BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON

In the Matter of Request for Amendment 1 of the Obsidian Solar Center Site Certificate	))))	FINAL ORDER ON AMENDMENT 1 OF THE SITE CERTIFICATE

November 17, 2023

Table of Contents

TABLES

FIGURES

ATTACHMENTS

Attachment P-3: Draft Amended Revegetation and Noxious Weed Control Plan
Attachment X: Draft Amended Wildfire Mitigation Plan

ABBREVIATIONS AND ACRONYMS

AC	Alternating Current
ACEC	Area of Critical Environmental Concern
APLIC	Avian Power Line Interaction Committee
ASC	Application for Site Certificate
BLM	Bureau of Land Management
BMP	Best Management Practices
BPA	Bonneville Power Administration
CMMP	Cultural Mitigation and Monitoring Plan
certificate holder	Obsidian Solar Center LLC
Council	Energy Facility Siting Council
DAMP	Dust Abatement Management Plan
dBA	A-weighted decibel
Department	Oregon Department of Energy
DC	Direct Current
DEQ	Oregon Department of Environmental Quality
DOGAMI	Oregon Department of Geology and Mineral Industries
DPO	Draft Proposed Order
DSL	Department of State Lands
EFSC	Energy Facility Siting Council
EFU	Exclusive Farm Use
ESCP	Erosion and Sediment Control Plan
F&W	Fish and Wildlife
Gen-tie	generation-tie
GSU	Generation Step Up
HMA	Habitat Mitigation Area
HMP	Habitat Mitigation Plan
HVAC	Heating Ventilation and Air Conditioning
IDP	Inadvertent Discovery Plan
kV	kilovolt
LCDC	Oregon Land Conservation and Development Commission
LCZO	Lake County Zoning Ordinance
LLC	Limited Liability Corporation
m	meters
MEC	Midstate Electric Cooperative
MOA	Memorandum of Agreement
MW	Megawatt
MWac	megawatts of alternating current
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operations and maintenance
OAR	Oregon Administrative Rule

ABBREVIATIONS AND ACRONYMS

ODAg	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
OSC	Obsidian Solar Center
OWRD	Oregon Water Resources Department
Parent Companies	Obsidian Renewables, LLC and Lindgren Development, Inc.
pRFA	Preliminary Request for Amendment
PGE	Portland General Electric Company
POI	point of inter-connection
PV	photovoltaic
RAI	Request for Additional Information
RFA1	Request for Amendment 1
RNA	Research Natural Area
RNWCP	Revegetation and Noxious Weed Control Plan
ROW	Right-of-Way
SAG	Special Advisory Group
SCADA	Supervisory Control and Data Acquisition System
SHPO	Oregon State Historic Preservation Office
SMP	Spill Management Plan
SOLV Energy	SOLV Energy LLC
T&E	Threatened and Endangered
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WLIP	Working Lands Improvement Program
WMMP	Wildlife Monitoring and Mitigation Plan
WOS	Waters of the State
WSA	Wilderness Study Area

I. INTRODUCTION

On August 1, 2023 Obsidian Solar Center LLC (certificate holder), a wholly owned subsidiary of Obsidian Renewables, LLC and Lindgren Development, Inc. (parent companies), filed Request for Amendment 1 of the Obsidian Solar Center Site Certificate (RFA1).

As described below, the Obsidian Solar Center (facility), is an approved, but not yet constructed, solar photovoltaic energy generation facility to be located in Lake County, approximately eight miles northwest of Christmas Valley.

As described in Section II of this order, RFA1 seeks authorization from EFSC to amend the site certificate to:

1. Increase the site boundary by approximately 169 acres; and, within the new site boundary area, authorize 89 acres as additional micrositing area;[1]

2. Construct, operate and retire the previously approved generation step-up (GSU) substation on up to 12-acres within the new micrositing area (referred to as "Area E"), to allow siting in an alternate location;

3. Increase the length of the previously approved 115 kilovolt (kV) generation tie (gen-tie) transmission line from 2 to 3.2 miles, increase the voltage from 115 to 138 kV, increase the number of steel monopole structures from 43 to 47 and structure height from 70 to 80 feet;

4. Increase the voltage of approximately 2.3 miles of electrical collection system from 34.5 to 138 kV; and,

5. Modify conditions previously imposed by Council to be consistent with RFA1 changes (Conditions General Standard Condition 9 [GEN-SG-06], Land Use Condition 2 [PRE-LU-02], Siting Standards for Transmission Lines Condition 1 [PRO-TL-01], see RFA1 Attachment 1).

Based upon review of RFA1, the DPO and the comments received by specific state agencies, local governments, the public, and Council, and Council's review of the Proposed Order, the Council approves the amendment request and adopts the Proposed Order as the Final Order on RFA1 granting issuance of the First Amended Site Certificate subject to the existing, new and amended conditions set forth in this Final Order.[2]

[1] Area approved for micrositing authorizes construction and siting of facility components anywhere within.
[2] ORS 469.501 and OAR 345-027-0371

I.A. SITE CERTIFICATE PROCEDURAL HISTORY

The Council issued the original Site Certificate for Obsidian Solar Center on February 25, 2022.

I.B. FACILITY DESCRIPTION

I.B.1. Energy Facility Description

As authorized under the Site Certificate (February 2022), the certificate holder is approved to construct and operate a 400 megawatts-alternating current (MWac) solar photovoltaic (PV) energy generation facility within an approximately 3,921 acres (6.1 square miles) site boundary (See Figure 1 below).

Solar PV Energy Facility

As approved, the energy facility will be comprised of up to 1.7 million solar PV modules consisting of solar panels, trackers, racks, posts, inverter/transformer units and above- and belowground cabling. The energy facility will include up to approximately 246,444 galvanized steel posts for solar panels, which will be hydraulically driven into the ground at a depth of 5 to 8 feet, with an approximately 4-foot aboveground height. Solar panels with anti-reflective coating will be dark bluish in color. Solar PV modules will be placed on non-specular metal galvanized steel racks, with dimensions of approximately 3’ x 7’ x 7’ at full tilt.

The energy facility is approved to include a maximum number of components, as presented in Table 1 below.

Table 1: Energy Facility – Specifications and Details

Component	PV Only	PV plus Storage (Dispersed)
3 MWac Block	160	
Modules	1,326,858	1,742,572
Module Rows (on trackers)	16,587 x 78 module rows	21,644 x 78 module rows
Posts	187,545	246,444
Inverters	160	
Transformers	160	

I.B.2. Related or Supporting Facilities Description

As authorized under the Site Certificate (February 2022), the certificate holder is approved to construct and operate the following related or supporting facilities:[3]

[3] ORS 469.020 defines “related or supporting facilities” as “any structure, proposed by the applicant, to be constructed or substantially modified in connection with the construction of an energy facility, including associated transmission lines, reservoirs, storage facilities, intake structure, road and rail access, pipelines, barge basins, office

- 34.5 kV electrical collection system
- Up to 4 collector substations (approximately 1 acre each)
- 115/500 kV step-up substation (on approximately 3 acres)
- Up to 2 operations and maintenance (O&M) building(s); and, Supervisory Control and Data Acquisition (SCADA) System
- Site access/gates, approximately 50 miles of internal/perimeter roads, and 7-foot tall perimeter fencing
- 2 miles of 115 kV transmission line
- Battery Storage System

Specifications and details of approved related or supporting facilities are presented in Table 2 below.

Table 2: Related or Supporting Facilities – Specifications and Details

Component	**PV plus Storage (Dispersed)**
Direct current electrical system, above and belowground	Up to 2 million miles of cable; combiner boxes
34.5 kV ac electrical system	Inverters, step-up transformers and 160 home-run cables
Collector Substations, 1 acre each	4, with oil-containing step up transformers; equipment height = 10’
115 kV generation-tie transmission line	2 miles, double circuit consisting of: • 37 single steel monopole structures up to 6 feet in diameter, spaced approximately 300 feet apart, and approximately 70 feet in height. • Concrete foundations up to 20 feet deep, which may have directional anchoring system structures.
115/500 kV step-up substation, 3 acres	1 substation consisting of: • up to 2 115 to 500 kV transformers, each containing 50,000 gallons of transformer oil • one 115 kV input structure • two 115 kV circuit breakers • two 500 kV circuit breakers • 500 kV output structures • a control building for housing control and communication equipment • 65-100 foot interconnection structures
Operations and Maintenance Building, 0.5 acre	2 O&M buildings, 50 x 50 x 14’, consisting of: • warehouse-like storage area • human machine interface system

buildings, and commercial and industrial structures..” Council’s definitions at OAR 345-001-0010(27) further establish that “..Council interprets the terms “proposed to be constructed in connection with” to mean that a structure would not be built but for construction or operation of the energy facility.

Table 2: Related or Supporting Facilities – Specifications and Details

Component	PV plus Storage (Dispersed)
	• restrooms and employee work areas • an exempt groundwater well • septic system
Perimeter Fence	Approx. 18 miles, chain link
Battery Storage Enclosures	134 steel framed structures: • approximately 50 feet wide, 67 feet long and up to 30 feet tall Balance of Plant (BOP) consisting of: • large polymer tanks on each side of the cell stack, pumps, piping (polyvinyl chloride), thermal controls, and power conversion hardware (single stage, bidirectional inverters). • Storage tanks with non-hazardous, water-based electrolyte/polymer. • Primary and secondary spill containment devices • Thermal system control of a heating, ventilation, air conditioning (HVAC) air-to-air and glycol-to-air (non-toxic) heat exchanger
Batteries	• outdoor rated • negatively grounded, ground fault detection and interruption capable of detecting ground faults in the dc current carrying conductors and components • intentionally grounded conductors, insulation monitoring, • dc and ac overvoltage protection and lightning protection, • humidity control • data acquisition and communication monitoring interface.
Inverters	160
Redox Electrolyte Fluid	14,000 gallons per MW
Supervisory Control and Data Acquisition System	Fiber optic cables installed above- and below ground with collection system
Perimeter roads	50 miles • Built with materials designed to act as fire breaks, sized for emergency vehicle access in accordance with Oregon Fire Code. • Internal roads of 12 x 20’ with at least a 30-foot noncombustible, defensible space clearance for fire prevention

1

I.C. SITE DESCRIPTION

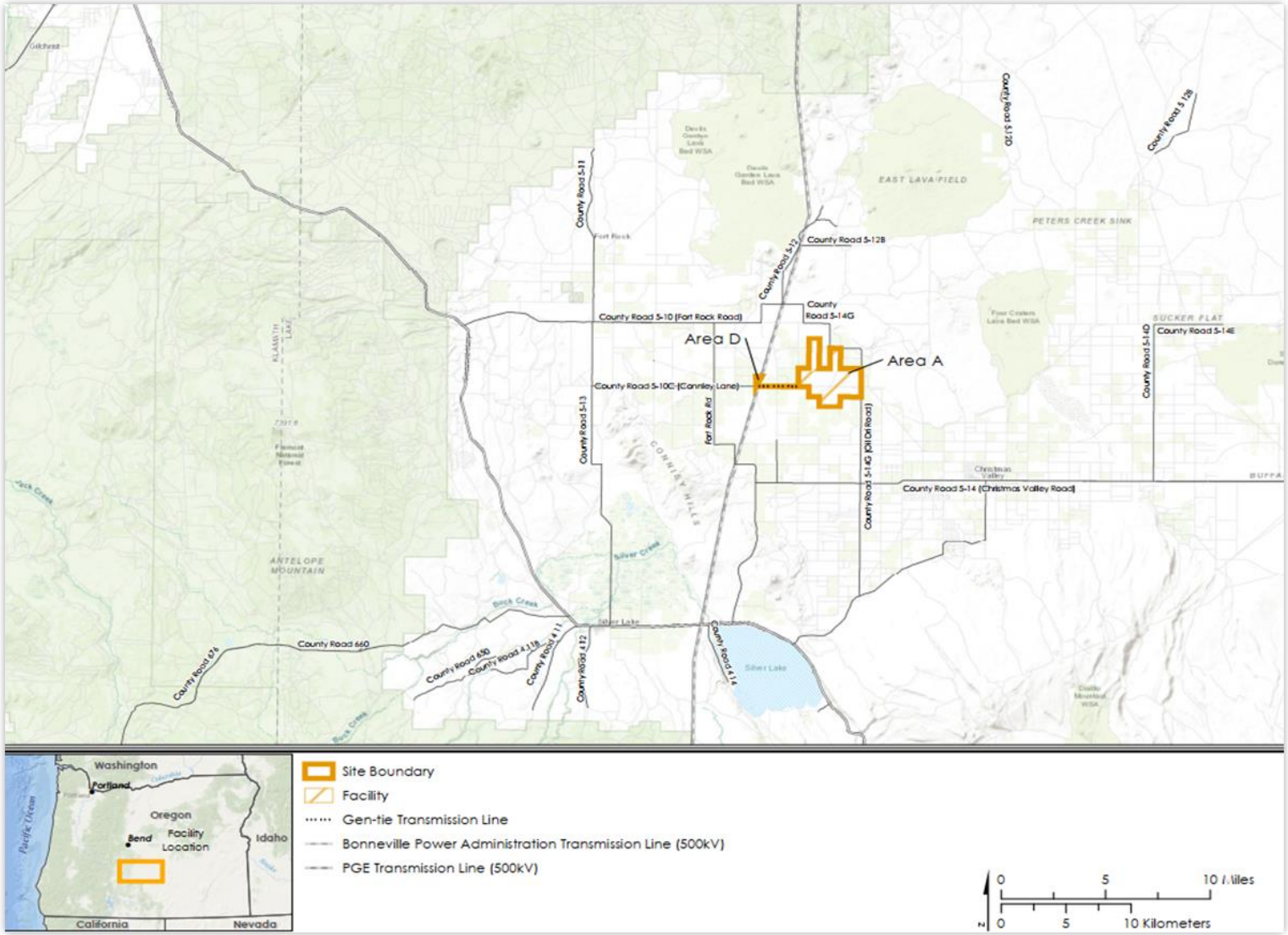
The site boundary is in Lake County, Oregon off Oil Dri Road (County Road 5-14G). The site boundary is in Township 26 south, Range 16 east, Sections 5, 8, 9, 15, 16, 17, 20, 21 and 22; Township 26 south, Range 15 east, Section 13; and Township 26 south, Range 15 east, Sections 13 and 24, and in Township 26 south, Range 16 east, Sections 18 and 19.

The site boundary is approximately 3,921 acres and includes geographic areas referred to as Area A, Area D, and the transmission line corridor. Area A is the approved location of the solar array and contains approximately 3,863 acres, located mostly on private land and some public lands (about 640 acres) owned by the Oregon Department of State Lands (DSL). The land within Area A is mostly sagebrush shrubland, but also contains relatively small areas of sand dunes and playas. Area D is approximately 2 miles west of Area A, located on private land and contains approximately 44 acres. Area D, as approved, would contain the 115/500 kV step-up substation and point of interconnection. The land within Area D is mostly non-native forb habitats. The approved site boundary also includes a 60-foot wide, 2-mile transmission line corridor; 1.5-miles of the transmission line corridor is located within an existing 60-foot county road (Connley Lane) right-of-way, to be authorized for use by Lake County prior to construction.

Within the approved 3,921 acre site boundary, approximately 332 acres are identified as avoidance areas where no disturbance would occur due to sensitivity of environmental resources. The approved 3,589 acre micrositing area is the area where the certificate holder has authority to site facility components anywhere within.[4]

[4] OAR 345-001-0010(21) defines "micrositing corridor" as a continuous area of land within which construction of facility components may occur, subject to site certificate conditions.

Figure 1: Regional Location of Site Boundary (as approved in Site Certificate, February 2022)



II. AMENDMENT PROCESS

The Type A amendment review process (consisting of OARs 345-027-0359, -0360, -0363, -0365, -0367, -0371 and -0375) is the default amendment review process and shall apply to the Council's review of a request for amendment proposing a change described in OAR 345-027-0350(2), (3), and (4).[5]

With some exceptions, an amendment to a site certificate is required for any change in the design, construction, or operation a facility in a manner different from that described in the site certificate, if the proposed change: (1) 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 an applicable law or Council standard; (2) Could impair the certificate holder's ability to comply with a site certificate condition; or (3) Could require a new condition or a change to a condition in the site certificate. OAR 345-027-0350(3). In addition, a site certificate is required to extend the construction beginning or completion deadlines specified in the site certificate. OAR 345-027-0350(4).

In RFA1, certificate holder proposes to design, construct, and operate the facility in a manner that is different from the description included in the site certificate and proposes changes to conditions previously imposed by Council (see Section II.A below and RFA1 Attachment 1). Therefore, an amendment to the site certificate is required under OAR 345-027-0350(1-3). In addition, a site certificate amendment is required for changes in site boundary. For these reasons, RFA1 is subject to Type A review.

II.A. CHANGES PROPOSED IN RFA1

RFA1 changes included increasing the site boundary from 3,921 to 4,090 acres (169 acre increase, "Area E"), increasing the micrositing area from 3,589 to 3,678 acres (89 acre increase) and increasing the footprint of the GSU step-substation, if located in Area E, from 3 to 12 acres.[6] The location of the RFA1 site boundary and micrositing area is presented in Figure 2 below (in "orange" outline and "orange" cross-hatch, respectively).

RFA1 requested Council approval for the following changes:

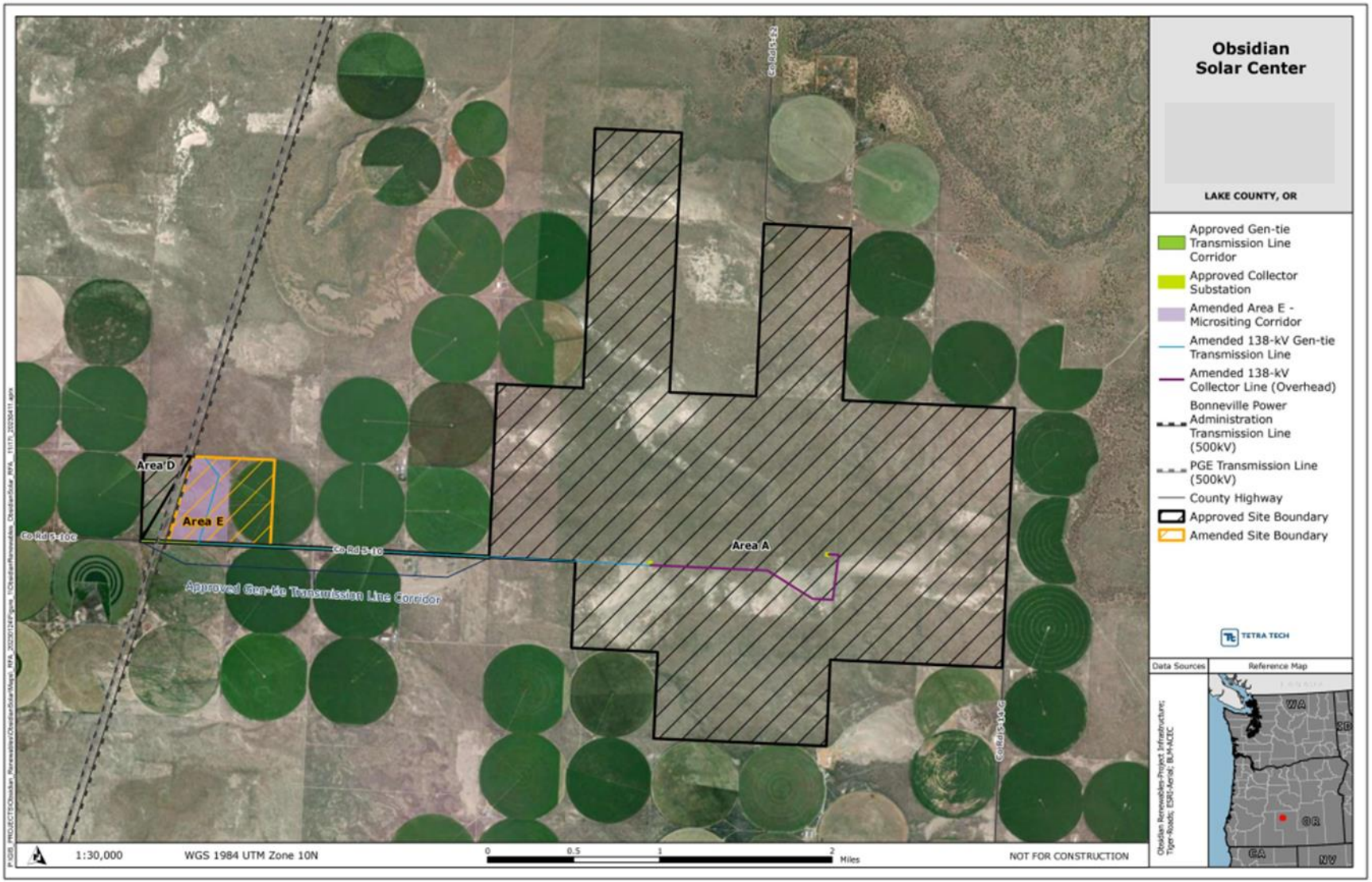
1. Modify the specifications of the approved 115 kV transmission line: increase the length from 2 to 3.2 miles; increase the voltage from 115 to 138 kV; increase the number of single steel monopole structures from 43 to 47, and increase structure height from 70 to 80 feet.

[5] OAR 345-027-0351(2).

[6] The amended site boundary and micrositing area changes allow siting of the previously approved GSU substation in an alternative location, to allow a point of interconnect to the existing Portland General Electric (PGE) or Bonneville Power Administration (BPA) transmission line.

2. Modify the specifications of the approved above-ground electrical collection system: increase the voltage of approximately 2.3 miles of previously approved 34.5 electrical collection system to 138 kV aboveground collection system, using 33 single steel or wood monopole structures, 80 feet in height.
3. Amend the language of conditions previously imposed by Council to be consistent with the changes in RFA1. Amended conditions include: General Standard Condition 9 [GEN-SG-06], Land Use Condition 2 [PRE-LU-02], Siting Standards for Transmission Lines Condition 1 [PRO-TL-01], see RFA1 Attachment 1).

Figure 2: Location of Proposed RFA1 Changes



RFA1 changes necessitated an amendment of Site Certificate Table 2*: Maximum Number and Dimensions of Related or Supporting Facilities* as presented in red-line/strikethrough in Table 3 below:

Table 3: Proposed RFA1 Changes to Related or Supporting Facilities

Component	PV plus Storage (Dispersed)
Direct current electrical system, above and belowground	Up to 5,000 miles of cable; combiner boxes
34.5/138 kV ac electrical system	160 inverters, 160, 800-gallon oil-containing step-up transformers and 160 home-run cables. ac power will be collected at the collector substation and stepped-up to 138 kV; a single circuit 138 kV collector line of up to 2.3 miles will connect the collector substations within Area A, consisting of approximately 33 single steel or wood monopole structures up to 80 feet in height, 6 feet in diameter, spaced approximately 500 feet apart with concrete foundations up to 20 feet deep, some of which may have directional anchoring.
Collector Substations, 1 acre each	Up to 4 collector substations, each with an 800-gallon oil-containing step up transformer~~s~~, with 2 of the 4 collector substations stepping up the power collected to 138 kV; substation equipment height = 10’
138 kV generation-tie transmission line	Up to 3.2 miles, double circuit between POI switchyard and the western most collector substation, approximately 1 mile of which is inside Area A, 2 miles of which is in the transmission corridor outside of Area A and approximately 0.5 miles of which may be within Area D or E, consisting of: • 47 single steel monopole structures up to 6 feet in diameter, spaced approximately 500 feet apart, and approximately 80 feet in height. • Concrete foundations up to 20 feet deep, some of which may have directional anchoring system structures.
138/500 kV step-up substation, 3 acres (if in Area D) or 12 acres (if in Area E)	1 substation consisting of: • up to 2 138 to 500 kV transformers, each containing 50,000 gallons of transformer oil • one 138 kV input structure • two 138 kV circuit breakers • two 500 kV circuit breakers • 500 kV output structures • a control building for housing control and communication equipment

Table 3: Proposed RFA1 Changes to Related or Supporting Facilities

Component	PV plus Storage (Dispersed)
	• 65-100 foot interconnection structures
Operations and Maintenance (O&M) Building, 0.5 acre	2 O&M buildings, 50 x 50 x 14', consisting of: • warehouse-like storage area • human machine interface system • restrooms and employee work areas • an exempt groundwater well • septic system
Perimeter Fence	Approx. 21.5 miles, chain link
Battery Storage Enclosures	134 steel framed structures: • approximately 50 feet wide, 67 feet long and up to 30 feet tall Balance of Plant (BOP) consisting of: • large polymer tanks on each side of the cell stack, pumps, piping (polyvinyl chloride), thermal controls, and power conversion hardware (single stage, bidirectional inverters). • Storage tanks with non-hazardous, water-based electrolyte/polymer. • Primary and secondary spill containment devices • Thermal system control of a heating, ventilation, air conditioning (HVAC) air-to-air and glycol-to-air (non-toxic) heat exchanger
Batteries	• outdoor rated • negatively grounded, ground fault detection and interruption capable of detecting ground faults in the dc current carrying conductors and components • intentionally grounded conductors, insulation monitoring, • dc and ac overvoltage protection and lightning protection, • humidity control • data acquisition and communication monitoring interface.
Redox Electrolyte Fluid	14,000 gallons per MW
Supervisory Control and Data Acquisition System	Fiber optic cables installed above- and below ground with collection system
Perimeter roads	50 miles • Internal roads will be a minimum of 12 feet in width. Although there may not be a perimeter road in all locations, there will be, at a minimum, a 30-foot

Table 3: Proposed RFA1 Changes to Related or Supporting Facilities

Component	PV plus Storage (Dispersed)
	noncombustible, defensible space clearance for fire prevention. These perimeter areas will be kept free of combustible material via mechanical and/or chemical control of vegetation and other combustible material.

II.B. COUNCIL REVIEW PROCESS

On April 12, 2023 the certificate holder submitted its preliminary Request for Amendment 1 (pRFA1). The Department reviewed pRFA1 to determine whether or not the request contained sufficient information for the Council to make findings.

On April 26, 2023 the Department issued Public Notice that the preliminary Request had been received as required by OAR 345-027-0360(2).[7] The Public Notice was mailed to adjacent property owners, the ODOE General Mailing List, Click Dimensions electronic mailing list, reviewing agencies and Special Advisory Group (SAG). Reviewing agency comments were received from Lake County Planning Department, on behalf of the Board of Commissioners, as the appointed SAG for EFSC proceedings related to the Obsidian Solar Center, Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Agriculture (ODAg), and the State Historic Preservation Office (SHPO) (see Attachment B of this order). Reviewing agency and SAG comments are summarized in Table 4 below.

Table 4: Summary of pRFA1 Reviewing Agency Comments

Name, Agency	Date	Comment Summary*
Darwin Johnson, Lake County SAG	6/12/23	Lake County does not believe RFA1 changes are significant if water right is transferred for similar use resulting in no-net loss to irrigated agriculture. There have been no changes in applicable substantive criteria or Lake County Zoning Ordinance since Council approved the ASC. County supports amending site boundary if needed to allow for BPA inter-tie. County concurs with previous conditions on site certificate specific to Land Use and Public Services. County supports the amendment request.
John Muir, ODFW	5/15/23	Certificate holder consulted on field surveys for pygmy rabbit, white tailed jackrabbit, and raptors. ODFW approved methods and concurred with findings of 2022 RFA1 field survey and report. All proposed RFA1 area and approved site boundary are within Category 2 Big Game Winter Range Habitat and permanent impacts will require Category 2 mitigation. As proposed, RFA1 would result in 12 additional acres of permanent impact to Category 2 in RFA1 analysis area, Area E, however RFA1 will not result in any additional total impacts to Category 2 acreage beyond what was

[7] OSCAMD1Doc2 pRFA1 Public Notice 2023-04-26.

Table 4: Summary of pRFA1 Reviewing Agency Comments

Name, Agency	Date	Comment Summary*
		already approved by Council in the ASC. Existing HMP is sufficient for mitigating potential impacts to Category 2 and other habitat. All Category 1 habitat should be avoided. 134 acres of RFA1 analysis area is developed/agriculture but ODFW considers all 169 acres as Category 2 Big Game Winter Range.
Jordan Brown, ODAg	5/17/23	No known T&E Plant species in RFA1 analysis area and not likely that T&E plant species are present in RFA1 analysis area. No T&E plant surveys requested for ASC or RFA1. ODAg requested that any preconstruction wildlife surveys include T&E plants, specifically Bogg's Lake hedge hyssop. Approved desktop analysis methods and findings for RFA1 study. No noxious weeds in RFA1 field survey for Fish and Wildlife habitat. No T&E plants observed. Concurred with findings.
John Pouley, SHPO	6/27/23	RFA1 should follow same agreements, conditions and plans as approved in ASC for additional findings in proposed RFA1 boundary, Area E.
* Written comments are provided in Attachment B of this order.		

Under OAR 345-027-0363(2), on May 24, 2023 the Department notified the certificate holder that pRFA1 was incomplete. The Department requested additional information related to the project description, evaluation of Area E, organizational expertise, retirement and financial assurance, soils, land use, protected areas, and noise.

On June 15, 2023 and July 25, 2023 the certificate holder responded to the Department's Request for Additional Information.

On July 28, 2023, the Department notified the certificate holder that RFA1 was complete. The certificate holder submitted the complete RFA1 on August 1, 2023.

Draft Proposed Order

On August 1, 2023 the Department posted the complete RFA1 and an announcement on its project webpage as required by OAR 345-027-0365. On the same day, the Department issued Public Notice of RFA1 and the DPO, initiating a public comment period. The notice was distributed to all persons on the Council's general mailing list, to the special mailing list established for the facility (i.e. individuals that have signed up to receive paper notices or electronic notices from the Department for the Obsidian Solar Center for all EFSC energy facilities), to an updated list of property owners supplied by the certificate holder, and to a list of reviewing agencies as defined in OAR 345-001-0010(52). The comment period extended from August 1 through August 24, 2023 and closed at the conclusion of the Public Hearing.

The Department received one written public comment on the record of the DPO (See Attachment C of this Order) and while this comment was generally in opposition of renewable energy development, it was not made with specificity related to EFSC standards or this facility or amendment request.

Table 5: DPO Comment Summary

Name	Organization	Comment
Laurie Hutchinson	Obsidian Renewables	Thanks to Lake County participants for coming. Proposed changes to the site certificate are basic – many of you know, I am the main liaison for this project in Lake county. We have added irrigated land to the project area – we know this is a sensitive issue; there is not a lot of private, irrigated land here. We checked with the landowners to ensure they can move their water right – landowners have provided a letter on the record that they will move the water rights and the DPO requirements for no-net-loss. Other changes are technical. Upgrading the voltage to 138 kilovolts would occur for either interconnect option. Length of gen-tie line has been adjusted based on micrositing. Siting the substation in Area E in the northern most portion of get farthest away from any residences.
Perry Chocktoot	Council Member	Conflict on this project. Will be recusing himself consistent with past recusal on this facility.
Ann Beier	Council Member	Proposal is to give you options for gen-tie? Response: We will most likely connect with the east set of lines (what RFA1 is requesting). Thanks members of public for attending in person. All previous conditions carry forward so all that is being proposed are minor adjustments to existing conditions, and wildfire, to adjust for the changes in this amendment request.
Richard Devlin	Council Member	In this changing of where water rights are being used, what are the landowner costs and impacts to soils (types and condition of soils)? Is the landowner being compensated? Response: Landowner is being compensated for the land. It's a 5/8 pivot – they are a large landowner. Land close to a viable powerline goes for a premium value.
Council DPO Review at September 22, 2023 Meeting		
Cindy Condon	Council Member	Wildfire Prevention and Risk Mitigation Standard: Requested that the mitigation plan include some form of landowner notification for any onsite wildfire issues.

Council review of the DPO occurred at the September 22, 2023 meeting. During Council's review of the DPO and Department-recommended new and amended conditions in the DPO, Councilmembers Condon and Beier agreed that landowner notification should be a requirement of the certificate holder's Wildfire Mitigation Plan, as evaluated under the Wildfire Prevention and Risk Mitigation standard. (See Section III.N.). Council comments are summarized in the Table 5 above and resulted in revisions to the draft Wildfire Mitigation Plan found in Attachment X of this order (see redline additions on page 5 of the draft plan).

Proposed Order

Pursuant to OAR 345-027-0371, the Department issued a Proposed Order and Notice of Proposed Order and Opportunity to request a Contested Case on September 26, 2023. Pursuant to OAR 345-027-0371(2), notice of the Proposed Order was sent to the Council's general mailing list, special mailing list via ClickDimensions, reviewing agencies (OAR 345-001-0010(52)) and property owners (OAR 345-027-0360(1))f)).[8]

Under OAR 345-027-0371(4), on the same date as the notice of Proposed Order, the Department sent a notice of the opportunity to request a contested case by mail or email to the certificate holder, and to all persons who commented in person or in writing on the record of the DPO public hearing. Based upon the issuance date of the Proposed Order, the deadline to request a contested case for this amendment request closed October 27, 2023 at 5:00 PM PST. The Proposed Order recommended approval of the first amended site certificate.

No requests for contested cased were received by the Department, therefore, at the regularly scheduled November 17, 2023 EFSC meeting, the Department presented the Proposed Order to Council, focusing on substantive changes in recommended findings of fact or conclusions of law, and any revisions to recommended site certificate conditions made from the Draft Proposed Order to the Proposed Order.

Final Order

The Council reviewed the Proposed Order at the November 17, 2023 EFSC meeting. Following a review of the Proposed Order, Council voted unanimously (5-0 with one abstention (Councilmember Chocktoot) and one absence (Councilmember Beier)) to approve the Proposed Order and adopt as the final order, and granted issuance of the First Amended Site Certificate. The Council's final order is subject to judicial review by the Oregon Supreme Court as provided in ORS 469.403.

II.C. SCOPE OF COUNCIL REVIEW

For amendments to the site certificate that would add area to the site boundary and/or result in changes to site certificate conditions, the Scope of Council Review under OAR 345-027-0375

[8] OSCAMD1Doc17 – Doc17-11 Public Notice of Proposed Order and Contested Case 2023-09-26.

tasks Council that when making a decision to grant or deny issuance of the amended site certificate, the Council must determine whether the preponderance of evidence on the record supports the conclusion that the facility, with RFA1 changes, complies with the applicable laws of Council standards that protect a resource or interest that could be affected by the change. OAR 345-027-0375 also requires the Council to find that the amount of the bond or letter of credit required under OAR 345-022-0050 is adequate.

This final order includes Council's analysis of whether RFA1 changes meet each applicable standard (with mitigation and subject to compliance with amended and new conditions, as applicable), based on the information in the record, including the Council's consideration of the comments received on the record of the DPO public hearing on August 24, 2023 , Council comments received during the September 22, 2023 DPO review, and Council's review of the Proposed Order on November 17, 2023.

III. EVALUATION OF COUNCIL STANDARDS

III.A. GENERAL STANDARD OF REVIEW: OAR 345-022-0000

(1) To issue a site certificate for a proposed facility or to amend a site certificate, the Council shall determine that the preponderance of evidence on the record supports the following conclusions:

(a) The facility complies with the requirements of the Oregon Energy Facility Siting statutes, ORS 469.300 to 469.570 and 469.590 to 469.619, and the standards adopted by the Council pursuant to 469.501 or the overall public benefits of the facility outweigh any adverse effects on a resource or interest protected by the applicable standards the facility does not meet as described in section (2);

(b) Except as provided in OAR 345-022-0030 for land use compliance and except for those statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council, the facility complies with all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility. If the Council finds that applicable Oregon statutes and rules, other than those involving federally delegated programs, would impose conflicting requirements, the Council shall resolve the conflict consistent with the public interest. In resolving the conflict, the Council cannot waive any applicable state statute.

(2) The Council may issue or amend a site certificate for a facility that does not meet one or more of the applicable standards adopted under ORS 469.501 if the Council determines that the overall public benefits of the facility outweigh any adverse effects on a resource or interest protected by the applicable

standards the facility does not meet. The Council shall make this balancing determination only when the applicant has shown that the proposed facility cannot meet applicable Council standards or has shown, to the satisfaction of the Council, that there is no reasonable way to meet the applicable Council standards through mitigation or avoidance of any adverse effects on a protected resource or interest. The applicant has the burden to show that the overall public benefits outweigh any adverse effects on a resource or interest, and the burden increases proportionately with the degree of adverse effects on a resource or interest. The Council shall weigh overall public benefits and any adverse effects on a resource or interest as follows:

(a) The Council shall evaluate any adverse effects on a resource or interest by considering factors including, but not limited to, the following:

(A) The uniqueness and significance of the resource or interest that would be affected;

(B) The degree to which current or future development may adversely affect the resource or interest, if the proposed facility is not built;

(C) Proposed measures to reduce any adverse effects on a resource or interest by avoidance of impacts;

(D) The magnitude of any anticipated adverse effects on a resource or interest, taking into account any proposed mitigation.

(b) The Council shall evaluate overall public benefits by considering factors including, but not limited to, the following:

(A) The overall environmental effects of the facility, considering both beneficial and adverse environmental effects;

(B) The degree to which the proposed facility promotes Oregon energy policy as described in ORS 469.010 by demonstrating or advancing new efficiency or renewable technology or by expanding electric generating capacity from renewable energy sources;

(C) Recommendations from any special advisory group designated by the Council under ORS 469.480;

(D) Evidence that the benefits are likely to occur only if the proposed facility is built;

(E) For facilities that are subject to a need standard, evidence underlying the Council's decision on compliance with the rules in OAR 345, Division 23, except that the Council shall not find that need for a facility is sufficient, by itself, to outweigh any adverse effects on a resource or interest affected by the proposed facility.

(3) Notwithstanding section (2) of this rule, the Council shall not apply the balancing determination to the following standards:

(a) The organizational expertise standard described in OAR 345-022-0010;

(b) The land use standard described in OAR 345-022-0030;

(c) The retirement and financial assurance standard described in OAR 345-022-0050;

(d) The need standards described in OAR 345-023-0005;

(e) The standards for energy facilities that emit carbon dioxide described in OAR 345-024-0500 through 345-024-0720;

(f) The protected areas standard described in OAR 345-022-0040, if the statutes or administrative rules governing the management of the protected area prohibit location of the proposed facility in that area; or

(g) The sage-grouse specific habitat mitigation requirements under the Council's fish and wildlife habitat standard described in OAR 345-022-0060, except that the Council may apply the balancing determination to the requirements of 635-140-0025(2)(a) and (b) for indirect impacts on core and low density sage-grouse habitat, as defined in 635-140-0015, which are caused by transmission lines or pipelines as defined in ORS 469.300(11)(a), and by transmission lines or pipelines that are related or supporting facilities to an energy facility as defined in ORS 469.300(24), proposed to be sited entirely outside of core and low density sage-grouse habitat.

(4) In making determinations regarding compliance with statutes, rules and ordinances normally administered by other agencies or compliance with requirements of the Council statutes if other agencies have special expertise, the Department of Energy shall consult with such other agencies during the notice of intent, site certificate application and site certificate amendment processes. Nothing in these rules is intended to interfere with the state's implementation of programs delegated to it by the federal government.[9]

[9] OAR 345-022-0000, effective March 8, 2017.

III.A.1. Findings of Fact

OAR 345-022-0000 provides the Council's General Standard of Review and requires the Council to find that a preponderance of evidence on the record supports the conclusion that the facility, with RFA1 changes, complies with the applicable laws or Council standards that protect a resource or interest that could be affected by the proposed change. The findings of fact and conclusions of law presented in this order demonstrate that RFA1 includes sufficient facts and evidence to satisfy a preponderance of evidence under each standard and applicable rule.[10]

Site Specific Conditions [OAR 345-025-0010]

OAR 345-025-0010 establishes "site specific" conditions that Council may include in a site certificate to address issues specific to certain facility types or proposed features of facilities. OAR 345-025-0010(5) states:

> "If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a pipeline or transmission line, the Council must specify an approved corridor in the site certificate and must allow the certificate holder to construct the pipeline or transmission line anywhere within the corridor, subject to the conditions of the site certificate. If the applicant has analyzed more than one corridor in its application for a site certificate, the Council may, subject to the Council's standards, approve more than one corridor."

Council rules define "corridor" as "a continuous area of land not more than one-half mile in width and running the entire length of a proposed transmission line.."[11] To satisfy the intent of OAR 345-025-0010(5), consistent with the Council's definition of a transmission line "corridor", Council previously established an approved transmission line corridor for which the certificate holder is authorized to construct, in General Standard Condition 9 (GEN-GS-06). The Council amends General Standard Condition 9 based on the change in transmission line corridor extending to the alternate GSU substation location, as presented below:

> **Amended General Standard Condition 9 [GEN-GS-06]:**
> The certificate holder is authorized to construct a 138-kV transmission line anywhere within the approved corridor, subject to the conditions of the site certificate. The approved corridor extends approximately 3 miles from the collector substation within

[10] OAR 345-022-0000(2) and (3) apply to RFAs where a certificate holder has shown that the proposed facility modifications cannot meet Council standards or has shown that there is no reasonable way to meet the Council standards through mitigation or avoidance of the damage to protected resources; and, for those instances, establish criteria for the Council to evaluate in making a balancing determination. In RFA1, the certificate holder has not represented that the proposed RFA1 changes cannot meet an applicable Council standard. Therefore, OAR 345-022-0000(2) and (3) would not apply to this review.

[11] OAR 345-001-0010(7)

Area A to the south boundary of Area D or, alternatively, approximately 3.2 miles from the collector substation within Area A to the point of interconnection (POI) in Area E.

For an Area D POI: From east to west, the first mile is within the PV Array in Area A, the next 0.5-mile corridor extends 60 feet in width within a private property transmission easement, the next 1.5-mile corridor extends 60 feet in width within the exiting road right-of-way of Connley Lane, as further described in ASC Exhibits B and C and as presented in Figure 3 of the site certificate.

For an Area E POI: From east to west, the first 1-mile is within the PV Array in Area A, the next 0.5-mile corridor extends 60 feet in width within a private property transmission easement, the next 1.2-mile corridor extends 60 feet in width within the existing right-of-way of Connley Lane, and the remaining 0.5 mile corridor is within Area E.
[Final Order on ASC, AMD1, General Standard Condition 9; Site Specific Condition OAR 345-025-0010(5)]

As presented in the subsections that follow, the Council finds that the certificate holder has adequately characterized and evaluated the RFA1 site boundary additions, and, based on compliance with previously imposed and new and amended conditions, should be authorized to construct the transmission line and GSU substation within the amended corridor areas. The Council amends General Standard Condition 9 (GEN-GS-06) as presented above, and in compliance OAR 345-025-0010(5).

III.A.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing, new and amended conditions presented in this order, the Council finds that the facility, with RFA1 changes, will continue to comply with the requirements of ORS 469.300 to 469.570 and 469.590 to 469.619, the Council's standards in OAR chapter 345-022-0000, and all other applicable Oregon statutes and administrative rules.

III.B. ORGANIZATIONAL EXPERTISE: OAR 345-022-0010

(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.

(2) The Council may base its findings under section (1) on a rebuttable presumption that an applicant has organizational, managerial and technical expertise, if the applicant has an ISO 9000 or ISO 14000 certified program and proposes to design, construct and operate the facility according to that program.

(3) If the applicant does not itself obtain a state or local government permit or approval for which the Council would ordinarily determine compliance but instead relies on a permit or approval issued to a third party, the Council, to issue a site certificate, must find that the third party has, or has a reasonable likelihood of obtaining, the necessary permit or approval, and that the applicant has, or has a reasonable likelihood of entering into, a contractual or other arrangement with the third party for access to the resource or service secured by that permit or approval.

(4) If the applicant relies on a permit or approval issued to a third party and the third party does not have the necessary permit or approval at the time the Council issues the site certificate, the Council may issue the site certificate subject to the condition that the certificate holder shall not commence construction or operation as appropriate until the third party has obtained the necessary permit or approval and the applicant has a contract or other arrangement for access to the resource or service secured by that permit or approval.[12]

III.B.1. Findings of Fact

Obsidian Solar Center LLC is a project-specific limited liability company (LLC) and therefore relies upon the organizational expertise and experience of its two parent companies, Obsidian Renewables, LLC, and Lindgren Development, Inc. to demonstrate compliance with the Council's Organizational Expertise standard.

Obsidian Renewables LLC has developed and financed 27 solar PV facilities, including three local solar facilities in Lake County. These solar facilities are: Fossil Lake Solar (10 MW) in the Christmas Valley/north Lake County area, and Airport Solar (47.25 MW) and Airport 10 (10 MW) in the Lakeview/south Lake County area. Lindgren Development, through its subsidiaries, has constructed, operated, and maintained solar PV projects totaling over 3 gigawatts.[13] Lindgren Development, is a subsidiary of SOLV Energy, formally known as Swinerton Renewable

[12] OAR 345-022-0010, effective April 3, 2002.

