2 was constructed at the same location and became operational in late 2014. PGE is now proposing to add a battery energy storage system (BESS) to the facility to improve service and create efficiency and load flexibility.

The proposed battery system is to be located adjacent to the existing plant (Figure 1). Construction for the battery system may involve foundation work that may generate fill material composed of historic dredge spoils. This area is identified as Study Area A. Study Area A is approximately 0.25 acres in area. The fill is proposed to be placed in an upland spoils area that was also used during construction of the Port Westward facility in 2006 (Figure 1; Study Area B). Study Area B is approximately 10.1 acres in area.

2.0 LANDSCAPE AND LAND USE SETTING

The project area is located in the lower Columbia River system. A study to identify possible historical habitats using early (c. 1878) U.S. Coast Survey Charts among other sources identified the study area as having most likely supported low tidal marsh habitat (CREST 1995). The current landscape and land use is reclaimed industrial land, located over dredge spoils, and farmland in lower lying areas. The principal farm crop within the study area appears to be hay.

3.0 SITE ALTERATIONS

Historically, the study area has undergone alterations that have significantly modified natural conditions. As noted above, historic conditions likely supported tidally-influenced lowland marsh. Over several years, dredge spoils, diking and draining, and farming have obscured any evidence of lowland marsh habitat. The BESS will be located on historic dredge spoils. The spoils disposal area also is located over historic dredge spoils as well as fill material generated during development of Port Westward Units 1 and 2. Areas that appear less affected by fill placement are actively farmed.

4.0 PRECIPITATION DATA AND ANALYSIS

The wetlands climate analysis (WETS) station used to obtain historic precipitation data for the project site was the Clatskanie main station. The WETS table shows that the area receives 55.62 inches of rain annually. The growing season at this location is 264 days extending from March 1 to November 20.

Recent precipitation data obtained from the NOAA Regional Climate Center's Applied Climate Information System AgACIS web site for Columbia County is shown in Table 1. In the three months prior to fieldwork, recorded precipitation was below normal for two of the three months.

Table 1. Precipitation Data – Monthly Averages Based on the Climate Period 1971 to 2000

Month	Average (Inches)	30% Chance Will Have (inches)		Observed Precipitation (Inches)	Within Normal Range?
		Less Than	More Than		
November	9.00	5.92	10.59	5.17	Below Normal (57%)
December	9.12	6.35	10.83	8.43	Normal (92%)
January	8.84	5.13	10.00	4.70	Below normal (53%)

Source: NOAA 2019

Rainfall data for the water year through January was 22.71 inches, which is 7.61 inches below average rainfall (i.e., 75 percent of average) for that period. In the two weeks prior to fieldwork, 4.87 inches of rain and 2.0 inches of snowfall were recorded. Overall, conditions were drier than normal in the months prior to fieldwork and relatively normal in the days and weeks preceding fieldwork.

5.0 METHODS

The methodology used to determine the presence/absence and location of wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coastal Region (Version 2.0)* (USACE 2010), used by both USACE and the Oregon Department of State Lands (DSL). Fieldwork for documenting site conditions and delineating the wetland boundary was conducted February 22, 2019 by Colin MacLaren, PWS. Soils were documented at 6 sample plot locations on standardized wetland determination data sheets (Appendix B). Sample plot locations and wetland boundaries were documented using a hand-held Trimble Geo7X GPS device capable of sub-meter accuracy. Sample plot locations and boundaries can be relocated in the field if requested by agency staff. Representative ground-level photographs were collected at each sample plot location, and are shown in Appendix C.

Two soils were mapped within the study area:

- Udipsamments, nearly level, protected
- Crims silt loam, protected

The Udipsamments map unit comprises approximately 90 percent of the overall study area, with the Crims map unit occurring in the southernmost portion of the site. (NRCS 2019). Udipsamment soils consist of sand dunes and sandy areas that have been stabilized by vegetation. Permeability is very rapid and available water capacity is low.

Crims soils are described as deep, very poorly drained soils that formed in organic materials underlain by silty alluvium at 16 to 40 inches. Crims soils are on flood plains.

Fieldwork for this wetland study was conducted seven days before the start of the growing season. It is our judgment, however, that conditions during fieldwork were a good representation of conditions expected to be encountered during the growing season. This judgment is based on the presence of emerged and developing herbaceous plants, flowering herbaceous plants (e.g. *Cardamine oligosperma* – an early spring taxon), and bud burst observed in nearby deciduous trees (i.e. *Populus balsamifera* var. *trichocarpa*).

