# Exhibit O

# Water Requirements

**Carty Generating Station**
**October 2026**

**Prepared for**

**Portland General Electric Company**

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# Acronyms and Abbreviations

| | |
|---|---|
| ASC | Application for Site Certificate |
| BCP | Boardman Coal Plant |
| BESS | battery energy storage system |
| BMP | best management practice |
| Certificate Holder / PGE | Portland General Electric Company |
| CGS / Facility | Carty Generating Station |
| Council | Oregon Energy Facility Siting Council |
| gpd | gallons per day |
| MW | megawatt |
| O&M | operations and maintenance |
| OAR | Oregon Administrative Rules |
| ODOE | Oregon Department of Energy |
| RFA | Request for Amendment |
| WPCF | Water Pollution Control Facilities |

# 1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) is submitting a Request for Amendment (RFA) 4 to the Site Certificate for the Carty Generating Station (CGS or Facility). The Facility is located approximately 13 miles southwest of Boardman, in Morrow County, Oregon. As currently approved, the Facility is capable of generating up to 450 megawatts (MW) from the natural gas-fueled combined-cycle unit (Unit 1).

In RFA 4, the Certificate Holder is proposing photovoltaic solar energy generation with approximately 200 MW alternating current (AC) of nominal and average generating capacity and BESS with the capability of storing up to 200 MW AC. The overall CGS additions proposed with RFA 4 (including the BESS) are referred to throughout this request as the Carty Solar Farm with proposed RFA 4 changes. The solar generation is proposed in two separate solar areas referred to as the Northern Solar Area, located north of the Carty Reservoir, and the Southern Solar Area, located south of the reservoir [see Figure 2 in RFA 4's Division 27 document (Request for Amendment 4 for the Carty Generating Station)].

Exhibit O provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(o) in support of RFA 4. Analysis in this exhibit incorporates and/or relies on reference information, analysis, and findings found in the Application for Site Certificate (ASC), previous RFAs, and Oregon Department of Energy (ODOE) Final Orders to demonstrate that the Facility, as modified by RFA 4, continues to comply with applicable Site Certificate Conditions. OAR 345 Division 22 does not provide an approval standard specific to Exhibit O.

Although RFA 4 proposes changes to the Facility, the Certificate Holder) can still comply with all Site Certificate Conditions previously adopted by the Oregon Energy Facility Siting Council (Council) for compliance with respect to OAR 345-021-0010(1)(o).[1] Site Certificate Conditions applicable to water and that apply to the Carty Solar Farm with proposed RFA 4 changes include:

- Condition 2.14: Prior to construction, provide evidence that a limited water use license has been obtained by the third-party contractor.
- Condition 2.15: During construction, PGE will provide ODOE with a record of all water use (with the allowable total and per minute water use) in semi-annual reports.
- Condition 9.3: During construction, PGE will implement best management practices to control any dust generated by construction activities, such as applying water to roads and disturbed soil areas.
- Condition 10.23: During construction and operation, obtain potable water from the existing Boeing well or from a bottled water vendor. Water for construction and process water shall be obtained from Carty Reservoir.

[1] Third Amended Site Certificate for the Carty Generating Station (July 2022).

# 2.0 Water Uses, Sources, and Amounts – OAR 345-021-0010(1)(o)(A)(B)

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

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

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

Table O-1 summarizes the anticipated water use during construction and operation of the Carty Solar Farm with proposed RFA 4 changes. Note that the natural gas-fueled combined-cycle unit (Unit 1) is already operating at the Facility; thus, the water associated with the constructed portions of the Facility are not repeated for the purposes of this analysis.

**Table O-1. Anticipated Water Use for Construction and Operation**

| Use | Source | Amount | Final Disposition |
|---|---|---|---|
| Non-Potable Water – Construction (dust abatement, concrete, washing concrete trucks) | Carty Reservoir | 81.04 million gallons (Mgal) | Primarily evaporation and infiltration for dust control per Water Pollution Control Facilities (WPCF) permit |
| Potable Water and Sanitary Systems (construction and operation) | Proposed operations & maintenance (O&M) building via existing well | Negligible | Carty Septic System |
| Non-Potable Water – Operation (panel washing) | Carty Reservoir | 500,000 gallons annually | Evaporation and infiltration per WPCF permit |