[13] OSCAPPDoc4 OSC ASC Exhibit D 2019-10-17, D.2.

Energy. SOLV Energy has built over 1 gigawatt in solar energy project.[14] RFA1 changes do not represent substantive changes in design or engineering that would necessitate new or different experience or expertise from Council's previous evaluation.

RFA1 Attachment 5 includes Heffernan Insurance Brokers' attestation, as of June 28, 2023, that they would be able to issue a bond up to $40 million dollars to Obsidian Solar LLC. RFA1 Attachment 5 also includes a legal opinion letter from Tonkon Torp LLP, dated June 8, 2023, attesting that the certificate holder has the legal authority to construct and operate the facility without violating its articles of organization covenants or similar agreements.

Neither the certificate holder nor its parent company, Obsidian Renewables LLC, has received a regulatory citation in the past 5 years. Swinerton Builders has also not received a regulatory citation in the past 5 years.[15]

Council previously imposed Organizational Expertise Conditions 1-5 (GEN-OE-01, PRE-OE-01, GEN-OE-02, GEN-OE-03, GEN-OE-04), as summarized below.

- Organizational Expertise Condition 1 [GEN-OE-01] requires that the certificate holder notify the Department of any changes to its parent companies that would affect its access to technical or financial expertise and resources (to allow the Department to evaluate whether a site certificate transfer amendment is required, if the changes impact the findings of fact relied upon by Council)

- Organizational Expertise Condition 2 [PRE-OE-01] requires that, prior to construction, the certificate holder provide the qualifications of its selected contractor, demonstrating that the contractor(s) have substantial experience in design, engineering and construction of similar facilities.

- Organizational Expertise Condition 3 [GEN-OE-02] requires the certificate holder to contractually require all contractors and subcontractors to comply with the terms and conditions of the site certificate.

- Organizational Expertise Condition 4 [GEN-OE-03] establishes that the certificate holder is legally responsible for site certificate compliance, including matters of non-compliance.

- Organizational Expertise Condition 5 [GEN-OE-04] requires that the certificate holder report any matters of site certificate non-compliance to the Department within 72 hours of discovery.

[14] *Id.*

[15] OSCAMD1Doc9 Request for Amendment 1, Section 7.2 2023-08-01.

RFA1 changes include increases in transmission line voltage from 115 to 138 kV, increase in transmission line length and extent of above-ground components, increase in GSU step-up substation transformer size from 115/500 kV to 138/500 kV, collector substation transformer size from 34.5 kV to 138 kV, and change in GSU step-up substation location. Based on potential increases in environmental impacts from greater disturbance (soil/erosion and noxious weed issues) and wildfire risk from these changes, the Council amends Organizational Expertise Condition 2 (PRE-OE-01) and imposes new conditions, consistent with Organizational Expertise Condition 2 (PRE-OE-01), to ensure that the certificate holder hires and maintains qualified environmental manager(s), or qualified designated representatives, during construction and operation, as presented below:

> **Amended Organizational Expertise Condition 2 [PRE-OE-01]**: Before beginning construction of the facility or facility component, as applicable, the certificate holder shall notify the Department of the identity, telephone number, email address and qualifications of the on-site construction manager or qualified designated representative. Qualifications shall demonstrate that the construction manager has experience in managing permit and regulatory compliance requirements and is qualified to manage a utility-scale solar facility construction project. The certificate holder shall notify the Department within 72-hours upon any change to the on-site construction manager.
> [Final Order on ASC, AMD1, Organizational Expertise Condition 2]
>
> **Organizational Expertise Condition 6 [CON-OE-01]**: During construction of the facility or a facility component, as applicable, the certificate holder shall require that the qualified construction manager, or qualified designated representative, is on site during ground disturbance activities to manage compliance with site certificate requirements. The certificate holder shall notify the Department within 72-hours upon any change to the on-site construction manager.
> [Final Order on AMD1, Organizational Expertise Condition 6]
>
> **Organizational Expertise Condition 7 [PRO-OE-01]**: Before beginning operation, the certificate holder shall notify the Department of the identity, telephone number, e-mail address and qualifications of the facility/asset manager. Qualifications shall demonstrate that the operations manager has experience in managing permit and regulatory compliance requirements and is qualified to manage operation of a utility scale solar facility.
> [Final Order on AMD1, Organizational Expertise Condition 7]
>
> **Organizational Expertise Condition 8 [OPR-OE-01]**: During operation, the certificate holder shall require that the qualified facility/asset manager be responsible for managing compliance with operations-related site certificate requirements.
> [Final Order on AMD1, Organizational Expertise Condition 8]

The Councils find that the above findings of fact demonstrate that the certificate holder has the legal authority, financial capability and relevant experience necessary to comply with the standard.

III.B.2. Conclusions of Law

Based on the above findings of fact, and subject to compliance with the existing and new and amended conditions described above, the Council finds that the certificate holder has the organizational expertise to construct, operate and retire the facility, with RFA1 changes, in compliance with Council standards and conditions of the site certificate.

III.C. STRUCTURAL STANDARD: OAR 345-022-0020

(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 subsection (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).

(2) The Council may not impose the Structural Standard in section (1) to approve or deny an application for an energy facility that would produce power from wind, solar or geothermal energy. However, the Council may, to the extent it determines appropriate, apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

(3) The Council may not impose the Structural Standard in section (1) to deny an application for a special criteria facility under OAR 345-015-0310. However, the Council may, to the extent it determines appropriate, apply the

requirements of section (1) to impose conditions on a site certificate issued for such a facility.[16]

III.C.1. Findings of Fact

OAR 345-022-0020(1)(a) requires the Council to find that the certificate holder, through appropriate site-specific study, has adequately characterized the seismic, geologic, and soil hazards of a site. The analysis area for review of geologic and soil stability, as evaluated under the Council's Structural Standard, is the area within the proposed amended site boundary. The certificate holder also assesses earthquakes within 50-miles from the proposed amended site boundary and faults outside the proposed amended site boundary.

The majority of the analysis area was previously evaluated by Council in the *Final Order on the ASC*.[17] The prior analysis was prepared by Cornforth Consultants, an Oregon certified engineering geologist, and included a site reconnaissance visit, DOGAMI consultation, and the completion of a 2018 geotechnical report.[18] For RFA1, Cornforth Consultants evaluated the following sources to inform a preliminary geologic and geotechnical assessment for Area E:[19]

- Oregon Department of Oregon Geology and Mineral Industries. 2018. Oregon HazVu: Statewide Geohazards Viewer, Available at https://gis.dogami.oregon.gov/maps/hazvu/ Date Accessed: January 23, 2023.
- Oregon Water Resources Department. 2023. Well Report Mapping Tool. Available at https://apps.wrd.state.or.us/apps/gw/wl_well_report_map/Default.aspx Date Accessed: January 23, 2023.
- United States Department of Agriculture, Natural Resources Conservation Service. 2019. Web Soil Survey, Available at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx Date Accessed: January 23, 2023.
- United States Department of Agriculture, Natural Resources Conservation Service. 2022. Soil Survey Staff. Gridded Soil Survey Geographic (SSURGO) Database for Gilliam County, Oregon. Available at https://gdg.sc.egov.usda.gov/.[20]
- United States Geological Survey. 2014. Quaternary fault and fold database for the United States, Available at: https://www.usgs.gov/natural-hazards/earthquake-hazards/faults

[16] OAR 345-022-0020, effective October 18, 2017, as amended by minor correction filed May 28, 2019.
[17] OSCAPPDoc4-08 ASC Exhibit H 2019-10-17, Appendix H-1 Geotechnical Report Prepared by Cornforth Consultants, 2018-08-02.
[18] OSCAPPDoc4-08 ASC Exhibit H 2019-10-17, Appendix H-1 Geotechnical Report Prepared by Cornforth Consultants, 2018-08-02.
[19] OSCAMD1Doc9 Request for Amendment 1 Attachment 2 2023-08-01.
[20] Accessed by the Department 2023-05-26.

Date Accessed: January 23, 2023.

- United States Geological Survey. 2022. Cascade Volcano Observatory. Slight Uptick in Earthquakes at Newberry Volcano (March 24-April 3, 2022). Available at: https://www.usgs.gov/observatories/cvo/news/slight-uptick-earthquakes-newberry-volcanomarch-24-april-3-2022 Date Accessed: January 23, 2023.

The consultant also reviewed logs of domestic and irrigation wells installed within the area in the past five years to correlate conditions with published geologic information. Based upon this updated review of published information in the USGS Fold and Fault Database (2014) and the DOGAMI Statewide Geohazards Viewer (2018), no new data has been added since the 2018 assessment. The consultant's updated analysis and 2023 supplemental technical memorandum concludes that the geologic setting for Area E is consistent with the geologic setting described for Area D as described in the 2018 geotechnical report prepared for the ASC.[21]

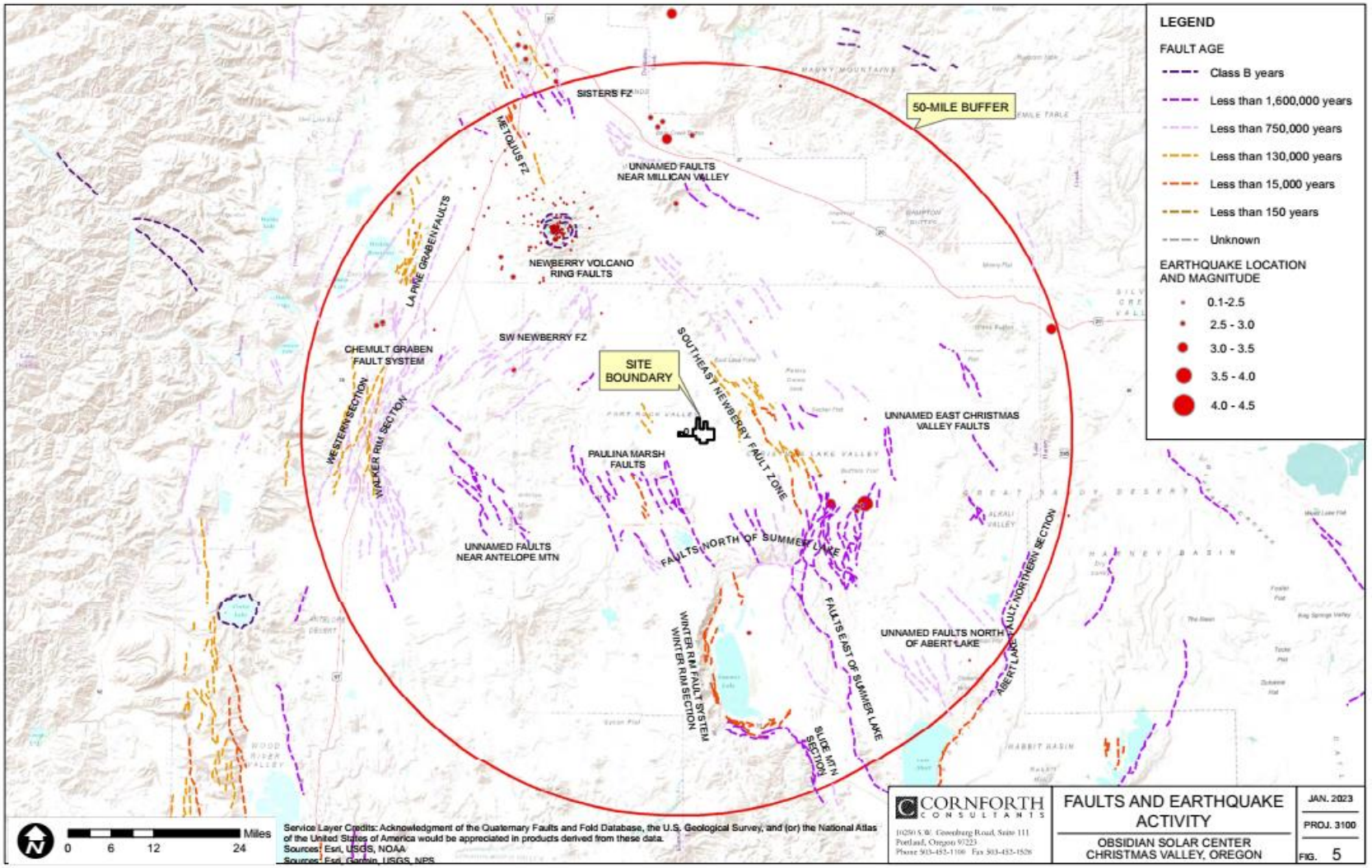
Area E is generally comprised of undifferentiated lakebed sediments, with lacustrian and alluvial sand and silts overlying a clay subsurface interpreted to be of Quaternary period, underlain by a volcanic basalt layer estimated at 90-100 feet below ground surface.[22] In general, the mapped soil units in Area E consist of dunes on lake bed deposits comprised of volcanic ash and eolian sand derived from mixed volcanic rock over lacustrine deposits. The underlying geology and soil-related hazards remain the same as identified in the ASC and the only change from the ASC evaluation is in recent earthquake activity detected at Newberry Volcano, located approximately 30 miles northwest of the RFA1 analysis area, in 2022.

Seismic Hazard Risk at Site

The potential seismic hazards within the analysis area includes faults and earthquakes. Two fault zones were identified within the analysis area: the Southeast Newberry Fault Zone, capable of generating a maximum 6.3 magnitude earthquake and the Paulina Marsh Fault Zone, capable of generating a maximum 7.0 magnitude earthquake. Figure 3 shows the geological faults and earthquakes within the analysis area. Of the two fault zones, the Southeast Newberry Fault Zone was identified as the likely seismic source for any potential ground motion at the site.[23] The 2023 technical report indicates that while some minor seismic activity has occurred at Newberry Volcano in 2022, the majority of earthquakes were less than magnitude 1 and with a relatively high rate of background seismic activity and were likely localized in nature. In the updated RFA1 analysis the consultant concludes that the seismic risk from ground shaking and structural damage is considered low or very low.[24]

[21] OSCAMD1Doc9 Request for Amendment 1 Attachment 2 2023-08-01.
[22] OSCAPPDoc4-08 ASC Exhibit H 2019-10-17, Appendix H-1, p. 22-22.
[23] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25
[24] OSCAMD1Doc9 Request for Amendment 1 Attachment 2 2023-08-01.

Figure 3: Seismic Hazards in Analysis Area



Non-seismic Geologic Hazards

Cornforth Consultants conducted an updated literature review and desktop analysis to supplement the assessment conducted for the ASC. Potential non-seismic soil related hazards within the RFA1 amended site boundary addition area include erosion of loose surficial soils, collapse of the wind-blown sand and silt soils, minor flooding in low-lying areas, and the potential for layers of diatomite in the subsurface leading to long-term settlement of high load structures. Potential non-seismic geologic hazards include volcanic eruptions, flooding, evaporates, diatomite, blowing sand, and ground settlement. While Newberry Volcano is within the RFA1 analysis area, and some minor seismic activity was recorded in 2022, the risk of volcanic eruption is low[25] with the most recent activity occurring between 1,450 and 1,250 years ago.[26] Hazards from volcanic eruptions could include direct blast, mudflows, pyroclastic flows, ash falls, lave flows and floods.

The 2023 technical memorandum identified that there were no new or additional non-seismic site-specific geology or soil-related hazards not previously considered and evaluated in the ASC. Based on soil sampling conducted during the site reconnaissance survey for the ASC, a wide range of soil types were identified within the site boundary. Using the site classification procedures for seismic design outlined in the American Society of Civil Engineers (ASCE 7-16) Section 20 and the wide range of soil types identified, soil site classes B through E could reasonably be encountered. Further, the site boundary also contains potential for Site class F, which is collapsible diatomaceous clay and requires a site response analysis in accordance with ASCE 7-16 Section 21.1 to evaluate design requirements.[27] The 2023 assessment by Cornforth Consultants concluded that the potential for non-seismic geological hazards in the RFA1 site boundary addition area remains low.[28]

Design, Engineer and Construct Proposed Facility to Avoid Potential Seismic and Non-Seismic Hazards within Surrounding Area

The Structural Standard requires the Council to find that, based on an adequate characterization of the seismic and non-seismic hazards of the site, as presented above, that the certificate holder design, engineer and construct the facility, with proposed changes, to avoid potential seismic and non-seismic hazards within the surrounding area.

To ensure compliance with the Structural Standard specific to seismic risks, Council previously imposed Structural Standard Conditions 1 through 4 (PRE-SS-01, GEN-SS-01, GEN-SS-02, GEN-SS-03):

[25] *Id.*

[26] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25. P. 43.

[27] *Id.*

[28] OSCAMD1Doc9 Request for Amendment 1 Attachment 2 2023-08-01.

- Structural Standard Condition 1 (PRE-SS-01): requires that, prior to construction, the certificate holder complete a site-specific geotechnical investigation to further characterize the site and inform final design.
- Structural Standard Condition 2 (GEN-SS-01): requires that the facility be designed, engineered, and constructed to avoid dangers to human safety and the environment because of seismic hazards.
- Structural Standard Condition 3 (GEN-SS-02): requires notification of DOGAMI and the Department if the site-specific investigations or trenching reveal conditions other than those identified in the ASC.
- Structural Standard Condition 4 (GEN-SS-03): requires notification of DOGAMI and the Department promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site.

To minimize potential non-seismic soil erosion risks during construction and operation, the Council previously relied upon the best management practices (BMPs) required for a National Pollutant Discharge Elimination System (NPDES) 1200-C Stormwater Permit, to be issued prior to construction by the Oregon Department of Environmental Quality (DEQ). The NPDES 1200-C permit will include an Erosion and Sediment Control Plan (ESCP), which includes detailed engineering drawings of the site and specific measures necessary to minimize the potential of any sources of dirt and debris from polluting waterways and waters of the state (WOS). The requirements of these measures are found in Soil Protection Condition 1 (GEN-SP-01) and discussed in Section III.D. *Soil Protection* of this order. Additional mitigation measures to prevent loss of soil due are to be included in a Dust Abatement and Management Plan as required by Public Services Conditions 1 and 2 (PRE-PS-01, CON-PS-01).

Based upon the Council's review of the ASC Exhibits H and I, the updated 2023 analysis by Cornforth Consultants submitted with the RFA1, and the previous evaluation and findings by Council in the *Final Order on the ASC*, the Council continues to find that the facility, with RFA1 changes, will comply with Council's Structural Standard.

III.C.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing site certificate conditions described above, the Council finds the certificate holder has adequately characterized potential seismic and geologic hazards at the site and can design, engineer and construct the portions of the facility, with RFA1 changes, to avoid dangers to human safety and the environment presented by those hazards.

III.D. SOIL PROTECTION: OAR 345-022-0022

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.[29]

III.D.1. Findings of Fact

The analysis area for the Soil Protection standard is the area within and extending 500-feet from the proposed amended site boundary.

Soil Types in RFA1 Analysis Area

An updated assessment of soils and soil conditions was conducted for proposed RFA1 changes and included in an updated desktop review and soils map (See Figure 4). Additional information on soils was included in the geotechnical memo prepared by qualified professionals at Cornforth Consultants.[30] This updated evaluation supplements information previously submitted and evaluated with the ASC in Exhibits H and I and includes all the RFA1 amended site boundary.

As part of the updated evaluation of soils conducted for RFA1, the certificate holder reviewed the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) 2022 Soil Survey Geographic Database[31] and identified that all soils within Area E (169 acres) are classified as Morehouse Ashy Loamy Fine Sand with 0-2 percent slopes, the same soil type as found in Area D. These soils consist of dunes on lakebed deposits comprised of volcanic ash and eolian sand derived from mixed volcanic rock of lacustrine deposits. No new soil types were identified in the RFA1 analysis area. The updated assessment also noted that while the NRCS Soil Capability Class for irrigated areas is not identified, the non-irrigated portions of Area E are identified as NRCS Soil Capability Class 6, and that these soils are considered non-arable when not irrigated.

No irrigated soil capability class data is available for Soil Map Unit #470 – Morehouse Ashy Loamy Fine Sand, 0 to 2 percent slopes, in the NRCS database for Area E (NRCS 2022). Therefore, the NRCS Soil Capability Classification is not applicable to approximately 134 acres of Area E that occur within the place of use for a permit, certificate or decree for the use of water for irrigation issued by the Oregon Water Resources Department (OWRD). Table 6 below shows the soil types within the approved amended site boundary areas.

[29] OAR 345-022-0022, effective May 15, 2007.

[30] OSCAMD1Doc9 Request for Amendment 1 Attachment 2 2023-08-01.

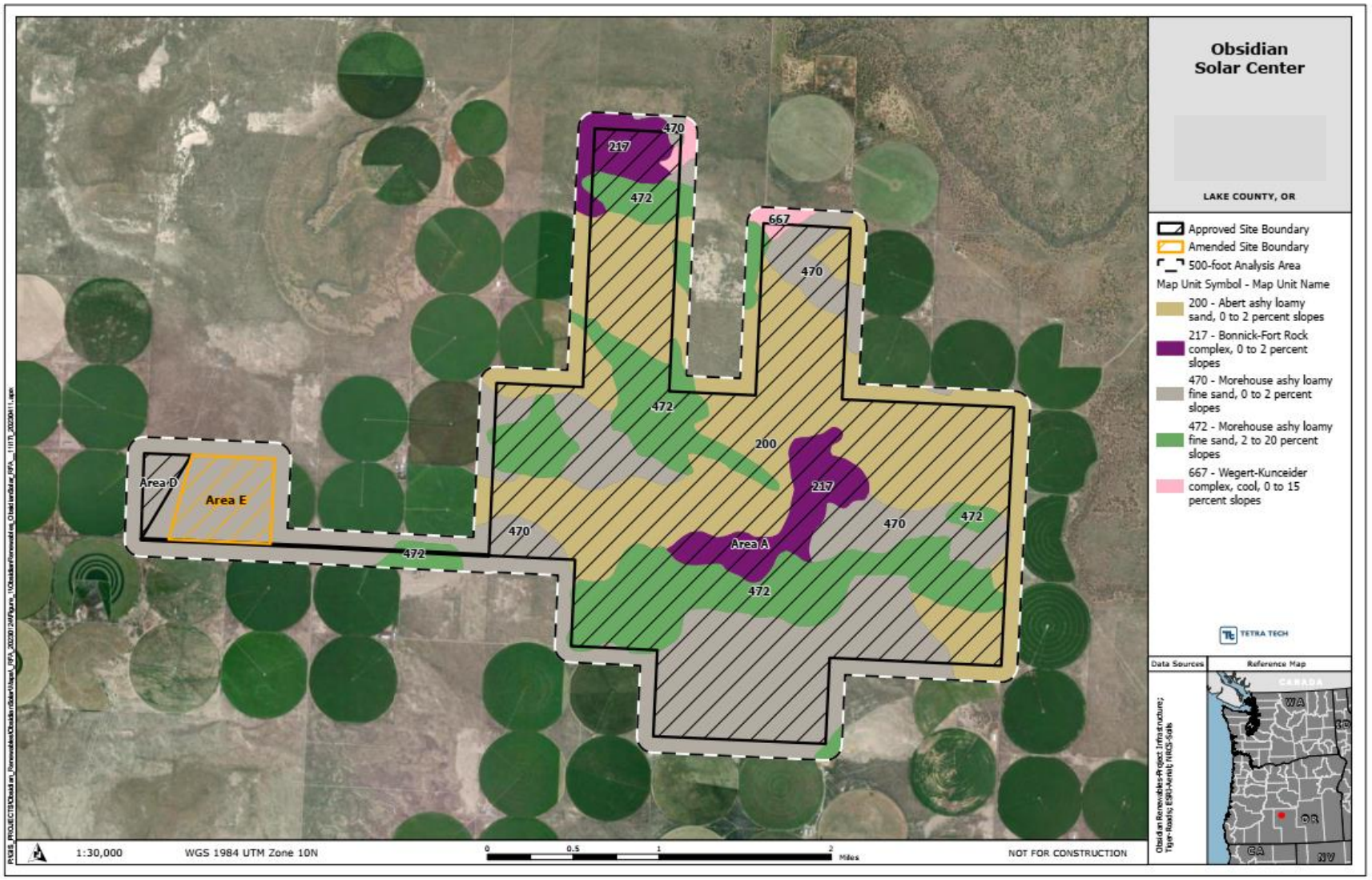
[31] OSCAMD1Doc9 Request for Amendment 1 2023-08-01. References citing Natural Resources Conservation Service. 2022. Soil Survey Staff. Gridded Soil Survey Geographic (SSURGO) Database for Gilliam County, Oregon. United States Department of Agriculture, Natural Resources Conservation Service. Available at https://gdg.sc.egov.usda.gov/ Accessed by the Department 2023-06-09.

Table 6: Soil Types within Analysis Area

Soil Type/Slopes (Soil Map Unit)	Approved Site Boundary	RFA1 Site Boundary	NRCS Soil Capability Class	Approved Amended Site Boundary
	Acres			Acres
Abert ashy loamy Sand (200), 0 to 2 percent slopes	1546.4	0	6	1546.4
Bonnick-Fort Rock Complex (217), 0 to 2 percent slopes	289.6	0	6	289.6
Morehouse ashy loamy fine sand (470), 0 to 2 percent slopes	1,137.5	169.3	35 acres - 6 134 acres - N/A*	1,306.5
Morehouse ashy loamy fine sand (472), 2 to 20 percent slopes	934.7	0	6	934.7
Wegert-Kunceider Complex (667), 0 to 15 percent slopes	13.1	0	6	13.1
Total =	**3,921.3**	**169.3**	**-**	**4,090.6**

Acronyms
N/A = not available; NRCS = Natural Resources Conservation Service; RFA1 = Request for Amendment 1
* No irrigated soil capability class data is available for Soil Map Unit #470 – Morehouse Ashy Loamy Fine Sand, 0 to 2 percent slopes in the NRCS database for Area E (NRCS 2022). Therefore, the NRCS Soil Capability Classification is not applicable to approximately 134 acres of Area E that occur within the place of use for a permit, certificate or decree for the use of water for irrigation issued by the Oregon Water Resources Department (OWRD) and these approximately 134 acres are considered high-value farmland for the purpose of this analysis (ORS 195.300(10)(c)(A)). Approximately 35 acres of Area E are not within the place of use for a permit, certificate or decree for the use of water for irrigation issued by OWRD (ORS 195.300(10)(c)(A)).

Figure 4: Soils within Analysis Area



Existing Land Use

Existing land use within the RFA1 amended site boundary area (Area E) is agriculture, including irrigated (cultivated) and non-irrigated (used for grazing) uses. The irrigated portion of Area E is currently used for alfalfa production. Approximately 134 acres of Area E is considered "high value farmland" per ORS 195.300(10)(a) and -(c)(A) because it is irrigated and occurs within the place of use for a permit, certificate, or decree for the use of water for irrigation issued by the OWRD.

Potential Adverse Impacts to Soil

Construction of the facility, with approved RFA1 changes, has the potential to impact soils through vegetation removal and noxious weed management, grading, excavating, road improvements, trenching and the use of heavy equipment. The approved facility has the potential to permanently impact up to 3,588 acres (includes up to 3 acres of permanent disturbance from approved GSU substation location). The use of the alternate GSU substation location has the potential to result in approximately 12 acres of permanent disturbance, for a total of approximately 3,597 acres of permanent disturbance (inclusive of 6 additional acres if alternate GSU substation location is selected at final facility design). Council previously established a requirement for the certificate holder to implement a phased grading plan, whereby no more than 60 acres could be graded per construction phase.[32] The phased grading requirement is intended to minimize the maximum amount of disturbance and potential for wind and water erosion at the site. In RFA1 Attachment 1, the certificate holder obtained Council approval to clarify that the 60 acre grading limit is lifted once those acres are adequately stabilized. The Council authorizes the Department to consider the site to be "adequately stabilized" and require that the determination of "adequate stabilization" be that of the Department.

Consistent with DEQ's 1200-C site stabilization requirements, the Council establishes that "adequate stabilization" is equivalent to implementing and maintaining stabilization measures (e.g., seeding protected by erosion controls until vegetation is established, sodding, mulching, erosion control blankets, hydromulch, gravel) in any 60-acre portion of the site, where grading activities have permanently ceased or will be temporarily inactive on any portion of the site for 14 or more calendar days.

Ongoing operations and maintenance (O&M) of the facility, with approved changes, may require maintenance and recurring activities such as equipment repairs and maintenance, road maintenance, and vegetation management within the amended site boundary. Potential impacts to soils could also result from erosion by wind or water, accidental spills, revegetation failure, and the encroachment of noxious weeds. All five soil types identified within the amended site boundary area belong to wind erodibility group (WEG) 1, which is the soil group most easily eroded by wind.

[32] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25. Attachment A, p. 5.

Soil Protection Measures

Council previously imposed Soil Protection Condition 1 (GEN-SP-01), Fish and Wildlife Condition 1 (GEN-FW-01) and Public Services Condition 1 (PRE-PS-01), which include a multitude of requirements that are intended, in part, to ensure compliance with Council's Soil Protection standard.

- Soil Protection Condition 1 (GEN-SP-01) requires that the certificate holder implement mitigation measures and best management practices (BMPs) during construction through an Erosion and Sediment Control Plan (ESCP) under the National Pollution Discharge Elimination System (NPDES) 1200 C permit, issued by Oregon Department of Environmental Quality (DEQ).
- Fish and Wildlife Condition 1 (GEN-FW-01) requires implementation of a Revegetation and Noxious Weed Control Plan (RNWCP) during and post-construction, including short- and long-term monitoring for permanent site stabilization and revegetation.
- Public Services Condition 1 (PRE-PS-01) requires implementation of a Dust Abatement and Management Plan during construction, which will also support site stabilization and erosion control during and post-construction.

To address potential soil-related impacts from onsite spills, Council previously imposed Soil Protection Condition 2 (GEN-SP-02). This condition requires that the certificate holder adhere to the requirements of a Spill Management Plan (SMP) which includes maintaining a current inventory of the quantity and type of hazardous and non-hazardous materials, and adequate onsite spill response materials to minimize impacts of a spill and adequately clean up and dispose of materials utilized in response to a spill event.

RFA1 changes would increase the maximum permanent disturbance of the facility, if the facility is built to maximum build-out (i.e., all facility components, as approved), by 6 acres. There are no different soil types or different risks to soils not previously evaluated by Council.

III.D.2. <u>Conclusions of Law</u>

Based on the foregoing analysis, and subject to compliance with the existing site certificate conditions described above, the Council finds that the facility, with approved RFA1 changes, will continue to comply with the Soil Protection standard.

III.E. LAND USE: OAR 345-022-0030

(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:

(a) The applicant elects to obtain local land use approvals under ORS 469.504(1)(a) and the Council finds that the facility has received local land use approval under the acknowledged comprehensive plan and land use regulations of the affected local government; or

(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).

(3) As used in this rule, the "applicable substantive criteria" are criteria from the affected local government's acknowledged comprehensive plan and land use ordinances that are required by the statewide planning goals and that are in effect on the date the applicant submits the application. If the special advisory group recommends applicable substantive criteria, as described under OAR 345-021-0050, the Council shall apply them. If the special advisory group does not recommend applicable substantive criteria, the Council shall decide either to make its own determination of the applicable substantive criteria and apply them or to evaluate the proposed facility against the statewide planning goals.

(4) The Council may find goal compliance for a proposed facility that does not otherwise comply with one or more statewide planning goals by taking an exception to the applicable goal. Notwithstanding the requirements of ORS 197.732, the statewide planning goal pertaining to the exception process or any rules of the Land Conservation and Development Commission pertaining to the exception process, the Council may take an exception to a goal if the Council finds:

(a) The land subject to the exception is physically developed to the extent that the land is no longer available for uses allowed by the applicable goal;

(b) The land subject to the exception is irrevocably committed as described by the rules of the Land Conservation and Development Commission to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or

(c) The following standards are met:

(A) Reasons justify why the state policy embodied in the applicable goal should not apply;

(B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the Council applicable to the siting of the proposed facility; and

(C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

(5) If the Council finds that applicable substantive local criteria and applicable statutes and state administrative rules would impose conflicting requirements, the Council shall resolve the conflict consistent with the public interest. In resolving the conflict, the Council cannot waive any applicable state statute.

(6) If the special advisory group recommends applicable substantive criteria for an energy facility described in ORS 469.300(11)(a)(C) to (E) or for a related or supporting facility that does not pass through more than one local government jurisdiction or more than three zones in any one jurisdiction, the Council shall apply the criteria recommended by the special advisory group. If the special advisory group recommends applicable substantive criteria for an energy facility described in ORS 469.300(11)(a)(C) to (E) or a related or supporting facility that passes through more than one jurisdiction or more than three zones in any one jurisdiction, the Council shall review the recommended criteria and decide whether to evaluate the proposed facility against the applicable substantive criteria recommended by the special advisory group, against the statewide planning goals or against a combination of the applicable substantive criteria and statewide planning goals. In making the decision, the Council shall consult with the special advisory group, and shall consider:

(a) The number of jurisdictions and zones in question;

(b) The degree to which the applicable substantive criteria reflect local government consideration of energy facilities in the planning process; and

(c) The level of consistence of the applicable substantive criteria from the various zones and jurisdictions.[33]

III.E.1. Findings of Fact

The Land Use standard requires the Council to find that the facility, with approved changes, complies with the statewide planning goals adopted by the Land Conservation and Development Commission (LCDC). Under ORS 469.504(1)(b)(A), the Council may find compliance with statewide planning goals if the Council finds that a facility "complies 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…" Preliminary RFA1 was received on April 12, 2023.

The analysis area for potential land use impacts is the area within and extending one-half mile from the proposed amended site boundary.

The facility is approved to be located within Lake County. Therefore, the governing body within Lake County, Lake County Board of Commissioners, is the Special Advisory Group (SAG).[34] On February 23, 2018, prior to receipt of the preliminary Application for Site Certificate (pASC), the Council appointed the Lake County Board of Commissioners as the SAG for all site certificate proceedings related to the facility.[35]

Local Applicable Substantive Criteria

Under OAR 345-022-0030(2), the Council must apply the applicable substantive criteria recommended by the SAG, if those criteria are required by the statewide planning goals and in effect on the date the pRFA is submitted. Applicable substantive criteria are presented in Table 7: *Lake County Applicable Substantive Criteria*.

[33] OAR 345-022-0030, effective September 3, 2003, as amended by minor correction filed May 28, 2019.
[34] Under ORS 469.480(1), the Council must designate as a Special Advisory Group the governing body of any local government within whose jurisdiction the facility is proposed or proposed changes of a facility would be located.
[35] OSCNOIDoc4-2 Lake County Special Advisory Group Appointment Order 2018-02-23

Table 7: Lake County Applicable Substantive Criteria

Lake County Zoning Ordinance (LCZO)	
Article 3 Agricultural Use Zone: A-2	
Section 3.02	Permitted Uses – Subsection C
Section 3.04	Conditional Uses – Subsection B
Section 3.05	Dimensional Standards – Subsections F, G and H
Article 18 Significant Resource (SR) Combining Zone	
Section 18.05	Reduced Preservation Review Criteria – Subsection D
Article 20 Supplementary Provisions	
Section 20.01	Supplementary Provisions
Section 20.08	Vision Clearance Area
Section 20.09	Riparian Habitat – Subsections A, B and C
Section 20.12	Fences
Section 20.13	Compliance with and Consideration of State and Federal Agency Rules and Regulations
Article 24 Conditional Uses	
Section 24.01	Authorization to Grant or Deny Conditional Uses – Subsections A
Section 24.18	Renewable Energy Facilities
Section 24.19	Criteria for Nonfarm Uses, Excluding Farm Related or Accessory Uses, in an A-1 or A-2 Zone
Lake County Comprehensive Plan	
Goal 2 Planning Process – Policies 17 and 18 Goal 3 Agricultural Lands – Policy 12 Goal 5 Open Space, Scenic and Historic Areas and Natural Resources – Policies 3, 4, 5, 8, 10, 13, 14 and 16 Goal 6 Air, Water and Land Resource Quality – Policies 1, 3, 4, 5 and 11 Goal 9 Economic Development – Policies 1, 6 and 8 Goal 11 Public Services and Facilities – Policies 1, 4 and 6 Goal 12 Transportation – Policy 8 Goal 13 Energy Conservation – Policies 1 and 3 Goal 14 Urbanization – Policy 9	

Lake County Zoning Ordinance (LCZO)

The facility, with approved changes, will be located on agricultural use (A-2) zoned land in Lake County. Pursuant to LCZO Section 3.01 Agricultural Use Zone, the purpose of the A-2 zone is to preserve grazing and other agricultural land. The A-2 zone is considered a qualifying exclusive farm use (EFU) zone by the Oregon Department of Land Conservation and Development (DLCD)

and therefore subject to the provisions of Oregon Administrative Rules (OAR) Chapter 660, Division 33 which specifically apply to EFU zoned lands.

As presented in this section, the facility components to be in the amended site boundary area (Area E) are evaluated under the Utility Facilities Necessary for Public Service (segment of the138 kV transmission line and 138/500 kV GSU step-up substation) land use category within the A-2 zone.

Based on review and consultation with Lake County BOC/Planning Department, the Council affirms that there have been no changes to applicable substantive criteria that would impact Council's previous evaluation of compliance for the facility, with the RFA1 changes.[36] Therefore, the Council incorporates by reference and rely on its previous findings of fact and conclusions of the law that the certificate holder has demonstrated that the facility, with approved changes, will comply with all applicable substantive criteria from the LCZO and LCCP.[37]

Directly Applicable State Rules and Statutes

ORS 215.283 and ORS 215.275 (Exclusive Farm Use Zone Requirements)

Statutes which apply directly to RFA1 changes include ORS 215.283 and 215.275.
ORS 215.283, in relevant part, states:

> *(1) The following uses may be established in any area zoned for exclusive farm use:*
> *****
> *(c) Utility facilities necessary for public service, including wetland waste treatment systems but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height. A utility facility necessary for public service may be established as provided in:*
> *(A) ORS 215.275; or*
> *(B) If the utility facility is an associated transmission line, as defined in ORS 215.274 and 469.300.*
> *****
> *(2) The following nonfarm uses may be established, subject to the approval of the governing body or its designee in any area zoned for exclusive farm use subject to ORS 215.296:*
> *****
> *(g) Commercial utility facilities for the purpose of generating power for public use by sale. If the area zoned for exclusive farm use is high-value farmland, a photovoltaic solar power generation facility may be established as a commercial utility facility as*

[36] OSCAMD1Doc6 pRFA SAG Comment Lake County 2023-06-12. County confirmed that there has been no change in applicable substantive criteria since EFSC's prior review that apply to the proposed changes.
[37] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, pg. 54-76.

provided in ORS 215.447. A renewable energy facility as defined in ORS 215.446 may be established as a commercial utility facility.

Thus, the statutes distinguish between "commercial utility facilities for the purpose of generating power," which are conditional uses under ORS 215.283(2)(g) and related nongenerating "utility facilities necessary for public service," which are uses as of right under ORS 215.283(1)(c).[38]

In the *Final Order on the ASC*, Council found that the 115 kV transmission line and the 115/500 kV GSU step-up substation are "utility facilities necessary for public service" under ORS 215.283(1)(c) and, per ORS 215.283(1)(c)(A), should be evaluated under ORS 215.275.[39] The portions of the now approved 138 kV transmission line and 138/500 kV GSU step-up substation are evaluated consistently with Council's original review/decision, as presented below.

ORS 215.275 – Utility Facilities Necessary for Public Service

ORS 215.275 states, in part:

(1) A utility facility established under ORS 215.213 (1)(c)(A) or 215.283 (1)(c)(A) is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service.
(2) To demonstrate that a utility facility is necessary, an applicant for approval under ORS 215.213 (1)(c)(A) or 215.283 (1)(c)(A) must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:
(a) Technical and engineering feasibility;
(b) The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;
(c) Lack of available urban and nonresource lands;
(d) Availability of existing rights of way;
(e) Public health and safety; and
(f) Other requirements of state or federal agencies.
** * **

Therefore, to demonstrate that nongenerating portions of a facility are "utility facilities necessary for public service" under ORS 215.275, an applicant or certificate older must show that as part of its planning, it considered reasonable alternatives to the use of EFU lands and

[38] *Save Our Rural Oregon v. Energy Facility Siting Council*, 339 Or. 353, 384, 121 P.3d 1141, 1158 (2005) (stating same). Note, these statutes have been renumbered since this decision was issued (e.g., ORS 215.283(1)(c) was (1)(d) at the time of the court's decision) and further revised/supplemented but the distinction the statutes draw between generating/commercial utility facilities and nongenerating/utility facilities necessary for public service remains the same.

[39] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25. p. 77

that one or more of the listed statutory factors nevertheless required it to locate the facility in an EFU zone.[40]

In the *Final Order on the ASC*, Council found that the certificate holder had considered multiple alternative transmission line routes and grid interconnection alternatives,[41] thus meeting the first factor in ORS 215.275(2) for demonstrating that a utility facility is necessary. The Council finds the alternatives analysis in the ASC may also be applied to RFA1 because the relevant facts are the same. There are not any non-EFU lands in the analysis area or vicinity, thus there are not reasonable alternatives on non-EFU lands. The certificate holder considered alternatives for the facility within EFU lands and reduced the size of the site boundary to avoid and minimize impacts to resources such as habitat and cultural resources.[42] That analysis is not affected by the approved RFA1 changes, given that the transmission line extension is within the approved site boundary and the approved alternative location for the substation in Area E is immediately adjacent to the approved substation in Area D.

Council also found that the facility must be sited in an EFU zones due to four of the factors listed in ORS 215.275(2), at least two of which also apply to RFA1:

> **Locational dependence**: Council noted a utility facility is locationally dependent if it must cross land in one or more A-2 zoned areas to achieve a reasonably direct route or to meet a unique geographical need that cannot be satisfied on other lands. Council found the locational dependence factor to be met: a) due to the extent of A-2 zoned land within the area, there is no route between the facility and interconnection point that would achieve a reasonably direct route while not impacting A-2 zoned land and b) because any alternative routing would be circuitous and cost-prohibitive.[43] This rationale applies equally to RFA1 because the interconnection point to the BPA line proposed in RFA1 is also a reasonably direct route (it is adjacent to the interconnection point with the PGE line described in the ASC) and alternative routing would also be circuitous and cost-prohibitive.
>
> **Lack of available urban or nonresource lands**: Council found that, given the extent of A-2 zoned land within the area, there are no available urban and non-resource lands that would provide for a reasonably direct route for the transmission line while connecting the facility to PGE's existing 500 kV transmission line.[44] The same is true of connecting to BPA's 500 kV transmission line, which is adjacent to the PGE line. Thus, this factor also applies to RFA 1.

[40] *Friends of Parrett Mountain v. Nw. Nat. Gas Co.,* 336 Or. 93, 107, 79 P.3d 869, 877 (2003).
[41] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 78, referencing the ASC Exhibits B and K.
[42] OSCAPPDoc4-02 ASC Exhibit B "Site Boundary Refinement" 2019-10-17.
[43] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 78.
[44] *Id.*

The Council finds that the extension of the transmission line and proposed alternative substation may be located in the EFU zone pursuant to ORS 215.283 and 215.275 because these revisions to the facility meet the ORS 215.275(2) criteria for being a utility facility necessary for public service; specifically - there aren't any non-EFU lands in the analysis area or vicinity to consider and two of the factors listed in ORS 215.275(2), locational dependence and lack of available urban or nonresource lands, demonstrate the changes in RFA1 must be located in the EFU zone.

> *(3) Costs associated with any of the factors listed in subsection (2) of this section may be considered but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities. The Land Conservation and Development Commission shall determine by rule how land costs may be considered when evaluating the siting of utility facilities that are not substantially similar.*

As discussed above, the intraconnection transmission line must cross EFU zoned land to connect the facility to the approved alternative substation in Area E and the BPA 138/500 kV transmission line (it is locationally dependent) and there are no non-EFU zoned lands in the area (there is a lack of available urban or nonresource lands). Costs are not a consideration. Therefore, the Council finds that ORS 215.275(3) does not impact Council's finding that the extension to the intraconnection line and alternative substation location are necessary for public service because cost has little to no bearing on that determination.