The southeastern portion of Study Area B is actively farmed. That area, however, appears to be in hay production and does not show evidence of recent plowing, tilling, ripping, or other soils disturbance. It also appears that grass species within the farmed area are not actively managed other than seasonal cutting and collection for hay or straw. Because of lack of evidence for soil disturbance and because plant populations appear to have adjusted to existing conditions, it was determined that standard delineation methods would apply.

6.0 DESCRIPTION OF ALL WETLANDS AND NON-WETLAND WATERS

Wetland (3.09 acres; extends beyond study area boundary)

One wetland was identified within the study area. This feature is located along the low-lying, southern margin of the study site. Vegetation within this feature is predominantly reed canarygrass (*Phalaris arundinacea*) with scattered soft rush (*Juncus effusus*), perennial ryegrass (*Lolium perenne*), and American speedwell (*Veronica americana*). Transitional areas include reed canarygrass, orchardgrass (*Dactylis glomerata*), and Himalayan blackberry (*Rubus armeniacus*). Elevated, upland areas mostly support orchardgrass, hairy-cat's ears (*Hypochaeris radicata*), perennial ryegrass, and lanceleaf plantain (*Plantago lanceolata*).

Soils in wet areas were found to be dark grayish brown sandy loam with distinct redoximorphic features (mottles). Upland soils tended to be dark brown or very dark brown sandy loam and gravelly sandy loam both with and without mottling. Evidence of wetland hydrology included a shallow water table, saturation, drift lines, algal mats, and stressed vegetation. Non-wetland areas lacked wet soils and, in Study Area B, supported burrowing mammal activity.

No wetlands were identified in Study Area A. In Study Area B, wetlands are found along the southeastern portion of the study area. The line between wetland and upland is distinct in the western portion of this area based on relatively pronounced elevational differences but becomes less distinct to the east as the land surface flattens and levels.

The line between wetland and non-wetland was determined based on topography, vegetative growth patterns, drift line locations. The boundary was also based on the limits of mammal burrowing activity, which appeared to correlate strongly with elevation and observed hydrology. and Wetlands extend outside the study area boundary to the south.

There are no non-wetland waters within the study area.

7.0 DEVIATION FROM NWI MAPPING

The National Wetland Inventory mapping for the site shows the footprint of the wetland extending farther north than was documented in the field.

8.0 MAPPING METHOD

Wetland boundaries and sample plot locations were collected with a Trimble Geo7X handheld GPS unit. Map accuracy is within 1m. GPS data points were transferred to maps (Figures 5a and 5b) using ArcGIS software.

9.0 ADDITIONAL INFORMATION

The study area is located behind flood protection levees.