## 2.1 Construction

### *2.1.1 Water Uses and Amounts*

During construction of the Carty Solar Farm with proposed RFA 4 changes, water will be used for dust abatement (approximately 80,000,000 gallons), mixing of concrete (approximately 40,000 gallons), washing concrete trucks after delivery of concrete loads (approximately 1,000,000 gallons), and a nominal amount for fire prevention and on-site worker drinking and sanitation, for a total of approximately 81,040,000 gallons of water under worst-case conditions through all phases of construction. Substantial construction is expected to last 24 months; therefore, the Certificate Holder assumes that all construction water will be used in a 24-month timeframe. No on-site concrete batch plant is proposed as part of RFA 4; PGE will buy concrete directly from licensed suppliers (i.e., with a valid water use license) in the area.

Dust abatement and control will use by far the most water during construction (conservatively estimated at 80,000,000 gallons). Water trucks will be used to control dust generation throughout the construction site, in all disturbed areas including but not limited to foundation installations and trenching for collector lines in compliance with Site Certificate Condition 9.3. Water for dust control and road compaction will be applied via tanker truck in a manner that avoids erosion and sediment discharge and is consistent with the best management practices (BMPs) presented in the National Pollutant Discharge Elimination System 1200-C permit (Site Certificate Condition 9.1).

Water will be required for the mixing of concrete (approximately 40,000 gallons) for the construction of concrete pads and foundations such as for the power conversion station, battery energy storage system, substation foundation, and operations and maintenance (O&M) building.

Water will be used for washing concrete trucks after delivery of concrete loads (approximately 1,000,000 gallons). Concrete trucks and truck chutes will be washed down at each foundation site or at a centralized wash area within the previously disturbed BCP area to prevent the concrete from hardening within the chutes. Concrete wastewater will be handled using BMPs, which have been accepted by the Oregon Department of Environmental Quality (ODEQ). Concrete wash water will be put into a dedicated concrete washout area located within each foundation excavation or areas previously disturbed by the BCP.

Fire prevention represents a minor water use during construction; this will involve stationing a water truck at the job site to keep the ground and vegetation moist during extreme fire risk conditions. Potable water will also be provided for construction worker drinking and sanitation.

### *2.1.2 Water Sources*

All non-potable water used for construction activities (dust abatement, concrete, washing concrete trucks, fire prevention) will be obtained from the Carty Reservoir, which is located within the Approved Site Boundary. The Carty Reservoir has a maximum surface area of approximately 1,450 acres and contains approximately 38,000 acre-feet (12 billion gallons) of water at a maximum pool elevation of 677 feet above mean sea level. The average pool elevation for the reservoir since 1990 has been approximately 667 to 668 feet above mean sea level. At this elevation, the reservoir surface area is approximately 1,100 acres and contains approximately 26,000 acre-feet of water (8.5 billion gallons).

Water used for construction will be sourced from the Carty Reservoir under the Certificate Holder's existing water right and obtained by a third-party contractor through a limited water use license.[2] The Oregon Water Resources Department issued PGE Permit S-54925 for the use of up to 3,736 acre-feet per year from the Carty Reservoir for industrial/manufacturing uses; this category allows use of water for construction purposes. Site Certificate Condition 2.14 will continue to apply, which requires evidence prior to construction that a limited water use license has been obtained from the

[2] Water necessary for construction would be obtained by a third-party contractor through a limited water use license to be applied for prior to starting construction. The proposed source of water for the limited water use license would be Carty Reservoir storage under PGE Certificate 86056.

Oregon Water Resources Department by the Certificate Holder's third-party contractor. This existing water right is sufficient for all non-potable water needs during construction of the Carty Solar Farm with proposed RFA 4 changes.

Potable water for use during construction will be obtained from a temporary tie-in with the existing Facility potable water system or provided by bottled water or water coolers. Potable water for the existing Facility potable water system will be obtained from the existing potable water system which obtains water from an existing well located approximately 170 feet south of the Facility's existing Unit 1 generation building and within the Approved Site Boundary (Condition 10.23). Sanitation during construction activities will be addressed through the provision of portable toilets.