> *(4) The owner of a utility facility approved under ORS 215.213 (1)(c)(A) or 215.283 (1)(c)(A) shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this section shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.*

The certificate holder is responsible for all areas disturbed during construction, maintenance or repair of the facility, including the transmission line(s). As part of the ASC, the certificate holder submitted a draft Revegetation and Noxious Weed Control Plan (RNWCP).[45] Pursuant to Fish and Wildlife Condition 1 (GEN-FW-01), the certificate holder is required to receive final approval of the RNWCP from the Department, in consultation with ODFW and Lake County, before beginning construction and to implement the approved plan during facility construction and operation. With Council approval of RFA1, per Fish and Wildlife Condition 1 (GEN-FW-01), the final RNWCP will need to include Area E, where the certificate holder has expanded the facility site boundary. Accordingly, the Council finds that, subject to Fish and Wildlife Condition

[45] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment P-3.

1 (GEN-FW-01), the facility, with approved RFA1 changes, will satisfy the restoration requirements of ORS 215.275(4).

> *(5) The governing body of the county or its designee shall impose clear and objective conditions on an application for utility facility siting under ORS 215.213 (1)(c)(A) or 215.283 (1)(c)(A) to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.*

Several conditions in the site certificate require the certificate holder to mitigate and minimize the impacts of the construction and operation of the facility on surrounding lands devoted to farm use, including:

- Public Services Condition 1 (PRE-PS-01), which requires, among other items, that the certificate holder finalize a Dust Abatement and Management Control Plan (DAMP) and provide copies of the final DAMP and construction schedule to all property owners of record within 500 feet of the boundary of the property for which the site boundary is located.

- Public Services Condition 3 (GEN-PS-01), which requires, among other items that, prior to construction, the certificate holder submit to the Department for review and approval in consultation with Lake County Planning and County Road Department, a Construction Traffic Management Plan and to implement the plan during construction. Soil Protection Condition 1 (GEN-SP-01), which requires, among other items that during construction of the facility, the certificate holder conduct all work in compliance with a final Erosion and Sediment Control Plan.

- Fish and Wildlife Habitat Condition 1 (GEN-FW-01), which requires, among other items, that the certificate holder finalize and implement the requirements of a RNWCP.

These conditions will continue to apply to the facility, with approved RFA1 changes.

Additionally, if construction occurs within Area E, the landowner of Area E asserts that it will transfer the water right associated with the permanently impacted acres so that it will continue to be used for agricultural irrigation. The landowner stated their intent to transfer the water right for ongoing agricultural use (See RFA1 Attachment 4). Further, in consultation with Lake County SAG, the County stated that if the water right for irrigation is transferred for the same use within the county, there would be no net loss of irrigated agriculture.[46]

Consistent with the certificate holder's representation and the SAG's comments, the Council imposes the following condition:

[46] OSCAMD1Doc6 pRFA SAG Comments Lake County 2023-06-12. Also see Attachment B of this order.

Land Use Condition 8 (PRE-LU-05): If the GSU step-up substation is located in Area E, prior to construction, the certificate holder shall provide the Department with documentation (deed or similar conveyance) that demonstrates that the water right associated with the portions of Area E impacted by facility construction and operations has been duly and legally transferred for same or similar use (irrigated agriculture) to another parcel within Lake County to ensure no-net-loss to irrigated agriculture. [Final Order on AMD1]

Accordingly, the Council finds that the facility, with approved RFA1 changes, subject to the aforementioned existing site certificate conditions and new Land Use Condition 8, would satisfy the requirement in ORS 215.275(5) that the governing body impose conditions to mitigate and minimize the impacts of the facility, if any, on surrounding lands devoted to farm use.

III.E.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with existing and new site certificate conditions described above, the Council finds that the facility, with approved RFA1 changes, will comply with the statewide planning goals adopted by the Land Conservation and Development Commission.

III.F. PROTECTED AREAS: OAR 345-022-0040

(1) To issue a site certificate, the Council must find:

(a) The proposed facility will not be located within the boundaries of a protected area designated on or before the date the application for site certificate or request for amendment was determined to be complete under OAR 345-015-0190 or 345-027-0363;

(b) The design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to a protected area designated on or before the date the application for site certificate or request for amendment was determined to be complete under OAR 345-015-0190 or 345-027-0363.

(2) Notwithstanding section (1)(a), the Council may issue a site certificate for: (a) A facility that includes a transmission line, natural gas pipeline, or water pipeline located in a protected area, if the Council determines that other reasonable alternative routes or sites have been studied and that the proposed route or site is likely to result in fewer adverse impacts to resources or interests protected by Council standards; or

(b) Surface facilities related to an underground gas storage reservoir that have pipelines and injection, withdrawal or monitoring wells and individual wellhead equipment and pumps located in a protected area, if the Council determines that other alternative routes or sites have been studied and are unsuitable.

(3) The provisions of section (1) do not apply to:

(a) A transmission line routed within 500 feet of an existing utility right-of-way containing at least one transmission line with a voltage rating of 115 kilovolts or higher; or

(b) A natural gas pipeline routed within 500 feet of an existing utility right of way containing at least one natural gas pipeline of 8 inches or greater diameter that is operated at a pressure of 125 psig.

(4) The Council shall apply the version of this rule adopted under Administrative Order EFSC 1-2007, filed and effective May 15, 2007, to the review of any Application for Site Certificate or Request for Amendment that was determined to be complete under OAR 345-015-0190 or 345-027-0363 before the effective date of this rule. Nothing in this section waives the obligations of the certificate holder and Council to abide by local ordinances, state law, and other rules of the Council for the construction and operation of energy facilities in effect on the date the site certificate or amended site certificate is executed.[47]

III.F.1. Findings of Fact

The analysis area for protected areas is the area within and extending 20 miles from the RFA1 site boundary. The RFA1 site boundary area (Area E) is located between the previously evaluated Areas A and D. Because the new area is interior to the previously approved site boundary, there is no change in the protected areas' analysis area from Council's prior evaluation in the *Final Order on the ASC*.

Protected Areas in the Analysis Area

Eleven protected areas were identified within the analysis area, as presented in order of proximity to the RFA1 site boundary (closest to farthest) in Table 8 below. Figure 5 shows these protected areas in relation to the proposed amended site boundary.

[47] OAR 345-022-0040, effective December 19, 2022.

Table 8: Protected Areas within Analysis Area

Protected Area	Distance from RFA1 Amended Site Boundary (mi)	Direction from Proposed RFA1 Amended Site Boundary
Devil's Garden Lava Bed ACEC/WSA	4	N
Connley Hills ACEC	5.3	SW
WSA OR-1-3[2,3]	*5.5*	*NE*
Four Craters Lava Bed WSA[2]	*6*	*E*
Table Rock ACEC and RNA	6.9	S
Fort Rock State Natural Area	9.2	NW
Black Hills ACEC and RNA	9.7	SE
Fort Rock Cave State Park[2]	*10.9*	*NW*
Lost Forest/Sand Dunes/Fossil Lake ACEC/ISA/WSA	14.4	E
Diablo Mountain WSA[2]	*18.1*	*S*
Summer Lake Wildlife Area	19	S

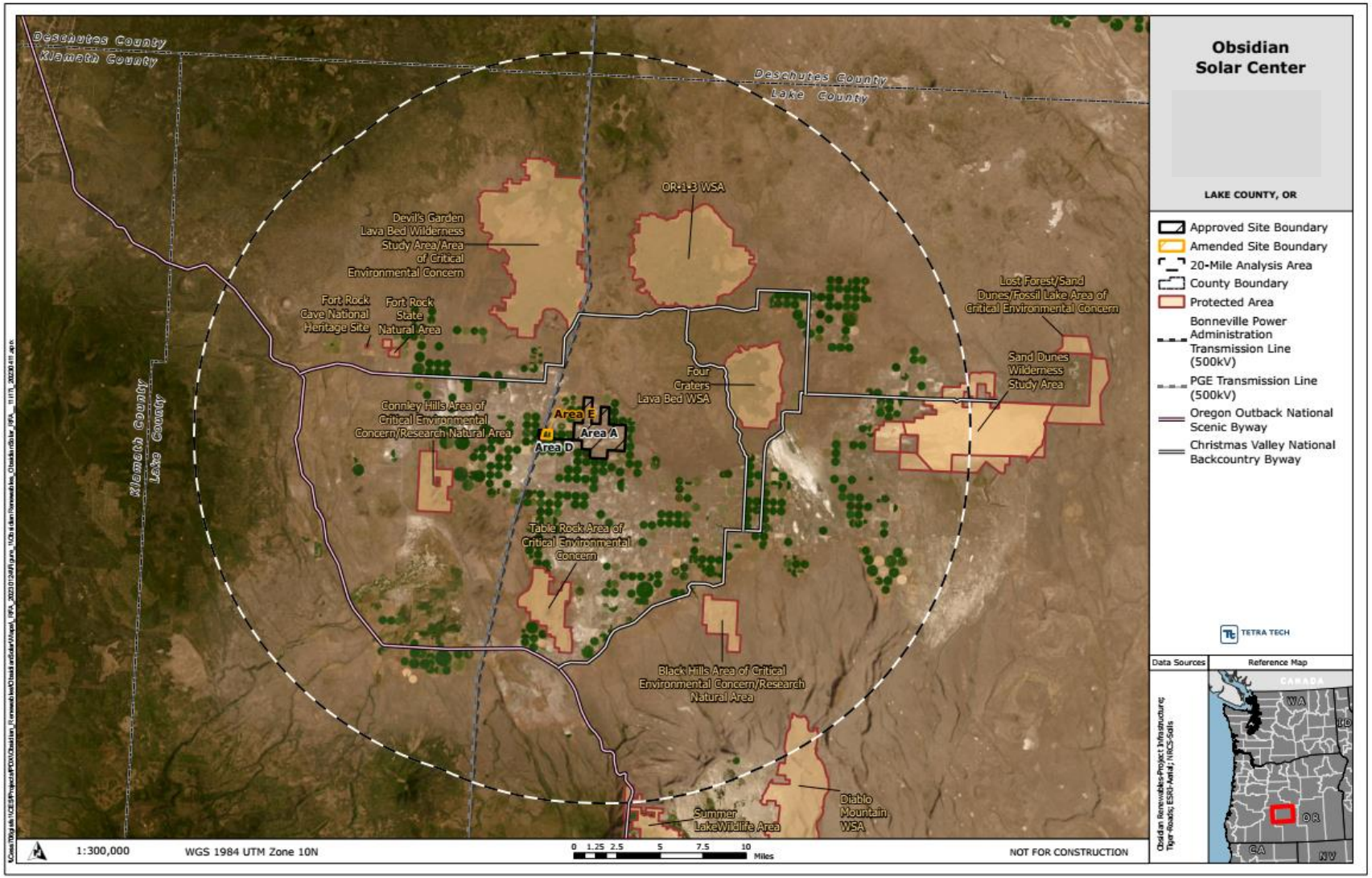
Acronyms: ACEC = Area of Critical Environmental Concern, WSA = Wilderness Study Area, RNA = Research Natural Area, ISA = Instant Study Area

[2] Erroneously omitted from ASC evaluation.

[3] The designated name of this protected area contains a derogatory term and is currently under review pursuant to US Secretary of the Interior Haaland's Order 3404.

The closest protected area to the amended site boundary is Devil's Garden Lava Bed Area of Critical Environmental Concern (ACEC) and Wilderness Study Area (WSA), located approximately 4 miles north of the amended site boundary. The other protected areas range from 5.3 to 19 miles from the amended site boundary.

Figure 5: Protected Areas within Analysis Area



Potential Impacts on Protected Areas

Potential Visual Impacts

The approved RFA1 changes could result in visual impacts at protected areas, through construction and operation. Short-term, construction related visual impacts could include visibility impacts from generation of fugitive dust and vegetation disturbance. Permanent structures that could create visibility impacts include siting of a GSU step-up substation in an alternate location (Area E), addition of approximately 2.3 miles of overhead collector line within Area A, and addition of approximately 1.2 miles of overhead gen-tie transmission line in Areas A, D, and E. The height of transmission line structures would increase from 70 to 80 feet.[48]

As presented in Table 8 and on Figure 5, the closest protected area to the amended site boundary is Devil's Garden Lava Bed ACEC, located approximately 4 miles north. As presented in Figure 5, the approved RFA1 changes are located farther from the nearest protected area than the north side of the amended site boundary. Therefore, the Council finds visual impacts to the closest protected area from construction and operation of the facility, with approved RFA1 changes, would not change, or significantly increase, from the impacts evaluated in the *Final Order on the ASC*.

In the *Final Order on the ASC*, visual impacts of facility structures were evaluated using the Esri ArcDesktop 10.5.1 geoprocessing 'Visibility' tool. The Visibility tool uses a digital elevation scanner to determine the surface locations that are potentially visible from an aggregated set of "observer points" placed in key parts of a project. Potential visibility of solar modules (7 feet tall) and battery storage structures (30 feet tall) were modeled at 23 observer points in Area A and 4 observer point in Area C.[49] Based on this analysis, visual impacts of the facility at Devil's Garden Lava Bed ACEC would be limited to a dark line on the horizon. Council found that impacts limited to a dark line on the on the horizon at 4 miles would not likely be significant. For similar reasons, the Council also found that visual impacts at the other protected areas within the analysis area, located at distances of 5 miles or greater, would also not likely be significant.

As presented in Table 8 above, all other protected areas in the analysis area are located at 5 miles or greater from the amended site boundary. The approved RFA1 changes do not change the facility components considered to be most prominently visible, including the maximum footprint of solar modules and battery storage structures, as previously evaluated in the *Final*

[48] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, p. 5.

[49] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p.99. The visual impacts of the facility, as approved in the *Final Order on the ASC*, evaluated the structures most prominent from key visibility locations. Therefore, the previously approved GSU step-up substation and 115-kV overhead transmission lines were not specifically modeled in the visibility analysis because distance and visual subordination to existing 500-kV transmission lines were assumed to make those components unlikely to attract attention in views from protected areas.

Order on the ASC. For these reasons, the Council finds that the facility, with RFA1 changes, is not likely to result in significant adverse visual impacts to any protected area.

Visual impacts would be minimized under previously imposed Scenic Resources Condition 1 (Condition GEN-SR-01), which requires that the facility be designed using earth-tone colors or brown rusty patina finish and ensure any building-related lighting is shielded and directed downward.

Potential Noise Impacts

The approved RFA1 changes would result in construction-related noise. However, there are no substantive changes in construction schedule or methods, and no protected areas that are closer than previously evaluated in the *Final Order on the ASC*. As previously evaluated, the loudest potential sound at the nearest protected area, Devil's Garden Lava Bed BLM ACEC (approximately four miles from the site boundary), could be up to 48 dBA during intermittent pneumatic pile driver use (loudest equipment used), but general construction equipment would be anticipated at 35 dBA or less, and typical construction may be 20 dBA or less, which is essentially inaudible. The Council continues to find that no significant adverse impacts to any protected areas are likely to result from noise generated during construction of the facility, with approved RFA1 changes.

The approved RFA1 changes would result in changes to noise generating equipment, including corona noise from increasing the gen-tie transmission line voltage from 115 to 138 kV, changing the GSU step-up substation transformer from 115/500 to 138/500 kV and increasing the voltage/changing the configuration of the 34.5 kV electrical collection system to 138 kV. Based on a supplemental noise analysis prepared by a consulting firm specializing in noise, vibration and air quality, Michael Minor & Associates, the sound power levels used in the analysis prepared for the ASC were sufficiently conservative to account for any changes in sound level associated with the use of higher-voltage transmission lines and larger transformers. Therefore, no changes to assumed values were required to evaluate changes in noise impacts from RFA1 changes.[50]

Because the approved RFA1 changes are not expected to increase operational noise of the facility, the Council continues to find that noise generated during operation of the facility, with approved changes, are not likely to result is significant adverse impacts.

Potential Traffic-related Impacts

The approved RFA1 changes would result in construction-related traffic. However, RFA1 changes will not result in a significant increase in the number of workers or volume of construction materials required on site or change in the routes used to access the site, from the impacts evaluated in the *Final Order on the ASC*.

[50] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, Attachment 9, p. 5.

In the *Final Order on the ASC*, the Council found that while construction traffic would use some of the same routes to access the site that are used by the public to access some protected areas, including US Highway 97, State Route 31, Fort Rock Road, Christmas Valley Road, and County Road 5-12, that the increase in traffic would be temporary, intermittent, and within acceptable range of level of service. The finding relied, in part, on the certificate holder's assumption that the construction of the facility would require up to 120 daily round trips by workers commuting to the site and up to 40 daily round trips by delivery vehicles during peak construction periods, and in part on compliance with Public Services Condition 1 (GEN-PS-01), which requires the certificate holder prepare and implement Construction Traffic Management Plan.[51]

For these reasons, the Council finds that construction related-traffic impacts from the facility, with approved RFA1 changes, is not likely to result in significant impacts to any protected areas.

RFA1 changes would result in operational-related traffic. However, RFA1 changes will not result in a significant increase in the number of workers or change in the routes used to access the site, from the impacts evaluated in the *Final Order on the ASC*. In the *Final Order on ASC*, the Council found that the 12 to 20 round commuter trips and occasional truck delivery were not likely to result in any impact on protected areas.[52] For these reasons, the Council finds that traffic associated with the operation of the facility, with the approved RFA1 changes, is not likely to result in significant impacts to any protected areas.

Potential Water and Wastewater-related impacts

RFA1 changes would result in water use. However, RFA1 changes will not result in a significant increase in quantity or change in source as evaluated in the *Final Order on the ASC*. In the *Final Order on the ASC,* the Council found the facility would obtain the water needed for facility construction from private municipal sources under existing water rights and would obtain potable water and water needed for panel washing during operations from onsite wells. The Council found that the use of water from private or municipal water sources or from exempt ground-water wells was not anticipated to impact any protected area.

The Council also found that facility wastewater, including sanitary waste disposal, would not likely impact any protected area because such waste would be managed either using portable toilets or the construction of an onsite septic system.

Because RFA1 changes would not impact Council's previous evaluation, the Council continues to find that water use and wastewater disposal during construction and operation of the facility, with the RFA1 changes, are not likely to impact any protected area.

[51] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 97

[52] *Id.*

III.F.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with existing site certificate conditions described above, the Council finds that the facility, with RFA1 changes, is not located within the boundaries of a protected area and that the design, construction and operation of the amended site boundary addition area is not likely to result in significant adverse impact to any protected areas.

III.G. RETIREMENT AND FINANCIAL ASSURANCE: OAR 345-022-0050

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.[53]

III.G.1. Findings of Fact

OAR 345-027-0375(2)(e) requires that Council determine whether the preponderance of evidence on the record supports that the amount of the bond or letter of credit required under OAR 345-022-0050 is adequate, where OAR 345-022-0050 evaluates the tasks, actions, assumptions, and costs associated with retiring the site to a useful, nonhazardous condition. The certificate holder estimates the facility's useful life as 30 years, although describes that the facility would likely be upgraded with more efficient equipment over time extending the useful life much longer than 30+ years.[54]

Restoration of the Site Following Cessation of Construction or Operation

The tasks and actions necessary for restoring the sites associated with RFA1, including the substation footprint, collector line, and transmission line corridors, to a useful nonhazardous condition are similar to those found in the *Final Order on ASC*, and include:

- Mobilization to the site of equipment necessary for decommissioning;
- Apply stormwater and pollution prevention measures during decommissioning (silt fencing, stabilization, spill kits, and dust control),
- Substation:

[53] OAR 345-022-0050, effective April 3, 2002

[54] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, page 103.

    - Disconnect electrical components;
    - GSU transformer removal; recycle/dispose of transformer oil; circuit breaker removal; remove/recycle/dispose of fencing, gates, lighting, control building, and communications equipment;
    - Remove foundations to subgrade.
- Collector Lines (single circuit 138 kV collector line of up to 2.3 miles will connect the collector substations):
    - Disconnect electrical components;
    - Remove and recycle collector cables;
    - Remove any foundations for monopoles to subgrade.
- Transmission Line:
    - Disconnect electrical components;
    - Remove and recycle single and double Circuit HV above ground transmission line;
    - Remove gen-tie pole foundations to subgrade, removed up to 5 feet below ground, or as otherwise requested by the County.
- Internal and perimeter facility roads would be restored, including removal of gravel-surface material, decompaction and revegetation;
- Site revegetation activities would include re-seeding of the areas impacted by permanent facility components and temporarily impacted during decommissioning activities.

The Council previously imposed several conditions to ensure the certificate holder would satisfy the Retirement and Financial Assurance standard. The previously imposed conditions are summarized below:

Retirement and Financial Assurance Condition 1: (mirrors OAR 345-025-0060(7) Mandatory Condition), requires the certificate holder to prevent the development of any condition on the site that would preclude restoration of the site to a useful, non-hazardous condition.

Retirement and Financial Assurance Condition 2: (mirrors the OAR 345-025-0006(9) Mandatory Condition), requires the certificate holder to retire the facility in accordance with a Council-approved retirement plan.

Retirement and Financial Assurance Condition 3: (mirrors OAR 345-025-0060(16) Mandatory Condition), provides the Department the authority to develop a retirement plan, for Council approval, in the event the certificate holder ceases operation of its facility and does not retire the facility in accordance with a Council approved retirement plan.

Retirement and Financial Assurance Condition 4: (mirrors OAR 345-025-0006(8) Mandatory Condition), requires the certificate holder to submit to the State of Oregon, through Council, 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.

Estimated Costs of Site Restoration

In RFA1, the certificate holder provided a decommissioning estimate for the facility, inclusive of the RFA1 changes, totaling $30,718,681, adjusted to 3rd Quarter 2023 dollars. Some of the line items that were adjusted include the removal of above-ground collector lines and monopoles, removal of the longer 138 kV transmission line infrastructure, as well as updating units and costs for some retirement actions. To support their decommissioning estimate, the certificate holder indicated that the assumptions and methodologies presented in the *Final Order on ASC* were consistent with those utilized in the updated decommissioning cost estimate.[55] The assumptions and methods evaluated by Council in the *Final Order on ASC*, and considered by Council to identify a reasonable estimate for an amount satisfactory to restore the site of the facility components to a useful, non-hazardous condition, include the following:

- Total decommissioning duration – six months with a 25-person crew;
- Total weather delay contingency – seven days;
- Fort Rock, Oregon for zip-to-zip tracking mileage and weather conditions;
- International Brotherhood of Electrical Workers union for electrical scope of work;
- Non-union and no prevailing wage for all other scopes of work; and,
- No scrap or recycling value to the project and the site is left vacant

Consistent with markups applied to the Decommissioning Cost Estimate in the *Final Order on ASC*, for RFA1 changes, the Council continues to apply a 10 percent project management and administration mark-up, as well as a 10 percent future development contingency for all facility components except the battery storage components, which Council requires a 20 perfect future development contingency.

As presented in Table 9 below, the decommissioning cost estimate is $38,108,395 (Q3 2023 Dollars), which includes previously approved certificate holder and ODOE contingencies.

Table 9: Amended Facility Decommissioning Tasks and Cost Estimate

Task or Component	Quantity	Unit Cost ($)[1]	Unit	Estimate ($)
Stormwater Pollution Prevention and Dust Control Measures				
Stabilized Construction Entrances	1	$3,287	Each	$3,287.00
Perimeter Silt Fencing	113,520	$0.74	Linear Ft	$84,004.80
Spill Kits (Emergency Equipment Cleanup)	2	$324	Each	$648.00
Dust Control Watering (Water Truck)	250	$787	Day	$196,750.00
			Subtotal =	***$284,689.80***
138/500 kV GSU Step-Up Substation and Transmission Line				
Substation Step-up Transformer Removal	2	$40,205	Each	$80,410.00
Haul and Recycle/Dispose of Transformer Oil	2	$48,207	Each	$96,414.00
Substation Circuit Breaker Removal	2	$40,205	Each	$80,410.00

[55] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, Section 7.7. p. 41.

Table 9: Amended Facility Decommissioning Tasks and Cost Estimate

Task or Component	Quantity	Unit Cost ($)[1]	Unit	Estimate ($)
Remove and Recycle/Dispose of Fencing	10,724	$2.65	Linear Ft	$28,418.60
Remove and Recycle Gates	32	$7.54	Linear Ft	$241.28
Remove and Recycle Access and Maintenance Lighting	1	$1,051	Day	$1,051.00
Remove and Recycle Control Building Structure	1	$2,432	Each	$2,432.00
Remove and Recycle Control/Communications Equipment	1	$1,051	Each	$1,051.00
Remove and Recycle Single Circuit HV Above Ground Transmission Line	8,501	$58.18	Linear Ft	$494,588.18
Remove and Recycle Double Circuit HV Above Ground Transmission Line	14,785	$62.11	Linear Ft	$918,296.35
Remove Transmission Line Foundations to Subgrade	47	15,333	Each	$720,651.00
			Subtotal =	***$2,423,963.41***
Four Collector Substations				
Remove and Recycle Collector Cables	415,976	$0.62	Linear Ft	$257,905.12
Remove Step up Transformers and Oil	4	$172,250	Each	$689,000.00
Haul and Recycle/Dispose of Transformer Oil	20	$1,000	Trips	$20,000.00
Remove Foundations to Subgrade	4	$25,000	Each	$100,000.00
Remove Substation Junction Boxes and Foundations	4	$212,500	Each	$850,000.00
			Subtotal =	***$1,916,905.12***
Solar Array Removal				
Remove and Recycle Photovoltaic Modules	1,742,572	$3.98	Panels	$6,935,436.56
Hauling and Disposal of Modules	34,851	$30	Ton	$1,045,530.00
Remove Racking	22,689	$47	Each	$1,066,383.00
Hauling and Disposal of Racking	22,689	$58	Ton	$1,315,962.00
Remove Posts	246,444	$4.50	Each	$1,108,998.00
Hauling and Disposal of Posts	246,444	$6	Each	$1,478,664.00
Remove and Recycle Inverters and Transformers	160	$1,200	Each	$192,000.00
Dispose of Inverters and Transformers	3,040	$30	Ton	$91,200.00
Disconnect and Remove Combiner Boxes and Switches	2,240	$1,100	Each	$2,464,000.00
Remove SCADA and Met Stations	1	$1,051	Each	$1,051.00
Remove Fences/Gates	113,520	$2.50	Linear Ft	$283,800.00
Restore Site (Primarily Re-Seeding Disturbed Areas)	1,300	$200	Acres	$260,000.00
			Subtotal =	***$16,243,024.56***
O&M Facilities				

Table 9: Amended Facility Decommissioning Tasks and Cost Estimate

Task or Component	Quantity	Unit Cost ($)[1]	Unit	Estimate ($)
Remove O&M facility (per building)	2	$40,000	Each	$80,000.00
			Subtotal =	***$80,000.00***
Battery System				
Disconnect battery and prepare for removal	134	$4,000	Each	$536,000.00
Remove Buildings and Foundations (Demolition and Hauling)	134	$1,000	Each	$134,000.00
Haul Batteries Containing Electrolyte Fluid	67	$1,000	Trips	$67,000.00
Dispose of Electrolyte Fluid	50	$100	MW	$5,000.00
Disposal of Battery System Inverters and Switchyard	70	$4,100	Each	$287,000.00
Disposal of Battery System Switchyard	1	$9,100	Each	$9,100.00
Restore Battery Building Site	25	$2,600	Acres	$65,000.00
Hauling and Disposal	67	$1,000	Trips	$67,000.00
			Subtotal =	***$1,170,100.00***
Road Restoration				
Remove Service Roads	3,696,000	$0.08	Sq. Ft	$295,680.00
			Subtotal =	***$295,680.00***
Restore Additional Areas Distributed by Facility Removal				
Restore and seed temporary disturbance areas	25	$2,600	Acres	$65,000.00
			Subtotal =	***$65,000.00***
General Costs				
Haul charges and disposal fees (per load)	250	$1,000	Trips	$250,000.00
Permits, Inspections and Fees	1	$10,000	Lump Sum	$10,000.00
			Subtotal =	***$260,000.00***
Obsidian Solar Center Project Max Potential Decommissioning Cost **(Cost)** *Subtotal =*				***$22,739,362.89***
Decommissioning Subtotal for Solar (95% of Total Cost)				***$21,569,262.89***
Decommissioning Total for Battery (5% of Total Cost)				***$1,170,100.00***
Certificate Holder Applied Contingencies				
Mobilization and Supervisory (1% Of Cost)	1		Percent	$227,393.63
Subcontractor Bonding/Liability Insurance (1.5% Of Cost)	1.5		Percent	$341,090.44
General Conditions (1.25% Of Cost)	1.25		Percent	$284,242.04
Subcontractor Administration and Project Management (3%* Of Cost)	3		Percent	$682,180.89
Subcontractor General Overhead and Profit (5%* Of Cost)	5		Percent	$1,136,968.14
Subcontractor Future Development Contingency (3%* Of Cost)	3		Percent	$682,180.89

Table 9: Amended Facility Decommissioning Tasks and Cost Estimate

Task or Component	Quantity	Unit Cost ($)[1]	Unit	Estimate ($)
		Certificate Holder **Contingency** *Subtotal* =		***$3,354,056.03***
Breakdown of Certificate Holder Contingencies by Component				
Total Certificate Holder Contingencies for Solar (95% of total contingencies)				***$3,186,353.22***
Total Certificate Holder Contingencies for Battery (5% of total contingencies)				***$167,702.80***
Subtotal of Cost and Certificate Holder Contingencies (Q3 2018 Dollars) - *Rounded to nearest $1*				**$26,093,418.92**
Subtotal of Cost and Certificate Holder Contingencies for Solar (95% of total contingencies)				**$24,755,616.11**
Subtotal of Cost and Certificate Holder Contingencies for Battery (5% of total contingencies)				**$1,337,802.80**
Subtotal of Cost and Certificate Holder Contingencies Adjusted (Q3 2023 Dollars)				**$31,312,102.70**
Performance Bond	1		Percent	**$313,121.03**
			Adjusted Gross Cost	**$31,625,223.73**
Department Applied Contingencies				
Department Administration and Project Management	10		Percent	$3,162,522.37
Future Development Contingency	10		Percent	$3,004,396.25
	20 (Battery)		Percent	$316,252.24
	subtotal			$3,320,648.49
		ODOE **Contingency** *Subtotal* =		***$6,483,170.86***
		Total Site Restoration Cost with Department Adjusted Contingencies (Q3 2023 Dollars)[2] *Rounded to nearest $1*		**$38,108,395**

Notes:
1. All unit costs are in Q3 2018 Dollars.
2. Adjustment factor from Q3 2018 to Q3 2023 is 1.2.
*Table 5 from Final Order on ASC: Revised Table W-1 dated 2020-03-09 included additional line items for ODOE Project Management and Administration and ODOE Future Development Contingency, both at 3%, which were separate from the Project Management and Future Development Contingency line items under the Subcontractor subheading. Therefore, the Council interprets the Subcontractor and line items to be separate.

In Section III.B, *Organizational Expertise* of this order, the Council finds that the certificate holder continues to have the organizational expertise to construct, operate, and retire the facility, with approved changes. In Sections III.D, III.H, and III.O (Soil Protection, Fish and Wildlife Habitat, and Waste Minimization standards, respectively), the Council finds that the certificate holder continues to comply with those standards subject to existing, new, and amended site certificate conditions. These standards relate to the restoration and management of the site during retirement of the facility.

Ability of the Certificate Holder to Obtain a Bond or Letter of Credit

OAR 345-022-0050(2) requires the Council to find that the certificate holder has demonstrated a reasonable likelihood of obtaining a bond or letter of credit in a form and amount necessary to restore the site of the facility to a useful non-hazardous condition. A bond or letter of credit in a form and amount satisfactory to Council provides a site restoration remedy to protect the State of Oregon and its citizens if the certificate holder fails to perform its obligation to restore the site. The bond or letter of credit must remain in force until the certificate holder has fully restored the site. OAR 345-025-0006(8) establishes a mandatory condition, which ensures compliance with this requirement (see amended Retirement and Financial Assurance Condition 5 below).

To demonstrate its ability to receive an adequate bond or letter of credit, the certificate holder provided a June 28, 2023 letter from Heffernan Insurance Brokers, the same institution Council previously approved, which states that they "are confident that [Obsidian] will be able to obtain said decommissioning bond."[56] This letter indicates that the institution would be able to obtain and provide a bond up to $40,000,000 million, which is more than the estimated $38,108,395 necessary to retire the facility, with RFA1 approved changes.

To address the certificate holder's financial assurance obligations and ensure the adequacy of the bond or letter of credit which may be necessary to retire the facility and restore the site to a useful, nonhazardous condition, the Council previously adopted Retirement and Financial Assurance Condition 5 (PRE-RF-02). The Council amends this condition to reflect to adjusted estimate to retire the facility, with RFA1 changes, as follows:

Amended Retirement and Financial Assurance Condition 5: Before beginning construction of the facility, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The total bond or letter of credit amount for the facility is $38.1 million dollars (Q3 2023 dollars), to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (b) of this condition:

a. The certificate holder may adjust the amount of the bond or letter of credit based on the design configuration of the facility by applying the unit costs, general costs and ODOE applied contingencies as illustrated in Table 9 of the Final Order on RFA1. Any revision to the restoration costs should be adjusted to the date of issuance as described in (b) and subject to review and approval by the Council.
b. The certificate holder shall adjust the amount of the bond or letter of credit using the following calculation:
    i. Adjust the amount of the bond or letter of credit (expressed in Q3 2023 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency and using the third quarter 2023 index value and the quarterly index value for the date of issuance of the new bond or letter of credit. If at any time the index is no longer published, the

[56] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, Attachment 5.

Council shall select a comparable calculation to adjust third quarter 2023 dollars to present value.

ii. Round the result total to the nearest $1,000 to determine the financial assurance amount.

c. The certificate holder shall use an issuer of the bond or letter of credit approved by the Council, based on the Council's pre-approved financial institution list.

d. The certificate holder shall use a form of bond or letter of credit approved by the Council. The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under OAR 345-026-0080. The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site.

[PRE-RF-02]

III.G.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing and amended site certificate condition described above, the Council finds that the site can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility, and that the certificate holder has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to restore the site to a useful, non-hazardous condition.

III.H. FISH AND WILDLIFE HABITAT: OAR 345-022-0060

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.[57]

III.H.1. Findings of Fact

Fish and Wildlife Habitat within the Analysis Area

[57] OAR 345-022-0060, effective Mar. 8, 2017.

The analysis area for potential impacts to fish and wildlife habitat is the area within and extending one-half mile from the proposed amended site boundary.

RFA1 Study Methods

A 2022 literature review was completed of the following sources:

- Bull, E. L. 2006. "Sexual Differences in the Ecology and Habitat Selection of Western Toads (*Bufo boreas*) in Northeastern Oregon." Herpetological Conservation and Biology. 1(1): 27–38.
- Bureau of Land Management. 2014. Vale, Prineville and Burns Districts Pygmy Rabbit Surveys. Contract #L10PC00654, Task Order #L12PD01039 & #L14PD00328.
- Google Earth. 2014. Fort Rock, Oregon area. 43o 18' 41.64" N, 120o 53' 20.75" W. Available at: http://www.earth.google.com. Date Accessed: August 28, 2022.
- ODFW. 2021. Oregon State Sensitive Species List. Available at: http://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive_Species_List.pdf
  Date Accessed: August 28, 2022.
- ODFW's Compass. 2021. Online mapping tool. Available at: https://compass.dfw.state.or.us/visualize/#x=120.50&y=44.09&z=6&logo=true&dls%5B%5D=true&dls%5B%5D=0.5&dls%5B%5D=549&basemap=ESRI+Satellite&tab=data&print=false
  Date Accessed: August 28, 2022
- ODFW. ODFW Habitat Mitigation Policy. 2014. What is the Fish and Wildlife Habitat Mitigation Policy? Available at: http://www.dfw.state.or.us/lands/mitigation_policy.asp
  Accessed by the Department 2023-06-09.
- ODFW. 2016. Oregon Conservation Strategy. Salem, Oregon. Available at: http://www.oregonconservationstrategy.org/ Accessed by the Department on 2023-06-09.

RFA1 Field Surveys

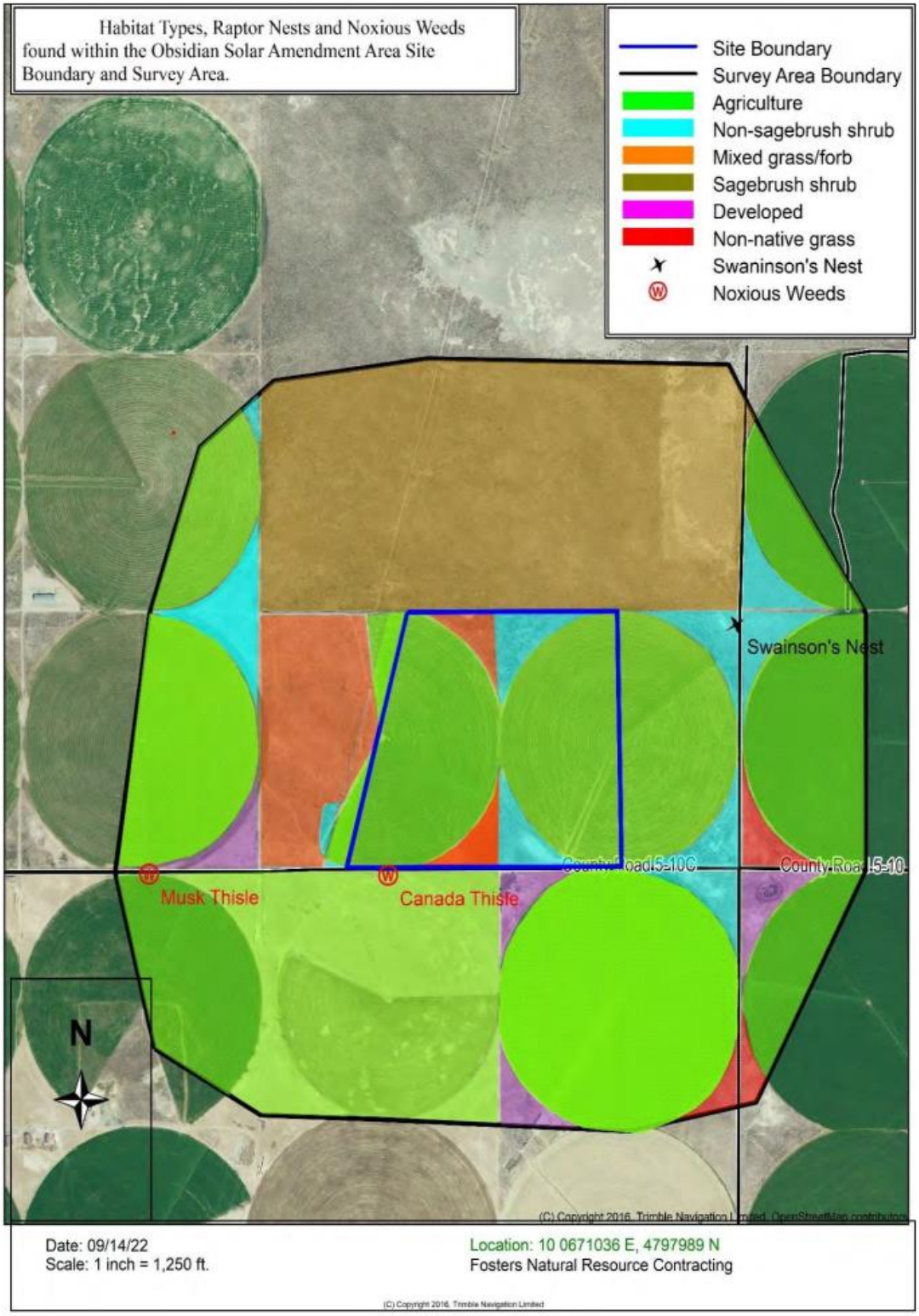
Surveys completed to inform RFA1 included a habitat assessment, raptor nest survey, pygmy rabbit survey, noxious weed survey, and incidental wildlife observation. These surveys were conducted concurrently on August 30 and September 6, 2022 within and extending ½-mile from the RFA1 site boundary area.[58] Habitat types within the analysis area were evaluated using Google Earth (2014) and Terrain Navigator (Trimble, 2019) and field verified via binocular scans. Habitat/vegetation identified with the RFA1 site boundary area are summarized below:

[58] OSCAMD1Doc4 pRFA Reviewing Agency Comment ODFW 2023-05-15. ODFW District Jon Muir concurred with the methods and surveys conducted to inform the fish and wildlife habitat assessment, and the Category 2 habitat designation for lands within the proposed amended site boundary area.

- ***Playa*** (playa lake or dry lake) - a flat-floored bottom of an undrained desert basin that is periodically inundated with water, providing important habitat function to migratory birds through seasonal standing water in a limited water resource region.
- ***Non-sagebrush Shrubland*** - occurred in some pivot corners. This association was dominated by gray (*Ericameria nauseosus*) and green (*Chrysothamnus vicidiflorus*) rabbitbrush with a patchy herbaceous understory of crested wheatgrass (*Agropyron spicatum*), cheatgrass (*Bromus tectorum*), tumble mustard (*Sisymbrium altissimum*) and/or tumble weed (*Salsola kali*). Shrub densities were greater than 10%.
- ***Mixed Grass/Forb*** – consisted of crested wheatgrass, cheatgrass, tumble weed and tumble mustard. Gray and green rabbitbrush occurred in isolated stands of less than 10% cover. Areas with this habitat type were in an earlier successional stage than areas with non-sagebrush shrub.
- ***Agricultural Lands/Developed*** – includes spigot irrigated crop circles alfalfa (*Medicago sativa*) and cereal grain within the pivots. Several of the pivot corners outside the site boundary had been seeded to cereal grain and cut for hay.

The pygmy rabbit surveys recorded no evidence of burrows or white-tailed jackrabbit. Raptor nest surveys recorded no nests within the amended RFA1 site boundary area, although one Swainson's Hawk (*Buteo swansoni*) was observed perched on the west pivot within the RFA1 site boundary area and another was defending a nest site outside the RFA1 site boundary area. No noxious weeds were identified within the RFA1 site boundary area. The results of the RFA1 field surveys are presented in Figure 6 below.

Figure 6: Habitat Categories within RFA1 Site Boundary Area



1
2
3

Habitat Types and Categories in the Analysis Area

The fish and wildlife habitat analysis area for RFA1 lies within Lake County designated critical elk (*Cervus canadensis*) winter range, and mule deer (*Odocolieus hemionus*) biological winter range and is classified by ODFW as Category 2 habitat.[59] Habitat category and type within the analysis area are presented in Table 10 below and consist of the same habitat types and categories as those previously identified and evaluated in the *Final Order on the ASC*.[60]

Table 10: Habitat Types within Amended Site Boundary

Habitat Category 2 - Habitat Types	Site Boundary, Acres		
	RFA1	Approved	Amended Total
Sagebrush Shrub	0	3,419.21	3,419.21
Playa	0.1	16.91	17.01
Sand Dune	0	108.81	108.81
Mixed Grass/Forb	13.0	0	13.0
Non-sagebrush shrubland	17.0	0.15	17.15
Non-native Forb	0	42.82	42.82
Agricultural Lands	139.2	1.56	140.76
Developed	0	0.21	0.21
Total Habitat Acres	**169.3**	**3,589.67**	**3,758.97**
*Agricultural and Developed lands are typically Category 6; however, all are within the ODFW Category 2 Big Game Winter Range.			

ODFW Habitat Categories

There are six habitat categories that identify ODFW mitigations goals for each category with Category 1 being the most valuable and Category 6 the least valuable. ODFW habitat mitigation goal for Category 1 habitat is "no impact" and is to be avoided. No Category 1 habitat was identified in the RFA1 analysis area. As required in the *Final Order on the ASC*, all Category 1 habitat within approved site boundary must be avoided. Category 6 habitat requires no mitigation. The mitigations goals for Categories 2 are as follows:[61]

> *"Habitat Category 2" is essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.*
>
> *a. The mitigation goal if impacts are unavoidable, is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality.*

[59] These areas are wintering areas that provide habitat to more wintering deer and elk than all but one other winter range in the state of Oregon (John Day River canyon). Rocky Mountain elk and mule deer are known to have used the site in recent years (as evidenced by both the presence of big game scat noted during wildlife survey efforts as well as local area accounts), and especially when winter conditions are particularly harsh or human activity has driven, particularly elk, away from other winter range areas.

[60] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p.118.

[61] OAR 635-415-0025(2)-(4)

All habitat within the RFA1 site boundary area ais Category 2 because it is entirely within ODFW's mapped Big Game Winter Range.

Potential Habitat Impacts

Construction and operation of the facility, with RFA1 changes, would result in temporary and permanent habitat impacts to Category 2 habitat. Impacts to Category 6 habitat do not require compensatory mitigation under the Council's Fish and Wildlife Habitat standard. Temporary habitat impacts are those that would last for less than the operational lifetime of the facility and would result during construction of facility components. The duration of temporary impacts to habitat is variable, based on vegetation type and extent. Permanent impacts are defined as impacts that would exist for the operational life of the facility and would result from placement of permanent facility structures.