10.0 RESULTS AND CONCLUSIONS

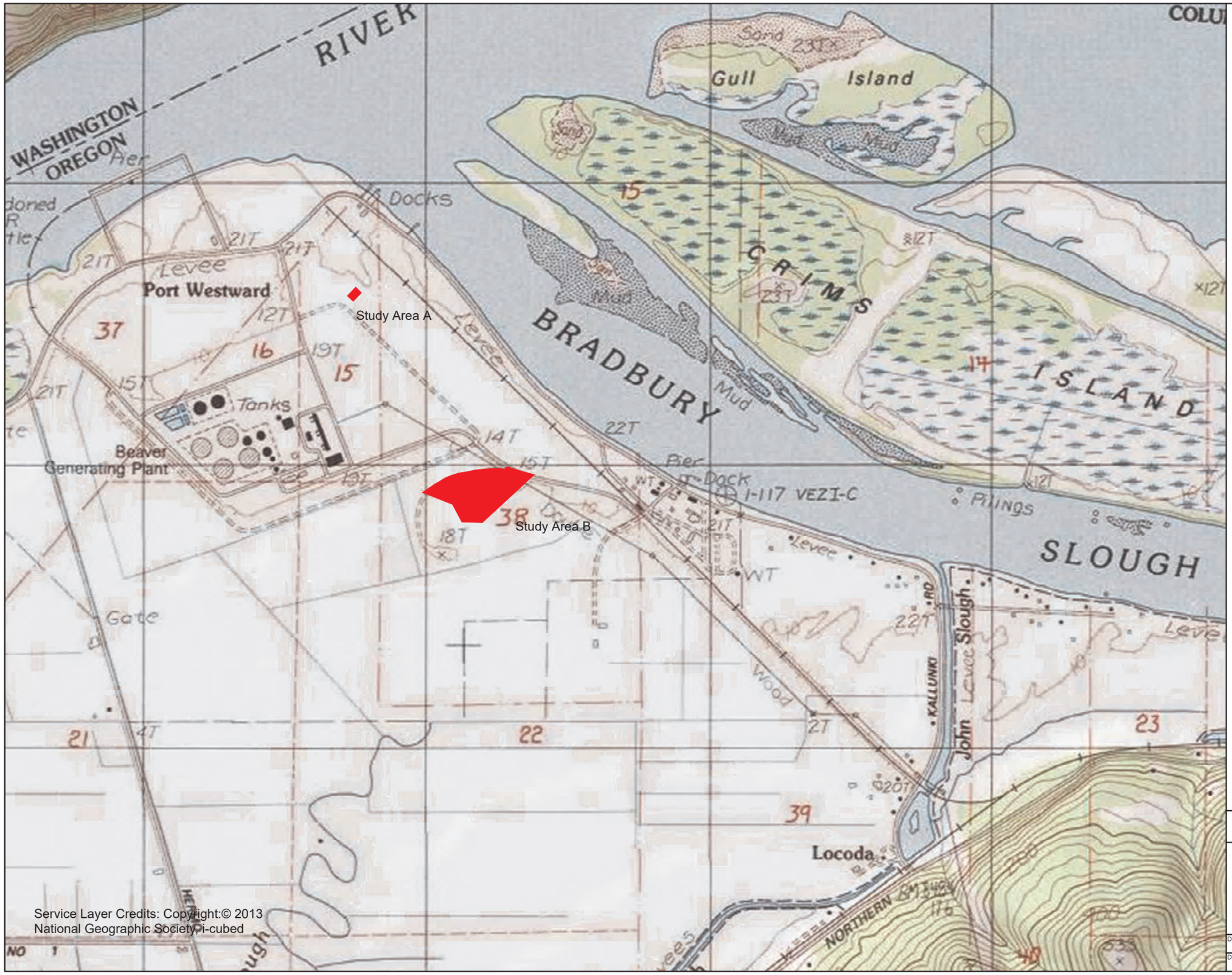
No wetlands were identified in Study Area A. A palustrine emergent 3.09-acre wetland was identified in Study Area B (Figure 6). This wetland feature extends southeast beyond the study area boundary.

11.0 REQUIRED DISCLAIMER

This report documents field and office investigations, best professional judgment, and conclusions of the investigator. It is accurate and complete to the best of my knowledge. Results and conclusions should be considered preliminary unless and until they have been reviewed and approved in writing by the Oregon Department of State Lands (DSL) in accordance with the Oregon Administrative Rules in place when the study was completed.

12.0 LIST OF PREPARERS

Colin MacLaren, PWS, CERP
Wetland Ecologist



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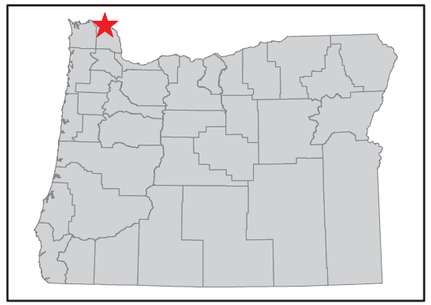