## 2.2 Operation

### *2.2.1 Water Uses and Amounts*

The primary uses of water during operation of the Carty Solar Farm with proposed RFA 4 changes will be for panel washing during regular facility maintenance, if and when washing is determined to be necessary. For the purpose of this analysis, it is conservatively assumed that they will be washed twice a year, which will require approximately 500,000 gallons of water per year.

Potable water for staff during operations will be provided at the proposed O&M building.

### *2.2.2 Water Sources*

Water for solar panel washing during operations will also be obtained from the Carty Reservoir under the Certificate Holder's existing water right.[3] Water from the Carty Reservoir to be used for panel washing will first undergo treatment at the existing Facility water treatment building to produce water suitable for panel washing (e.g. demineralized water).

The potable water within the O&M building will be obtained from the Facility's existing potable water system, with an expected usage of approximately 250 additional gallons per day (gpd). The potable water is supplied by the existing well described above. The sanitary sewer within the O&M building will be collected and treated by the Facility's existing sanitary septic system. Once the number of additional employees is determined, if the existing system capacity is not sufficient a septic system alteration permit would be obtained from the Umatilla County Public Health Department to increase the capacity of the existing septic system.

[3] Water use for operations would come from an existing PGE held permit and/or certificated water right (Permit S-54925; 3,736 acre-feet per year from Carty Reservoir) and/or (Certificate 86057; 135.0 cubic feet per second from Columbia River or Carty Reservoir) which already cover all necessary Place of Use areas for operations.

# 3.0 Water Losses – OAR 345-021-0010(1)(o)(C)

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

Water used for construction and operation of the Carty Solar Farm with proposed RFA 4 changes will be permanent water loss (i.e., there is no planned water reuse). Water loss associated with the Carty Solar Farm with proposed RFA 4 changes is equal to uses and volumes presented in Table O-1.

## 3.1 Construction

Water use for dust control and concrete production will result in water loss primarily through evaporation and infiltration from wetted construction surfaces and from curing concrete. No water used on the site will be discharged into wetlands, streams, and other waterways. Due to the dry conditions at the proposed Facility and the relatively low rates of water use and application, it is expected that any excess water used during construction will be lost within or near the Amended Site Boundary, primarily through evaporation and infiltration.

The disposition of construction water through evaporation and is allowed under the terms and conditions of the Facility's Water Pollution Control Facilities (WPCF) Permit (100189) and subsequent Addendums 1 and 2 to the permit. The WPCF permit is explained in Exhibit W.

## 3.2 Operations

Minimal water loss will occur during operations of the Carty Solar Farm with proposed RFA 4 changes. During periodic washing of solar panels (approximately twice per year), wash water will evaporate or infiltrate into the ground allowed under the terms and conditions of the Facility's WPCF permit described above and in Exhibit W. Water from this activity will not be discharged into wetlands, streams, or waterways.

# 4.0 Water Balance Diagram – OAR 345-021-0010(1)(o)(D)

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

The Carty Solar Farm with proposed RFA 4 changes is not a thermal power plant; therefore, this rule does not apply.

# 5.0 Permits – OAR 345-021-0010(1)(o)(E) and (F)

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

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

As described above, non-potable water for construction and operation of the Carty Solar Farm with proposed RFA 4 changes will be obtained from the Carty Reservoir under the Certificate Holder's existing water right. Water used for construction and solar panel washing will be sourced from the Carty Reservoir under the Certificate Holder's existing water right and obtained by a third-party contractor through a limited water use license. [4] As mentioned previously, the Oregon Water Resources Department issued PGE Permit S-54925 for the use of up to 3,736 acre-feet per year from the Carty Reservoir for industrial/manufacturing uses; this category allows use of water for construction purposes. Site Certificate Condition 2.14 will continue to apply, which requires evidence prior to construction that a limited water use license has been obtained from the Oregon Water Resources Department by the Certificate Holder's third-party contractor.

# 6.0 Mitigation Measures – OAR 345-021-0010(1)(o)(G)

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

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

[4] Water necessary for construction would be obtained by a third-party contractor through a limited water use license to be applied for prior to starting construction. The proposed source of water for the limited water use license would be Carty Reservoir storage under PGE Certificate 86056. (Revised Request for Amendment 1 to the Site Certificate, Exhibit O, Appendix O-1 [February 2018] and Request for Amendment 3, p. 51 [June 2022]].