Mitigation of Potential Habitat Impacts

Temporary impacts to habitat will be mitigated based upon restoration of vegetation and habitat through the implementation of the Revegetation and Noxious Weed Control Plan (RNWCP), as required by Fish and Wildlife Condition 1 (GEN-FW-01). Temporary habitat impacts from RFA1 changes would be less than 1 acre.

Disturbance within Area E will result in up to 12 acres of permanent impacts. The facility, with RFA1 changes, will then require mitigation for up to 3,588 acres Category 2 habitat. Permanent habitat impacts will be mitigated through the implementation of a Habitat Mitigation Plan (HMP), to be finalized prior to construction, as required by Fish and Wildlife Condition 2 (GEN-FW-02).

The draft HMP, previously approved by Council in the *Final Order on the ASC*, is consistent with ODFWs Category 2 mitigation goal because it identifies available acreage of private land for habitat conservation via protection and enhancement measures located two to 20 miles from the facility site (in-proximity) and within the ODFW-mapped Big Game Winter Range (in-kind). And, because it identifies the use of the Working Lands Improvement Program (WLIP) as the instrument to mitigate permanent facility impacts which offers a western juniper (Juniperus occidentalis) treatment and management program to be implemented on working rangeland. The juniper program includes juniper removal and thinning, which is consistent with the Oregon Conservation Strategy's recommended approaches for the conservation of sagebrush habitats. The treatment includes controlling encroaching junipers by chipping or cutting firewood, while maintaining pre-settlement juniper stands and juniper trees with old-age characteristics, which are important nesting habitat for birds and other wildlife.

In addition, Council previously imposed Fish and Wildlife Conditions 1 through 11, which will continue to apply to the facility and are briefly summarized below:

- Fish and Wildlife Condition 1 [GEN-FW-01]: Requires the finalization and implementation of a Revegetation and Noxious Weed Control Plan for all temporary impacts.

- Fish and Wildlife Condition 2 [GEN-FW-02]: Requires the finalization and implementation of a Habitat Mitigation Plan for all permanent impacts.

- Fish and Wildlife Condition 3 [GEN-FW-03]**:** Requires an employee and contractor environmental awareness training program for State Sensitive Species and all other environmental issues related to the facility, including information about pygmy rabbit identification and reporting.

- Fish and Wildlife Condition 4 [GEN-FW-04]: Imposes a speed limit of 15 miles per hour within the site boundary.

- Fish and Wildlife Habitat Condition 5 [GEN-FW-05]**:** Requires that construction crews avoid leaving trenches open at night, if possible, and to include wildlife escape ramps.

- Fish and Wildlife Habitat Condition 6 [GEN-FW-06]: Requires preconstruction non-raptor migratory bird nest surveys and if applicable, non-raptor migratory bird nest buffers during construction.

- Fish and Wildlife Habitat Condition 7 [GEN-FW-07]: Requires preconstruction raptor nest surveys and if applicable, raptor nest buffers during construction and nesting season.

- Fish and Wildlife Habitat Condition 8 [GEN-FW-08]: Requires the certificate holder to adhere to current APLIC guidelines during design and construction to minimize avian electrocution risks.

- Fish and Wildlife Habitat Condition 9 [GEN-FW-09]: Requires pre-construction pygmy rabbit surveys inside the perimeter fence within the site boundary, based on the final design of the facility, and implementation of a 3-meter (10 foot) buffer during the breeding season, and avoidance of all identified pygmy rabbit complexes.

- Fish and Wildlife Habitat Condition 10 [GEN-FW-09]: Requires that prior to construction activities a set schedule for vegetation removal and proper disposal for slash and chips.

- Fish and Wildlife Habitat Condition 11 [OPR-FW-01]: Requires the finalization and implementation of a Wildlife Monitoring Plan for operations that includes post-construction bird and bat mortality monitoring.

III.H.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing site certificate conditions described above, the Council finds that the design, construction and operation of the facility, with approved RFA1 changes, are consistent with the mitigation goals and requirements of the Oregon Department of Fish and Wildlife's Fish and Wildlife Habitat Mitigation Policy under OAR 635-415-0025.

III.I. THREATENED AND ENDANGERED SPECIES: OAR 345-022-0070

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 species 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.[62] [63]

III.I.1. Findings of Fact

The analysis area for the Threatened and Endangered Species standard is the area within and extending 5-miles from the proposed amended site boundary.

[62] OAR 345-022-0070, effective May 15, 2007.

[63] Although the Council's standard does not address federally listed threatened or endangered species, certificate holders must comply with all applicable federal laws, including laws protecting those species, independent of the site certificate.

RFA1 included an updated assessment and consultation with ODFW on survey methods and findings, an updated desktop analysis, and a field survey for state listed Threatened and Endangered (T&E) fish and wildlife species. As part of the updated desktop analysis used to inform the ODFW consultation and the 2022 habitat and wildlife field survey, the qualified biologists conducted an updated search of the following sources to identify potential T&E species within the expanded RFA1 analysis area:

- Oregon Department of Fish and Wildlife Sensitive Species List
  Available at:
  https://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive_Species_List.pdf
  Date Accessed: August 28, 2022.
- ODFW Compass Mapping Tool
  Available at: http://www.dfw.state.or.us/maps/compass/index.asp
  Date Accessed: August 28, 2022.

The certificate holder contracted qualified biologists, Fosters Natural Resources Contracting, to conduct field surveys of the RFA1 analysis area on August 30 and September 6, 2022. The September 2022 survey report and findings are included in RFA1 Attachment 4: Habitat Assessment and Wildlife Survey. The 2022 field survey implemented survey methods recommended by ODFW and did not include T&E plant surveys because they were not requested by Oregon Department of Agriculture (ODAg) because of the low potential for T&E plants to be present. The 2022 field surveys did not identify any state listed T&E species within the areas surveyed.

Reviewing Agency Coordination

ODFW biologist, John Muir, recommended the survey methods, reviewed and concurred with the survey report findings, and did not identify any potential for state-listed T&E fish or wildlife species to occur within the proposed amended site boundary[64].

The Department consulted with ODAg on the potential for T&E plants within the proposed amended site boundary area. Previous ODAg consultation identified 5 possible T&E plant species as potentially occurring in Lake County, however there are no previously recorded occurrences of any species in the analysis area. The certificate holder's assessment, presented in ASC Exhibit Q, determined that there is no suitable habitat in the analysis area for four of the five T&E plant species and ODAg concurred. Consistent with prior comments submitted by ODAg on the ASC, the RFA1 analysis area potentially includes suitable habitat for one state-listed T&E plant species, the Bogg's Lake hedge hyssop, however the closest known occurrence of the species is near the California border, approximately 135 miles from the approved site boundary. ODAg did not request rare plant surveys be conducted since there is a very low probability that T&E plant species would occur within the RFA1 analysis area, particularly

[64] OSCAMD1Doc4 pRFA Reviewing Agency Comment ODFW 2023-05-15.

because the RFA1 changes are specific to adding Area E, which has been actively farmed and has been impacted by agriculture.[65]

ODAg requested that preconstruction surveys include review of presence of Boggs Lake hyssop, to which the certificate holder agreed.[66] Council previously imposed Fish and Wildlife Condition 1 (GEN-FW-01) requiring that, prior to construction, the certificate holder finalize a Revegetation and Noxious Weed Control Plan (RNWCP); and, during construction and operation, adhere to the requirements of the final RNWCP, and as amended, if requested and approved. RNWCP Section 3.1 requires that, prior to construction, the certificate holder conducts noxious weeds surveys within areas to be disturbed during construction. Based on the certificate holder's representation, the Council amends this survey requirement to include recordation of any Boggs Lake hyssop within the survey area. Results of the surveys shall be reported to the Department and ODAg.

Based upon Council's review and ODAg and ODFW concurrence on survey methods and findings, the Council finds that the certificate holder has relied upon valid updated sources and survey methods and has adequately identified and confirmed the low potential for state listed T&E species to occur within the RFA1 analysis area.

Threatened and Endangered Species within the RFA1 Analysis Area

The updated assessment submitted with RFA1 concluded that no state-listed T&E species were identified as present, or likely to occur, in the RFA1 analysis area. This conclusion is supported by the updated desktop analysis, 2022 field survey, and consultations with ODFW and ODAg for the evaluation of RFA1 changes. Both ODFW and ODAg have concurred with the 2022 survey methods and findings and their concurrence supports the Council's evaluation of RFA1 changes on the potential to impact state-listed T&E species.[67] For these reasons, the Council finds that no state-listed T&E species have been identified, or are likely to occur, within the RFA1 amended site boundary or the RFA1 expanded analysis area.

In the *Final Order on the ASC*, Council previously found that the facility would not impact T&E species. Based upon the Council's review of the updated analysis and consultation with ODFW and ODAg, the Council continues to rely on previous findings that the portions of the facility added to the site boundary in RFA1, would not impact T&E species.

III.I.2. Conclusions of Law

Based on the foregoing analysis the Council finds that the design, construction and operation of the portions of the facility added to the site boundary in RFA1, are not likely to cause a

[65] OSCAMD1Doc5 pRFA Reviewing Agency Comment ODAg 2023-05-17.

[66] OSCAMD1Doc7-2 Cert Holder Response to Agency Comments Table 2024-07-24.

[67] OSCAMD1Doc4 pRFA Reviewing Agency Comment ODFW 2023-05-15; OSCAMD1Doc5 pRFA Reviewing Agency Comment ODAg 2023-05-17.

significant reduction in the likelihood of survival or recovery of species listed as threatened or endangered by the Oregon Department of Agriculture or Oregon Fish and Wildlife Commission.

III.J. SCENIC RESOURCES: OAR 345-022-0080

(1) 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 visual impacts to significant or important scenic resources.

(2) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). In issuing such a site certificate, the Council may impose conditions of approval to minimize the potential significant adverse visual impacts from the design, construction, and operation of the facility on significant or important scenic resources.

(3) A scenic resource is considered to be significant or important if it is identified as significant or important in a current land use management plan adopted by one or more local, tribal, state, regional, or federal government or agency.

(4) The Council shall apply the version of this rule adopted under Administrative Order EFSC 1-2007, filed and effective May 15, 2007, to the review of any Application for Site Certificate or Request for Amendment that was determined to be complete under OAR 345-015-0190 or 345-027-0363 before the effective date of this rule. Nothing in this section waives the obligations of the certificate holder and Council to abide by local ordinances, state law, and other rules of the Council for the construction and operation of energy facilities in effect on the date the site certificate or amended site certificate is executed.[68]

III.J.1. Findings of Fact

The analysis area for scenic resources is the area within and extending 10 miles from the amended site boundary. The addition to the site boundary area (Area E) is located between the previously evaluated Areas A and D. Because the new area is interior to the previously approved site boundary, there is no change in the scenic resources' analysis area from Council's prior evaluation in the *Final Order on the ASC*.

[68] OAR 345-022-0080, effective December 19, 2022.

Important Scenic Resources in the Analysis Area

Six important or significant scenic resources were identified within the analysis area, as presented in order of proximity to the amended site boundary (closest to farthest) in Table 11 below. Figure 7 shows these important or significant scenic resources in relation to the amended site boundary.

Table 11: Significant or Important Scenic Resources within Analysis Area

Scenic Resource	Distance from Amended Site Boundary (mi)	Direction from Amended Site Boundary
Christmas Valley National Backcountry Byway	2.3	N
Devil's Garden Lava Bed ACEC/WSA[2]	4	N
WSA OR-1-3[1,2]	5.5	NE
Four Craters Lava Bed WSA[1]	6	E
Table Rock ACEC and RNA	6.9	S
Oregon Outback National Scenic Byway	8.3	NW

Acronyms: ACEC = Area of Critical Environmental Concern, WSA = Wilderness Study Area, RNA = Research Natural Area, ISA = Instant Study Area

Notes:

[1] Erroneously omitted from previous evaluation.

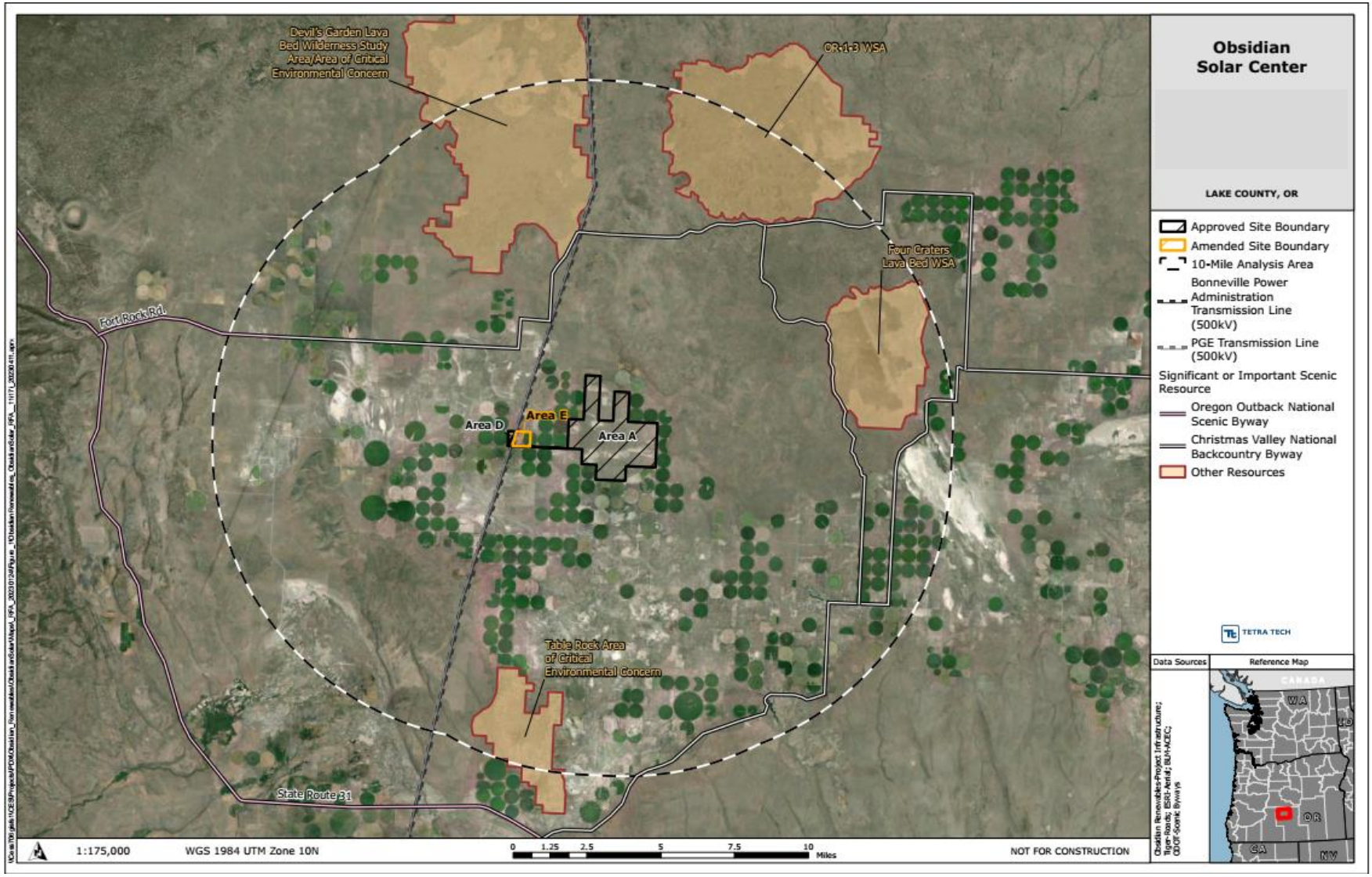
[2] The designated name of this protected area contains a derogatory term and is currently under review pursuant to US Secretary of the Interior Haaland's Order 3404.

Potential Visual Impacts

RFA1 changes could result in visual impacts at important or significant scenic resources, through construction and operation. Short-term, construction related visual impacts could include visibility impacts from generation of fugitive dust and vegetation disturbance. Permanent structures that could create visibility impacts include siting of a GSU step-up substation in an alternate location (Area E), addition of approximately 2.3 miles of overhead collector line within Area A, and addition of approximately 1.2 miles of overhead gen-tie transmission line in Areas A, D, and E. The height of transmission line structures would increase from 70 to 80 feet.[69]

[69] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, p. 5.

Figure 7: Significant or Important Scenic Resources within Analysis Area



Christmas Valley National Backcountry Byway

The Christmas Valley National Backcountry Byway is a BLM designated driving route. Backcountry Byways are designated to provide an "off the beaten path" route through corridors that contain high scenic value or public interest.[70] Within the analysis area, the Christmas Valley National Backcountry Byway follows paved and unpaved roads to the north, east, and southeast of the site boundary, including portions of County Road 5-10 and County Road 5-12.[71]

The closest portion of the Byway to the amended site boundary is located on County Road 5-12, approximately 2.3 miles north. The route travels north/south at this location. The alternate GSU step-up substation location and additional portions of overhead transmission line would be visible from the Byway and views would be head-on; however, the substation and transmission line components would continue to be visually subordinate to the existing 500-kV transmission lines that cross the facility site and continue towards the Byway. Due to the distance and screening by vegetation and topography, the Council finds that the visual impacts of the facility, with RFA1 changes, would not likely result in significant adverse impacts to views along other portions of the Byway.

Devil's Garden Lava Bed ACEC/WSA, WSA OR-1-3, Four Craters Lava Bed WSA

As presented in Table 11 and on Figure 7, the next closest important or significant scenic resources to the amended site boundary are Wilderness Study Areas, located between 4 and 6 miles to the North and East. As presented in Figure 7, the RFA1 changes are located adjacent and within the site boundary previously evaluated. Therefore, the Council finds that the visual impacts from construction and operation of the facility, with RFA1 changes, would not change, or significantly increase, from the impacts evaluated in the *Final Order on the ASC*.

In the *Final Order on the ASC*, visual impacts of facility structures were evaluated using the Esri ArcDesktop 10.5.1 geoprocessing 'Visibility' tool. The Visibility tool uses a digital elevation scanner to determine the surface locations that are potentially visible from an aggregated set of "observer points" placed in key parts of a project. Potential visibility of solar modules (7 feet tall) and battery storage structures (30 feet tall) were modeled at 23 observer points in Area A and 4 observer point in Area C.[72] Based on this analysis, visual impacts of the facility at Devil's Garden Lava Bed ACEC would be limited to a dark line on the horizon. Council found that impacts limited to a dark line on the horizon at 4 miles would not likely be significant. For

[70] OSCAPPDoc4-18 ASC Exhibit R 2019-10-17, p. R-7.

[71] *Id.*

[72] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p.99. The visual impacts of the facility, as approved in the *Final Order on the ASC*, evaluated the structures most prominent from key visibility locations. Therefore, the previously approved GSU step-up substation and 115-kV overhead transmission lines were not specifically modeled in the visibility analysis because distance and visual subordination to existing 500-kV transmission lines were assumed to make those components unlikely to attract attention in views from protected areas.

similar reasons, the Council also found that visual impacts at the other important or significant scenic resources within the analysis area, located at distances of 5 miles or greater, would also not likely be significant.

Visual impacts would continue to be minimized under previously imposed Scenic Resources Condition 1 (Condition GEN-SR-01), which requires that the facility, with RFA1 changes, be designed using earth-tone colors or brown rusty patina finish and ensure any building-related lighting is shielded and directed downward.

III.J.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing site certificate condition described above, the Council finds that the that the design, construction and operation of the facility, with RFA1 changes, are not likely to result in significant adverse visual impacts to significant or important scenic resources.

III.K. HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES: OAR 345-022-0090

(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).

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.[73]

[73] OAR 345-022-0090, effective May 15, 2007, amended by minor correction filed on July 31, 2019.

III.K.1. Findings of Fact

The analysis area for the Historic, Cultural and Archaeological Resources standard includes the area within the amended site boundary area; however, the certificate holder's desktop analysis included the area within an extending 1-mile from the amended site boundary area.

The Legislative Commission on Indian Services identified the Confederated Tribes of the Warm Springs Indian Reservation of Oregon (CTWSRO), the Klamath Tribes and the Burns Paiute Tribe as culturally affiliated and potentially affected by the facility pursuant to OAR 345-001-0010(51)(o). The Department coordinated with these tribes on review of RFA1 changes.[74]

III.K.1.a Discovery Measures and Results

A 2022 literature review, pedestrian survey and coordination with the above-reference three Tribal Governments and State Historic Preservation Office (SHPO) was completed by Archaeological Investigations Northwest (AINW) for the area within and extending 1-mile from the amended site boundary area. The 2022 pedestrian field survey did not include subsurface investigations. The literature and pedestrian field surveys methods described in the 2023 survey report are consistent with SHPO guidelines. The 2023 report was submitted to SHPO for review and comment and provided to the three tribes for review and comment.[75]

The 2022 pedestrian survey identified 3 pre-contact archaeological sites, 20 pre-contact archaeological isolates, and 2 built-environment, historic-era structures (transmission lines). The three pre-contact archaeological sites: 19/2935-1, 19/2935-2, and 19/2935-3, were identified and recorded in Area E and are to be included in the district evaluation for National Register of Historic Places (NRHP) listing under Criteria A if they are not avoided and buffered by 30 meters. The 20 pre-contact archeological isolates are to be evaluated under Criterion A pattern of events per the Memorandum of Agreement (MOA) approved by SHPO as part of the evaluation included in the *Final Order on the ASC*.[76] The two historic era built-environment resources are transmission lines (the BPA Grizzly Captain Jack No. 1 and the PGE Grizzly-Malin No. 2 transmission lines) constructed in 1967 as part of the Pacific Northwest-Pacific Southwest Intertie. Certificate holder recommends these two transmission lines are eligible for NRHP-listing as historic structures.

III.K.1.b Potential Impacts and Mitigation for Archaeological and Cultural Resources

[74] OSCAMD1Doc2-10 pRFA Email Notice to Klamath Tribes 2023-04-26; OSCAMD1Doc2-12 pRFA Email Notice to Confederated Tribes of Warm Springs 2023-04-26; OSCAMD1Doc2-11 pRFA Email Notice to Burns Paiute Tribe 2023-04-26.

[75] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, Attachment 7. Archaeological Investigations Northwest, Cultural Resource Survey for the Obsidian Solar Center Interconnection Substation, Lake County, Oregon prepared by M. Taylor Lauristen, Terry Ozbun, Tara Seaver, and Andrea Blaser. AINW Report No. 4942. 2023.

[76] OSCAMD1Doc3-1 pRFA1 SHPO Comments 2023-06-23.

The three likely NRHP-eligible pre-contact archaeological sites, 19/2935-1, 19/2935-2, and 19/2935-3, identified in Area E will be buffered by 30 meters and avoided during construction and O&M activities. Council previously imposed Historic, Cultural and Archeological Condition 1 (GEN-HC-01) requiring, in part, that, prior to and during construction, the certificate holder implement and adhere to the requirements of a Cultural Mitigation and Monitoring Plan (CMMP) (*Final Order on the ASC*, Attachment S-3). The CMMP includes avoidance, minimization, mitigation, and monitoring measures for prehistoric archaeological resources previously.

The CMMP identifies avoidance areas and mitigation measures for impacts to historical, cultural, and archaeological resources that include compliance with the mitigation obligations agreed to by the certificate holder and Klamath Tribes. Under the CMMP, the certificate holder will enter into monitoring agreements with Klamath Tribes and the Burns Paiute Tribe; the agreements contain notification and reporting obligations, and outline terms for compensation, reimbursement, and monitoring protocols. Monitoring information will be compiled in a monitoring report to be distributed to the Tribes, the Department, SHPO, and as appropriate the Oregon Department of State Lands (DSL), at the completion of facility construction.

The three pre-contact archaeological sites and 20 pre-contact archeological isolates identified in Area E are recommended by SHPO and the Department to be considered by Council as likely eligible NRHP district under Criteria A: pattern of events. As a likely eligible NRHP district, these resources will be further tested, and avoided or catalogued, consistent with the MOA between SHPO and the certificate holder, through the Archeological Testing and Excavation Methods Plan (Excavation Plan) (*Final Order on the ASC*, Attachment S-1), as previously imposed under Historic, Cultural and Archeological Condition 1 (GEN-HC-01).[77]

The Excavation Plan defines archeological testing and excavation methods which provide avoidance, minimization, and monitoring for impacts to archeological sites and mitigation measures to catalog archaeological isolates and artifacts. The Excavation Plan includes:[78]

- Delineating Archaeological Site Boundaries
- Definitions
- Archaeological Testing at Isolates
- Trenching within a Recorded Archaeological Site
- Testing at Project Related (non-archaeological) Excavation
- Historical and Multicomponent Archaeological Sites
- Artifact Analysis
- Reporting
- Archaeological Permits

In addition, Historic, Cultural and Archeological Condition 1 (GEN-HC-01) requires, in part, that, during construction and O&M, the certificate holder adhere to the requirements of an

[77] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 141.

[78] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, pp. 139-140.

Inadvertent Discovery Plan (IDP) (*Final Order on the ASC*, Attachment S-2). The IDP outlines procedures to prevent impacts to human remains or exceptionally important archaeological materials and includes notification requirements to the Department, other interested agencies and Tribes.

Council previously imposed the following conditions to ensure the above-mentioned plans and commitments would be finalized and implemented to minimize and avoid impacts to historic, cultural, and archaeological resources under this Council standard:

- Historic, Cultural and Archaeological Condition 1 (GEN-HC-01)**:** requires that prior to construction, the certificate holder finalize the Archeological Testing and Excavation Methodologies Plan and the Cultural Mitigation and Monitoring Plan, and to implement those plans during construction and operations of the facility.

- Historic, Cultural and Archaeological Condition 2 (GEN-HC-02): requires the certificate holder's qualified consultant to obtain and comply with all archaeological permits identified in the *Final Order on the ASC*, and the administrative updates, renewals and additions, as required by final facility design.

The two historic era transmission lines are NRHP-eligible. However, the lines are active transmission lines. RFA1 changes, including transmission line infrastructure and associated components, would not significantly impact the setting of these resources because it would be consistent with the setting (energy infrastructure) of the historic transmission lines themselves and their current uses as operating transmission lines. RFA1 changes would also not result in direct impacts to these resources or their eligibility.

III.K.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing site certificate conditions described above, the Council finds that the construction and operation of the facility, with RFA1 changes, are not likely to result in significant adverse impacts to historic, cultural or archaeological resources that have been listed on, or would likely be listed on the NRHP or other archaeological objects or sites identified under OAR 345-022-0090.

III.L. RECREATION: OAR 345-022-0100

(1) 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.

(2) The Council must 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.

(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). In issuing such a site certificate, the Council may impose conditions of approval to minimize the potential significant adverse impacts from the design, construction, and operation of the facility on important recreational opportunities.

(4) The Council must apply the version of this rule adopted under Administrative Order EFSC 1-2002, filed and effective April 3, 2002, to the review of any Application for Site Certificate or Request for Amendment that was determined to be complete under OAR 345-015-0190 or 345-027-0363 before the effective date of this rule. Nothing in this section waives the obligations of the certificate holder and Council to abide by local ordinances, state law, and other rules of the Council for the construction and operation of energy facilities in effect on the date the site certificate or amended site certificate is executed.[79]

III.L.1. Findings of Fact

The analysis area for important recreational opportunities is the area within and extending 5 miles from the proposed amended site boundary.

The area to be added to the site boundary by RFA1 (Area E) is located between the previously evaluated Areas A and D. Because the new area is interior to the previous site boundary, there is no change to the boundaries of the previously evaluated analysis area for scenic resources.

Recreational Opportunities within the Analysis Area

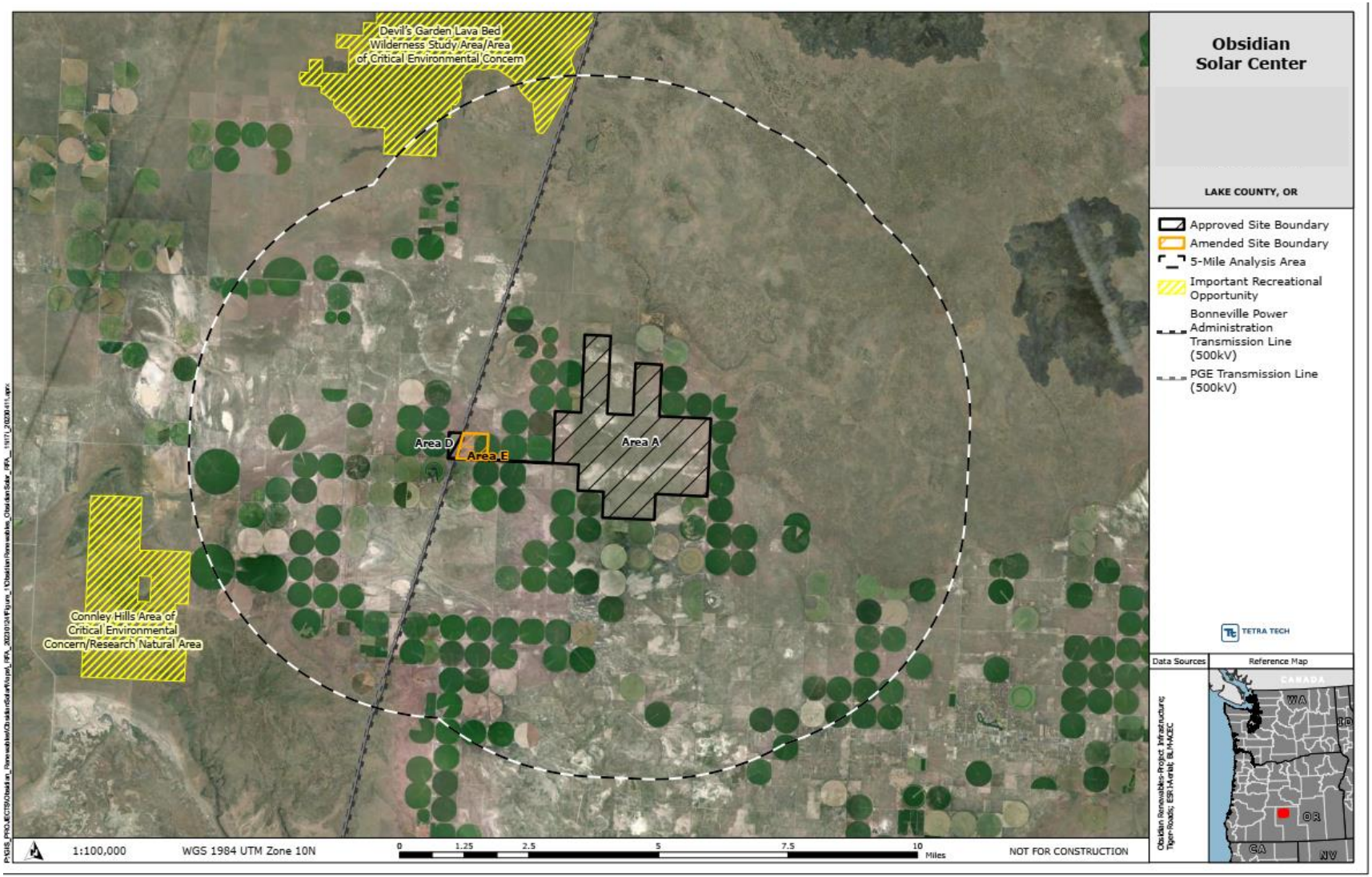
One important recreational opportunity was identified within the analysis area, as presented in in Table 12 below. Figure 8 shows the important recreational opportunity in relation to the amended site boundary.

[79] OAR 345-022-0100, effective December 19, 2022.

Table 12: Important Recreational Opportunities within the Analysis Area

Recreational Opportunity	Distance and Direction from Site Boundary	Special Designation/ Management	Degree of Demand	Outstanding/ Unusual Recreational Quality	Availability/ Rareness	Irreplaceable/ Irretrievable
Devil's Garden Lava Bed	4.0 miles to north	Area of Critical Environmental Concern/ Wilderness Study Area by BLM	Low	Off-highway vehicle use; day use; Derrick Cave lava tube and other lava tubes within the ACEC.	Recreational opportunities are somewhat common in the area.	Relatively irreplaceable
Source: OSCAPPDoc4 ASC 20 OSC ASC Exhibit T 2019-10-17, Table T-1.						

Figure 8: Important Recreational Opportunities within Analysis Area



Potential Impacts to Important Recreation Opportunities

Due to its designation as an ACEC and as a Wilderness Study Area (WSA), the Devil's Garden Lava Bed ACEC is also considered to be a Protected Area for the purposes of the Council's Protected Areas standard and as an important scenic resource under the Council's Scenic Resources Standard. As such, potential impacts of RFA1 changes on the Devil's Garden Lava Bed ACEC are discussed in detail in Sections III.F and III.J of this order. As detailed in those sections, RFA1 changes are not expected to result in significantly different or increased visual, noise, traffic-related, or water-related impacts to the Devil's Garden Lava Bed ACEC than those previously evaluated in the ASC. In particular, the construction and operation of the GSU substation at the Area E would result in nearly identical impacts to constructing and operating it at the approved Area D.

In the *Final Order on the ASC*, the Council found that the design, construction and operation of the facility would not be likely to result in a significant adverse impact to any important recreational opportunities in the analysis area. The only important recreational opportunity identified in the analysis area is the Devil's Garden Lava Bed ACEC. RFA1 changes are not expected to result in significantly different or increased visual, noise, traffic-related, or water-related impacts to the Devil's Garden Lava Bed ACEC than those previously evaluated. Accordingly, the Council finds that the construction and operation of the facility, with RFA1 changes, are not likely to result in a significant adverse impact to any important recreational opportunities in the analysis area.

III.L.2. Conclusions of Law

The Council finds that the design, construction and operation of the facility, with RFA1 changes, are not likely to result in a significant adverse impact to important recreational opportunities and that the facility continues to comply with the Recreation Standard.

III.M. PUBLIC SERVICES: OAR 345-022-0110

> *(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.*
>
> *(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*

(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.[80]

III.M.1. Findings of Fact

The analysis area for potential impacts to public services from construction and operation of the facility, with RFA1 changes, is the area within and extending 15-miles from the amended site boundary.

The certificate holder asserts, and the Council finds, that RFA1 changes would not result in result in greater impacts to public services or impacts to different public service providers than those previously evaluated by the Council.[81]

Previous assumptions relied upon to evaluate potential impact to public and private service providers include a construction duration of approximately 24 months, requiring up to 150 workers on site each day during peak construction periods.[82] RFA1 will not result in an extension of the construction schedule or additional workers being needed on site.[83] Because the 138 kV components and GSU step-up substation would be constructed in lieu of, and not in addition to, previously approved components, the Council finds that these assumptions to be reasonable.

In its *Final Order on the ASC*, the Council found that the construction and operation of the facility was not likely to result in significant adverse impacts on the ability of public and private service providers to supply sewer and sewage treatment,[84] water,[85] stormwater drainage,[86] solid waste management,[87] housing,[88] traffic safety,[89] aviation,[90] police and fire protection,[91] health

[80] OAR 345-022-0110, effective April 3, 2002.
[81] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, p. 56.
[82] OSCAPPDoc4-21 ASC Exhibit U 2019-10-17, p. U-2.
[83] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, p. 56.
[84] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 156.
[85] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 157.
[86] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 158.
[87] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 159.
[88] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 169.
[89] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 164.
[90] *Id.*
[91] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 168.

care,[92] and schools;[93] and concluded that the facility would comply with the Public Services Standard.[94]

To ensure compliance with the standard, the Council imposed the following conditions:

- Public Services Condition 3 (GEN-PS-01): Requiring that, prior to construction, the certificate holder submit a Construction Traffic Management Plan for Department review and approval; and during construction, implement and adhere to the requirements of the final approved plan.
- Public Services Condition 4 (GEN-PS-02):[95] Requiring that, prior to construction, the certificate holder submit a Fire Protection and Emergency Response Plans for Department review and approval; and implement and adhere to the requirements of the final approval plan.
- Public Services Condition 1 (PRE-PS-01) and Public Services Condition 2 (CON-PS-01): Requiring that, prior to construction, the certificate holder submit a Dust Abatement and Management Control Plan for Department review and approval; and during construction, implement and adhere to the requirements of the plan.

Sewer and Sewage Treatment

RFA1 changes are not expected to significantly change the number of workers needed during construction and O&M, so the volume of sewage generated during construction and O&M should be similar to that previously evaluated. No changes to the O&M building or method of disposal of sanitary waste were proposed. Because there are no significant changes to the amount of waste or method of disposal anticipated, the Council continues to rely on its previous findings, as presented below.

Portable toilets would be utilized during facility construction; onsite sanitary waste generated would be disposed of by a third-party contractor. During O&M, sanitary waste generated at the O&M building would be disposed of using an onsite septic system. Land Use Condition 1 (PRE-LU-01) requires that, prior to construction, the certificate holder obtain onsite sewage treatment system permits. If bathrooms are not constructed, portable toilets would be provided for employee use. In the *Final Order on the ASC*, the Council determined that no significant adverse impacts to sewer or sewage treatment providers were expected to result from the construction and operation of the facility because it would not connect to a public or private sewer or sewage treatment system.

[92] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 170-171.

[93] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 171.

[94] *Id.*

[95] Note that, as evaluated in Section III.N *Wildfire Prevention and Risk Mitigation* of this order, the Council amends Public Services Condition 4 to align with both the public services standard and the Wildfire Prevention and Risk Mitigation standard and adopts the requirements of the previously imposed condition into amended and new conditions (Wildfire Prevention Conditions 1, 2, 3 and 4).

Stormwater and Wastewater Drainage

RFA1 changes would be constructed in lieu of, and not in addition to, previously approved components. Therefore, RFA1 changes are not expected to significantly change or increase construction activities or ground disturbance at the site so the volume and pattern of stormwater runoff should be similar to that previously evaluated. The Council continues to rely on its previous findings, as presented below.

In the *Final Order on the ASC*, the Council found that construction related stormwater at the site would be managed in accordance with a National Pollution Discharge Elimination System (NPDES) 1200-C Construction Stormwater Permit and that operational stormwater would be minimal and would not impact existing drainage patterns at the site. The Council found that the facility would not interconnect with or impact any public or private stormwater drainage systems, and that construction and operation of the facility were not likely to result in significant adverse impacts to the ability of stormwater drainage service providers to provide water.[96] The Council also previously imposed Soil Protection Condition 1 (GEN-SP-01) requiring, in relevant part, that the certificate holder conduct all construction work in compliance with the Erosion and Sediment Control Plan (ESCP) attached to the Construction Stormwater Permit.

Water Use

The GSU step-up substation would either be constructed in the previously approved Area D or Area E, not both. The construction methods for the expanded 138-kv gen-tie and electrical collection lines would be the same as those required to construct the approved facility components. Additional concrete foundations for transmission support structures would be required, but concrete is expected to arrive premixed,[97] so no additional water will be required on site. The quantity and source of water supplied during construction and O&M would be similar to that previously evaluated. The Council continues to rely on its previous findings, as presented below.

Facility construction will require up to 68,600 gallons of water per day on average under worst-case conditions, or a total of up to 34.3 million gallons over the two-year construction period for the facility. Approximately 95 percent of this water would be used for dust control, other uses would include vehicle washing, road construction and maintenance, and potable water consumption. Construction water would be provided by a private or municipal source, such as Christmas Valley Domestic Water Supply District, under existing water rights. In the *Final Order on the ASC*, the Council imposed Water Rights Condition 1 (PRE-WR-01), which requires the certificate holder to provide confirmation from the water provider that water can be used at the facility under its water right or permit. If sufficient water is not available from local water providers, the condition requires the certificate holder to confirm whether it will seek an

[96] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 157-157.

[97] OSCAPPDoc4-14 ASC Exhibit O 2019-10-17, page 0-2.

amendment of its site certificate or obtain water from a third-party contractor with appropriate water rights or permits.[98]

O&M will require between 1,201,00 and 1,364,000 gallons of water per year for panel washing, potable water use, and fire suppression depending on weather conditions. Up to two onsite wells on site may be constructed at the site, pursuant to ORS 537.545, and may draw up to 5,000 gallons per well without obtaining a new water right. In the *Final Order on the ASC*, the Council imposed Water Rights Condition 2 (GEN-WR-01), requiring the certificate holder to install a flowmeter or other device to ensure compliance with the 5,000 gallon per day limit and requiring the certificate to comply with the reporting requirements of ORS 537.545. Water needed beyond the 5,000 gallon per day limit will be purchased by the certificate holder from a private or municipal source that has the necessary permits.[99]

In the *Final Order on the ASC*, the Council found that, based on the approved water sources, facility construction and O&M were not likely to result in significant adverse impacts to the ability of water service providers to provide water.[100]

Solid Waste Management

RFA1 changes are not expected to significantly change or increase the amount of solid waste generated at the site during facility construction or O&M. A single GSU step-up substation will be constructed at either Area D or E, not both, so the amount of concrete and other materials associated with construction would be similar. Because there are no significant changes to the volume of solid waste expected to be generated or the methods for its disposal, the Council continues to rely on its previous findings, as presented below.

Facility construction will generate approximately 10-20 metric tons of solid waste, consisting of discarded construction materials, packaging materials, spent erosion control materials, wood form work, scrap metal from damaged pilings or racking equipment, or unused wiring. The Council found that this waste would most likely be disposed of in the Lake County Landfill and that the certificate holder would likely contract with Lakeview Sanitation to pick up and transport waste. Recyclable cardboard would likely be delivered to Mid-Oregon Recycling in Bend. The Council found that these service providers had the capacity to manage the volume of and types of waste expected to be generated during construction and operation of the facility. [101] The Council previously imposed Waste Minimization Condition 1 (GEN-WM-01), which requires the certificate holder to develop and implement a Solid Waste Management Plan to ensure onsite waste is minimized to the extent feasible. Based on the quantity and type of solid waste generated by the facility, and compliance with Waste Minimization Condition 1 (GEN-WM-01), the Council found that facility construction and O&M were not likely to result in

[98] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 197-198.
[99] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 198-199.
[100] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 157.
[101] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 158.

significant adverse impacts to the ability of solid waste disposal providers to dispose generated waste.

Housing, Healthcare, and Schools

RFA1 changes are not expected to significantly change the number of workers that will be on site during construction and O&M, so the demand for housing, healthcare, and schools should be similar to that previously evaluated. Therefore, the Council continues to rely on its previous findings, as presented below.

One-third of the construction workforce (50 workers) will temporarily relocate to RV Parks or other short-term accommodations in communities near the site such as Christmas Valley, Fort Rock, and Silver Lake and that the remaining two-thirds (100 workers) would likely seek similar housing in further cities such as La Pine and Bend. In the *Final Order on the ASC*, the Council found that there was sufficient short-term housing to accommodate the construction workforce within 1 hour of the site.

In the *Final Order on the ASC*, Council found that facility construction could temporarily increase demand for health care services. Construction workers with minor injuries would likely be treated on site or transported to La Pine Community Health Center in Christmas Valley; construction workers with moderate injuries would be transported to the St. Charles Medical Center in Bend, and workers with severe injuries could require transport by Air Ambulance to trauma centers in Bend or Portland. Council imposed Public Services Condition 4 (GEN-PS-02)[102] requiring, in relevant part, that, prior to construction, the certificate older provide an executed agreement, or similar conveyance, for onsite emergency transport services. This requirement is intended to reduce potential impacts on public service providers that would otherwise be called upon to respond to injuries requiring transport to a hospital. Based, in part, on compliance with this condition, the potential increase in demand of health care providers would not result in significant adverse impacts to their ability to meet health care needs in the community.[103] The Council also found that because the facility would only employ 6 to 10 permanent employees during O&M, no significant increase on demand for housing, healthcare, or schools was anticipated during O&M.

Traffic Safety

RFA1 changes are not expected to significantly change the number of workers or volume of materials that will be transported to the site during construction and O&M, so traffic related impacts should be similar to that previously evaluated. Because there are no significant changes

[102] Note that, as evaluated in Section III.N *Wildfire Prevention and Risk Mitigation* of this order, the Council amends Public Services Condition 4 to align with both the public services standard and the Wildfire Prevention and Risk Mitigation standard and adopt the requirements of the previously imposed condition into amended and new conditions (Wildfire Prevention Conditions 1, 2, 3 and 4).

[103] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 170-171

to the anticipated traffic impacts, the Council continues to rely on its previous findings and conditions, as presented below.