Map Extent

Map Features

Study Area Boundary

0 200 400

Meters

N W E S

Portland General Electric

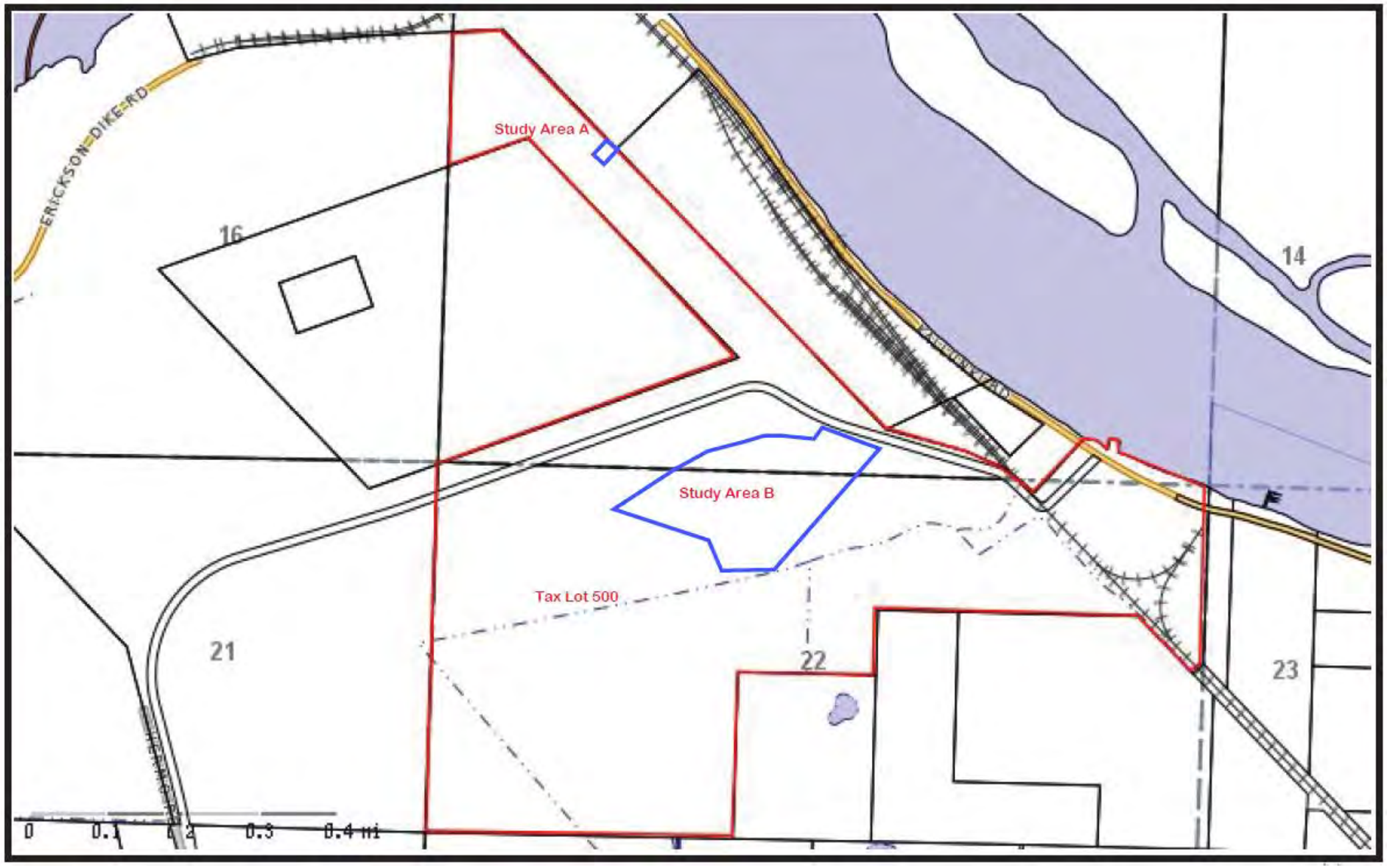
Portland, Oregon

Figure 1. Wetland Study Location

Battery Storage Facility

Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_locator_031519.mxd



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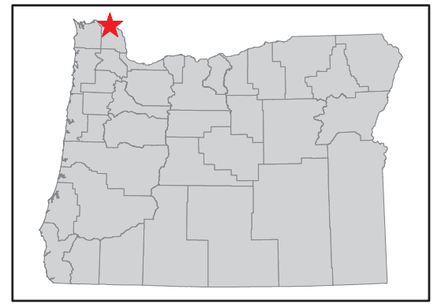

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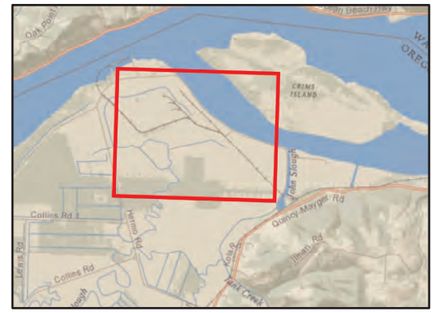


Map Features

Study Area Boundary

0 100 200

Meters

All points collected were accurate < 1 meter and any final correction were done by using control points recorded in the field. Then georeferencing was performed based on aerial photography.

Portland General Electric

Portland, Oregon

Figure 2. Columbia County Tax Map 8041500

Battery Storage Facility

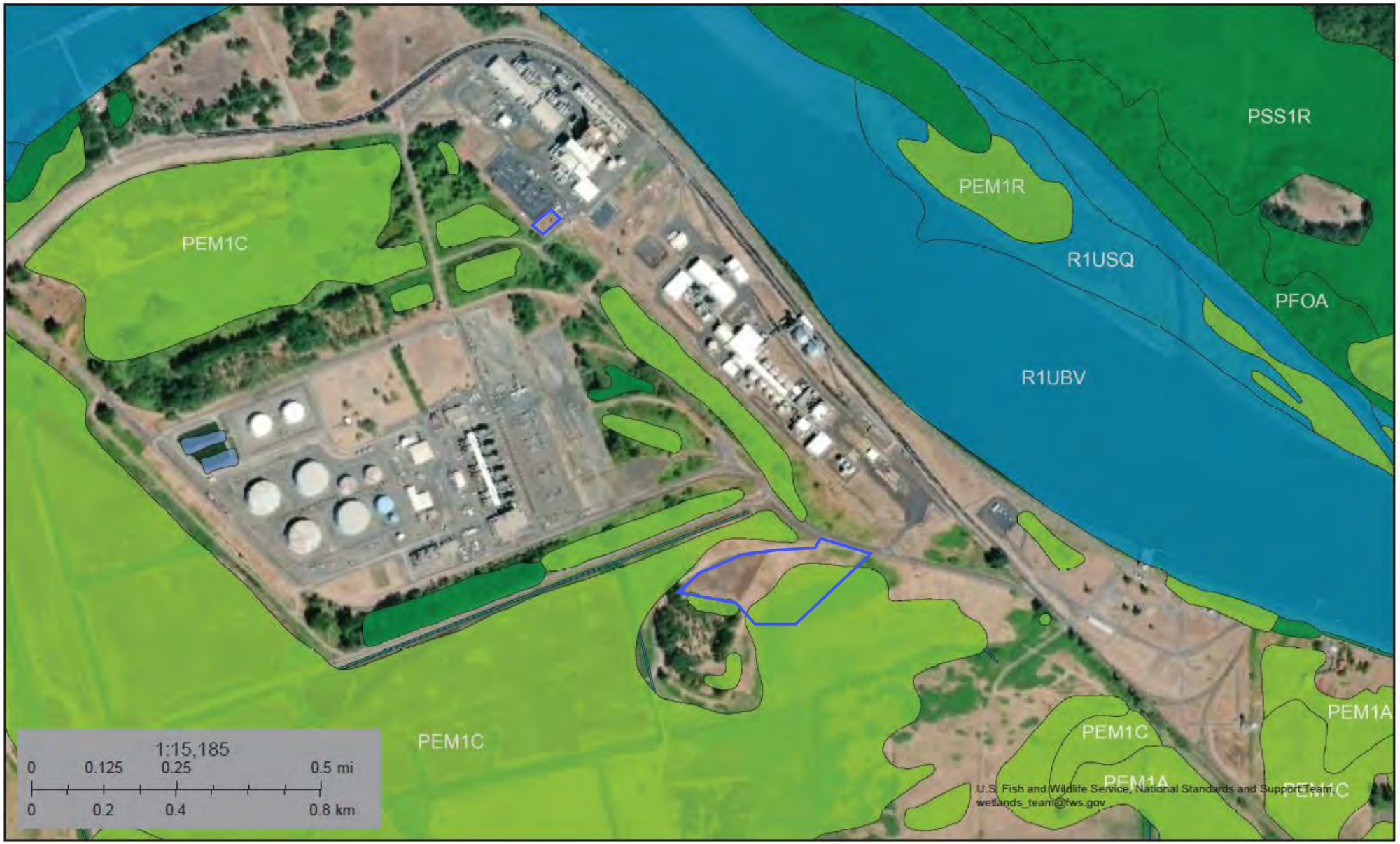
Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_figure5a_031519.mxd

U.S. Fish and Wildlife Service

National Wetlands Inventory

Port Westward - Battery Storage



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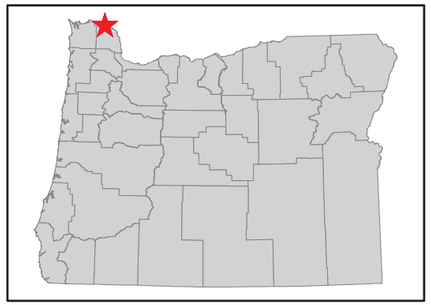


Map Extent

Map Features

Study Area Boundary

0 100 200
Meters

All points collected were accurate < 1 meter and any final correction were done by using control points recorded in the field. Then georeferencing was performed based on aerial photography.