In the *Final Order on the ASC*, the Council found that the primary transportation routes to access the site would be US-97 and State Route 31, US-395, and US-20, and that County Road 5-14G and County Road 5-12 via Fort Rock Road would provide local access to Area A; and that County Road 5-10C via Fort Rock Road would provide local access to Area E.[104] During peak construction periods, construction workers are expected to make 96 round trip commutes to the site on average and 120 round trips during peak construction periods. There would also be approximately 30 truck deliveries on average and 40 deliveries during peak construction periods. Based on these estimates, facility construction would increase daily traffic volume by approximately 320 vehicle trips (160 trips to and 160 trips from the site) on local roads during peak construction periods.

In the *Final Order on the ASC*, the Council found that construction activities and vehicles may aggravate existing dusty conditions and impact visibility, especially on County Road 5-14 G (Oil Dri Road).[105] As described above, the Council previously imposed Public Services Condition 1 (PRE-PS-01) and Public Services Condition 2 (CON-PS-01) requiring the certificate holder to submit and implement a Dust Abatement and Management Control Plan and provide signage providing contact information for dust complaints. To reduce potential impacts to traffic service providers for impacts from facility construction, the Council also imposed Public Services Condition 3 (GEN-PS-01) requiring the certificate holder to develop and implement a Construction Traffic Management Plan in consultation with the Lake County Planning and County Road Department. Subject to compliance with these conditions, the Council found that facility construction was not likely to result in significant adverse impacts to the ability of transportation providers to provide traffic safety. The Council also found that the low volume of traffic expected during operations was not likely to impact providers of traffic services within the analysis area.[106]

Air Traffic Safety

RFA1 changes will increase the number and height of overhead transmission lines at the site, but these components would be lower than 200' tall and would be adjacent to the existing 500-kV transmission lines that cross the site. Federal regulations may require the certificate holder to obtain a Determination of No Hazard from the Federal Aviation Administration. However, RFA1 changes are not expected to result in additional impacts to air traffic safety. Therefore, the Council continues to rely on its previous findings, as presented below.

[104] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 161.
[105] *Id.*
[106] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 164.

In the *Final Order on the ASC*, the Council found that panel glare from the solar photovoltaic power generation facility could result in impacts to aviation. Council previously imposed Land Use Condition 5 (GEN-LU-01).

Fire Protection

RFA1 changes will not result in changes to construction or O&M methods, or increased risk/ignition sources. Therefore, the Council continues to rely on its previous findings, as presented below.

In the *Final Order on the ASC*, the Council found that sparks and heat generated by vehicles and motorized equipment, and electrical faults and arcing from facility components could increase fire risk at the site. As discussed in more detail in Section III.N of this order, the Council imposed Public Services Condition 4 (GEN-PS-02) requiring the certificate holder to operate in compliance with an approved Fire Protection and Emergency Response Plans during construction and operation of the facility.[107] The plan requires the certificate holder to implement actions and programs to minimize fire risk at the site and to secure fire protection services from local fire protection service providers, including the Christmas Rural Fire Protection District and the High Desert Rangeland Fire Protection Association. The Council found that, subject to compliance with the plan, the facility was not anticipated to have a significant adverse impact on the ability of the local fire protection service providers to provide services in the analysis area.[108]

Police Protection and Emergency Response

RFA1 changes are not expected to significantly change the number of workers, or type of activity or infrastructure, that will be on site during construction and O&M, so the demand on police services should be similar to that previously evaluated. Therefore, the Council continues to rely on its previous findings, as presented below.

In the *Final Order on the ASC*, the Council found that the primary impacts on police and emergency response services associated with facility construction and O&M would be related to traffic safety and demand for ambulance service. These impacts and associated mitigation measures required by the site certificate are discussed above.

III.M.2. Conclusions of Law

[107] Note that, as evaluated in Section III.N *Wildfire Prevention and Risk Mitigation* of this order, the Council amends Public Services Condition 4 to align with both the public services standard and the Wildfire Prevention and Risk Mitigation standard and adopt the requirements of the previously imposed condition into amended and new conditions (Wildfire Prevention Conditions 1, 2, 3 and 4).

[108] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 168, citing OSCAPPDoc61 Proposed Contested Case Order 2021-12-29, pp. 14-62, 99-100 and 106-107.

Based on the foregoing analysis, and subject to compliance with the existing and new and amended conditions described above, the Council finds that facility construction and operation are not likely to result in significant adverse impacts to the ability of public and private providers to provide the services listed in OAR 345-022-0110.

III.N. WILDFIRE PREVENTION AND RISK MITIGATION: OAR 345-022-0115

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

(a) The applicant has adequately characterized wildfire risk within the analysis area using current data from reputable sources, by identifying:

(A) Baseline wildfire risk, based on factors that are expected to remain fixed for multiple years, including but not limited to topography, vegetation, existing infrastructure, and climate;

(B) Seasonal wildfire risk, based on factors that are expected to remain fixed for multiple months but may be dynamic throughout the year, including but not limited to, cumulative precipitation and fuel moisture content;

(C) Areas subject to a heightened risk of wildfire, based on the information provided under paragraphs (A) and (B) of this subsection;

(D) High-fire consequence areas, including but not limited to areas containing residences, critical infrastructure, recreation opportunities, timber and agricultural resources, and fire-sensitive wildlife habitat; and

(E) All data sources and methods used to model and identify risks and areas under paragraphs (A) through (D) of this subsection.

(b) That the proposed facility will be designed, constructed, and operated in compliance with a Wildfire Mitigation Plan approved by the Council. The Wildfire Mitigation Plan must, at a minimum:

(A) Identify areas within the site boundary that are subject to a heightened risk of wildfire, using current data from reputable sources, and discuss data and methods used in the analysis;

(B) Describe the procedures, standards, and time frames that the applicant will use to inspect facility components and manage vegetation in the areas identified under subsection (a) of this section;

(C) Identify preventative actions and programs that the applicant will carry out to minimize the risk of facility components causing wildfire, including

procedures that will be used to adjust operations during periods of heightened wildfire risk;

(D) Identify procedures to minimize risks to public health and safety, the health and safety of responders, and damages to resources protected by Council standards in the event that a wildfire occurs at the facility site, regardless of ignition source; and

(E) Describe methods the applicant will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk.

(2) The Council may issue a site certificate without making the findings under section (1) if it finds that the facility is subject to a Wildfire Protection Plan that has been approved in compliance with OAR chapter 860, division 300.

(3) This Standard does not apply to the review of any Application for Site Certificate or Request for Amendment that was determined to be complete under OAR 345-015-0190 or 345-027-0363 on or before the effective date of this rule.[109]

III.N.1. <u>Findings of Fact</u>

Wildfire Risk Analysis

The Wildfire Prevention and Risk Mitigation standard requires the Council to find that the certificate holder has adequately characterized wildfire risk using current data from reputable sources, by identifying baseline and seasonal wildfire risk, high-fire risk areas, and high fire consequence areas within the analysis area, which is one-half mile from the site boundary.[110] The standard also requires a showing of all data and methods used to develop the analysis.[111]

Council previously imposed Public Service Condition 4 (GEN-PS-02) requiring the certificate holder to finalize and implement a Fire Protection and Emergency Response Plan, during both construction and operation. The draft Fire Protection and Emergency Response Plan describes the site as being located within a high-medium wildfire hazard area due to dry, arid environmental conditions.[112] The characterization of the site as being located in a high-medium wildfire hazard area is consistent with wildfire risk mapping for the area by the US Forest

[109] OAR 345-022-0115, effective July 29, 2022.
[110] OAR 345-022-0115(1)(a)(A)-(D)
[111] OAR 345-022-0115(1)(a)(E)
[112] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment U-3: Draft Fire Protection and Emergency Response Plan, p. 1.

Service[113] and Midstate Electric Cooperative (MEC).[114] Because the site characterization is consistent with other mapping, the Council finds the certificate holder has adequately characterized wildfire risk at the site.

Wildfire Mitigation Plan

The Wildfire Prevention and Risk Mitigation standard requires that the Council find that the facility will be designed, constructed, and operated in compliance with a Wildfire Mitigation Plan approved by the Council. The Plan must:

- Identify areas within the site boundary that are subject to a heightened risk of wildfire and describe the procedures, standards, and time frames that the certificate holder will use to inspect facility components and manage vegetation in those areas.

- Identify preventative actions and programs that the certificate holder will carry out to minimize the risk of facility components causing wildfire, including procedures that will be used to adjust operations during periods of heightened wildfire risk;

- Identify procedures to minimize risks to public health and safety, the health and safety of responders, and damages to resources protected by Council standards in the event that a wildfire occurs at the facility site, regardless of ignition source; and

- Describe methods the certificate holder will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk.

As described above, Council previously imposed Public Services Condition 4 (GEN-PS-02) requiring the certificate holder to finalize and implement a Fire Protection and Emergency Response Plan during construction and operation. The draft Plan, and the condition, were developed prior to the enactment of the Council's Wildfire Prevention and Risk Mitigation standard. As described below, the draft Fire Protection and Emergency Response Plan satisfies some, but not all, of the requirements of the Wildfire Prevention and Risk Mitigation standard.

[113] Dillon, G; Gilbertson-Day, J. 2020. Wildfire Hazard Potential for the United States, version 2020. 3rd Edition. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2015-0047-3. Accessed June 22, 2023, from: https://bpagis.maps.arcgis.com/home/item.html?id=55226e8547f84aae8965210a9801c357

[114] Midstate Electric Cooperative, Inc. 2022. 2022 Wildfire Mitigation Plan. p. 15. Accessed June 22, 2023 from https://digital.osl.state.or.us/islandora/object/osl:996245

RFA1 changes include facility components in an amended site boundary and changes to facility components within the previously approved site boundary. Therefore, the requirements of the Wildfire Prevention and Risk Mitigation standard apply to the facility.

Areas subject to a heightened risk of wildfire

As noted above, the draft Fire Protection and Emergency Response Plan describes the site as being located within a high-medium wildfire hazard area due to dry, arid environmental conditions.[115] Existing wildfire risk mapping confirms that there are not areas of heightened risk of wildfire within the amended site boundary, as summarized below.

The U.S. Forest Service's 2020 Wildfire Hazard Potential (WHP) dataset depicts relative potential for wildfire that would be difficult for suppression resources to contain, based on wildfire simulation modeling. As shown in Figure 9: 2020 Wildfire Hazard Potential the 2020 WHP dataset depicts the wildfire hazard potential in the amended site boundary area as low or very low, and irrigated pivots around the site as unburnable. The site is also within the service territory of the MEC. MEC utilized the 2020 WHP to identify areas of high or moderate fire risk in its 2022 Wildfire Mitigation Plan (WMP).[116] As shown in Figure 10, MEC also identifies the portion of Lake County that contains the amended site boundary as low risk, with areas of moderate to high risk in the northwest corner of the County.

[115] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment U-3: Draft Fire Protection and Emergency Response Plan, p. 1.

[116] Midstate Electric Cooperative, Inc. 2022. 2022 Wildfire Mitigation Plan. p. 14. Accessed June 22, 2023, from https://digital.osl.state.or.us/islandora/object/osl:996245

Figure 9: 2020 Wildfire Hazard Potential[117]

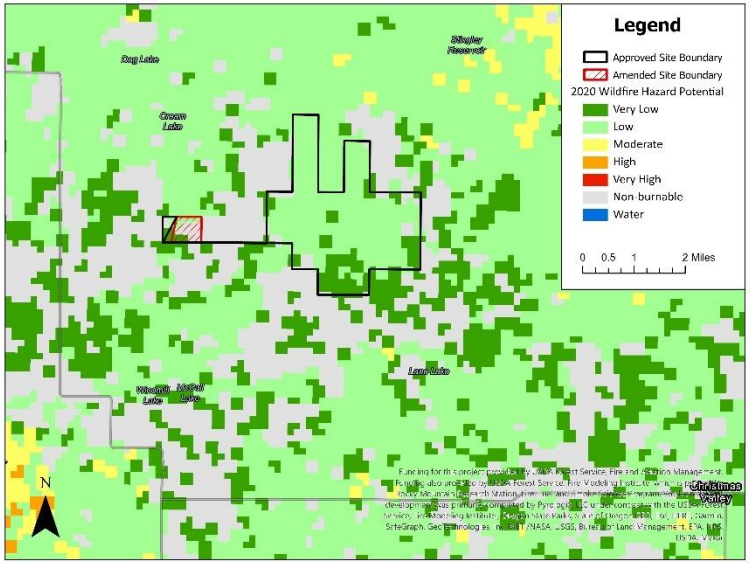
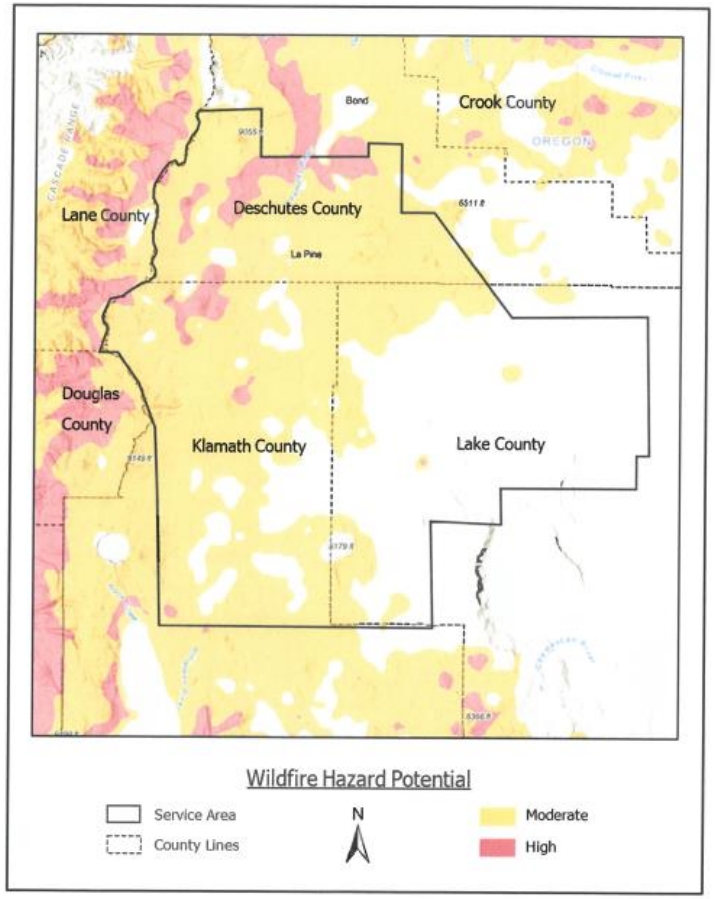


Figure 10: MEC Service Territory Wildfire Hazard Map[118]



[117] Prepared by ODOE using data from Dillon, G; Gilbertson-Day, J. 2020. Wildfire Hazard Potential for the United States, version 2020. 3rd Edition. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2015-0047-3.

[118] Midstate Electric Cooperative, Inc. 2022. 2022 Wildfire Mitigation Plan. p. 15.

Because existing mapping shows that there are no areas of heightened fire risk within the amended site boundary, the Council finds that the criterion under OAR 345-022-0115(1)(b)(A) is satisfied for the purposes of this review; however, fire conditions are dynamic and to ensure that the certificate holder properly analyzes wildlife risk at the site, the Council imposes Wildfire Prevention Condition 1 (PRE-WP-01) and Wildfire Protection Condition 2 (PRO-WP-01) shown below.

Actions, Programs, and Procedures to Prevent Fire and Mitigate Risk

The draft Fire Protection and Emergency Response Plan describes the design standards that will be used to reduce the risk of fire from and to the facility, with RFA1 changes:

- Perimeter roads will be 20 feet wide with a maintained 10-foot vegetation-free buffer zone (30 feet total vegetation free area) to act as fire and allow access by emergency vehicles.
- Internal array access roads will be 12-feet wide and maintained to act as fire breaks and allow for access by emergency vehicles.
- All electrical equipment will meet all applicable National Electric Code and Institute of Electrical and Electronics Engineers standards to reduce potential fire risk.
- The facility will be electronically monitored through a supervisory and data acquisition (SCADA) system that will notify operator of electrical hazards, fire, and other operational issues.
- Personnel will be instructed to shut off vehicles and equipment when not in use.
- Staff will be trained to control potential incipient fires on site and coordinate additional fire prevention measures with local service providers.
- Adequate water supply for fire suppression activities will be maintained.

In addition, the plan describes that SOLV Energy's Vegetation Management and Fire Prevention Plan will be implemented by technicians at the site.[119] The Vegetation Management and Fire Prevention Plan provides that:

- Prior to each daily shift, the technician in charge will check the National Weather Service fire danger posting for Red Flag Warnings and will implement additional mitigation measures under red flag conditions.
- Workers will carry a pocket card containing procedures on how to respond to a fire onsite.[120]

[119] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment U-3: Draft Fire Protection and Emergency Response Plan, p. 2.
[120] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment U-3: Draft Fire Protection and Emergency Response Plan, p. 3.

- Electrical equipment will be inspected (visual inspection and infra-red scanning, as appropriate for the particular area) and vegetation will be managed with mowing and spraying as necessary to avoid any hazardous conditions.[121]

In addition to the actions and programs described above, the draft Fire Protection and Emergency Response Plan commits the certificate holder to taking the following actions to minimize risks to public health and safety and emergency responders:

- Installing signage that includes safety information at all entrances to the facility for emergency responders to identify the location of system disconnects, location of electrical conduit, and the ability to isolate and shutdown electrical power coming from the PV array.
- Periodically offering training to local firefighters on system operation and safety practices at the facility.

The Council previously found that the actions, programs, and procedures above were sufficient to demonstrate that the construction or operation of the facility is not anticipated to have a significant adverse impact on local fire and wildfire protection service providers.[122] Because the final Fire Protection and Emergency Response Plan would apply to the facility, with RFA1 changes, the Council finds that the criteria under OAR 345-022-0115(1)(b)(B)-(D) are satisfied.

Plan Updates

The standard requires a WMP to describe methods the certificate holder will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk to public health and safety. Landowner notification of wildfire at the site shall be a minimum requirement addressed in the final mitigation plan. The certificate holder will work with local emergency responders and dispatch centers to determine the most valuable and effective methods for issuing wildfire risk notifications.[123] These minimum requirements are included in the draft Amended Wildfire Mitigation Plan (Attachment X of this order).

The draft Fire Protection and Emergency Response Plan attached to the *Final Order on the ASC* must be finalized prior to construction and operation of the facility, with RFA1 changes but does not otherwise describe whether or how the plan will be updated on an ongoing basis. To ensure that the certificate holder addresses this issue, the Council amends Public Services Condition 4 (GEN-PS-02), and *Final Order on the ASC* Attachment U-3 (revised to Attachment X),

[121] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment U-3: Draft Fire Protection and Emergency Response Plan, p. 3-4.
[122] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, Attachment U-3: Draft Fire Protection and Emergency Response Plan, p. 3-4.
[123] OSCAMD1 EFSC Meeting Minutes. At the September 22, 2023 meeting, Council requested that, consistent with OAR 345-022-0115(1)(b)(D), the draft WMP include requirements for landowner notification to ensure landowners are notified during wildfire events at the site.

and adopts new conditions to require the Fire Protection and Emergency Response Plans be converted to Wildfire Mitigation Plans, and to require the plans to include a schedule and procedures for updating the plan. Under OAR 345-022-0115(1)(b), a facility is generally required to be designed, constructed, and operated in compliance with a Wildfire Mitigation Plan approved by the Council. Given the relatively low level of wildfire risk at the site, and Council's previous review and approval of the proposed actions, programs, and procedures to prevent wildfire and mitigate fire risk, the Council delegates the review and approval of the required Wildfire Mitigation Plans to the Department in the amended and newly imposed conditions.[124]

To address construction-related wildfire risk, the Council amends Public Services Condition 4(a) and adopt a new condition as presented below:

> **Wildfire Prevention Condition 1 [PRE-WP-01]:** Prior to construction of the facility, the certificate holder shall submit a Final Wildfire Mitigation Plan to the Department for review and approval.
>
> a. The final plan shall, at a minimum:
>
> i. Document coordination with local fire protection and emergency services; qualifications and contact information for the onsite emergency medical technician; and executed agreement, or similar conveyance, for onsite emergency transport service. The plan shall also include an updated Emergency and Fire contact list.
>
> ii. Identify areas within the site boundary that are subject to a heightened risk of wildfire, using current data from reputable sources, and discuss data and methods used in the analysis.
>
> iii. Describe the procedures, standards, and time frames that the certificate holder will use to inspect facility components and manage vegetation in the areas identified under section (a) of this condition.
>
> iv. Identify preventative actions and programs that the certificate holder will carry out to minimize the risk of construction equipment or vehicles causing wildfire, including procedures that will be used to adjust operations during periods of heightened wildfire risk.
>
> v. Identify procedures to minimize risks to public health and safety, the health and safety of responders, and damages to resources protected by Council standards in the event that a wildfire occurs at the facility site, regardless of ignition source.
>
> vi. Describe the methods the certificate holder will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk, including the schedule by which updates of the plan will occur.
>
> b. The actions, programs, and procedures in section (a)(iii)-(v) shall be consistent with

[124] Under ORS 469.402, the Council may delegate the future review and approval of a future action required by condition to the Department if, in the council's discretion, the delegation is warranted under the circumstances of the case.

those included in the draft plan provided in *Final Order on the RFA1* Attachment X.

[Final Order on ASC, AMD1, Public Services Condition 4, Wildfire Prevention Condition 1]

The Council imposes a new condition clarifying that the certificate holder must implement the approved plan, and any future approved plan updates, during facility construction:

Wildfire Prevention Condition 3 [CON-WP-01]: During construction of the facility, the certificate holder shall:

a. Adhere to the requirements of the Wildfire Mitigation Plan finalized in accordance with Condition PRE-WP-01.
b. Adhere to the requirements of any updates to the Wildfire Mitigation Plan, completed in accordance with Condition PRE-WP-01(a)(vi), following review and approval by the Department.

[Final Order on AMD1, Wildfire Prevention Condition 3]

To address operational-related wildfire risk, the Council amends Public Services Condition 4(b) and adopt a new condition as presented below:

Wildfire Prevention Condition 2 [PRO-WP-01]: Prior to operation of the facility, the certificate holder shall submit a Final Operational Wildfire Mitigation Plan to the Department for review and approval.

a. The final plan shall, at a minimum:
    i. Include an updated Emergency and Fire contact list.
    ii. Identify areas within the site boundary that are subject to a heightened risk of wildfire, using current data from reputable sources, and discuss data and methods used in the analysis.
    iii. Describe the procedures, standards, and time frames that the certificate holder will use to inspect facility components and manage vegetation in the areas identified under section (a) of this condition.
    iv. Identify preventative actions and programs that the certificate holder will carry out to minimize the risk of facility components or equipment causing wildfire, including procedures that will be used to adjust operations during periods of heightened wildfire risk.
    v. Identify procedures to minimize risks to public health and safety, the health and safety of responders, and damages to resources protected by Council standards in the event that a wildfire occurs at the facility site, regardless of ignition source.
    vi. Describe the methods the certificate holder will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk, including the schedule by which updates of the plan will occur.
b. The actions, programs, and procedures in section (a)(iii)-(v) shall be consistent with those included in the draft plan provided in *Final Order on RFA1* Attachment X.

[Final Order on ASC, AMD1, Public Services Condition 4(b), Wildfire Prevention Condition

2]

Wildfire Prevention Condition 4 [OPR-WP-01]: During operation of the facility, the certificate holder shall:

a. Adhere to the requirements of the Wildfire Mitigation Plan finalized in accordance with Condition PRO-WP-01.
b. Adhere to the requirements of any updates to the Wildfire Mitigation Plan, completed in accordance with Condition PRO-WP-01(a)(vi), following review and approval by the Department.

III.N.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the new and amended site certificate conditions above, the Council finds that the certificate holder has adequately characterized wildfire risk within the analysis area using current data from reputable sources, and that, subject to Department approval, the facility will be designed, constructed, and operated in compliance with a Wildfire Mitigation Plan that satisfies the criteria of OAR 345-022-0115.

III.O. WASTE MINIMIZATION: OAR 345-022-0120

(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.

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.
(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.[125]

[125] OAR 345-022-0120, effective May 15, 2007.

III.O.1. Findings of Fact

Solid Waste and Wastewater

RFA1 changes are not expected to significantly change or increase the amount of solid waste generated at the site during facility construction or O&M. A single GSU step-up substation will be constructed at either Area D or E, not both, so the amount of concrete and other materials associated with construction would be similar. Because there are no significant changes to the volume of solid waste expected to be generated or the methods for its disposal proposed, the Council continues to rely on its previous findings, as presented below.

Facility construction will generate approximately 10-20 metric tons of solid waste, consisting of discarded construction materials, packaging materials, spent erosion control materials, wood form work, scrap metal from damaged pilings or racking equipment, or unused wiring. The Council found that this waste would most likely be disposed of in the Lake County Landfill and that the certificate holder would likely contract with Lakeview Sanitation to pick up and transport waste. Recyclable cardboard would likely be delivered to Mid-Oregon Recycling in Bend. The Council found that these service providers had the capacity to manage the volume of and types of waste expected to be generated during construction and operation of the facility.[126] The Council previously imposed Waste Minimization Condition 1 (GEN-WM-01), which requires the certificate holder develop and implement a Solid Waste Management Plan to ensure onsite waste is minimized to the extent feasible, during construction and O&M. Based on the quantity and type of solid waste generated by the facility, and compliance with Waste Minimization Condition 1 (GEN-WM-01), the Council found that facility construction and O&M comply with the Waste Minimization standard.

III.O.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing site certificate condition described above, the Council finds that the certificate holder's solid waste and wastewater plans are likely to minimize generation of solid waste and wastewater in the construction and operation of the facility, with RFA1 changes, and would result in recycling and reuse of such wastes, and will manage the accumulation, storage, disposal and transportation of wastes in a manner that will result in minimal adverse impacts to surrounding and adjacent areas.

III.P. SITING STANDARDS FOR TRANSMISSION LINES – OAR 345-024-0090

To issue a site certificate for a facility that includes any transmission line under Council jurisdiction, the Council must find that the applicant:

[126] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 158.

(1) Can design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public;

(2) Can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.[127]

III.P.1. Findings of Fact

Electro-magnetic fields

Electric field strength is directly proportional to the voltage of the line and proximity to the line; increased voltage produces a stronger electric field, and the electric field strength increases as proximity to the conductor increases.

RFA1 changes include constructing a 3.2-mile 138-kV gen-tie transmission line rather than a 2-mile 115-kV gen-tie transmission line and to reduce the transmission line ROW width from 60-feet to 50-feet.[128] Because these changes could impact the Council's previous findings of compliance with OAR 345-022-0090(1), the certificate holder prepared an Addendum Report to its prior electric and magnetic field study, prepared to evaluate the proposed changes to the gen-tie line and confirm that the line will continue to comply with OAR 345-024-0090(1). The Addendum Report is RFA1 Attachment 6.

The Addendum Report demonstrates that predicted electric field kV/m in both configurations remains well below the limit of 9 kV. As shown in RFA1 Attachment 6 Table 1, calculated electric fields for the double circuit configuration are about 0.59 kV/m at the ROW edges, with a maximum of about 1.18 kV/m within the ROW. With the single circuit transmission line configuration, calculated electric fields are higher at the ROW edge closest to two of the phases (about 0.98 kV/m) than at the ROW edge closest to the single phase (about 0.72 kV/m), with a maximum of about 1.9 kV/m within the ROW.

Because the projected electric fields remain well below the maximum 9 kV per meter at one meter above the ground surface in areas accessible to the public, the Council concludes that the gen-tie transmission line, with RFA1 changes, complies with the requirements of OAR 345-024-0090(1).

Induced-Currents and Grounding

[127] OAR 345-024-0090, effective May 15, 2007.

[128] OSCAMD1Doc9 Request for Amendment 1 2023-08-01, pp. 3-4 and Attachment 8, p. 1.

OAR 345-024-0090(2) requires the Council to find that the certificate holder "can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable."

Council previously imposed Condition General Standard Condition 8 (GEN-GS-05) (which requires, in part, grounding of objects or structures that could become inadvertently charged with electricity by the transmission line) and Siting Standards for Transmission Lines Condition 1 (PRO-TL-01), quoted below. Council finds that the facility, with RFA1 changes, complies with OAR 345-024-0090(2) subject to these same conditions, with the minor changes to Siting Standards for Transmission Lines Condition 1 (PRO-TL-01), as presented below:

> **Amended Siting Standards for Transmission Lines Condition 1 [PRO-TL-01]:** Prior to operation of the facility, the certificate holder shall provide landowners within 500 feet of the site boundary a map of the 138-kV transmission line and the 138 kV collection line(s) inform landowners of possible health and safety risks from induced currents caused by electric and magnetic fields.
> [Final Order on ASC, AMD1, Siting Standards for Transmission Lines Condition 1]

III.P.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with existing and amended conditions described above, the Council finds that the certificate holder can design, construct, and operate the facility, with RFA1 changes, so that alternating current electric fields do not exceed 9-kV per meter at one meter above the ground surface in areas accessible to the public and that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.

IV. EVALUATION OF OTHER APPLICABLE REGULATORY REQUIREMENTS

IV.A. Noise Control Regulations: OAR 340-035-0035

(1) Standards and Regulations:

(a) Existing Noise Sources. No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules.

(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.

(B) New Sources Located on Previously Unused Site:

(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)–(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

(iii) For noise levels generated or caused by a wind energy facility:

(I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level.

(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with wind speed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

(IV) For purposes of determining whether a proposed wind energy facility would satisfy the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are predicted assuming that all of the proposed wind facility's turbines are operating between cut-in speed and the wind speed corresponding to the maximum sound power level established by IEC 61400-11 (version 2002-12). These predictions must be compared to the highest of either the assumed ambient noise level of 26 dBA or to the actual ambient background L10 and L50 noise level, if measured. The facility complies with the noise ambient background standard if this comparison shows that the increase in noise is not more than 10 dBA over this entire range of wind speeds.

(V) For purposes of determining whether an operating wind energy facility complies with the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are measured when the facility's nearest wind turbine is operating over the entire range of wind speeds between cut-in speed and the wind speed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled. The facility complies with the noise ambient background standard if the increase in noise over either the assumed ambient noise level of 26 dBA or to the actual ambient background L10 and L50 noise level, if measured, is not more than 10 dBA over this entire range of wind speeds.

(VI) For purposes of determining whether a proposed wind energy facility would satisfy the Table 8 standards, noise levels at the appropriate measurement point are predicted by using the turbine's maximum sound power level following procedures established by IEC 61400-11 (version 2002-12), and assuming that all of the proposed wind facility's turbines are operating at the maximum sound power level. [Table not included. See ED. NOTE.]

(VII) For purposes of determining whether an operating wind energy facility satisfies the Table 8 standards, noise generated by the energy facility is

measured at the appropriate measurement point when the facility's nearest wind turbine is operating at the wind speed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled.

(c) Quiet Areas. No person owning or controlling an industrial or commercial noise source located either within the boundaries of a quiet area or outside its boundaries shall cause or permit the operation of that noise source if the statistical noise levels generated by that source exceed the levels specified in Table 9 as measured within the quiet area and not less than 400 feet (122 meters) from the noise source.

(d) Impulse Sound. Notwithstanding the noise rules in Tables 7 through 9, no person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if an impulsive sound is emitted in air by that source which exceeds the sound pressure levels specified below, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule:

(A) Blasting. 98 dBC, slow response, between the hours of 7 a.m. and 10 p.m. and 93 dBC, slow response, between the hours of 10 p.m. and 7 a.m.

(B) All Other Impulse Sounds. 100 dB, peak response, between the hours of 7 a.m. and 10 p.m. and 80 dB, peak response, between the hours of 10 p.m. and 7 a.m.

(e) Octave Bands and Audible Discrete Tones. When the Director has reasonable cause to believe that the requirements of subsection (1)(a), (b), or (c) of this rule do not adequately protect the health, safety, or welfare of the public as provided for in ORS Chapter 467, the Department may require the noise source to meet the following rules:

(A) Octave Bands. No person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if such operation generates a median octave band sound pressure level which, as measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceeds applicable levels specified in Table 10.

(B) One-third Octave Band. No person owning or controlling an industrial or commercial noise source shall cause or permit the operation of that noise source if such operation generates a median one-third octave band sound pressure level which, as measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, and in a one-third octave band at a

preferred frequency, exceeds the arithmetic average of the median sound pressure levels of the two adjacent one-third octave bands by:

(i) 5 dB for such one-third octave band with a center frequency from 500 Hertz to 10,000 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band; or

(ii) 8 dB for such one-third octave band with a center frequency from 160 Hertz to 400 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band; or

(iii) 15 dB for such one-third octave band with a center frequency from 25 Hertz to 125 Hertz, inclusive. Provided: Such one-third octave band sound pressure level exceeds the sound pressure level of each adjacent one-third octave band;

(iv) This rule shall not apply to audible discrete tones having a one-third octave band sound pressure level 10 dB or more below the allowable sound pressure levels specified in Table 10 for the octave band which contains such one-third octave band.

(2) Compliance. Upon written notification from the Director, the owner or controller of an industrial or commercial noise source operating in violation of the adopted rules shall submit a compliance schedule acceptable to the Department. The schedule will set forth the dates, terms, and conditions by which the person responsible for the noise source shall comply with the adopted rules.

(3) Measurement:

(a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1), or to such other procedures as are approved in writing by the Department;

(b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:

(A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;

(B) That point on the noise sensitive property line nearest the noise source.

(4) Monitoring and Reporting:

(a) Upon written notification from the Department, persons owning or controlling an industrial or commercial noise source shall monitor and record the statistical noise levels and operating times of equipment, facilities, operations, and activities, and shall submit such data to the Department in the form and on the schedule requested by the Department. Procedures for such measurements shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1);

(b) Nothing in this rule shall preclude the Department from conducting separate or additional noise tests and measurements. Therefore, when requested by the Department, the owner or operator of an industrial or commercial noise source shall provide the following:

(A) Access to the site;

(B) Reasonable facilities, where available, including but not limited to, electric power and ladders adequate to perform the testing;

(C) Cooperation in the reasonable operation, manipulation, or shutdown of various equipment or operations as needed to ascertain the source of sound and measure its emission.

(5) Exemptions: Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:

(a) Emergency equipment not operated on a regular or scheduled basis;

(b) Warning devices not operating continuously for more than 5 minutes;

(c) Sounds created by the tires or motor used to propel any road vehicle complying with the noise standards for road vehicles;

(d) Sounds resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad only to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576; but this exemption does not apply to any standard, control, license, regulation, or restriction necessitated by special local

conditions which is approved by the Administrator of the EPA after consultation with the Secretary of Transportation pursuant to procedures set forth in Section 17(c)(2) of the Act;

(e) Sounds created by bells, chimes, or carillons;

(f) Sounds not electronically amplified which are created by or generated at sporting, amusement, and entertainment events, except those sounds which are regulated under other noise standards. An event is a noteworthy happening and does not include informal, frequent, or ongoing activities such as, but not limited to, those which normally occur at bowling alleys or amusement parks operating in one location for a significant period of time;

(g) Sounds that originate on construction sites.

(h) Sounds created in construction or maintenance of capital equipment;

(i) Sounds created by lawn care maintenance and snow removal equipment;

(j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;

(k) Sounds created by the operation of road vehicle auxiliary equipment complying with the noise rules for such equipment as specified in OAR 340-035-0030(1)(e);

(l) Sounds created by agricultural activities;

(m) Sounds created by activities related to the growing or harvesting of forest tree species on forest land as defined in subsection (1) of ORS 526.324.

(6) Exceptions: Upon written request from the owner or controller of an industrial or commercial noise source, the Department may authorize exceptions to section (1) of this rule, pursuant to rule 340-035-0010, for:

(a) Unusual and/or infrequent events;

(b) Industrial or commercial facilities previously established in areas of new development of noise sensitive property;

(c) Those industrial or commercial noise sources whose statistical noise levels at the appropriate measurement point are exceeded by any noise source external to the industrial or commercial noise source in question;

(d) Noise sensitive property owned or controlled by the person who controls or owns the noise source;

(e) Noise sensitive property located on land zoned exclusively for industrial or commercial use.[129]

DEQ 23-2018, minor correction filed 04/02/2018, effective 04/02/2018
DEQ 24-2017, minor correction filed 11/08/2017, effective 11/08/2017
DEQ 14-2017, amend filed 10/30/2017, effective 11/02/2017

IV.A.1. Findings of Fact

Noise control requirements established in OAR 345-035-0035 apply to new industrial and commercial noise sources, which are defined as "noise generated by a combination of equipment, facilities, operations or activities employed in the production, storage, handling, sale, purchase, exchange, or maintenance of a...service."[130] The facility, with RFA1 changes, is a new industrial noise source and therefore the noise control requirements established in OAR 345-035-0035 are applicable.[131]

Potential Noise Impacts

Construction

Under OAR 340-035-0035(5), noise generated during construction of the facility, or during maintenance activities on facility components, are exempt from the requirement to meet DEQ's noise standards. However, an evaluation of construction-related noise is presented in accordance with OAR Chapter 345 Division 21 information requirements and to inform the construction-related noise analysis required under the Council's Protected Areas and

[129] OAR 345-035-0035, effective November 2, 2017, as amended by minor corrections filed on November 8, 2017 and April 2, 2018.
[130] OAR 340-035-0015(24).
[131] As provided in OAR 340-035-0110, in 1991, the Legislative Assembly withdrew all funding for implementing and administering DEQ's noise program; therefore, Council assumes the authority as the decision maker to interpret and implement the DEQ noise rules. A July 2003 DEQ Management Directive provided DEQ guidance information on DEQ's former Noise Control Program and how staff should respond to noise inquiries and complaints. Specifically, although DEQ's Noise Control Program has been terminated, the noise statutes and administrative rules remain in force and enforcement falls under the responsibility of local governments and, in some cases, state agencies. The Directive states: the Energy Facility Siting Council (EFSC), under the Department of Energy, is authorized to approve the siting of large energy facilities in the State and that EFSC staff review applications and amendments to ensure that proposed facilities meet the State noise regulations.

Recreation standards.

RFA1 changes will not result in changes in construction methods, equipment or schedule and therefore will not result in construction-related noise impacts that differ from Council's evaluation in the *Final Order on the ASC*. As previously evaluated, maximum construction-related noise levels would occur during the installation of the support posts using a pneumatic pile driver, with levels of 101 dBA at 50 feet average hourly noise levels would be substantially lower, with typical hourly L50 noise levels of 72 to 75 dBA.[132] This range of noise is comparable to noise generated from agricultural activities in the vicinity of the facility site of 70 dBA to 86 dBA. Construction noise will attenuate to at a rate of 6 dBA per doubling of distance. Council previously imposed Noise Control Condition 1 (GEN-NC-01) requiring that, prior to construction, the certificate holder establish a construction-noise complaint system to address any noise complaints; and, during construction, implement the noise complaint program and other measures designed to minimize noise impacts.[133]

Operations

Operational noise generated by a new industrial or commercial noise source to be located on a previously unused site must comply with two standards: the "ambient antidegradation standard" and the "maximum allowable noise standard." Under OAR 345-035-0035(1)(b)(B)(i), a new industrial or commercial noise source located on a previously unused industrial or commercial site may not increase ambient statistical noise levels L10 or L50 by more than 10 A-weighted decibels (dBA), or exceed the levels provided in Table 13 below (i.e., 50 dBA).

Table 13: Statistical Noise Limits for Industrial and Commercial Noise Sources

Statistical Descriptor	Maximum Permissible Hourly Statistical Noise Levels (dBA)	
	Daytime (7:00 AM – 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
L50	55	**50**
L10	60	55
L1	75	60

Note: The hourly L50, L10, and L1 noise levels are defined as the noise levels equaled or exceeded 50 percent, 10 percent, and 1 percent of the hour, respectively.
"Shaded" cell represents the most restrictive level and therefore relied upon for the evaluation of compliance with the maximum allowable noise standard.
Source: OAR 345-035-0035, Table 8.

Ambient noise monitoring was conducted in July 2018, using two noise monitoring positions (M-1 and M-2) and measuring at both sites simultaneously.[134] Based on review of aerial

[132] OSCAPPDoc4-24 OSC ASC Exhibit X 2019-10-17, Appendix X-1, 8.3.

[133] As presented in Attachment A of this order, the Council administratively amends Noise Control Condition 1 (GEN-NC-01) to clarify the temporal requirements of the condition: requirements that apply prior to construction, and during construction. The changes are not intended to be substantive or impose new requirements.

[134] OSCAPPDoc4 ASC Exhibit X 2019-10-17. Appendix X-1, Figure 2.

imagery, no changes in land use or development were identified within the noise analysis area that would warrant updated ambient monitoring data for this review.[135] Existing ambient noise sources include 500-kV lines, another existing transmission line and energy related noise sources. Based on the monitoring data, ambient L50 noise levels at the site are 20 dBA (M-2) and 28 dBA (M-1).[136]

There are 17 noise sensitive receptors within the 1-mile noise analysis area. The RFA1 site boundary addition did not result in new noise sensitive receptors from those previously evaluated in the *Final Order on the ASC.*[137] Ambient noise conditions at the noise sensitive receptor closest to the RFA1 changes (noise sensitive receptor-1 at 1,700 feet, see Figure 11 below) is 28 dBA, based on monitoring system M-2 which is located adjacent to the receptor. All other noise sensitive receptors are located at distances of 2,500 feet or greater from noise generating sources (see RFA1 Attachment 9 Figure 2).

Operational noise impacts from RFA1 changes include increases in transmission line voltage from 115 to 138 kV, GSU step-up substation transformer size from 115/500 kV to 138/500 kV, and collector substation transformer size from 34.5 kV to 138 kV. In addition, the location of the noise sources would change, siting the GSU step-up substation in Area D, versus Area E, and changing the location of portions of the gen-tie transmission line and electrical collection line within Area A and Area D, and from Area D to Area E, as presented in Figure 1 of this order and Figure 11 below. The sound power levels of noise sources, based on the RFA1 changes, are presented below:

- 138 kV transmission line: 46 dBA at 50 feet (wet conditions) (no change from prior evaluation)
- 1 138/500 kV GSU step-up transformer: 91 dBA (less than prior evaluation)
- 4 34.5/138 kV GSU transformers: 91 dBA, each (less than prior evaluation)

In the *Final Order on the ASC*, the 115 kV transmission line was conservatively modeled based on sound power level of 46 dBA at 50 feet, and the transformers were conservatively modeled at 105 dBA for each of the substation transformers. Therefore, the RFA1 changes will not result in increases in sound power levels from noise generating sources. However, the facility layout changes in RFA1 would change noise impacts. As presented in Figure 11 below, noise sensitive receptor-1 would experience the greatest impact from RFA1 changes, including an increase in ambient noise levels from 28 to 36 dBA, for an overall increase of 8 dBA. While this is a 2-dBA increase from the noise level previously evaluated in the *Final Order on the ASC* at this receptor location, it does not exceed 10 dBA above measured ambient conditions or, in this case, 38 dBA, or 50 dBA. Based on noise attenuation, the noise levels at the other 16 noise sensitive receptors would not change from Council's previous evaluation.[138] Therefore, the Council finds

[135] OSCAMD1Doc9 Request for Amendment 1 2023-08-01. Attachment 9, pg.1.
[136] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25. Table 15.
[137] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25. Figure 3.
[138] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25. Table 16.

that the facility, with RFA1 changes, demonstrates compliance with the ambient antidegradation standard and the maximum allowable statistical noise level.

Council previously imposed Noise Control Condition 2 (PRE-NC-01) requiring that, prior to construction, the certificate holder submit a noise summary report presenting the sound power level (in dBA) for the final selected noise generating equipment, and that if the sound power levels are greater than the sound power levels relied upon in the *Final Order on the ASC*, that the certificate holder provide an updated modeling analysis and final facility layout demonstrating that noise from the facility will not increase ambient statistical noise levels L10 and L50 by more than 10 dBA.

Figure 11: Modeled Noise Levels from the Facility, with Proposed Changes

IV.A.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with existing conditions described above, the Council finds that the facility, with RFA1 changes, will comply with the applicable Noise Control Regulations in OAR 340-035-0035.

IV.B. Removal-Fill

The Oregon Removal-Fill Law (ORS 196.795 through 196.990) and Department of State Lands (DSL) regulations (OAR 141-085-0500 through 141-085-0785) require a removal-fill permit if 50 cubic yards or more of material is removed, filled, or altered within any "waters of the state."[139] The Council, in consultation with DSL, must determine whether a removal-fill permit is needed and if so, whether a removal-fill permit should be issued.

The analysis area for wetlands and other waters of the state (WOS) is the RFA1 site boundary addition area (169 acres – Area E).

IV.B.1. Findings of Fact

Wetlands and WOS were delineated via 2022 literature review and pedestrian survey. The literature review evaluated the following sources:

- U.S. Fish and Wildlife Service (2022) National Wetlands Inventory.
- U.S. Geological Survey (2022) National Hydrography Dataset.
- U.S. Army Corp of Engineers (2018) State of Oregon 2018 Wetland Plant List.
- U.S. Army Corp of Engineers (2008) Arid West Supplement.
  U.S. Army Corp of Engineers (1987) Wetlands Delineation Manual, Technical Report Y-87-1 (the Manual).
- Nadeau (2015) Streamflow Duration Assessment Method for the Pacific Northwest.
- Brostoff et al. (2001) Delineating Playas in the Arid Southwest – A Literature Review.
  Cowardin et al. (1979) Classification of Wetlands and Deepwater Habitats of the United States.
- Oregon Administrative Rule (OAR) 141-090, Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State.

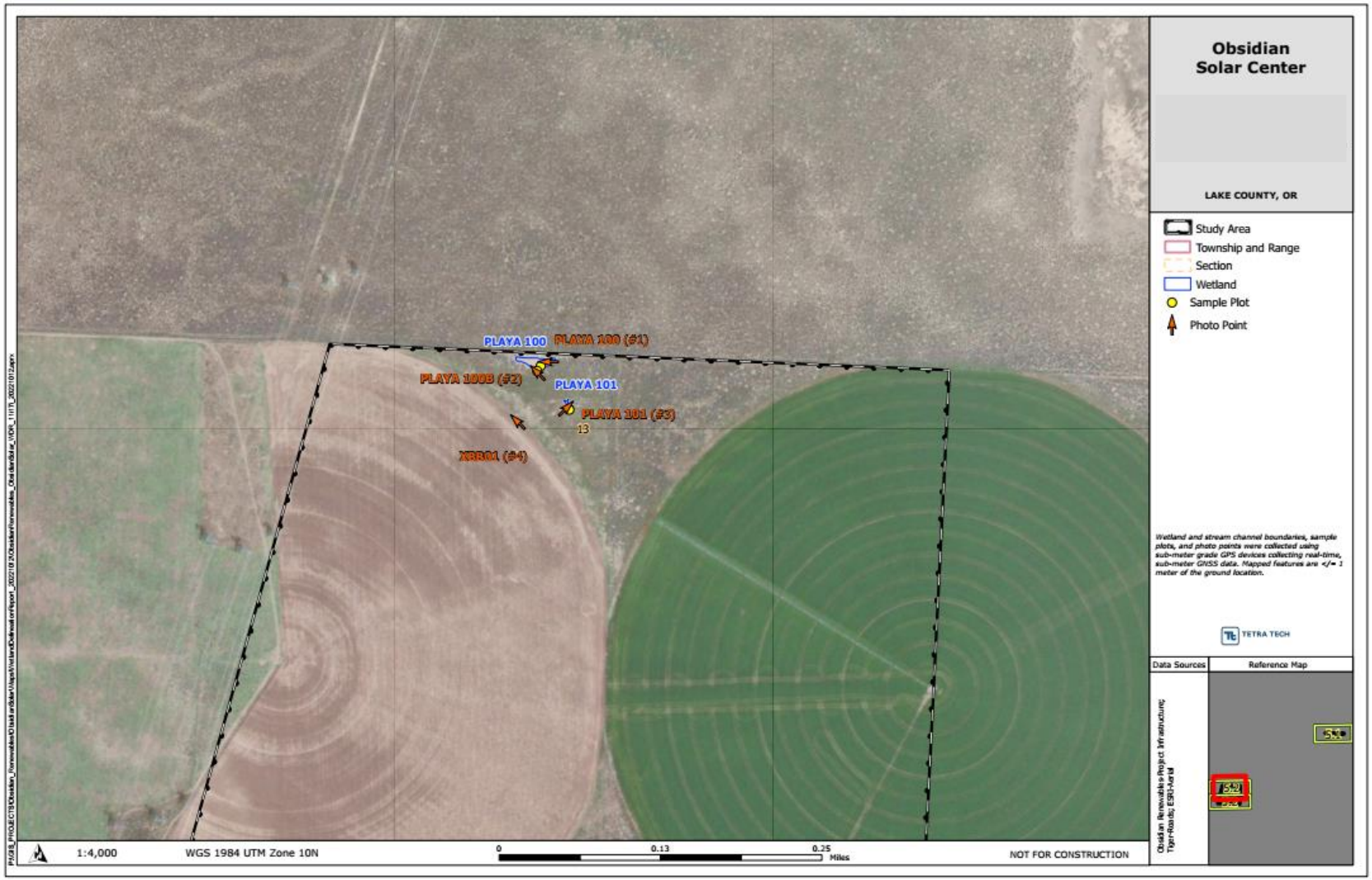
The results of the literature review informed the pedestrian field survey, which was conducted in accordance with methods for delineation and identification of wetlands and WOS per Manual and the Arid West Supplement. Wetland indicator status for plants was determined using the State of Oregon 2018 Wetland Plant List. The field survey was performed by Tetra Tech on September 5-6, 2022.

[139] ORS 196.800(15) defines "Waters of this state." The term includes wetlands and certain other waterbodies.

No wetlands or waterways were delineated within Area E. Two playas were delineated in the northern portion of Area E (see Figure 12 below). These playas are considered WOS but do not have hydrophytic vegetation or hydric soils and therefore are non-wetland waters. The total area of these two playas within the RFA1 analysis area occupy 0.104 acres.[140]

[140] OSCAMD1Doc9 Request for Amendment 1 2023-08-01. Attachment 10: Obsidian Solar Center 2022 Wetland Delineation Report. Prepared by Tetra Tech. October 2022.

Figure 12: Playa Locations in RFA1 Analysis Area



The playas identified within Area E will be avoided. For this reason, construction within Area E will not require removal of material from the playas. No additional materials will be placed within the playas.

IV.B.2. Conclusions of Law

Based on the foregoing findings of fact, the Council finds that the facility with RFA1 changes would not require a removal-fill permit.

IV.C. Water Rights

Under ORS Chapters 537 and 540 and OAR Chapter 690, the Oregon Water Resources Department (OWRD) administers water rights for appropriation and use of the water resources of the state. Under OAR 345-022-0000(1)(b), the Council must determine whether the facility, with RFA1 changes, would continue to comply with these statutes and administrative rules. OAR 345-021-0010(1)(o)(F) requires that if a facility needs a groundwater permit, surface water permit, or water right transfer, that a decision on authorizing such a permit rests with the Council.

IV.C.1. Findings of Fact

The GSU step-up substation would either be constructed in the previously approved Area D or Area E, not both. The construction methods for the expanded 138-kV transmission line and electrical collection lines would be the same as those required to construct the approved facility components. Additional concrete foundations for transmission support structures would be required, but concrete is expected to arrive premixed,[141] so no additional water will be required on site. The quantity and source of water supplied during construction and O&M would be similar to that previously evaluated. Therefore, the s Council continues to rely on its previous findings, as presented below.

Facility construction will require up to 68,600 gallons of water per day on average under worst-case conditions, or a total of up to 34.3 million gallons over the two-year construction period for the facility. Approximately 95 percent of this water would be used for dust control, other uses would include vehicle washing, road construction and maintenance, and potable water consumption. Construction water would be provided by a private or municipal source, such as Christmas Valley Domestic Water Supply District, under existing water rights. In the *Final Order on the ASC*, the Council imposed Water Rights Condition 1 (PRE-WR-01), which requires the certificate holder to provide confirmation from the water provider that water can be used at the facility under its water right or permit. If sufficient water is not available from local water providers, the condition requires the certificate holder to confirm whether it will seek an

[141] OSCAPPDoc4-14 ASC Exhibit O 2019-10-17, page 0-2.

amendment of its site certificate or obtain water from a third-party contractor with appropriate water rights or permits.[142]

O&M will require between 1,201,00 and 1,364,000 gallons of water per year for panel washing, potable water use, and fire suppression depending on weather conditions. Up to two onsite wells on site may be constructed at the site, pursuant to ORS 537.545, and may draw up to 5,000 gallons per well without obtaining a new water right. In the *Final Order on the ASC*, the Council imposed Water Rights Condition 2 (GEN-WR-01), requiring the certificate holder to install a flowmeter or other device to ensure compliance with the 5,000 gallon per day limit and requiring the certificate to comply with the reporting requirements of ORS 537.545. Water needed beyond the 5,000 gallon per day limit will be purchased by the certificate holder from a private or municipal source that has the necessary permits.[143]

IV.C.2. Conclusions of Law

Based on the foregoing analysis, and subject to compliance with the existing conditions described above, the Council finds that the facility, with RFA1 changes, does not need a groundwater permit, surface water permit, or water right transfer subject to Council jurisdiction.

[142] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 197-198.

[143] OSCAPPDoc1-4 Final Order on ASC w Attachments 2022-02-25, p. 198-199.

V. CONCLUSIONS AND FINAL ORDER

Based on the findings of fact and conclusions included in this order, the Council makes the following findings:

1. The facility, with proposed changes included in Request for Amendment 1 of the Obsidian Solar Center site certificate, complies with the applicable substantive criteria under the Council's Land Use standard, as described in OAR 345-022-0030, from the date RFA1 was submitted.

2. The facility, with proposed changes included in Request for Amendment 1 of the Obsidian Solar Center site certificate, complies with the requirements of the Energy Facility Siting Statutes ORS 469.300 to 469.520.

3. The facility, with proposed changes included in Request for Amendment 1 of the Obsidian Solar Center site certificate, complies with all applicable standards adopted by Council pursuant to ORS 469.501, in effect on the date Council issues its Final Order.

4. The facility, with proposed changes included in Request for Amendment 1 of the Obsidian Solar Center site certificate, complies with all other Oregon statutes and administrative rules identified in effect on the date Council issues its Final Order.

5. Taking into account proposed changes included in Request for Amendment 1 of the Obsidian Solar Center site certificate, the amount of the bond or letter of credit required under OAR 345-022-0050 is adequate.

Accordingly, the Council finds that the facility, with the proposed changes included in Request for Amendment 1 of the Obsidian Solar Center site certificate, complies with the General Standard of Review OAR 345-022-0000 and OAR 345-027-0375. The Council finds, based on a preponderance of the evidence on the record, that the site certificate may be amended as requested.

Final Order

The Council approves Request for Amendment 1 of the Site Certificate for the Obsidian Solar Center and issues the 1st Amended Site Certificate included as Attachment A to this Order.

Issued November 17, 2023

ENERGY FACILITY SITING COUNCIL

Marcia L. Grail (Dec 20, 2023 11:43 PST)

Marcia Grail, Chair

Notice of the Right to Appeal

The Council's final order is subject to judicial review by the Oregon Supreme Court as provided in ORS 469.403.

ENERGY FACILITY SITING COUNCIL

OF THE

STATE OF OREGON

First Amended Site Certificate Obsidian Solar Center

ISSUANCE DATES

Site Certificate	February 25, 2022
First Amended Site Certificate	November 17, 2023

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Table of Contents

Tables:

Attachments

1.0 Introduction and Site Certification

This site certificate is a binding agreement between the State of Oregon (State), acting through the Energy Facility Siting Council (EFSC or Council), and Obsidian Solar Center LLC (certificate holder), owned by Obsidian Renewables, LLC and Lindgren Development, Inc. (parent companies). Both the State and certificate holder must abide by local ordinances, state law, and the rules of the Council in effect on the date this site certificate is executed. However, upon a clear showing of a significant threat to public health, safety, or the environment that requires application of later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules (ORS 469.401(2)).

This site certificate binds the State and all counties, cities and political subdivisions in Oregon as to the approval of the site and the construction, operation, and retirement of the facility as to matters that are addressed in and governed by this site certificate (ORS 469.401(3)). Each affected state agency, county, city, and political subdivision in Oregon with authority to issue a permit, license, or other approval addressed in or governed by this site certificate, shall upon submission of the proper application and payment of the proper fees, but without hearings or other proceedings, issue such permit, license or other approval subject only to conditions set forth in this site certificate. In addition, each state agency or local government agency that issues a permit, license or other approval for this facility shall continue to exercise enforcement authority over such permit, license or other approval (ORS 469.401(3)). For those permits, licenses, or other approvals addressed in and governed by this site certificate, the certificate holder shall comply with applicable state and federal laws adopted in the future to the extent that such compliance is required under the respective state agency statutes and rules (ORS 469.401(2)).

This site certificate does not address, and is not binding with respect to, matters that are not included in and governed by this site certificate, and such matters include, but are not limited to: employee health and safety; building code compliance; wage and hour or other labor regulations; local government fees and charges; other design or operational issues that do not relate to siting the facility (ORS 469.401(4)); and permits issued under statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council (ORS 469.503(3)).

The obligation of the certificate holder to report information to the Department or the Council under the conditions listed in this site certificate is subject to the provisions of ORS 192.502 *et seq.* and ORS 469.560. To the extent permitted by law, the Department and the Council will not publicly disclose information that may be exempt from public disclosure if the certificate holder has clearly labeled such information and stated the basis for the exemption at the time of submitting the information to the Department or the Council. If the Council or the Department receives a request for the disclosure of the information, the Council or the Department, as appropriate, will make a reasonable attempt to notify the

certificate holder and will refer the matter to the Attorney General for a determination of whether the exemption is applicable, pursuant to ORS 192.450.

Council shall have continuing authority over the site and may inspect, or direct the Oregon Department of Energy (Department) to inspect, or request another state agency or local government to inspect, the site at any time in order to ensure that the facility is being operated consistently with the terms and conditions of this site certificate (ORS 469.430).

The duration of this site certificate shall be the life of the facility, subject to termination pursuant to OAR 345-027-0110 or the rules in effect on the date that termination is sought, or revocation under ORS 469.440 and OAR 345-029-0100 or the statutes and rules in effect on the date that revocation is ordered. The Council shall not change the conditions of this site certificate except as provided for in OAR Chapter 345, Division 27.

In interpreting this site certificate, any ambiguity will be clarified by reference to the following, in order, incorporated herein by this reference: 1) *Final Order on Request for Amendment 1 for the Obsidian Solar Center* issued on November 17, 2023 (hereafter, *Final Order on RFA1*)*;* 2) *Final Order on the Application for Site Certificate for the Obsidian Solar Center* issued on February 25, 2022 (hereafter, *Final Order on the ASC*) 3) the record of the proceedings that led to the *Final Order on RFA1*; and 4) the record of the proceedings that led to the *Final Order on the ASC*.

The definitions in ORS 469.300 and OAR 345-001-0010 apply to the terms used in this site certificate, except where otherwise stated, or where the context clearly indicates otherwise.

2.0 Facility Location, Site Boundary and Micrositing Areas

The facility site is located in Lake County, Oregon off of Oil Dri Road (County Road 5-14G) and County Road 5-12. The site is located in Township 26 south, Range 16 east, Sections 4 and 5, 8 and 9, 15 through 22, and Township 26 south, Range 15 east, Section 13, 15 and 24.

The site boundary is approximately 4,091 acres. The site boundary is equivalent to a micrositing area, where the certificate holder has authority to site facility components anywhere within. The site boundary also includes a 60-foot wide, 3.2-mile transmission line corridor; approximately 1.5-miles of the transmission line corridor is located within an existing 60-foot county road (Connley Lane) right-of-way, to be authorized by Lake County prior to construction. Figure 3: *Gen-Tie Transmission Line Disturbance Areas and Approved Corridor,* details the portion of the transmission line corridor within private or public rights of way.

The regional location of the facility site boundary and transmission line corridor are presented in Attachment 1 Figure 1, *Regional Location of Facility and Site Boundary*.

3.0 Facility Description

The facility is a solar photovoltaic (PV) energy generation facility and related or supporting facilities[1] with an approved nominal generating capacity of up to 400 megawatts alternating current (MWac), described further below.

The energy facility is approved to include a maximum number of components, as presented in Table 1 below.

Table 1: Maximum Solar PV Energy Components

Component	PV Only	PV plus Storage (Dispersed)
3 MWac Block	160	
Modules	1,326,858	1,742,572
Module Rows (on trackers)	16,587 x 78 module rows	21,644 x 78 module rows
Posts	187,545	246,444
Inverters	160	
Transformers	160	

Panel height, at full tilt, is approved at 7-feet. Trackers will be nonspecular metal galvanized steel. Solar panels will be designed with anti-reflective coating.

Approved related or supporting facilities include are presented in Table 2 below.

Table 2: Maximum Number and Dimensions of Solar PV Related or Supporting Facilities

Component	PV plus Storage (Dispersed)
Direct current electrical system, above and belowground	Up to 5,000 miles of cable; combiner boxes
34.5/138 kV ac electrical system	160 inverters; 160, 800-gallon oil-containing step-up transformers and 160 home-run cables. ac power will be collected at the collector substation and stepped-up to 138 kV; a single circuit 138 kV collector line of up to 2.3 miles will connect the collector substations within Area A, consisting of approximately 33 single steel or wood monopole structures up to 80 feet in height, 6 feet in diameter, spaced approximately 500 feet apart with concrete foundations up to 20 feet deep, some of which may have directional anchoring.
Collector Substations, 1 acre each	Up to 4 collector substations, each with an 800-gallon oil-containing step up transformer, with 2 of the 4 collector

[1] OAR 345-001-0010(21) and – (50)

Table 2: Maximum Number and Dimensions of Solar PV Related or Supporting Facilities

Component	PV plus Storage (Dispersed)
	substations stepping up the power collected to 138 kV; substation equipment height = 10’
138 kV generation-tie transmission line	Up to 3.2 miles, double circuit between POI switchyard and the western most collector substation, approximately 1 mile of which is inside Area A, 2 miles of which is in the transmission corridor outside of Area A and approximately 0.5 miles of which may be within Area D or E, consisting of: • 47 single steel monopole structures up to 6 feet in diameter, spaced approximately 500 feet apart, and approximately 80 feet in height. • Concrete foundations up to 20 feet deep, some of which may have directional anchoring system structures.
138/500 kV step-up substation, 3 acres (if in Area D) or 12 acres (if in Area E)	1 substation consisting of: • up to 2 138 to 500 kV transformers, each containing 50,000 gallons of transformer oil designed with a concrete catchment system • one 138 kV input structure • two 138 kV circuit breakers • two 500 kV circuit breakers • 500 kV output structures • a control building for housing control and communication equipment • 65-100 foot interconnection structures
Operations and Maintenance Building, 0.5 acre	2 O&M buildings, 50 x 50 x 14’, consisting of: • warehouse-like storage area • human machine interface system • restrooms and employee work areas • an exempt groundwater well • septic system
Perimeter Fence	Approx. 21.5 miles, chain link
Battery Storage Enclosures	134 steel framed structures: • approximately 50 feet wide, 67 feet long and up to 30 feet tall Balance of Plant (BOP) consisting of: • large polymer tanks on each side of the cell stack, pumps, piping (polyvinyl chloride), thermal controls, and power conversion hardware (single stage, bidirectional inverters). • Storage tanks with non-hazardous, water-based electrolyte/polymer.

Table 2: Maximum Number and Dimensions of Solar PV Related or Supporting Facilities

Component	PV plus Storage (Dispersed)
	• Primary and secondary spill containment devices • Thermal system control of a heating, ventilation, air conditioning (HVAC) air-to-air and glycol-to-air (non-toxic) heat exchanger
Batteries	• outdoor rated • negatively grounded, ground fault detection and interruption capable of detecting ground faults in the dc current carrying conductors and components • intentionally grounded conductors, insulation monitoring, • dc and ac overvoltage protection and lightning protection, • humidity control • data acquisition and communication monitoring interface.
Redox Electrolyte Fluid	14,000 gallons per MW
Supervisory Control and Data Acquisition System	Fiber optic cables installed above- and below ground with collection system
Perimeter roads	50 miles • • Internal roads will be a minimum of 12 feet in width. Although there may not be a perimeter road in all locations, there will be, at a minimum, a • 30-foot noncombustible, defensible space clearance for fire prevention. These perimeter areas will be kept free of combustible material via mechanical and/or chemical control of vegetation and other combustible material.

4.0 Facility Development

4.1 Construction

Construction of the facility is authorized to commence from February 25, 2022 through February 25, 2025. Upon commencement, peak construction will include up to 150 workers per day, up to 240 worker vehicle and 160 delivery vehicle trips per day.

Construction-related activities include:

- Clearing, grubbing and earthwork – equipment will include bulldozers, graders, backhoe and haul trucks

- Foundation and base preparation for systems – equipment will include backhoes, loaders, tractor trailers, cranes
- Support installation – equipment will include pneumatic impact pile drivers
- Solar array and transmission line installation – equipment will include backhoes, loaders, tractor trailers and cranes

Grading and ground disturbance is limited to 60 acres per phase provided that acres are only considered disturbed until they have been adequately stabilized, as determined by the Department. "Adequate stabilization" is equivalent to implementing and maintaining stabilization measures (e.g., seeding protected by erosion controls until vegetation is established, sodding, mulching, erosion control blankets, hydromulch, gravel) in any 60-acre portion of the site, where grading activities have permanently ceased or will be temporarily inactive on any portion of the site for 14 or more calendar days.

Disturbance areas are authorized within the perimeter fenceline and transmission corridor, with avoidance areas delineated consistent with Figure 2: *Facility Site Boundary, Disturbance and Avoidance Areas* (see Attachments).

4.2 Operations and Maintenance

Operation and maintenance (O&M) activities include:

- routine inspection of transformers and battery storage system
- mowing and spraying within the perimeter fenceline
- routine inspection for revegetation, erosion control and site stabilization
- periodic washing of solar PV panels
- Recycling, to the maximum extent feasible, and replacement of nonfunctional or damaged panels
- Recycling and disposal of battery redox fluid and non-hazardous electrolyte fluid at a permitted facility

The facility is expected to employ 6 to 10 maintenance personnel.

4.3 Retirement

Retirement of the facility must adhere to the requirement under OAR 345-027-0110 and OAR 345-025-0006(9). The description provided below is intended to address OAR 345-025-0006(3)(a), but is not intended to conflict with the previously mentioned rule requirements.

Restoring of the site will involve site mobilization, electric disconnect/dismantling work, aboveground structure removal, foundation removal, road and site restoration, and on and offsite hauling and disposal. Equipment necessary for decommissioning will be mobilized onsite; electrical components will be disconnected (combiner boxes, battery systems); aboveground equipment and associated foundations will be dismantled (racking, posts,

inverters/transformer units, O&M buildings, transmission and overhead collector lines, collector and step-up substations, fencing, gates) and removed and hauled offsite for disposal. Transformers and other collector/step-up substation equipment will be removed to be reused elsewhere or recycled as scrap metal. Underground cable and electrical collection lines will be removed up to 3 feet below ground. Transmission structure foundations may be removed up to 5 feet below ground. Internal and perimeter facility roads will be restored, including removal of gravel-surface material, decompaction and revegetation. Groundwater wells will be abandoned in accordance with applicable Oregon laws and regulations. Site revegetation activities include re-seeding of the areas impacted by permanent facility components and temporarily impacted during decommissioning activities.

5.0 Site Certificate Conditions

5.1 Condition Format

The conditions in Sections 5.2 through 5.7 of this Site Certificate are organized and coded to indicate the phase of implementation, the standard the condition is required to satisfy, and an identification number (1, 2, 3, etc.).[2] The table below presents a "key" for phase of implementation:

Key	Type of Conditions/Phase of Implementation
GEN	General Conditions: Design, Construction and Operation
PRE	Pre-Construction Conditions
CON	Construction Conditions
PRO	Pre-Operational Conditions
OPR	Operational Conditions
RET	Retirement Conditions

[2] The identification number is not representative of an order that conditions must be implemented; it is intended only to represent a numerical value for identifying the condition.

5.2 General (GEN) Conditions: Design, Construction and Operations

Condition Number	General (GEN) Conditions
STANDARD: GENERAL STANDARD OF REVIEW (GS) [OAR 345-022-0000]	
GEN-GS-01	The certificate holder shall begin and complete construction of the facility by the dates specified in the site certificate. a. Construction of the facility shall commence within three years after the date of Council action [February 25, 2025]. Within 7 days of construction commencement, the certificate holder shall provide the Department written verification of the construction commencement date and that it has met the construction commencement deadline. b. Construction of all facility components shall be completed within three years after construction commencement identified in (a.) of this condition. Within 7 days of construction completion, the certificate holder shall provide the Department written verification that it has met the construction completion deadline. [Final Order on ASC, General Standard Condition 1; Mandatory Condition OAR 345-025-0006(4)]
GEN-GS-02	The certificate holder shall design, construct, operate, and retire the facility: a. Substantially as described in the site certificate; b. In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the site certificate is issued; and c. In compliance with all applicable permit requirements of other state agencies. [Final Order on ASC, General Standard Condition 3; Mandatory Condition OAR 345-025-0006(3)]
GEN-GS-03	If the certificate holder becomes aware of a significant environmental change or impact attributable to the facility, the certificate holder shall, as soon as possible, submit a written report to the Department describing the impact on the facility and any affected site certificate conditions. [Final Order on ASC, General Standard Condition 5; Mandatory Condition OAR 345-025-0006(6)]
GEN-GS-04	Before any transfer of ownership of the facility or ownership of the site certificate holder, the certificate holder shall inform the Department of the proposed new owners. The requirements of OAR 345-027-0100 apply to any transfer of ownership that requires a transfer of the site certificate. [Final Order on ASC, General Standard Condition 7; Mandatory Condition OAR 345-025-0006(15)]
GEN-GS-05	The certificate holder shall: a. Design, construct and operate the transmission line in accordance with the requirements of the National Electrical Safety Code as approved by the American National Standards Institute; and

Condition Number	General (GEN) Conditions
	b. The certificate holder shall develop and implement a program that provides reasonable assurance that all fences, gates, cattle guards, trailers, or other objects or structures of a permanent nature that could become inadvertently charged with electricity are grounded or bonded throughout the life of the line. [Final Order on ASC, General Standard Condition 8; Site Specific Condition OAR 345-025-0010(4)]
GEN-GS-06	The certificate holder is authorized to construct a 138-kV transmission line anywhere within the approved corridor, subject to the conditions of the site certificate. The approved corridor extends approximately 3 miles from the collector substation within Area A to the south boundary of Area D or, alternatively, approximately 3.2 miles from the collector substation within Area A to the point of interconnection (POI) in Area E. For an Area D POI: From east to west, the first mile is within the PV Array in Area A, the next 0.5-mile corridor extends 60 feet in width within a private property transmission easement, the next 1.5-mile corridor extends 60 feet in width within the exiting road right-of-way of Connley Lane, as further described in ASC Exhibits B and C and as presented in Figure 3 of the site certificate. For an Area E POI: From east to west, the first mile is within the PV Array in Area A, the next 0.5-mile corridor extends 60 feet in width within a private property transmission easement, the next 1.2-mile corridor extends 60 feet in width within the existing right-of-way of Connley Lane, and the remaining 0.5 mile corridor is within Area E. [Final Order on ASC, AMD1, General Standard Condition 9; Site Specific Condition OAR 345-025-0010(5)]
STANDARD: Organizational Expertise (OE) [OAR 345-022-0010]	
GEN-OE-01	During construction and operation of the facility, the certificate holder shall report to the Department, within 21 days, any change of the parent companies, Obsidian Renewables, LLC and Lindgren Development, Inc., such as changes within the Board of Directors, President or Chief Executive Office, where the certificate holder considers such change to impact the certificate holder's access to the resources or expertise of the parent companies. [Final Order on ASC, Organizational Expertise Condition 1]
GEN-OE-02	During design, construction, operation, and retirement of the facility, the certificate holder shall contractually require all contractors and subcontractors to comply with all applicable laws and regulations and with the terms and conditions of the site certificate. The contractual obligation shall be required of each contractor and subcontractor prior to that firm working on the facility. Such contractual provisions shall not operate to relieve the certificate holder of responsibility under the site certificate.

Condition Number	General (GEN) Conditions
	[Final Order on ASC, Organizational Expertise Condition 3]
GEN-OE-03	Any matter of non-compliance under the site certificate is the responsibility of the certificate holder. Any notice of violation issued under the site certificate will be issued to the certificate holder. Any civil penalties under the site certificate will be levied on the certificate holder. [Final Order on ASC, Organizational Expertise Condition 4]
GEN-OE-04	In addition to the requirements of OAR 345-026-0170, within 72 hours after discovery of incidents or circumstances that violate the terms or conditions of the site certificate, the certificate holder must report the conditions or circumstances to the Department. [Final Order on ASC, Organizational Expertise Condition 5]
STANDARD: Structural Standard (SS) [OAR 345-022-0020]	
GEN-SS-01	The certificate holder shall design, engineer and construct the facility to avoid dangers to human safety and the environment presented by seismic hazards affecting the site that are expected to result from all maximum probable seismic events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, liquefaction triggering and consequences (including flow failure, settlement buoyancy, and lateral spreading), cyclic softening of clays and silts, fault rupture, directivity effects and soil-structure interaction. [Final Order on ASC, Structural Standard Condition 2, Mandatory Condition OAR 345-025-0006(12)]
GEN-SS-02	The certificate holder shall notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the application for a site certificate. After the Department receives the notice, the Council may require the certificate holder to consult with the Department of Geology and Mineral Industries and the Building Codes Division to propose and implement corrective or mitigation actions. [Final Order on ASC, Structural Standard Condition 3; Mandatory Condition OAR 345-025-0006(13)]
GEN-SS-03	The certificate holder shall notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site. After the Department receives notice, the Council may require the certificate holder to consult with the Department of Geology and Mineral Industries and the Building Codes Division to propose and implement corrective or mitigation actions. [Final Order on ASC, Structural Standard Condition 4; Mandatory Condition OAR 345-025-0006(14)]
STANDARD: Soil Protection (SP) [OAR 345-022-0022]	

Condition Number	General (GEN) Conditions
GEN-SP-01	a. Prior to obtaining the DEQ-issued NPDES 1200-C permit, the certificate holder shall: i. Evaluate the results of the preconstruction Geotechnical Investigation to develop appropriate, site-specific erosion and dust control measures, to be reflected in the Erosion and Sediment Control Plan (ESCP). ii. to the Department that all revegetation protocols identified in the ESCP are consistent with the requirements and success criteria in the RNWCP and DAMP, and that the protocols address dust abatement, erosion and sediment control, noxious and invasive weeds and are inclusive of a successional seed mix and sequence. Any changes in the protocols, based on adaptive management during construction, must be determined by the Department, in consultation with ODFW, ODEQ Demonstrate or third-party consultant, to be appropriate to meet the revegetation, dust and erosion control requirements in the ESCP, DAMP and RNWCP. b. Prior to construction of the facility, the certificate holder shall provide a copy to the Department of its DEQ-issued NPDES 1200-C permit, including final ESCP and associated drawings (as provided in Attachment I-1 of the Final Order on the ASC). c. Prior to construction of the facility, the certificate holder shall submit to the Department a construction schedule that considers site-specific soil factors and demonstrates that site preparation and disturbance activities are scheduled to occur in a manner that allows for predisturbance site preparation (e.g. seeding) within the appropriate season and with sufficient time to allow for increased success during construction and upon site restoration. d. Prior to construction of the facility, the certificate holder shall develop a phased site preparation and disturbance plan that limits overall site disturbance to 60 acres or less within any disturbance timeframe. Subsequent disturbance may not commence until the previous phase of disturbed area has been adequately stabilized with vegetation, erosion, or other stabilization materials, as determined by the onsite monitor per sub(e) of this condition, in consultation with the Department. The phased plan shall consider peak farming activity schedules (e.g. harvest, deliveries, etc.) of adjacent landowners, based on documented landowner consultation. The phased site preparation and disturbance plan must be prepared by an engineer, soil scientist or individual with similar technical qualifications and reviewed and approved by the Department in consultation with the Oregon Department of Agriculture (soil/vegetation specialist) or other third-party specialist. e. During construction of the facility, the certificate holder shall obtain a monitor with relevant experience during all construction activities to monitor the requirements of the 1200-C, RNWCP and DAMP. The monitor shall maintain daily field logs, to be made available upon request by the Department,

Condition Number	General (GEN) Conditions
	documenting compliance with the phased site preparation and disturbance plan, the success of predisturbance seeding, 1200-C, RNWCP and DAMP requirements. Daily field logs shall clearly identify any necessary corrective actions. All corrective actions must be reported to and timely implemented by the certificate holder. f. During construction of the facility, the certificate holder shall conduct all work in compliance with a final Erosion and Sediment Control Plan that is satisfactory to the Oregon Department of Environmental Quality as required under the National Pollutant Discharge Elimination System Construction Stormwater Discharge General Permit 1200-C. g. The certificate holder must provide copies of completed Erosion and Sediment Control Inspection Forms (forms) for Department review during construction inspections and, if requested by the Department based on continuous erosion and dust issues and corrective actions at the site, must provide form copies to the Department within 7-days of inspections, in electronic format, to allow the Department, in consultation with Oregon Department of Environmental Quality and Lake County Public Works Department, the ability to recommend additional site controls [Final Order on ASC, Soil Protection Condition 1]
GEN-SP-02	a. Prior to construction of the facility, the certificate holder must submit to the Department an updated a Spill Management Plan for Construction (i.e. materials inventory). The Spill Management Plan shall contain the measures discussed in the ASC for managing and disposing of hazardous materials. The certificate holder must construct the facility in compliance with the plan. b. Prior to operation of the facility, the certificate holder must submit to the Department an updated Spill Management Plan for Operation (i.e. materials inventory). The certificate holder must operate the facility in compliance with the Department-approved plan. [Final Order on ASC, Soil Protection Condition 2]
STANDARD: Land Use (LU) [OAR 345-022-0030]	
GEN-LU-01	The certificate holder shall: a. Prior to construction of the facility, provide to the Department a list of all State and federal permits or approval necessary for construction or operation of the facility. Certificate holder shall consider ASC Exhibit E in identifying necessary permits. b. At least 90-day following construction commencement, provide evidence of all State and federal permits or approval identified per sub(a) of this condition. [Final Order on ASC, Land Use Condition 5]
STANDARD: Retirement and Financial Assurance (RF) [OAR 345-022-0050]	
GEN-RF-01	The certificate holder shall prevent the development of any conditions on the site that would preclude restoration of the site to a useful, non-hazardous condition to

Condition Number	General (GEN) Conditions
	the extent that prevention of such site conditions is within the control of the certificate holder. [Final Order on ASC, Retirement and Financial Assurance Condition 1; Mandatory Condition OAR 345-025-0006(7)]
STANDARD: Fish and Wildlife Habitat (FW) [OAR 345-022-0060]	
GEN-FW-01	The certificate holder shall: a. Prior to construction of the facility, the certificate holder shall finalize and submit the Revegetation and Noxious Weed Control Plan, based upon the draft plan provided in Attachment P-3 of the Final Order on the ASC, for review and approval by the Department, in consultation with ODFW and Lake County Weed Control Supervisor, including consideration of whether cheatgrass and Russian thistle should be addressed in the RNCWP. The scope of finalizing the plan shall, at a minimum, include the following: 1. Final assessment of temporary habitat impacts (in acres), based on habitat quality of habitat subtype, and final facility design, presented in tabular format. 2. Survey and sampling protocol for evaluating the success criteria against paired monitoring and reference sites determined to represent a statistically significant number of sites based on pre-disturbance habitat quality and diversity of habitat temporarily impacted. 3. Approval of appropriate revegetation seed mix from ODFW. 4. Confirmation of revegetation and noxious weed monitoring frequency, to occur annually for the first 5-years following construction, unless otherwise agreed to by the Department in consultation with ODFW, Lake County or the Cooperative Weed Management Area 5. Assurance that the success criteria for vegetation cover is based upon desirable, native vegetation. b. During construction and operation of the facility, the certificate holder shall implement the requirements of the plan; monitor and report results of revegetation activities to the Department, as required by the plan. [Final Order on ASC, Fish and Wildlife Condition 1]
GEN-FW-02	The certificate holder shall: a. Prior to construction of the facility, the certificate holder shall finalize and submit a Habitat Mitigation Plan, based upon Option 3 of the draft plan provided

Condition Number	General (GEN) Conditions
	in Attachment P-1 of the Final Order on the ASC, for review and approval by the Department, in consultation with ODFW. HMP Option 3 is the only mitigation that may be utilized without amendment of the HMP due to insufficient evidence available to demonstrate that Options 1 and 2 meet the requirements of OAR 345-022-0060. In the finalization of the plan, the Department may request reporting requirements including specific information, frequency and format. Components of the plan to be finalized shall include, at a minimum, a final assessment of permanent habitat impacts (in acres) based on habitat quality of habitat subtype, and final facility design, presented in tabular format. b. During construction and operation of the facility, the certificate holder shall implement the requirements of the plan as approved under sub(a) of this condition. [Final Order on ASC, Fish and Wildlife Condition 2]
GEN-FW-03	Prior to and during construction of the facility, the certificate holder shall provide, and keep records documenting completion of, environmental awareness training for all facility personnel and on-site contractors. The training program shall discuss State Sensitive Species and all other environmental issues related to the facility, including information about pygmy rabbit identification information and reporting procedures. [Final Order on ASC, Fish and Wildlife Condition 3]
GEN-FW-04	During construction, operation, and retirement of the facility, the certificate holder shall impose and enforce a speed limit of 15 miles per hour within the site boundary. [Final Order on ASC, Fish and Wildlife Condition 4]
GEN-FW-05	During trenching and backfilling activities necessary for construction or operation of the facility, the certificate holder shall ensure that contractors or facility personnel responsible for the work avoid leaving trenches open overnight, as practicable. Where trenches remain open overnight, the trenches shall include wildlife escape ramps approximately every 90 meters with slopes of less than 45 degrees. Trenches shall be inspected, and any wildlife found removed prior to backfilling. [Final Order on ASC, Fish and Wildlife Condition 5]
GEN-FW-06	The certificate holder shall: a. Prior to construction or any subsequent year of construction of the facility, the certificate holder shall hire a qualified biologist to conduct a ground survey for non-raptor migratory bird nests, based on a protocol to be submitted to the Department for review and approval in consultation with ODFW. Nest surveys for non-raptor species shall be conducted within 50 feet of all disturbance areas, including the transmission line and access roads.