Portland General Electric
Portland, Oregon

Figure 3. NWI Map

Battery Storage Facility

February 27, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)

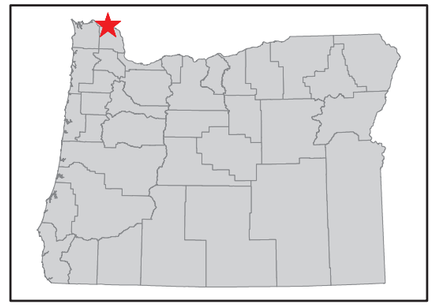
Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_figure5a_031519.mxd

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
15	Crims silt loam, protected	18.2	4.8%
61	Udipsamments, nearly level, protected	298.0	78.4%
W	Water	63.8	16.8%
Totals for Area of Interest		**380.0**	**100.0%**

SampleLocation



Map Extent

Map Features

Study Area Boundary

0 100 200

Meters

All points collected were accurate < 1 meter and any final correction were done by using control points recorded in the field. Then georeferencing was performed based on aerial photography.

Portland General Electric

Portland, Oregon

Figure 4. Soils Map

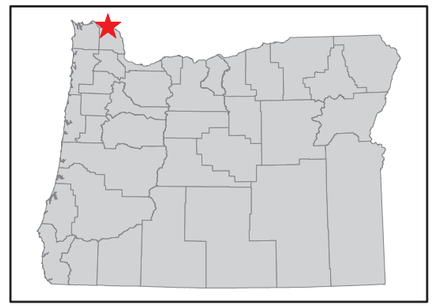
Battery Storage Facility

Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_figure5a_031519.mxd

Wetlands extend beyond the study area boundary.

SampleLocation



Map Extent

Map Features

- Sample Points
- Wetland Boundary
- Study Area Boundary

0 12.5 25

Meters

All points collected were accurate < 1 meter and any final correction were done by using control points recorded in the field. Then georeferencing was performed based on aerial photography.