<table>
<tr><th>Condition Number</th><th>General (GEN) Conditions</th></tr>
<tr><td></td><td>b. During construction of the facility, if the biologist detects active migratory bird nests during bird nest surveys, the certificate holder shall ensure that construction activities adhere to 30-foot disturbance buffers around the nests until the nest has been abandoned/depredated or the eggs hatch and young have fledged.
[Final Order on ASC, Fish and Wildlife Condition 6]</td></tr>
<tr><td>GEN-FW-07</td><td>The certificate holder shall:
a. Prior to any year of construction of the facility, the certificate holder shall hire a qualified biologist to conduct a pre-construction survey for raptor nests, based on a protocol to be submitted to the Department for review and approval in consultation with ODFW. Pre-construction raptor nest surveys shall extend 0.5 miles of proposed disturbance areas, to the extent the certificate holder has legal access. Raptor nest surveys shall be conducted no more than two weeks prior to the start of construction activities. If the biologist detects active raptor nests, the certificate holder shall implement and maintain disturbance buffers around the nests in which construction activities are prohibited until the nest has been abandoned/depredated or the eggs hatch and young have fledged.
b. Prior to construction, the certificate holder shall develop a construction plan that demonstrates construction activities within 0.25 of a mile from previously identified active nest sites, except for golden eagle nest sites which should apply a 0.50-mile buffer distance, are scheduled to avoid the sensitive nesting and breeding season. Previously identified nest sites are those identified during surveys per sub(a) of this condition.
c. During construction of the facility, the certificate holder shall ensure that construction work maintains a 0.25-mile buffer distance from all raptor nests, except for golden eagle ([Aquila chrysaetos] 0.5 miles) and red-tailed hawk (300 to 500 feet) during the sensitive nesting and breeding season presented in the table below. In cases where smaller buffers or restricted work authorizations might be appropriate, the certificate holder shall coordinate with the Department and ODFW or the USFWS to decrease buffer sizes and/or to allow restricted construction activities. Facility vehicles shall be permitted within buffers on paved public roads. Most light traffic by rubber-tired vehicles shall be permitted to pass through the buffer on existing unpaved access roads, if needed, and as determined by the on-site environmental monitor.
<table><tr><th>Status Sensitive/Raptor Species</th><th>Buffer Size (Radius Around Nest Site):</th><th>Sensitive Nesting and Breeding Season</th></tr><tr><td>Western burrowing owl</td><td>0.25 mile</td><td>April 1 to August 15</td></tr><tr><td>Ferruginous hawk</td><td>0.25 mile</td><td>March 15 to August 15</td></tr><tr><td>Swainsons hawk</td><td>0.25 mile</td><td>April 1 to August 15</td></tr></table></td></tr>
</table>

Condition Number	General (GEN) Conditions
	<table><tr><td>Red-tailed hawk</td><td>500 feet</td><td>March 1 to August 31</td></tr><tr><td>Golden eagle</td><td>0.50 mile</td><td>Feb 1 – August 31</td></tr></table> [Final Order on ASC, Fish and Wildlife Condition 7]
GEN-FW-08	During design and construction of the facility, the certificate holder shall ensure that aboveground transmission line and aboveground portions of the electrical collection system adhere to the current APLIC guidelines for minimizing avian electrocution risks. [Final Order on ASC, Fish and Wildlife Condition 8]
GEN-FW-09	The certificate holder shall: a. No more than 3-years prior to construction of the facility, conduct pygmy rabbit *(Brachylagus idahoensis)* surveys within the portion of the site boundary inside the perimeter fence, based on the final design of the facility, using the same protocol approved for the pygmy rabbit surveys conducted as part of ASC Exhibit P (Attachment P-1 Section 2.3).. Pygmy rabbit surveys shall also document presence of white-tailed jack rabbits (*Lepus townsendii).* Pygmy rabbit survey reports shall be submitted to the Department for review, in consultation with ODFW. b. From January 15 through June 15 (pygmy rabbit breeding period), implement a 3-meter (10 foot) buffer area using flagging or constraint maps around burrow complexes identified during preconstruction surveys per subpart(a) of this condition or identified incidentally during construction, unless otherwise approved by the Department in consultation with ODFW. c. During design and prior to construction of the facility, the certificate holder shall develop constraint maps clearing delineating avoidance areas for any previously identified complex (ASC Exhibit P Figure P-1 and pre-construction survey maps) within or in close proximity to the site boundary. Disturbance and facility components shall not occur or be located within identified complexes. [Final Order on ASC, Fish and Wildlife Condition 9]
GEN-FW-10	Prior to any year of construction where vegetation clearing activities would occur, the certificate holder shall implement the following measures to minimize use at the site by, and impacts to, ground nesting birds: a. Schedule vegetation clearing activities, including removal of trees, shrubs, and tall grasses to stubs, to occur between September 1 and March 31 for shrubs and trees shorter than 15 feet, and September 1 to January 15 for trees over 15 feet tall, to the extent practicable. b. The certificate holder shall remove vegetation slash material offsite to an approved location or chipping slash in place prior to March 31 to the extent practicable. [Final Order on ASC, Fish and Wildlife Condition 10]
STANDARD: Scenic Resources (SR) [OAR 345-022-0080]	

Condition Number	General (GEN) Conditions
GEN-SR-01	The certificate holder shall ensure that facility design, construction and operation adheres to the following requirements: a. Use earth-tone colors on battery storage enclosures and other buildings to match or complement the predominant colors of surrounding vegetation, or use steel for the enclosure siding that produces a brown rusty patina when weathered. b. Facility lighting must be shielded and directed downward and be the minimum necessary for construction, operation, safety, and security. Lighting for operation, safety, and security must be on-demand or motion-activated and/or use timers to minimize light exposure. [Final Order on ASC, Scenic Resources Condition 1]
STANDARD: Historic, Cultural and Archeological Resources (HC) [OAR 345-022-0090]	
GEN-HC-01	The certificate holder shall: a. Prior to and during construction, and operation of the facility implement the Archeological Testing and Excavation Methodologies Plan (Attachment S-1 to Final Order on ASC) and the Cultural Mitigation and Monitoring Plan (Attachment S-2 to the Final Order on ASC). b. During construction and operation of the facility, the certificate holder shall implement and adhere to the requirements of the Inadvertent Discovery Plan, as provided in Attachment S-2 of the Final Order on ASC and the Cultural Mitigation and Monitoring Plan, as provided in Attachment S-3 of the Final Order on ASC. [Final Order on ASC, Historic, Cultural and Archeological Condition 1]
GEN-HC-02	The certificate holder shall: a. Prior to and during construction, and during operation, conduct field testing, excavation and removal of archaeological, historical, prehistoric, and anthropological materials within archaeological sites or objects under ORS 358.920 and ORS 390.235 in compliance with the SHPO Archaeological Permits AP2816, AP2817, AP2818, and AP2819, Attachment S-4 of the Final Order on ASC. b. Administratively renew or extend SHPO Archaeological Permits with SHPO for any work governed by the permits to be consistent with the construction commencement date (Feb 25, 2025) and construction completion (3 years following commencement), as stated in General Standard Condition 1. Provide copies of any renewed or extended SHPO Archaeological Permits to the Department. [Final Order on ASC, Historic, Cultural and Archeological Condition 2]
STANDARD: Public Services (PS) [OAR 345-022-0100]	
GEN-PS-01	a. Prior to construction of the facility, the certificate holder shall submit to the Department for review and approval in consultation with Lake County Planning and County Road Department, a Construction Traffic Management Plan that includes, at a minimum, the best management practices, County road use

Condition Number	General (GEN) Conditions
	agreement, and traffic sign coordination provided in Attachment U-2 of the Final Order on the ASC; b. During construction of the facility, the certificate holder shall implement the Construction Traffic Management Plan, as approved by the Department in consultation with Lake County. [Final Order on ASC, Public Services Condition 3]
STANDARD: Waste Minimization (WM) [OAR 345-022-0120]	
GEN-WM-01	During construction, operation, and retirement of the facility, the certificate holder shall develop and implement a Solid Waste Management Plan that includes at a minimum the following measures: a. Measures for recycling steel and other metal scrap; b. Measures for reusing or recycling wood waste; c. Measures for recycling packaging wastes such as paper and cardboard; d. Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler; e. Segregating hazardous wastes such as oil, oily rags and oil-absorbent materials, mercury containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of such materials. [Final Order on ASC, Waste Minimization Condition 1]
STANDARD: Noise Control Regulations (NC) [OAR 340-035-0035]	
GEN-NC-01	The certificate holder shall: a. Prior to construction, establish a construction noise complaint response plan. The certificate holder shall submit a copy of the noise complaint response system to the Department demonstrating that the plan includes, not limited to, the following measures: i. Locate stationary engine-powered construction equipment as far from nearby noise sensitive properties as possible. ii. Shut off idling equipment. iii. Consideration of reschedule construction activities to avoid periods of noise annoyance identified in the complaint. iv. Notify nearby residents before extremely noisy work occurs. v. Locate stationary engine-powered construction equipment as far from nearby noise sensitive properties as possible. vi. Restrict the installation of solar module support posts using the pneumatic pile driver to weekdays and Saturdays, during daytime hours of 7:00 am to 5:00 pm, and notify the residences near the site prior to performing the work. vii. All engine powered equipment must have mufflers installed according to the manufacturer's specifications, and all equipment must comply with

Condition Number	General (GEN) Conditions
	pertinent equipment noise standards of the U.S. Environmental Protection Agency. viii. Requirements that the plan be maintained at the construction manager's office. b. During construction, implement and adhere to the requirements of the plan, as finalized per sub(a) of the condition. Records of noise complaints during construction must be made available to the Department upon request. [Final Order on ASC, AMD1, Noise Control Condition 1]
STANDARD: Water Rights (WR) [ORS 537, 540 and 690]	
GEN-WR-01	The certificate holder shall: a. Following installation of any onsite groundwater well, but prior to water withdrawal for facility water use, install a totalizing flowmeter or dedicated measuring tubes for tracking of daily water use, which use is not to exceed 5,000 gallons per day among all wells on the property. b. During construction and operation, maintain totalizing flowmeters or dedicated measuring tubes. c. Within 30 days after well completion for each new exempt well under ORS 537.545, the certificate holder shall follow the recording requirements under OAR 690-190-0100. If the certificate holder is not the landowner, the certificate holder shall facilitate the landowner submission of required materials to Oregon Water Resources Department. The certificate holder shall submit to the Department a copy of the file submitted to Oregon Water Resources Department. [Final Order on ASC, Water Rights Condition 2]

5.3 Pre-Construction (PRE) Conditions

Condition Number	Preconstruction (PRE) Conditions
STANDARD: GENERAL STANDARD OF REVIEW (GS) [OAR 345-022-0000]	
PRE-GS-01	Except as necessary for the initial survey or as otherwise allowed for wind energy facilities, transmission lines or pipelines under this section, the certificate holder shall not begin construction, as defined in OAR 345-001-0010, or create a clearing on any part of the site until the certificate holder has construction rights on all parts of the site. For the purpose of this rule, "construction rights" means the legal right to engage in construction activities. For the transmission line associated with the energy facility, if the certificate holder does not have construction rights on all parts of the site, the certificate holder may nevertheless begin construction, as defined in OAR 345-001-0010, or create a clearing on a part of the site if the certificate holder has construction rights on that part of the site and the certificate holder would

Condition Number	Preconstruction (PRE) Conditions
	construct and operate part of the facility on that part of the site even if a change in the planned route of a transmission line occurs during the certificate holder's negotiations to acquire construction rights on another part of the site. [Final Order on ASC, General Standard Condition 4; Mandatory Condition OAR 345-025-0006(5)]
PRE-GS-02	At least 90 days prior to beginning construction of the facility (unless otherwise agreed to by the Department), the certificate holder shall submit to the Department a compliance plan documenting and demonstrating actions completed or to be completed to satisfy the requirements of all site certificate terms and conditions and applicable statutes and rules. The plan shall be provided to the Department for review and compliance determination for each requirement. The Department may request additional information or evaluation deemed necessary to demonstrate compliance. [Final Order on ASC, General Standard Condition 10; OAR 345-026-0048]
STANDARD: Organizational Expertise (OE) [OAR 345-022-0010]	
PRE-OE-01	Before beginning construction of the facility, or facility component, as applicable, the certificate holder shall notify the Department of the identity, telephone number, email address and qualifications of the full-time, on-site construction manager or qualified designated representative. Qualifications shall demonstrate that the construction manager has experience in managing permit and regulatory compliance requirements and is qualified to manage a utility-scale solar facility construction project. The certificate holder shall notify the Department within 72-hours upon any change to the on-site construction manager. [Final Order on ASC, AMD1, Organizational Expertise Condition 2]
STANDARD: Structural Standard (SS) [OAR 345-022-0020]	
PRE-SS-01	At least 60-days prior to construction of the facility, the certificate holder shall: 1. Conduct a site-specific geotechnical investigation in accordance with the 2014 version of the Oregon State Board of Geologist Examiners Guideline for Preparing Engineering Geologic Reports, or newer guidelines if available. The investigation report shall be submitted to DOGAMI and the Department, for review. The geotechnical investigation will include the following: a. Borings sufficient to develop seismic site classification(s) to facilitate engineering studies and site design; b. Foundation-specific investigations appropriate for the structures and their accompanying loads; and c. As recommended by licensed project engineers, soil and rock laboratory tests, such as soil and rock classification and strength testing, electrical resistance, corrosivity, scanning electron microscopy, soil collapsibility, and other parameters. 2. The certificate holder's final facility engineering must include geotechnical engineering design for foundations (substations, O&M buildings,

Condition Number	Preconstruction (PRE) Conditions
	inverter/transformer pads, battery systems), including seismic design that incorporates detailed site-specific conditions, based on the results of the site-specific investigation report described in this condition. [Final Order on ASC, Structural Standard Condition 1]
STANDARD: Land Use (LU) [OAR 345-022-0030]	
PRE-LU-01	Prior to construction of the facility, the certificate holder shall: a. Submit a conditional use and zoning permit application along with the proper filing fees to Lake County Planning Department for issuance pursuant to ORS 469.401(3); and b. Obtain all other necessary local permits, including building permits and onsite sewage treatment system permits. [Final Order on ASC, Land Use Condition 1]
PRE-LU-02	Prior to construction of the facility, the certificate holder shall demonstrate to the Department and Lake County Planning Department through mapping or other engineering drawing that the final facility layout complies with the following county yard setback and vision clearance area requirements: a. 50-foot minimum sideyard setback distance from permanent foundations (inverter/transformer units, collector/step-up substations, O&M buildings, battery storage enclosures) to adjacent non-participating property boundaries. b. 20-foot minimum front and rear yard setback distance from permanent foundations (inverter/transformer units, collector/step-up substations, O&M buildings, battery storage enclosures) to adjacent non-participating property boundaries. c. 45-foot minimum setback from the centerline of any county or other public or street right-of-way to permanent foundations (inverter/transformer units, collector/step-up substations, O&M buildings, battery storage enclosures). d. 20-foot minimum triangular vision clearance area at access road driveways constructed by the facility that provide access to a public roadway. e. at the intersection of two streets, existing or constructed, 2.5-foot height restriction on planting, fence, wall, structure, or temporary or permanent obstruction, measured from the top of the curb or, where no curb exists, from the established street center line grade, except that trees exceeding this height may be located in this area, provided all branches and foliage are removed to a height eight (8) feet above grade. [Final Order on ASC, Land Use Condition 2]
PRE-LU-03	Prior to construction of the facility, the certificate holder shall provide a map presenting facility site boundary, access roads and road approaches; county roads; and, the County's mapped Goal 5 Big Game Winter Range habitat overlay. If the certificate holder constructs new facility access roads or road approaches from County Road 5-12 A onto the site, certificate holder shall demonstrate to the Department and Lake County Planning Department how the length of the road or

Condition Number	Preconstruction (PRE) Conditions
	road approach complies with LCZO Section 18.05(D)(3)(c). [Final Order on ASC, Land Use Condition 3]
PRE-LU-04	Prior to construction of the facility, the certificate holder shall sign and record in the county deed records a document binding the certificate holder owner, and any certificate holder owner successors in interest, prohibiting them from pursuing a claim for relief of cause of action alleging injury from farming or forest practices as defined in ORS 30.930(2) and (4). [Final Order on ASC, Land Use Condition 6]
PRE-LU-05	If the GSU step-up substation is located in Area E, prior to construction, the certificate holder shall provide the Department with documentation (deed or similar conveyance) that demonstrates that the water right associated with the portions of Area E impacted by facility construction and operations has been duly and legally transferred for same or similar use (irrigated agriculture) to another parcel within Lake County to ensure no-net-loss to irrigated agriculture. [Final Order on AMD1, Land Use Condition 8]
STANDARD: Retirement and Financial Assurance (RF) [OAR 345-022-0050]	
PRE-RF-01	Before beginning construction of the facility, the certificate holder shall submit to the State of Oregon, through the Council, 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. The certificate holder shall maintain a bond or letter of credit in effect at all times until the facility has been retired. The Council may specify different amounts for the bond or letter of credit during construction and during operation of the facility. [Final Order on ASC, Retirement and Financial Assurance Condition 4; Mandatory Condition OAR 345-025-0006(8)]
PRE-RF-02	Before beginning construction of the facility, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The total bond or letter of credit amount for the facility is $38.1 million dollars (Q3 2023 dollars), to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (b) of this condition: a. The certificate holder may adjust the amount of the bond or letter of credit based on the design configuration of the facility by applying the unit costs, general costs and ODOE applied contingencies as illustrated in Table 8 of the Final Order on RFA1. Any revision to the restoration costs should be adjusted to the date of issuance as described in (b) and subject to review and approval by the Council. b. The certificate holder shall adjust the amount of the bond or letter of credit using the following calculation: i. Adjust the amount of the bond or letter of credit (expressed in Q3 2023 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of

Condition Number	Preconstruction (PRE) Conditions
	Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency and using the third quarter 2023 index value and the quarterly index value for the date of issuance of the new bond or letter of credit. If at any time the index is no longer published, the Council shall select a comparable calculation to adjust third quarter 2023 dollars to present value. ii. Round the result total to the nearest $1,000 to determine the financial assurance amount. c. The certificate holder shall use an issuer of the bond or letter of credit approved by the Council, based on the Council's pre-approved financial institution list. d. The certificate holder shall use a form of bond or letter of credit approved by the Council. The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under OAR 345-026-0080. The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site. [Final Order on ASC, Retirement and Financial Assurance Condition 5]
STANDARD: Public Services (PS) [OAR 345-022-0100]	
PRE-PS-01	Prior to construction of the facility, the certificate holder shall: a. Place a roadside sign along North Oil Dri Road and at facility entrance, including the contact information (cell number) for an onsite representative for dust complaints. b. Finalize the Dust Abatement and Management Control Plan included as Attachment U-4 to the Final Order on the ASC, in consultation with Lake County Planning and Road Departments, the Oregon Department of Environmental Quality and the Department. Consultation, at a minimum, shall include: i. Submission of the draft DAMP, with a cover letter/description of the construction schedule, activities and final facility design, to the above referenced state and local government representatives, with a request for review and comment within 45 days. The draft DAMP shall include reasonable available control measures including application of binders/dust suppressants (e.g., Earth Bind, ligano sulfonate) on highly trafficked roads. The DAMP shall also include a description of conditions that would warrant application of additional water or suppressants and shall provide evidence that the certificate holder/contractor has reasonable access to additional suppressants/water controls for facility construction. ii. Within 60 days of submission or as otherwise feasible, meet with the Department to evaluate comments and finalize the DAMP. Receive written confirmation from the Department that the DAMP may be finalized.

Condition Number	Preconstruction (PRE) Conditions
	iii. Provide copies of the final DAMP and construction schedule to all property owners of record within 500 feet of the boundary of the property for which the site boundary is located. [Final Order on ASC, Public Services Condition 1]
STANDARD: Wildfire Prevention and Risk Mitigation (WP) [OAR 345-022-0115]	
PRE-WP-01	Prior to construction of the facility, the certificate holder shall submit a Final Construction Wildfire Mitigation Plan to the Department, for review and approval. a. The final plan shall, at a minimum: i. Document coordination with local fire protection and emergency services; qualifications and contact information for the onsite emergency medical technician; and executed agreement, or similar conveyance, for onsite emergency transport service. The plan shall also include an updated Emergency and Fire contact list. ii. Identify areas within the site boundary that are subject to a heightened risk of wildfire, using current data from reputable sources, and discuss data and methods used in the analysis. iii. Describe the procedures, standards, and time frames that the certificate holder will use to inspect facility components and manage vegetation in the areas identified under section (a) of this condition. iv. Identify preventative actions and programs that the certificate holder will carry out to minimize the risk of construction equipment causing wildfire, including procedures that will be used to adjust operations during periods of heightened wildfire risk. v. Identify procedures to minimize risks to public health and safety, the health and safety of responders, and damages to resources protected by Council standards in the event that a wildfire occurs at the facility site, regardless of ignition source. vi. Describe the methods the certificate holder will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk, including the schedule by which updates of the plan will occur. b. The actions, programs, and procedures in section (a)(iii)-(v) shall be consistent with those included in the draft plan provided in Final Order on RFA1 Attachment X. [Final Order on ASC, AMD1, Public Services Condition 4, Wildfire Prevention Condition 1]
STANDARD: Noise Control Regulations (NC) [OAR 340-035-0035]	
PRE-NC-01	Prior to construction of the facility, the certificate holder shall: a. Submit to the Department a noise summary report presenting the sound power levels (in dBA) of noise generating equipment including solar array inverters and

	transformers, substation transformers, and battery system inverters and cooling systems, as applicable to final design. The sound power levels shall be supported by equipment manufacturer specifications and noise data. The certificate holder shall provide, in tabular format, a comparison of the sound power levels used in ASC Exhibit X for noise generating equipment and sound power levels validated by manufacturer specifications. b. If the sound power levels used in ASC Exhibit X to evaluate compliance with DEQ's noise rules are lower than sound power levels of final equipment selected, the certificate holder shall provide an updated noise analysis to demonstrate compliance with the ambient degradation standard and maximum allowable threshold. The ambient noise level utilized in ASC Exhibit X may be used for the updated noise analysis, if required. [Final Order on ASC, Noise Control Condition 2]
STANDARD: Water Rights (WR) [ORS 537, 540 and 690]	
PRE-WR-01	Prior to construction of the facility, certificate holder shall submit to the Department the following information related to its water service provider for construction related water use: a. Name of water provider, water permit or water right number or copy of, and letter from provider confirming water availability to meet construction water demand; b. Confirmation from water provider that water can be used at the facility site given any applicable restrictions of the water right or permit; c. If sufficient water is not available from local service provider(s) to meet facility construction water needs, certificate holder shall confirm whether it needs to amend the site certificate to incorporate a water permit/right under Council jurisdiction or provide evidence that its third party contractor has obtained a water right or permit for water use at the site. [Final Order on ASC, Water Rights Condition 1]

5.4 Construction (CON) Conditions

Condition Number	Construction (CON) Conditions
STANDARD: Organizational Expertise (OE) [OAR 345-022-00100	
CON-OE-01	During construction of the facility or a facility component, as applicable, the certificate holder shall require that the qualified construction manager, or qualified designated representative, is onsite during ground disturbance activities to manage compliance with site certificate requirements. The certificate holder shall notify the Department within 72-hours upon any change to the on-site construction manager. [Final Order on AMD1, Organizational Expertise Condition 6]
STANDARD: Public Services (PS) [OAR 345-022-0100]	
CON-PS-01	During construction of the facility, certificate holder shall:

Condition Number	Construction (CON) Conditions
	a. Implement the requirements of the Dust Abatement and Management Control Plan, as finalized per sub(b) of the condition. b. Report to the Department, as soon as possible, any reported dust nuisance complaints received by the onsite representative, including date, time, complainant name and measures implemented to resolve the issue, or explanation if measures not implemented [OAR 345-025-0006(6)]. [Final Order on ASC, Public Services Condition 2]
STANDARD: Wildfire Prevention and Risk Mitigation (WP) [OAR 345-022-0115]	
CON-WP-01	During construction of the facility, the certificate holder shall: a. Adhere to the requirements of the Wildfire Mitigation Plan finalized in accordance with Condition PRE-WP-01. b. Adhere to the requirements of any updates to the Wildfire Mitigation Plan, completed in accordance with Condition PRE-WP-01(a)(vi), following review and approval by the Department. [Final Order on AMD1, Wildfire Prevention Condition 3]

5.5 Pre-Operational (PRO) Conditions

Condition Number	Pre-Operational (PRO) Conditions
STANDARD: Organizational Expertise (OE) [OAR 345-022-0010]	
PRO-OE-01	Before beginning operation, the certificate holder shall notify the Department of the identity, telephone number, e-mail address and qualifications of the facility/asset manager. Qualifications shall demonstrate that the operations manager has experience in managing permit and regulatory compliance requirements and is qualified to manage operation of a utility scale solar facility. [Final Order on AMD1, Organizational Expertise Condition 7]
STANDARD: Land Use (LU) [OAR 345-022-0030]	
PRO-LU-01	Prior to operation of the facility, the certificate holder shall: a. Provide a copy to the Department of the Strategic Investment Program Agreement as executed by Lake County and certificate holder. The SIP agreement shall demonstrate, at a minimum, annual Community Service Fees of $2,000 per megawatt alternating current (MWac), based on nameplate installed capacity. b. Provide a one-time contribution to the North Lake County School District Foundation based on $10,000 per MWac capacity, based on final design of the facility constructed by the construction completion deadline defined in General Standard Condition 1. [Final Order on ASC, Land Use Condition 7]

Condition Number	Pre-Operational (PRO) Conditions
STANDARD: Organizational Expertise (OE) [OAR 345-022-0010]	
PRO-OE-01	Before beginning operation, the certificate holder shall notify the Department of the identity, telephone number, e-mail address and qualifications of the facility/asset manager. Qualifications shall demonstrate that the operations manager has experience in managing permit and regulatory compliance requirements and is qualified to manage operation of a utility scale solar facility. [Final Order on AMD1, Organizational Expertise Condition 7]
STANDARD: Land Use (LU) [OAR 345-022-0030]	
STANDARD: Siting Standards for Transmission Lines (TL) [OAR 345-024-0090]	
PRO-TL-01	Prior to operation of the facility, the certificate holder shall provide landowners within 500 feet of the site boundary a map of the 138-kV transmission line and the 138 kV collection line(s) inform landowners of possible health and safety risks from induced currents caused by electric and magnetic fields. [Final Order on ASC, AMD1, Siting Standards for Transmission Lines Condition 1]
STANDARD: Wildfire Prevention and Risk Mitigation (WP) [OAR 345-022-0115]	
PRO-WP-01	Prior to operation of the facility, the certificate holder shall submit a Final Operational Wildfire Mitigation Plan to the Department for review and approval. a. The final plan shall, at a minimum: i. Include an updated Emergency and Fire contact list. ii. Identify areas within the site boundary that are subject to a heightened risk of wildfire, using current data from reputable sources, and discuss data and methods used in the analysis. iii. Describe the procedures, standards, and time frames that the certificate holder will use to inspect facility components and manage vegetation in the areas identified under section (a) of this condition. iv. Identify preventative actions and programs that the certificate holder will carry out to minimize the risk of facility components or equipment causing wildfire, including procedures that will be used to adjust operations during periods of heightened wildfire risk. v. Identify procedures to minimize risks to public health and safety, the health and safety of responders, and damages to resources protected by Council standards in the event that a wildfire occurs at the facility site, regardless of ignition source. vi. Describe the methods the certificate holder will use to ensure that updates of the plan incorporate best practices and emerging technologies to minimize and mitigate wildfire risk, including the schedule by which updates of the plan will occur. b. The actions, programs, and procedures in section (a)(iii)-(v) shall be consistent with those included in the draft plan provided in Final Order on RFA1 Attachment X.

	[Final Order on ASC, AMD1, Public Services Condition 4(b), Wildfire Prevention Condition 2]

5.6 Operational (OPR) Conditions

Condition Number	Operational (OPR) Conditions
STANDARD: GENERAL STANDARD OF REVIEW (GS) [OAR 345-022-0000]	
OPR-GS-01	The certificate holder shall submit a legal description of the site to the Oregon Department of Energy within 90 days after beginning operation of the facility. The legal description required by this rule means a description of metes and bounds or a description of the site by reference to a map and geographic data that clearly and specifically identify the outer boundaries that contain all parts of the facility. [Final Order on ASC, General Standard Condition 2; Mandatory Condition OAR 345-025-0006(2)]
OPR-GS-01	Upon completion of construction, the certificate holder shall restore vegetation to the extent practicable and shall landscape all areas disturbed by construction in a manner compatible with the surroundings and proposed use. Upon completion of construction, the certificate holder shall remove all temporary structures not required for facility operation and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility. [Final Order on ASC, General Standard Condition 6; Mandatory Condition OAR 345-025-0006(11)]
STANDARD: Organizational Expertise (OE) [OAR 345-022-0010]	
OPR-OE-01	During operation, the certificate holder shall require that the qualified facility/asset manager be responsible for managing compliance with operations-related site certificate requirements. [Final Order on AMD1, Organizational Expertise Condition 8]
STANDARD: Land Use (LU) [OAR 345-022-0030]	
OPR-LU-01	During facility operation, the certificate holder shall include in the annual report the condition of the perimeter fence and identify whether any repairs were completed within the reporting year, or if scheduled for following reporting year. [Final Order on ASC, Land Use Condition 4]
STANDARD: Fish and Wildlife Habitat (FW) [OAR 345-022-0060]	
OPR-FW-01	During operation, the certificate holder shall implement the post-construction bird and bat mortality monitoring as established in the Wildlife Monitoring Plan provided in Attachment P-2 of the Final Order on the ASC. [Final Order on ASC, Fish and Wildlife Condition 11]
STANDARD: Wildfire Prevention and Risk Mitigation (WP) [OAR 345-022-0115]	
OPR-WP-01	During operation of the facility, the certificate holder shall: a. Adhere to the requirements of the Wildfire Mitigation Plan finalized in

Condition Number	Operational (OPR) Conditions
	accordance with Condition PRO-WP-01. b. Adhere to the requirements of any updates to the Wildfire Mitigation Plan, completed in accordance with Condition PRO-WP-01(a)(vi), following review and approval by the Department. [Final Order on AMD1, Wildfire Prevention Condition 4]

5.7 Retirement (RET) Conditions

Condition Number	Retirement (RET) Conditions
STANDARD: Retirement and Financial Assurance (RF) [OAR 345-022-0050]	
RET-RF-01	The certificate holder shall retire the facility if the certificate holder permanently ceases construction or operation of the facility. The certificate holder shall retire the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110. The certificate holder shall pay the actual cost to restore the site to a useful, nonhazardous condition at the time of retirement, notwithstanding the Council's approval in the site certificate of an estimated amount required to restore the site. [Final Order on ASC, Retirement and Financial Assurance Condition 2; Mandatory Condition OAR 345-025-0006(9)]
RET-RF-02	If the Council finds that the certificate holder has permanently ceased construction or operation of the facility without retiring the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110, the Council shall notify the certificate holder and request that the certificate holder submit a proposed final retirement plan to the Department within a reasonable time not to exceed 90 days. If the certificate holder does not submit a proposed final retirement plan by the specified date, the Council may direct the Department to prepare a proposed final retirement plan for the Council's approval. Upon the Council's approval of the final retirement plan, the Council may draw on the bond or letter of credit described in OAR 345-025-0006(8) to restore the site to a useful, nonhazardous condition according to the final retirement plan, in addition to any penalties the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall pay any additional cost necessary to restore the site to a useful, nonhazardous condition. After completion of site restoration, the Council shall issue an order to terminate the site certificate if the Council finds that the facility has been retired according to the approved final retirement plan. [Final Order on ASC, Retirement and Financial Assurance Condition 3; Mandatory Condition OAR 345-025-0006(16)]

6.0 Successors and Assigns

To transfer this site certificate or any portion thereof or to assign or dispose of it in any other manner, directly or indirectly, the certificate holder shall comply with OAR 345-027-0400.

7.0 Severability and Construction

If any provision of this agreement and certificate is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the agreement and certificate did not contain the particular provision held to be invalid.

8.0 Execution

This site certificate may be executed in counterparts and will become effective upon signature by the Chair of the Energy Facility Siting Council and the authorized representative of the certificate holder.

IN WITNESS THEREOF, this site certificate has been executed by the State of Oregon, acting by and through the Energy Facility Siting Council and Obsidian Solar Center LLC (certificate holder).

ENERGY FACILITY SITING COUNCIL

By: Marcia L Grail (Dec 28, 2023 11:58 PST)

Marcia L. Grail, Chair

Date: _____

Obsidian Solar Center LLC

By: David W Brown (Dec 28, 2023 11:14 PST)

David W. Brown, Senior Principal and Authorized Representative

Date: 27-Dec-2023

ATTACHMENT 1: FIGURES

Figure 1: Regional Location of Facility and Site Boundary

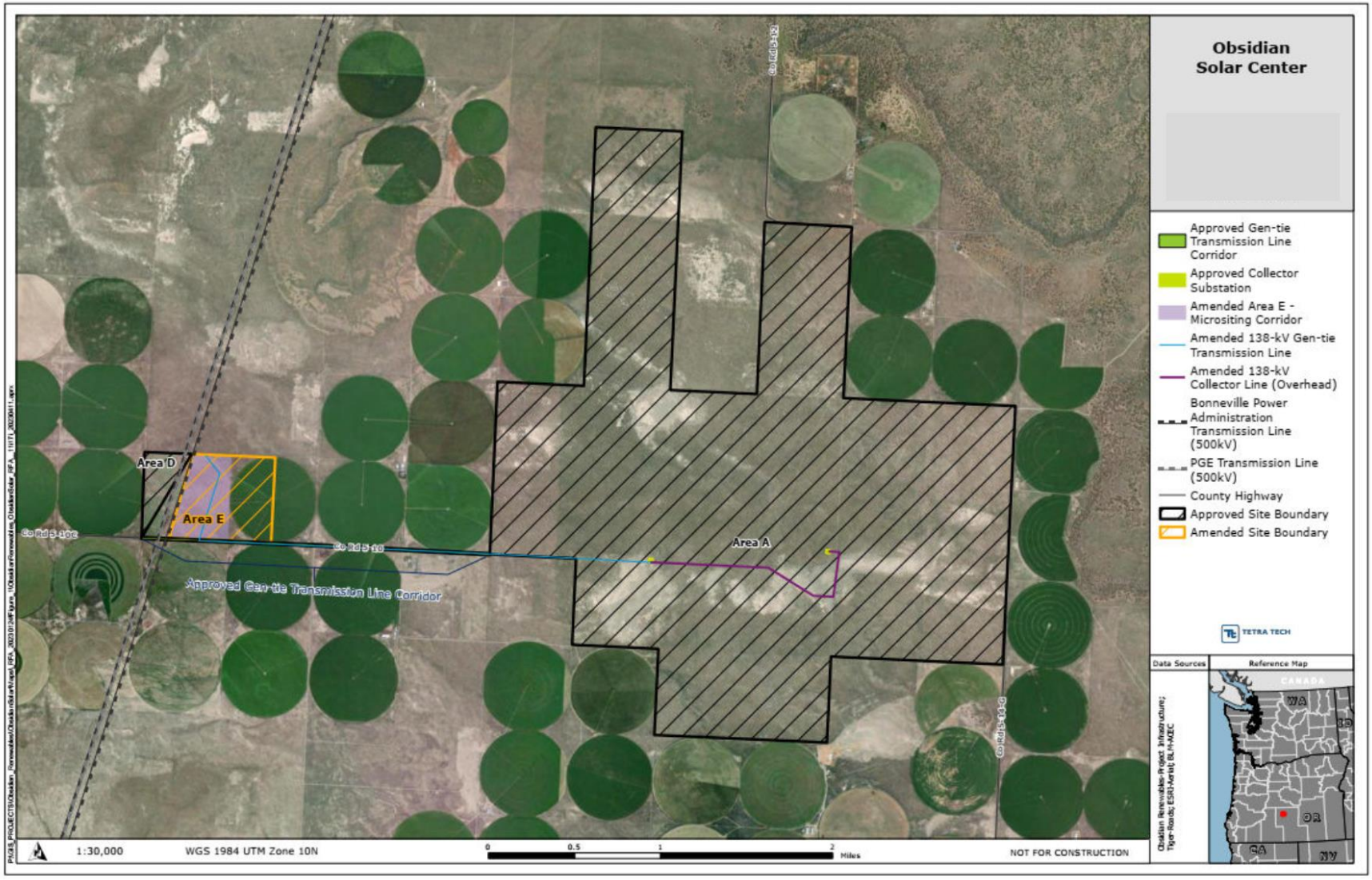

Figure 2: Facility Site Boundary, Disturbance and Avoidance Areas

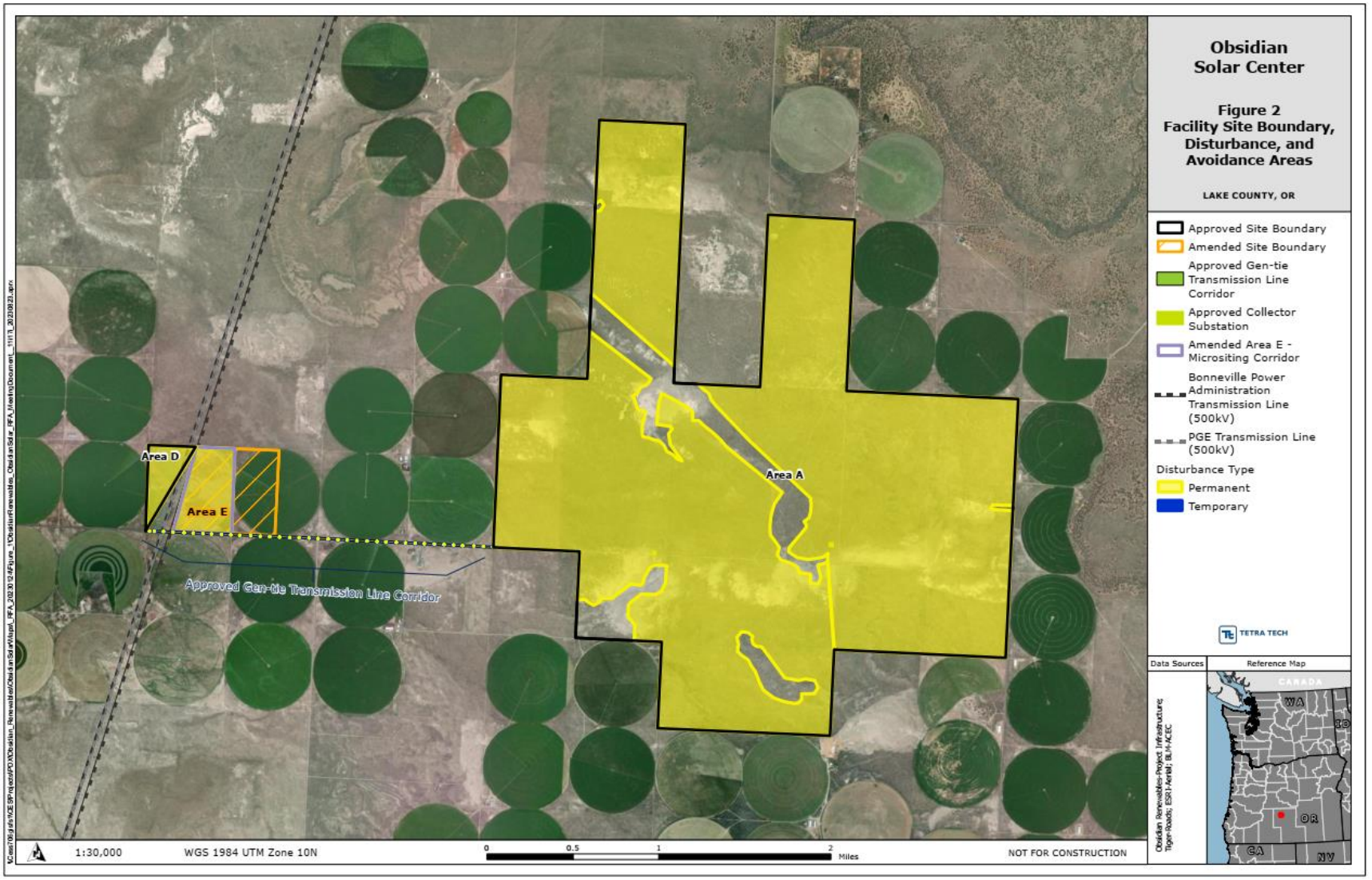

Figure 3: Gen-Tie Transmission Line Disturbance Areas and Approved Corridor

Attachment B: Reviewing Agency Comments on

Preliminary Request for Amendment 1

Obsidian Solar Center

Comment Index

Reviewing Agency	Commenter	Date Received
Lake County SAG	Darwin Johnson, Planning Director	June 12, 2023
Oregon Department of Agriculture	Jordan Brown, Native Plants Program Director	May 17, 2023
Oregon Department of Fish and Wildlife	John Muir, District Habitat Biologist	May 15, 2023
Oregon State Historic Preservation Office	John Pouley, State Archaeologist	June 27, 2023

Lake County Call Summary and Requested Comments on Obsidian Solar Center Request for Amendment 1

SLOAN Kathleen * ODOE

Mon 6/12/2023 9:35 AM

To:SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>

From: Darwin Johnson <djohnson@co.lake.or.us>
Sent: Monday, June 12, 2023 8:23 AM
To: SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>
Cc: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>; CLARK Christopher * ODOE <Christopher.CLARK@energy.oregon.gov>; Darwin Johnson <djohnson@co.lake.or.us>
Subject: RE: Lake County Call Summary and Requested Comments on Obsidian Solar Center Request for Amendment 1

On behalf of the Board of Commissioners and acting in our role as SAG the following comments should be added to the summary of comments previously provided:

Lake County, having reviewed the requested change and by discussion with ODOE staff, does not feel that the project alterations are significant: that if the developers cannot develop the necessary substation and accessory structures including all site needs, without avoiding existing water rights and agriculture hay growing, we are certain that those rights would be transferred to another location owned by the land owner, or sold to another hay grower in the area resulting in no net loss of agriculture production. The land owner is fully aware of their water rights, operational needs, and available lands where these rights could be transferred to, and we are certain they will, in a timely manner, pursue all options available to them resulting in their operations being not negatively affected by this site plan change. As understood, the requested changes are only due to connection requirements to the adjacent transmission line, which is pertinent to the ultimate development, completion and success of the project.

Let me know if you have any other questions or need me to clarify our position. Thank you.

~Darwin

ODOE and Lake County Planning Department Consultation Summary Notes

RE: Preliminary Request for Amendment on Obsidian Solar Center

May 31, 2023

Approved Facility Summary: Obsidian Solar Center (facility) is an approved not constructed 400 megawatt (MW) solar facility, with battery storage option, and 2 miles of 115 kV transmission line to be located in Lake County. The approved site boundary is 3,921 acres.

Changes proposed in amendment request: The certificate holder seeks approval from the Energy Facility Siting to Council to modify the approved facility and site boundary, including increasing the length of the transmission line from 2 to 3.2 miles (including a 1-mile segment within the solar facility footprint that would result in a change from 34.5 kV, belowground, to 138 kV, aboveground), increasing the voltage of the transmission line from 115 to 138 kV (thereby increasing the transmission structure height from 70 to 80 feet), and adding approximately 165 acres to the site boundary for an alternative location for siting of the substation/point of interconnect (POI) to the existing BPA transmission line (Area E). The alternate location of the substation/point of interconnection would not exceed 12 acres in size/disturbance.

Summary of Land Use Review:
As requested by the Lake County Board of Commissioners, the Department consulted with Lake County Planning Director, Darwin Johnson on the preliminary request for Amendment 1. Consultation with occurred on May 31, 2023 and reviewed the preliminary Request for Amendment 1 (pRFA1) for the Obsidian Solar Center. The call focused on land use and potential updates on County applicable substantive criteria, or other comments about public services.

- Lake County Board of Commissioners is Special Advisory Group (SAG) - a local government appointed by the Energy Facility Siting Council (EFSC) for all site certificate proceedings for the Obsidian Solar Center, issued in 2018.
- As a SAG, the County provided applicable substantive criteria and comments on the facility for the Department to apply during land use review for the ASC.
- As part of the pRFA1 review by the Department it appears that there has been no change in applicable substantive criteria or applicable updates to the September 2018 Lake County Zoning Ordinance (LCZO) or the 2015 Lake County Comprehensive Plan (LCCP) since the prior review of the ASC for the facility.
- The RFA1 proposed changes would add approximately 134 acres of high value farmland in Area E with an irrigation water right held by the landowner.
- There are 2 partial irrigation pivots on the Area E – both on the same parcel and owned by the same landowner (who also owns Area D the inter-tie location as currently approved in the site certificate).
- Proposed changes to the site certificate by the certificate holder adds use of County Road 5-12 as a haul/access route to the facility location description.

Lake County Planning Department Comments:

- County confirmed that there has been no change in applicable substantive criteria since EFSC's prior review that would apply to this facility.

    - The LCZO has not been updated since Sept 2018 and the LCCP has not been updated since 2015. No other county planning documents have been updated since the EFSC prior review, including Lake County Atlas (1983); 10-Yr Flood Damage Prevention Ordinance (1989); C.V. Airport Improvement Plan (1984); Habitat Protection Plan (1979); 10CC-95 Zoning Ordinance Amendment Big Game Habitat (1995); Renewable Energy Plan (1984); Solid Waste Management Plan (2005); Transportation System Plan (2016).
- County supports recommending that the alternate substation location and transmission line route within the amended site boundary area be designed in a manner that would minimize impacts to the existing pivot, to the extent technically feasible for BPA interconnect.

- County concurs that previously imposed land use and public services-related conditions would continue to apply and be adequate to ensure that any impacts from the changes proposed in RFA1 would comply with applicable LCZO requirements and minimize impacts to public service providers (emergency services and traffic safety). Summarized below:
    - PRE-LU-01: Requires zoning permit and conditional use permit from county (addresses LCZO Section 3.04(B)(6))
    - PRE-LU-02: Requires facility be designed in accordance with county yard setbacks, road driveway vision clearance; and height restrictions (addresses LCZO Section 3.05(G) and (H))
    - PRE-LU-03: Requires compliance with big game habitat overlay requirements, if road approaches constructed off of CR 5-12A (addresses LCZO Section 18.05(D)(2) and (3))
    - OPR-LU-01: Requires maintenance, and reporting of, perimeter fence repairs (addresses LCZO Section 20.12)
    - GEN-PS-01: Requires finalization of, and implementation of, a Construction Traffic Management Plan, including road use agreement executed with county (addresses impacts to level of service/capacity/conditions from use of local roads during construction)
    - GEN-PS-02: Requires finalization of, and implementation of, a final Construction Fire Protection and Emergency Response Plan, inclusive of an agreement with local service provider for emergency transport services (addresses impacts to hospitals/medical service providers with limited resources)
    - PRE-PS-01/CON-PS-01: Requires finalization of, and implementation of, a Dust Abatement and Management Control Plan (addresses impacts to safety from high-dust impacts during use of local unpaved roads during construction)

Summary of call with Lake County BOC on OSC pRFA1

SLOAN Kathleen * ODOE

Thu 5/18/2023 3:48 PM

To: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>

Hi Sarah,

I wanted to send you my notes from my call with the Lake County Board of Commissioners yesterday on the pRFA1 for Obsidian Solar.

In general, their questions were about the EFSC process and how to participate and the steps we follow in our review.

They did have some specific comments/questions about the pRFA1 which I am summarizing below:

1. Questions about the site boundary in the pRFA1. Specifically why it is so much bigger than the proposed micrositing area and that it encroaches into a pivot circle/irrigated and active ag. They would like additional information on why this expanded site boundary is necessary beyond the micrositing area identified in the pRFA1.
2. Road Use Agreement with the County - comments that the site access was a concern to adjacent landowners in the application review and they wanted to know if there were any changes in plans for site access or use of County roads, as a result of this amendment request and change facility components or layout.
3. I was directed to work with their Planning Director/Department on any comments specific to Land Use, applicable substantive criteria, changes since the application review and obtaining comment letter from the County.
4. Landowner notification and comment ability in this pRFA1 process. They wanted to make sure the adjacent landowners were notified and have an opportunity for input.
5. Commented that they understand that it is the proposed amendment that is under EFSC review, not the prior approval of the facility.
6. No major comments or concerns were identified at this time on this amendment request.

I sent my follow up email to Darwin and will work on setting up a call with him as soon as possible.

Thanks,

OREGON DEPARTMENT OF ENERGY

Kathleen Sloan
Senior Siting Analyst
550 Capitol St. NE | Salem, OR 97301
P: 971-701-4913

Stay connected!

State of Oregon: Facilities - Energy Facility Siting

ODOE and ODA Consultation Summary Notes

RE: Preliminary Request for Amendment on Obsidian Solar Center

May 17, 2023

Approved Facility Summary: Obsidian Solar Center (facility) is an approved not constructed 400 megawatt (MW) solar facility, with battery storage option, and 2 miles of 115 kV transmission line to be located in Lake County. The approved site boundary is 3,921 acres.

Changes proposed in amendment request: The certificate holder seeks approval from the Energy Facility Siting to Council to modify the approved facility and site boundary, including increasing the length of the transmission line from 2 to 3.2 miles (including a 1-mile segment within the solar facility footprint that would result in a change from 34.5 kV, belowground, to 138 kV, aboveground), increasing the voltage of the transmission line from 115 to 138 kV (thereby increasing the transmission structure height from 70 to 80 feet), and adding 161 acres to the site boundary for an alternative location for siting of the substation/point of interconnect (POI) to the existing BPA transmission line. The alternate location of the substation/point of interconnection would not exceed 12 acres in size/disturbance.

Summary of threatened and endangered (T&E) plants and prior ODA review:

As discussed, Oregon Department of Agriculture (ODA) has previously commented (See attached ODA Comments 2020-01-08) on the low potential for T&E plants, specifically for Bogg's Lake hedge hyssop, to occur within the OSC analysis area. For this reason, no field surveys were requested by ODA for T&E plants as part of the ASC review, nor were they required as conditions for preconstruction in the site certificate.

In the pRFA1, the certificate holder included an updated Fish and Wildlife Habitat Survey Report (2022) that also included observations regarding noxious weeds. No noxious weeds were identified during 2022 surveys. No T&E plant surveys have been conducted.

The pRFA1 expanded site boundary is in active agricultural lands.

ODA Comments:
Due to the low potential for T&E plant species to occur in the pRFA1 area (Area E, adding 169 acres to the site boundary), ODA is not requesting field surveys for this amendment request and is comfortable with continued reliance on desktop analysis for ODA review under the EFSC T&E standard.

ODA requests that if future Wildlife Habitat surveys are conducted for the facility, that these surveys include T&E plant surveys, specifically for Bogg's Lake hedge hyssop.

Based upon ODA review of the pRFA and previous analysis, ODA concludes that the activities as described in this amendment request are not likely to have an impact on T&E plant species.