Portland General Electric

Portland, Oregon

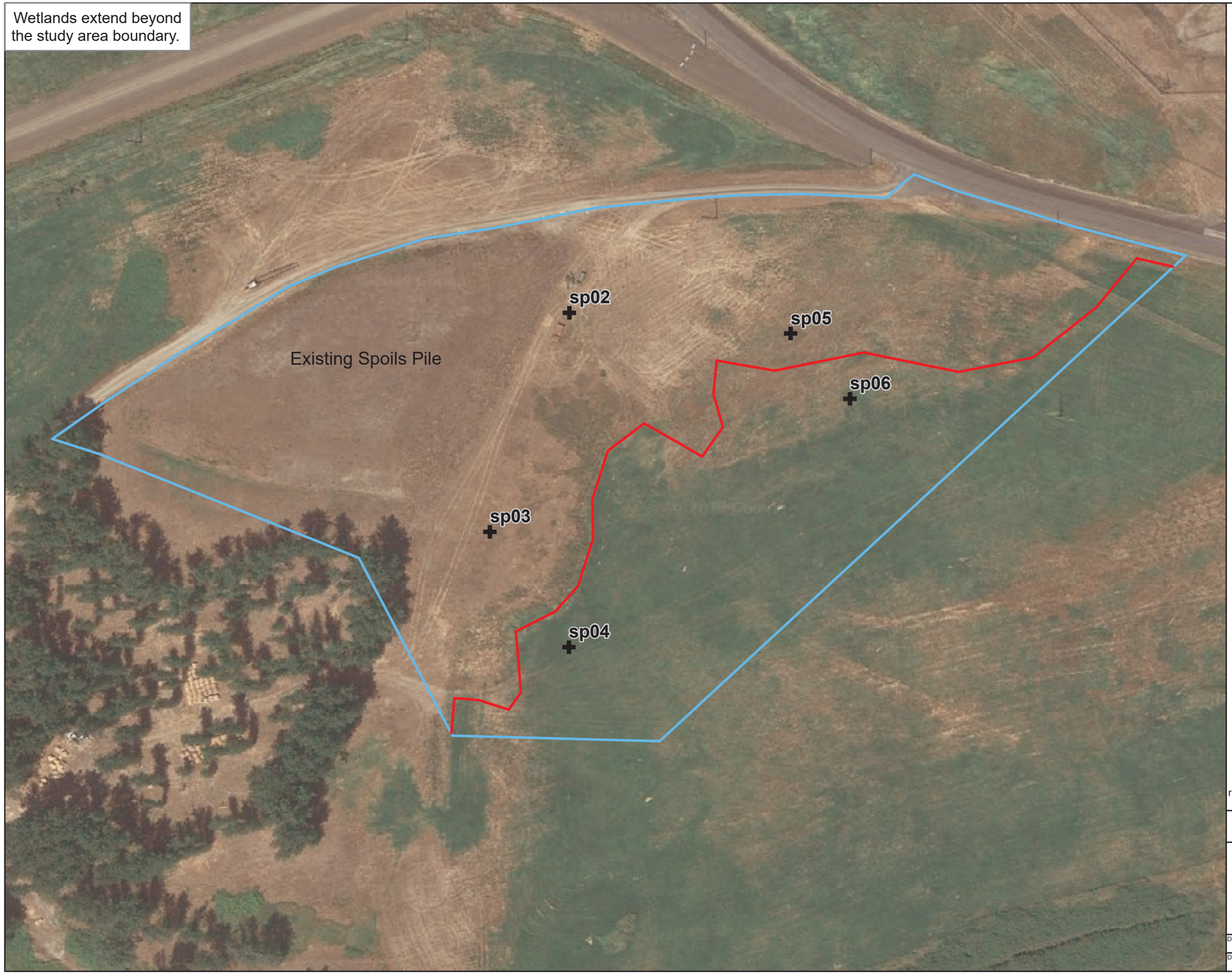
Figure 5a
Wetland Delineation

Battery Storage Facility

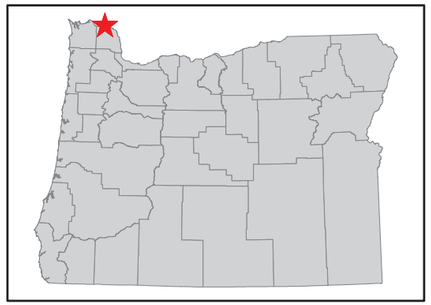
Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_figure5a_031519.mxd

Wetlands extend beyond the study area boundary.



SampleLocation



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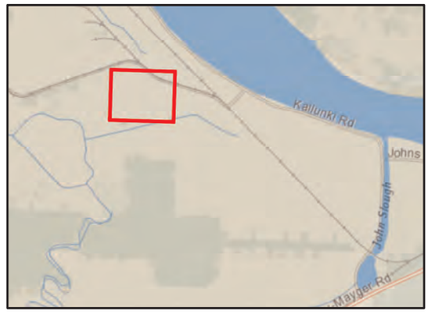


Map Features

- Sample Points
- Wetland Boundary
- Study Area Boundary

0 20 40

Meters

N
W E
S

All points collected were accurate < 1 meter and any final correction were done by using control points recorded in the field. Then georeferencing was performed based on aerial photography.

Portland General Electric
Portland, Oregon

Figure 5b
Wetland Delineation

Battery Storage Facility

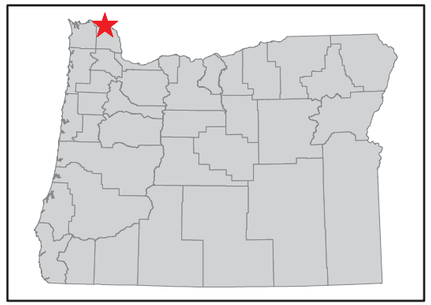
Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_figure5a_031519.mxd

Wetlands extend beyond the study area boundary.

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

SampleLocation



Map Extent

Map Features

- Sample Points
- Wetland Boundary
- Study Area Boundary

0 100 200
Meters

All points collected were accurate < 1 meter and any final correction were done by using control points recorded in the field. Then georeferencing was performed based on aerial photography.

Portland General Electric
Portland, Oregon

Figure 6
Wetland Delineation

Battery Storage Facility

Date:	Drawn By:	Rev.:
3/15/2019	Brad Wymore	

Drawing File: V:\ES\Wetlands\Wetland_gdb\Maps\MXD\2019\Wetland_project_battery_storage_facility_figure5a_031519.mxd