Re: ODOE-ODA Coordination Summary on preliminary Request for Amendment 1 for the Obsidian Solar Center

BROWN Jordan A * ODA

Wed 5/24/2023 7:43 PM

To: SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>
Cc: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>

Hello Kate,
I'm sorry for not responding sooner. The summary is an accurate reflection of my comments on this amendment request.
Thanks!

Jordan Brown, Program Lead Conservation Biologist
Oregon Department of Agriculture – Native Plant Conservation
635 Capitol St NE, Salem, OR 97301-2532
PH: 541.737.2346 | CELL: 541.224.2245 | WEB: Oregon.gov/ODA
Pronouns: he, him, his

*Please note my email address has changed to jordan.a.brown@oda.oregon.gov

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From: SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>
Date: Thursday, May 18, 2023 at 3:37 PM
To: BROWN Jordan A * ODA <Jordan.A.BROWN@oda.oregon.gov>
Cc: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>
Subject: ODOE-ODA Coordination Summary on preliminary Request for Amendment 1 for the Obsidian Solar Center

Hi Jordan,

Thank you for taking the time to discuss the preliminary Request for Amendment 1 for the Obsidian Solar Center.

The attached word document is our summary of our notes from this call. Please review and revise as needed, and return via email, or reply to this email that the summary is an accurate reflection of your comments on this amendment request.

I am also attaching your prior comment letter on the application, for your records on this review.

Thanks again,

OREGON DEPARTMENT OF ENERGY
Kathleen Sloan
Senior Siting Analyst
550 Capitol St. NE | Salem, OR 97301
P: 971-701-4913

State of Oregon: Facilities - Energy Facility Siting

ODOE and ODFW Consultation Summary Notes

RE: Preliminary Request for Amendment on Obsidian Solar Center

May 15, 2023

Approved Facility Summary: Obsidian Solar Center (facility) is an approved not constructed 400 megawatt (MW) solar facility, with battery storage option, and 2 miles of 115 kV transmission line to be located in Lake County. The approved site boundary is 3,921 acres.

Changes proposed in amendment request: The certificate holder seeks approval from the Energy Facility Siting to Council to modify the approved facility and site boundary, including increasing the length of the transmission line from 2 to 3.2 miles (including a 1-mile segment within the solar facility footprint that would result in a change from 34.5 kV, belowground, to 138 kV, aboveground), increasing the voltage of the transmission line from 115 to 138 kV (thereby increasing the transmission structure height from 70 to 80 feet), and adding 161 acres to the site boundary for an alternative location for siting of the substation/point of interconnect (POI) to the existing BPA transmission line. The alternate location of the substation/point of interconnection would not exceed 12 acres in size/disturbance.

Summary of fish and wildlife surveys/results:

- ODFW District Biologist John Muir was consulted in 2022 by the certificate holder to inform desktop analysis and field work for this amendment. Based on and consistent with ODFW consultation, habitat mapping was conducted; pygmy, raptor nest and noxious weed surveys were also performed.
    - pRFA1 Attachment 4 presents the results of an August 2022 habitat assessment and wildlife survey, conducted by Fosters Natural Resource Contracting. Habitat polygons were delineated using 2014 Google Earth and 2019 Terrain Navigator; potential species of concern surrounding the delineated habitat polygons were identified during ODFW's Sensitive Species List and Compass Mapping Tool. All lands within the proposed 161 acre amended site boundary area are considered Category 2 habitat for big game winter range (includes 132 acres of agriculture, 17 acres of non-sagebrush shrub, and 11 acres of mixed grass/forbes).
    - Pygmy rabbit surveys were conducted on August 30, 2022, within two of the pivot corners within the proposed amended site boundary area, representing locations of big sagebrush stands. No signs of pygmy rabbit were identified during this survey effort.
    - Above ground structures were evaluated to determine potential or presence of raptor nests. One swainson's hawk nest was identified within survey area, but not within 0.25 mile of the proposed amended site boundary area.
    - No noxious weeds were identified during 2022 surveys.

ODFW Comments:

- ODFW agrees with the methods and surveys conducted to inform the fish and wildlife habitat assessment – and concurs with the Category 2 habitat designation for lands within the proposed amended site boundary.

- ODFW understands that while the proposed alternate substation/POI would result in up to 12 acres of permanent Category 2 impacts, it would not be more than the habitat impacts previously assessed in the Final Order on the ASC – and therefore, there is no need to update the Habitat Mitigation Plan. However, as part of the evidentiary process and given that availability of mitigation lands may have changed since the prior review, ODFW requests that the certificate holder provide evidence in RFA1 that it has the ability to obtain mitigation acres in sufficient quantity and suitability (for uplift potential) for the 12 acres of potential habitat impact. Please provide a signed agreement, or similar, demonstrating availability of mitigation lands and include a map demonstrating the lands that apply to the agreement and extent of uplift potential.
- ODFW reviewed the seasonal nest restrictions/buffer distances included in Site Certificate Condition GEN-FW-07 and concurs that it is still accurate/adequate to address potential impacts to raptor nests during construction.
- Given that the transmission structures are increasing from 70 to 80 feet, and extending in length by 1 mile, and because the area is suitable habitat for listed State-sensitive species (including pygmy rabbits) ODFW recommends that the transmission structures be designed with anti-perching/anti-nesting technology – to minimize predation increases from installation of facility instruction, as modified. This would be in additional design parameter not included in APLIC guidance.

Re: Obsidian Solar Center - pRFA1 - ODFW:ODOE call summary - request for concurrence

MUIR Jonathan D * ODFW <Jonathan.D.MUIR@odfw.oregon.gov>

Tue 5/23/2023 12:08 PM

To:ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>;SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>;THOMPSON Jeremy L * ODFW <Jeremy.L.THOMPSON@odfw.oregon.gov>;MOORE Michael * ODFW <Michael.MOORE@odfw.oregon.gov>

That looks accurate to my eye Sarah. Thank you for running it by us

Get Outlook for iOS

From: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>
Sent: Tuesday, May 23, 2023 10:12:10 AM
To: SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>; THOMPSON Jeremy L * ODFW <Jeremy.L.THOMPSON@odfw.oregon.gov>; MOORE Michael * ODFW <Michael.MOORE@odfw.oregon.gov>; MUIR Jonathan D * ODFW <Jonathan.D.MUIR@odfw.oregon.gov>
Subject: Obsidian Solar Center - pRFA1 - ODFW:ODOE call summary - request for concurrence

Hi ODFW superheroes!

Kate is out today so wanted to follow up on her behalf – could you review the attached call summary and let us know if you have revisions or if you concur. We are hoping to provide to the developer tomorrow, if possible.

Thanks!

OREGON DEPARTMENT OF ENERGY

Sarah T. Esterson
Senior Policy Advisor
550 Capitol St. NE | Salem, OR 97301
M: 503-385-6128
P (In Oregon): 800-221-8035

From: SLOAN Kathleen * ODOE <Kathleen.SLOAN@energy.oregon.gov>
Sent: Thursday, May 18, 2023 3:03 PM
To: THOMPSON Jeremy L * ODFW <Jeremy.L.THOMPSON@odfw.oregon.gov>; MOORE Michael * ODFW <Michael.MOORE@odfw.oregon.gov>; MUIR Jonathan D * ODFW <Jonathan.D.MUIR@odfw.oregon.gov>
Cc: ESTERSON Sarah * ODOE <Sarah.ESTERSON@energy.oregon.gov>
Subject: ODOE and ODFW Coordination Summary from May 15, 2023 Call on the preliminary Request for Amendment 1 for the Obsidian Solar Center

Hello Jeremy, John and Mike,

Thank you for taking the time to discuss the preliminary Request for Amendment 1 (pRFA1) on the Obsidian Solar Center (OSC). I wanted to send you some documents to assist you in your review: Copy of the RFA1 Wildlife and

Habitat Survey Report (2022) and also the current version of the HMP which is still a draft (2020) and the project map. The entire pRFA1 document is too large for email but is available for download on the project webpage: State of Oregon: Facilities - Obsidian Solar Center

Also included in the attachments to this email is a word document that summarizes our notes from our call on the 15th . Please review and revise as needed to reflect your comments, and email to me a revised version or an approval of our summary as ODFW comments on the pRFA1 for this facility.

Thanks again,

OREGON DEPARTMENT OF ENERGY

Kathleen Sloan
Senior Siting Analyst
550 Capitol St. NE | Salem, OR 97301
P: 971-701-4913

State of Oregon: Facilities - Energy Facility Siting

Hi Kate,

Obviously, I'm getting to this very late. I took a look at the Terry Ozbun report, and it is not consistent with a letter I sent ODOE in 2020. I'm attaching that, but basically, we were treating all the sites as a likely Criterion A district due to the unique pattern of events associated with pluvial lakes use during much of the Holocene. However, in the report, all the sites/objects are determined not eligible, with the exception of two. With that said, again, my letter from 2020 provided a path forward, that included a statement that all the sites should be considered part of a Criterion A pattern of events. I had also stated that it is difficult to suggest the Klamath Tribe would find all these sites/objects not eligible.

I have some availability tomorrow and Thursday if you would like to set up a call.

-John [Pouley] via email 2023-06-28

Oregon
Tina Kotek, Governor

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

February 26, 2020

Ms. Kellen Tardaewether
Oregon Department of Energy
550 Capitol St N.E., 1st Floor
Salem, OR 97301

RE: SHPO Case No. 18-0246
ODOE, Obsidian Solar Center LLC
7000 acre solar farm
(26S 16E 8, 9, 15, 16, 17, 20, 21, 22) (26S 15E 13, 14) (26S 16E 17, 18), Lake County
Evaluation of the Obsidian Solar proposal

Dear Ms. Tardaewether:

The SHPO position regarding the field methods and Inadvertent Discovery Plan (IDP) for the Obsidian Solar project are described below. Areas of previous concerns are provided first, followed with a statement regarding whether such concerns have been addressed or if any still remain.

Oregon SHPO first received notice for the Obsidian Solar project on February 7th, 2018. In a Memorandum a request to Oregon SHPO asked for comments on the Notice of Intent for the Obsidian Solar Center, LLC, for the Obsidian Solar Center in Lake County. In accordance with OAR 345-015-0120, ODOE requested information pertaining to the agency contact person, comments on the facility, recommendations on the size of the analysis area, a list of studies for mitigation, a list of applicable statutes, and a list of permits issued by SHPO. Oregon SHPO responded on March 8th, 2018 addressing each request. Concerns relating to recommendations on the size of the facility were provided as follows:

> *There are too many archaeological sites to count in the direct effects area, as well as many in between project area components and beyond. The latter would almost certainly involve indirect effects. More archaeological sites and properties of religious and cultural significance [to Indian tribes] will almost certainly be found from subsequent survey and consultation, given that much of the proposed project area has not been surveyed. The proposed project area is in an area with one of the highest concentrations of archaeological and cultural properties in the county, which does not include information from tribes. The amount of work to consult and conduct inventories, evaluations, and mitigation will be relatively large compared with most projects of its size. Oregon SHPO requires an understanding of the horizontal and vertical extent of archaeological sites, a robust assessment under all four of the National Register of Historic Places (NRHP) criteria, which includes patterns as opposed to treating each cultural resource as if in a vacuum* [March 8, 2018 Letter from John Pouley, Assistant State Archaeologist, SHPO to Kellen Tardaewether, Senior Siting Analyst, ODOE].

On June 17, 2019, Oregon SHPO commented on a Draft Completeness Review, Exhibit S, Obsidian Solar Center Project Memorandum submitted by Historical Research Associates, Inc (HRA). As an independent contractor, the HRA review was meant to assist SHPO by conducting the initial review. The Memorandum addressed whether the proposed project would comply with the EFSC Historic, Cultural, and Archaeological Resources Standard (OAR 345-022-0090).
As part of the SHPO response, an overview of the National Register of Historic Places (NRHP), and associated

Criteria were provided, including references to how archaeological properties can be eligible under any of the four criteria, echoing the recommendations and concerns in the March 8, 2018 letter quoted above. Oregon SHPO concurred with all Requests for Additional Information (RAI). Among the RAI, Oregon SHPO concurred with HRA that boundaries of archaeological objects and sites were not properly delineated, and that the process for determining NRHP eligibility was inadequate.

Oregon SHPO was next asked to review the archaeological report to assist with portions under Lake County jurisdiction. The Supplement and Appendix S-5 to Exhibit S was included in the submission, which additionally included the IDP. As with previous correspondence, Oregon SHPO addressed concerns relating to NRHP eligibility, developing an understanding of the vertical and horizontal extent of archaeological sites and isolates, and the extent of tribal consultation.

> *In short, it is unclear if the Klamath Tribes agree that 114 archaeological sites and 241 isolates are not significant, and consequently not eligible to the National Register of Historic Places (NRHP) as recommended in the report. It is unknown if they or any tribe were asked about or consulted with regarding the significance of these places. It is further unclear why the NRHP recommendations focused exclusively on Criterion D, despite NRHP Bulletins and SHPO Reporting guidelines. The focus on Criterion D leaves an apparent Criterion A pattern of events district unaddressed. Consequently, the report lacks justification and support for how Oregon SHPO can concur with not eligible recommendations, when all criteria were not addressed. An added uncertainty is in regards to the lack of tribal views on any traditional, cultural, or religious significance of the sites and isolates recommended not eligible.* The letter concludes with: *To accomplish these objectives and for SHPO to provide support and justification for NRHP determinations of eligibility, adherence to SHPO guidelines and National Register Bulletins, with evaluations under all four NRHP criteria, and consultation with all appropriate tribes and SHPO are critical* [September 30, 2019 Letter from John Pouley, Assistant State Archaeologist, SHPO to Kellen Tardaewether, Senior Siting Analyst, ODOE].

After an October 8, 2019 conference call, Oregon SHPO submitted a proposal on October 14, 2019 for archaeological investigations associated with the project. The proposal was a clear deviation from SHPO guidelines and expectations submitted in an attempt to move the project forward. It is also unprecedented for SHPO to submit archaeological methods for a specific project, and likely would only occur again in extremely rare instances. As stated above, SHPO concerns had been provided in the initial 2018 comments to the NOI, and are largely addressed in SHPO Field Guidelines (2013) and Reporting Guidelines (2015).

On December 18th, 2019 a meeting was held with the applicant, its archaeologist, ODOE, SHPO and representatives from the affected Tribes, where a somewhat revisal of the SHPO proposal for archeological testing and excavation methodologies was discussed. Conversations addressed some requested changes. The Archeological Testing and Excavation Methods Plan addresses:

- Delineating Archaeological Site Boundaries
- Definitions
- Archaeological Testing at Isolates
- Trenching within a Recorded Archaeological Site
- Testing at Project Related (non-archaeological) Excavation
- Historical and Multicomponent Archaeological Sites
- Artifact Analysis
- Reporting
- Archaeological Permits

In addition, it was agreed that the known archaeological sites and isolates would be treated as an eligible district under Criterion A of the NRHP and the Archaeological Testing and Excavation Methods Plan addresses procedures for addressing Criterion D through targeted archaeological testing in areas of ground disturbance, and through the IDP. SHPO reviewed and commented on the minor changes to the

Archeological Testing and Excavation Methods Plan developed by SHPO, and, at this time, agree with the proposal. SHPO encourages project developers to coordinate as early as possible with SHPO about known archaeological sites, or the probability for archaeological sites, survey and field testing methods, especially if they deviate from SHPO guidelines. After the SHPO comments to the NOI in March 2018, had consultation with SHPO and tribes, and archaeological fieldwork (and associated permits) been conducted in the succeeding months, that phase of the project would likely be finished at this time.

The EFSC Historic, Cultural and Archaeological Resources standard (OAR 345-022-0090), requires the Council to find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to historic, cultural or archaeological resources that have been listed or would likely be listed on the NRHP. Since the applicant represents it will follow the Archeological Testing and Excavation Methods Plan, SHPO concurs that construction and operation of the proposed facility, taking into account mitigation, are not likely to adversely affect known resources that are likely to be listed on the NRHP.

Pursuant to ORS 358.920(1)(a) A person may not excavate, injure, destroy or alter an archaeological site or object or remove an archaeological object located on public or private lands in Oregon unless that activity is authorized by a permit issued under ORS 390.235 (SHPO archaeological permit). Because the applicant intends to conduct work within an area of known archaeological objects and site, the applicant must comply with ORS 390.235, OAR 736-051-0000 through 736-051-0090, and requested that the SHPO archaeological permits be included and governed by the site certificate under the EFSC review process.

The proposed Archeological Testing and Excavation Methods Plan was agreed upon by SHPO and is included by the Oregon “qualified archaeologist” (per ORS 390.235) in four archaeological permit applications. The 30-day review period for these permits ended on February 18, 2020, and included conditions from reviewers. Oregon SHPO forwarded the complete permit packets electronically to ODOE

At this time, Oregon SHPO has no outstanding concerns with the proposed archaeological investigations, associated methods, and ID associated with the project moving forward. Please feel free to contact me if you have any questions or comments related to this letter.

Sincerely,

John Pouley, M.A., RPA
State Archaeologist
(503) 480-9164
john.pouley@oprd.oregon.gov

Attachment C: Comments Received on the Record of the Draft Proposed Order

SLOAN Kathleen * ODOE

From: ODOE ITService * ODOE
Sent: Monday, August 21, 2023 5:37 PM
To: SLOAN Kathleen * ODOE
Subject: New Public Comment submitted for project : Obsidian Solar - AMD1

Follow Up Flag: Follow up
Flag Status: Flagged

Organization: The REAL Green New Deal Project
Submitted by: Megan Seibert
Email: megan.seibert@realgnd.org
Zip Code: 97321

Siting Project Phase: *AMD-A*

Comment Summary:
Solar projects writ large are environmentally destructive -- NOT the innovative renewable panaceas they claim to be

Please Click on the following link to view the full Comment Details

Comment Summary

Solar projects writ large are environmentally destructive -- NOT the innovative renewable panaceas they claim to be

Comment Date

8/21/2023

source

portal

Siting Project Phase

AMD-A

Comment Details

Application for Site Certificate (ASC) Exhibit

—

Page Number(s)

—

Council Standards

—

Comment

I'm commenting on behalf of the organization I run called The REAL Green New Deal Project. Our mission is to expose the dangerous of the Green New Deal -- simply business-as-usual by alternative means -- while offering a genuinely hopeful alternative grounded in ecological realism and spiritual reconnection.

As such, my objection isn't to any specific part of the application or permitting process -- bureaucratic red tape designed to bog down and distract the average person -- but rather to the much larger contextual issue of solar cell technology being advertised as 'clean and green,' when in fact it is nothing of the sort.

I'm attaching an article I co-authored with my colleague William Rees, published in the journal Energies, that outlines in technical detail why solar cell technology -- along with other commonly so-called "renewable energy" technology -- is ecologically destructive and unsustainable. We add further context by arguing that climate change, which "renewables" are a purported solution to, is but one symptom of a deeper problem and cannot be solved by techno fixes.

While companies and agencies involved in advancing solar and wind projects may have good intentions, there is a great deal of public manipulation and deceit about energy, climate, and their place within our broader social-ecological crises. My intent with this public comment is to shine a light on the confusion, stop that which is unintentionally destructive, and open the door to better ways forward.

Thank you for your attention and consideration.

Attachments

about 19 hours ago

Microsoft CRM Portals

Through the Eye of a Needle- An Eco-Heterodox Perspective on the Renewable Energy Transition (Seibert & Rees 2021).pdf (271.54 KB)

energies

MDPI

Review

Through the Eye of a Needle: An Eco-Heterodox Perspective on the Renewable Energy Transition

Megan K. Seibert [1,*] and William E. Rees [1,2]

[1] The REAL Green New Deal Project, Albany, OR 97321, USA
[2] Faculty of Applied Science, School of Community and Regional Planning, University of British Columbia, Vancouver, BC V6T 1Z2, Canada; wrees@mail.ubc.ca
* Correspondence: megan.seibert@realgnd.org

Abstract: We add to the emerging body of literature highlighting cracks in the foundation of the mainstream energy transition narrative. We offer a tripartite analysis that re-characterizes the climate crisis within its broader context of ecological overshoot, highlights numerous collectively fatal problems with so-called renewable energy technologies, and suggests alternative solutions that entail a contraction of the human enterprise. This analysis makes clear that the pat notion of "affordable clean energy" views the world through a narrow keyhole that is blind to innumerable economic, ecological, and social costs. These undesirable "externalities" can no longer be ignored. To achieve sustainability and salvage civilization, society must embark on a planned, cooperative descent from an extreme state of overshoot in just a decade or two. While it might be easier for the proverbial camel to pass through the eye of a needle than for global society to succeed in this endeavor, history is replete with stellar achievements that have arisen only from a dogged pursuit of the seemingly impossible.

Keywords: renewable energy; energy transition; overshoot; biocapacity; ecological limits; social justice; sustainability

Citation: Seibert, M.K.; Rees, W.E. Through the Eye of a Needle: An Eco-Heterodox Perspective on the Renewable Energy Transition. *Energies* **2021**, *14*, 4508. https://doi.org/10.3390/en14154508

Academic Editor: Alessia Arteconi

Received: 23 June 2021
Accepted: 20 July 2021
Published: 26 July 2021

1. Introduction

We begin with a reminder that humans are storytellers by nature. We socially construct complex sets of facts, beliefs, and values that guide how we operate in the world. Indeed, humans act out of their socially constructed narratives as if they were real. All political ideologies, religious doctrines, economic paradigms, cultural narratives—even scientific theories—are socially constructed "stories" that may or may not accurately reflect any aspect of reality they purport to represent. Once a particular construct has taken hold, its adherents are likely to treat it more seriously than opposing evidence from an alternate conceptual framework.

The Green New Deal (GND) is the dominant aspirational pathway in the mainstream narrative for achieving socially just ecological sustainability. Its central message is that a smooth transition away from climate-hostile fossil fuels is a relatively simple technological matter. Not only do proponents claim that electrification of all energy consumption by means of high-tech wind turbines and solar photovoltaic (PV) panels is technically possible, but that such a vast and unprecedented replacement of society's entrenched energy foundation is both financially feasible and carries the added benefit of creating thousands of "green" jobs [1–7]. The only missing ingredient, we are told, is political will. Energy transition plans produced by numerous academic institutions and researchers around the world support or conform obediently to the GND paradigm, and politicians everywhere have taken up the GND banner as the core of their environmental pledges.

We argue that while the GND narrative is highly seductive, it is little more than a disastrous shared illusion. Not only is the GND technically flawed, but it fails to recognize human ecological dysfunction as the overall driver of incipient global systemic collapse.

By viewing climate change, rather than ecological overshoot—of which climate change is merely a symptom—as the central problem, the GND and its variants grasp in vain for techno-industrial solutions to problems caused by techno-industrial society. Such a self-referencing pursuit is doomed to fail. As Albert Einstein allegedly said, "we cannot solve our problems with the same thinking we used when we created them". We need an entirely new narrative for a successful energy transition. Only by abandoning the flawed paradigmatic source of our ecological dilemma can we formulate realistic pathways for averting social–ecological collapse.

2. Climate Change in the Context of Overshoot

Long-standing calls from ecologists and informed environmentalists for society to adopt a systems perspective and employ a multi-disciplinary approach to anthropogenic climate change have largely fallen on deaf ears. Most people have succumbed to the mechanistic–reductionist paradigm that has dominated Cartesian science, as is evident by the isolation of climate from its broader ecological context and its treatment as a discrete, independent variable. The reality is that climate change is only one symptom of systems destabilization as the human enterprise has come to overwhelm the ecosphere.

To recalibrate our focal lens, consider the following accelerating changes. The population of *H. sapiens* is nearly eight times larger than it was at the beginning of the fossil-fueled Industrial Age a mere 200 years ago, and it has been growing nearly 20 times faster [8]. To accommodate the explosion of humanity, over half the land surface of Earth has been substantially modified, particularly for agriculture (that most ecologically destructive of technologies). One consequence of this is the competitive displacement of non-human species from their habitats and food sources. Prior to the dawn of agriculture eight to ten millennia ago, humans accounted for less than 1%, and wild mammals 99%, of mammalian biomass on Earth. Today, *H. sapien*s constitute 36%, and our domestic livestock another 60%, of a much-expanded mammalian biomass, compared with only 4% for all wild species combined [9–11]. McRae et al. [12] estimate that the populations of non-human vertebrate species declined by 58% between 1970 and 2012 alone. Freshwater, marine, and terrestrial vertebrate populations declined by 81%, 36%, and 38%, respectively, and invertebrate populations fell by about 50%.

While fossil fuels (FFs)—coal and later oil and natural gas—have been humanity's major source of energy over the past two centuries, 50% of all FFs ever burned have been consumed in just the past 30 years (as much as 90% since the early 1940s) as super-exponential growth has taken hold [13,14]. It should be no surprise, therefore, that carbon dioxide emissions—the major material by-product of FF combustion and principal anthropogenic driver of climate change—have long exceeded photosynthetic uptake by green plants. By 1997 (when annual consumption was 40% less than in 2021), humanity was already burning FFs containing about 422 times the net amount of carbon fixed by photosynthesis globally each year [15]. Between 1800 and 2021, atmospheric carbon dioxide concentrations increased by 48%, from 280 ppm to approximately 415 ppm.

These data show that plunging biodiversity and climate change, along with air/land/ocean pollution, deforestation, desertification, incipient resources scarcity, etc., are the inevitable consequences—indeed, parallel symptoms—of the same root phenomenon: the spectacular and continuing growth of the human enterprise on a finite planet. *H. sapiens* is in overshoot, exploiting ecosystems beyond their regenerative and assimilative capacities.

Overshoot is possible only because of: (a) the short-term availability of prodigious stocks of both renewable (fish, forest, soil, etc.) and non-renewable (coal, oil, natural gas, etc.) forms of so-called "natural capital"; and (b) the enormous, but finite, natural waste assimilation and recycling processes of the ecosphere. However, a reckoning is at hand. In just a few decades of geometric population and economic growth, humans have exploited (often to collapse) natural capital stocks that took millennia to accumulate and have impeded natural life-support processes through excessive, often toxic, waste discharges. The human enterprise now uses the bio-productive and assimilative capacities of 1.75 Earth

equivalents [16]. In simple terms, the industrial world's ecological predicament is the result of too many people consuming too much and over-polluting the ecosphere.

Clearly, the climate crisis cannot be solved in isolation from the macro-problem of overshoot—certainly not by using technologies that are reliant on the same FFs and ecologically destructive processes that created the problem in the first place.

3. Problems with So-Called Renewables

Here, we holistically examine renewable energy (RE), focusing on the widely overlooked limitations of the RE technologies commonly set forth as solutions (but that do not constitute all possible RE options). This examination shows that RE cannot deliver the same quantity and quality of energy as FFs, that the espoused technologies are not renewable, that their production—from mining to installation—is fossil-energy-intensive, and that producing them—particularly mining their metals and discarding their waste—entails egregious social injustices and significant ecological degradation.

The challenge before us is to identify which RE technologies are both sustainable and viable. Sustainability implies the ability to persist in perpetuity with minimal negative environmental impacts (i.e., within ecological limits). Viability entails basic, practical issues for production and implementation (e.g., is it possible to build and implement the RE technology without FF inputs? Can it be done on a climate-relevant schedule? Is it affordable?). Within this context, such pat slogans as "100% clean energy" and "net zero emissions" must be discarded. Every energy-producing technology—no matter how rudimentary or advanced—uses inputs from the environment and produces pollution or other ecological degradation over its life cycle. Trade-offs must be assessed. Just because raw sunlight and wind are "clean" and continuous energy flows does not mean that harnessing them to perform work is. While we inevitably face a future underpinned entirely by RE, the question is not how to meet current total demand, but rather to determine: (a) which RE technologies are actually sustainable and viable; (b) the contexts in which they might be so, including the priority uses to which they might be applied; and (c) how to effectively and fairly reduce energy demand.

GND proponents are appallingly tolerant of the inexplicable. They fail to address how the gigatons of already severely depleted metals and minerals essential to building so-called RE technologies will be available in perpetuity considering typical five to 30-year life spans and the need for continuous replacement [17–19]. They offer no viable workarounds for the ecological damage and deplorable working conditions, often in the Global South, involved in metal ore extraction [20,21]. Green New Dealers advance no viable solutions (technical or financial) for electrifying the many high-heat-intensive manufacturing processes involved in constructing high-tech wind turbines and solar panels (not to mention all other products in modern society) [22–25]. The waste streams generated by so-called renewables at the end of their short working lives are either ignored or assumed away, to be dealt with eventually by yet non-existent recycling processes [26–28]. Proposals for electrifying the 80% of non-electrical energy demand overlook crucial facts, namely that the national-scale transmission systems and grids required for electrified land transportation do not even exist today, nor is the needed build-out likely given material, energy, and financial constraints [29].

Finally, as emphasized previously, the quest for a magical source of free energy ignores the overriding overshoot crisis—which, paradoxically, was enabled by abundant, cheap fossil energy. We argue that the only viable response to overshoot is a managed contraction of the human enterprise until we arrive within the safely stable territory defined by ecological limits. This will entail many fewer people consuming far less energy and material resources than at present.

Obviously, a managed descent will require a paradigmatic shift in society's socially constructed values, beliefs, and assumptions. At a minimum, we must replace our unrelenting anthropocentricism and strictly instrumental approach to Nature with a more holistic, eco-centric perspective. People must come to acknowledge both their utter dependence on the integrity of the ecosphere and the intrinsic worth of other species and

natural ecosystems. This means overcoming capitalism's addiction to material growth and adopting systems compatible with one-Earth living ('one-Earth living' implies any material standard of living that, if extended to everyone on Earth, would be sustainable—i.e., the human population would be living within the global carrying capacity [30]. Obviously, the more people, the lower the average sustainable standard of living).

Far from encouraging such a radically new paradigm, the GND promotes an eco-washed version of the status quo with its unquestioning faith that technology will save us and its comforting narrative of business-as-usual by alternative means. This myth has become so well accepted in the public and academic mind that to question it is to be perceived as anti-renewable, pessimistically discounting human ingenuity, or even a shill for the FF industry. Those who do venture critical observations often do so with trepidation and constraint.

The following eco-heterodox view of the renewable energy transition flows from our commitment to critical discourse and stewardship of our one and only planet. This perspective widens the lens of analysis and confronts naked realities that can no longer be ignored. Our overriding goal is to assist society in developing a considered appreciation of what a truly renewable energy landscape might look like.

3.1. The Electrification Question

Only 19% of global final energy consumption is in the form of electricity. The other 81% is in the form of liquid fuel [31]. There are formidable obstacles to converting electricity consumption alone to so-called renewable sources.

3.1.1. Big Picture Sanity Check

Transitioning the U.S. electrical supply away from FFs by 2050 would require a grid construction rate 14 times that of the rate over the past half century [32]. The actual installed costs for a global solar program would have totaled roughly $252 trillion (about 13 times the U.S. GDP) a decade ago [33], and considerably more today. A recent report describing what would be needed to achieve 90% "decarbonization" and electrification by 2035 neglects to mention that, in order to meet such targets, the United States would have to quadruple its last annual construction of wind turbines every year for the next 15 years and triple its last annual construction of solar PV every year for the next 15 years—only to repeat the process indefinitely since solar panels and wind turbines have average lifespans of around 15 to 30 years [34,35]. In addition, Clack et al. [36] found that one of the most cited studies on 100% electrification in the United States is error-prone and laden with untenable assumptions.

3.1.2. Heat for Manufacturing

The manufacturing processes used today to make solar panels, high-tech wind turbines, batteries, and all other industrial products involve very high temperatures that are currently generated using FFs. Despite the critical importance of heat in manufacturing, there is scant information on whether or how it can be generated with RE alone.

Approximately 30% of industrial heating applications require temperatures below 212 °F (100 °C); 27% can be met with temperatures between 212 °F and 750 °F (100 °C and 400 °C); and 43% require temperatures above 750 °F (400 °C) [37]. Most existing RE heating technologies can supply heat only within the lowest temperature category [37]. This is highly problematic given that solar panel manufacturing requires temperatures ranging from 2700 °F to 3600 °F (1480 °C to 1980 °C) and the steel and cement manufacturing for high-tech wind turbines, hydropower plants, and nuclear plants require temperatures ranging from 1800 °F to 3100 °F (980 °C to 1700 °C).

According to the U.S. Energy Information Administration [38], natural gas, petroleum, electricity, and coal are the current sources of industrial energy, with natural gas and petroleum being predominant. If modern industrial manufacturing—responsible for generating the seemingly countless components of so-called RE technologies—is to continue

without FFs, renewable-based technologies must be developed that would supply seamless replacements for high-heat sources of energy at acceptable economic and ecological costs.

Existing reports explore numerous RE heat sources for manufacturing, including various forms of bioenergy, concentrated solar power (CSP), hydrogen, geothermal, and nuclear [22–25]. We discuss each in turn as they relate to the fossil energy sources they could potentially replace.

Possible replacements for natural gas include biomethane and hydrogen. Biomethane is a near-pure source of methane derived from one of two methods: the "upgrading" of biogas or gasified woody biomass. Biogas is a mixture of gases that results from the breakdown of agricultural, livestock, and household waste; sewage in wastewater treatment plants; and municipal waste (i.e., the anaerobic digestion of organic matter in an oxygen-free environment). Gasification entails heating wood in a low oxygen environment to produce synthetic gas, or syngas. The upgrading process involves removing nearly all gases in the biogas and syngas except for methane.

Problems abound with biomethane as an industrial energy replacement option. At present, biogas upgrading accounts for roughly 90% of all biomethane production [39]. From a technological standpoint, all five commercially viable processes for biogas upgrading have disadvantages, if not outright roadblocks, that limit their production and viability. The polyethylene glycol used in one type of physical scrubbing is a derivative of petroleum, and the other form of water-based physical scrubbing requires significant amounts of water and electricity [40,41]. Chemical scrubbing involves toxic solvents that are costly and difficult to handle, and it has a high heat demand [40–42]. Despite low energy and financial inputs [40], membrane separation involves fragile and short-lived membranes (lasting 5–10 years) [42] and produces relatively low methane purity [40]. Pressure swing adsorption is a highly complex process [40,42], and neither cryogenic separation nor biological methods are yet commercially viable [42,43]. Moreover, not all upgrading technologies are energetically self-sufficient—many, if not most, rely on FFs [41]. Problematically, upgrading biogas produces CO_2 [40,41]. Carbon capture and storage is one proposal for dealing with the resulting CO_2 but presents ecological problems and high costs [40]. Gasification has yet to be deployed at a large industrial scale [43].

There are additional problems with feedstock and co-location requirements. Current waste streams are insufficient to support the widespread use of biomethane in the transportation sector, let alone the industrial sector [44]. It is estimated that the maximum practical contribution of biomethane via biogas and gasification is only around 11% of Europe's current total natural gas consumption [43]. Harvesting woody biomass for gasification would have to be judiciously considered within the broader context of its sustainable management. Given the post-FF transportation limitations discussed later, biomethane production facilities would have to be co-located with feedstock sites, which would then have to be co-located with manufacturing sites. These requirements present obvious challenges, if not outright roadblocks.

The single greatest problem with producing hydrogen is that, regardless of method, more energy is required to produce and compress the product than it can later generate [22,25,29,33]. The only viable, large-scale feedstock for hydrogen is natural gas, and the gas reforming process requires temperatures ranging from 1300 °F to 1830 °F (700 °C to 1000 °C) [25,29,33,45]. Gas reforming produces substantial greenhouse gas (GHG) emissions and presents numerous problems in the way of leakage, corrosion, and accidental combustion [22,25,45].

Potential replacements for petroleum (i.e., crude oil) include bioethanol (ethanol made from corn or other fermented plant matter) and biodiesel. As discussed later, the land requirements for feeding 8+/− billion people without FF inputs preclude the large-scale use of cropland and plant biomass for energy purposes, even if net energy was satisfactory.

Contenders for non-fossil-generated electricity include geothermal, nuclear, concentrated solar power (CSP), solar PV, and wind turbines. Geothermal systems produce temperatures of around only 300 °F (150 °C) and must be located in mountainous regions

with active tectonic plate movement or near volcanic hot spots [24]. Production wells are commonly up to two kilometers deep [23,24]—depths that can be reached only with fossil-fueled machinery and advanced technologies. As discussed later, nuclear has massive water and material requirements. Facilities cannot be built and maintained without fossil-fueled machinery, and there is the still-unsolved problem of dangerous radioactive waste disposal. The much-touted small modular reactors (SMRs) are still in the R&D phase, still produce radioactive byproducts that must be disposed of, and pose the problem of transportability. Despite theoretical upper temperature limits ranging from 1800 °F to 2200 °F (1000 °C to 1200 °C), existing CSP systems generate heat in the range of only 300 °F to 570 °F (150 °C to 300 °C) [22,24]. CSP plants typically cost in excess of $1 billion and require around five square miles of land. Though they can store thermal energy in molten salt, the on-site salt stores less than one day's worth of electrical supply and almost all CSP plants have a fossil backup to diminish thermal losses at night, prevent the molten salt from freezing, supplement low solar radiance in the winter, and for fast starts in the morning [22,29]. The DC electricity generated by wind and solar PV can only be stored in batteries, which presents serious ecological and practical problems, as discussed later.

The only potential replacement for coal is charcoal derived from wood. This poses two obvious problems. The remaining stock of woody biomass—vastly depleted during the Industrial Age—is nowhere close to supporting current manufacturing needs, particularly recognizing the need to set aside half of the Earth's major eco-regions to ensure the functional integrity and health of the ecosphere [46]. Even if a sustainable supply of an already-stretched renewable resource was not a concern, industrial furnaces/boilers and steel manufacturing equipment are specifically designed to function with thermal coal and coke (made from coking coal); switching to charcoal would require the redesign and reconstruction of entire systems.

Such roadblocks impede the electrification of all manufacturing processes that do not already use electricity. Even so, there has been little R&D on massive electrification options. Additionally, again, since most existing fossil-powered equipment would require complex, large-scale system redesigns, 100% electrification of manufacturing would be extremely difficult, if not impossibly expensive [25].

In short, no RE source or system is viable if it cannot not generate sufficient energy both to produce itself (literally from the ground up) and supply a sufficient surplus for society's end-use consumption. Currently, no so-called RE technology is in the running.

3.1.3. Problems with Solar Panels

Manufacturing solar panels uses toxic substances, large quantities of energy and water, and produces toxic byproducts [33,47]. Mono-and poly-crystalline solar panels require high temperatures at every step of their production. For example, temperatures of 2700° to 3600 °F (1500° to 2000 °C) are needed to transform silicon dioxide into metallurgical-grade silicon. Up to half of the silicon is lost in the wafer sawing process. For every 1 MW of solar panels produced, about 1.4 tonnes of toxic substances (including hydrochloric acid, sodium hydroxide, sulfuric acid, nitric acid, and hydrogen fluoride) and 2868 tonnes of water are used, while 8.6 tonnes of emissions are released—8.1 tonnes of which are the perfluorinated compounds sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), and hexafluoroethane (C_2F_6) that are thousands of times more potent than CO_2 [48]. Other toxic byproducts, such as trichlorosilane gas, silicon tetrachloride, and dangerous particulates from the wafer sawing process, are also produced. Amorphous (thin-film) solar panels are made with cadmium, which is a carcinogen and genotoxin.

The actual performance of installed solar panels is problematic [33,49,50]. The efficiency rates of solar panels are low (on average around 15% to 20%) and almost always less than what manufacturers advertise. Solar panels are highly sensitive and lose function in non-optimal conditions (e.g., when there is haze or humidity, if the panels are not angled properly, or if any obstructions—such as bird droppings, dust, snow, or pollution—block

even small parts of the panel's surface). They become less efficient as they age, sometimes losing up to 50% efficiency.

Solar panels have a life span of only 20 to 30 years, making for a massive waste management problem. Inverters (which transform the DC output of solar panels into the AC input required by appliances) need to be replaced every five to eight years [33]. By the end of 2016, there were roughly 250,000 tonnes of solar panel e-waste globally, accounting for about 0.5% of all annual global e-waste [26]. According to the International Renewable Energy Agency [51], solar panel waste could amount to six million tonnes annually by 2050, and the cumulative waste by then could reach 78 million tonnes. By 2050, dead solar panels could account for 10% of all e-waste streams, and their cumulative end-of-life waste may be greater than all e-waste in 2018 [20]. The much-touted silver bullet of recycling is not the panacea is it purported to be. Recycling requires copious amounts of energy, water, and other inputs, and exposes workers to toxic materials that have to be disposed of. Currently, there are only two types of commercially available solar PV recycling and only a handful of recycling facilities around the world [26,27].

Even without such drawbacks, solar PV has a low energy return on energy invested (EROEI)—too low to power modern civilization [52–55].

3.1.4. Problems with Batteries and Other Storage

There are four primary types of commercially proven, grid-scale energy storage: pumped hydroelectric storage, compressed air energy storage, advanced battery energy storage, and flywheel energy storage. Pumped hydroelectric storage is possible only if hydroelectric dams are part of the system. Flywheel energy storage is used more for power management than long-term energy storage. Of the remaining two, compressed air storage is deployed at only two power plants in the world, with likely little expansion since it is quite inefficient and relies on large underground cavities with specific geological characteristics [29,56,57]. Only a few power plants in the United States have operational battery storage, accounting for 800 MW of power capacity [56,58]. Consider that the United States consumes around 4000 terawatt-hours of electricity every year [59], or 563 times the existing battery storage capacity.

An entire year of production from the world's largest lithium-ion battery manufacturing facility—Tesla's $5 billion Gigafactory in Nevada—could store only three minutes' worth of annual U.S. electricity demand [32]. Manufacturing a quantity of batteries that could store just two days' worth of U.S. electricity demand would require 1000 years of Gigafactory production [32]. Storing only 24 h worth of U.S. electricity generation in lithium batteries would cost $11.9 trillion, take up 345 square miles, and weigh 74 million tons [29]—at enormous ecological cost. A battery-centric future means mining gigatons of rare-earth mineral ores. For every kilogram of battery, 50–100 kg of ore needs to be mined, transported, and processed [60]. Constructing enough lithium batteries to store only 12 h' worth of daily power consumption would require 18 months' worth of global primary energy production and the entire global supply of several minerals [29].

Battery chemistry is complex, and improvements in one characteristic (e.g., energy density, power capability, durability, safety, or cost) always come at a cost to another. The monitoring and cooling systems and the steel used to encase the flammable lithium (other types of batteries are also flammable) weigh 1.5 times as much as the battery itself [29]. Batteries lose capacity over time, are negatively impacted by temperature extremes, pose safety issues that internal combustion engines do not [61], and have a poor energy-to-weight ratio [62]. Batteries also have higher GHG emissions than internal combustion engines [63].

Not all vehicles and machinery used today can be powered by batteries. Small cranes, a crawler crane [64], light and some heavy-duty construction equipment, and passenger cars can be powered by batteries. However, other large cranes (used to load and unload cargo and in large construction projects, mining operations, and more), container and other large ships, airplanes, and heavy-duty trucks cannot [29,60]. Sripad and Viswanathan [65]

concluded that the Tesla Semi concept vehicle is technically infeasible given current lithium-ion battery technology and is likely financially prohibitive. Tesla CEO Elon Musk stated in early 2021 that production was on hold due to battery cell unavailability and lack of profitability [66].

Batteries have a life span of around 5 to 15 years, creating an additional, significant waste management problem [20]. They cannot be disposed of in landfills due to their toxicity and are one of the fastest-growing contributors to e-waste streams. Only 5% of all lithium batteries are recycled.

3.1.5. Problems with Wind Power

The large metal wind turbines that have become ubiquitous today are composed primarily of steel towers, fiberglass nacelles and blades, and multi-element generators and gearboxes that contain large amounts of steel (iron) and copper. Roughly 25% of all large wind turbines use permanent magnet synchronous generators (PMSGs)—the latest generation technology that uses the rare earth metals neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb). The remaining 75% of operating wind turbines use some form of conventional magnetic generator. Employment of PMSGs is expected to grow given their post-implementation advantages [67].

Steel production is dependent on coal. Steel is an alloy of iron and carbon, the latter contributed by metallurgical, or coking, coal. The production of coke from metallurgical coal requires temperatures around 1800 °F (1000 °C). Combining coke and iron to make steel then requires blast furnaces at temperatures of 3100 °F (1700 °C). On average, 1.85 tons of CO_2 are emitted for every ton of steel produced [25].

Mining and processing the rare earth metals now common in most wind turbines produces significant toxic waste. Many rare earth metals are bound up in ore deposits that contain thorium and uranium, both of which are radioactive [68]. Sulfuric acid is used to isolate the rare earth metals from the ore, exposing the radioactive residue and producing hydrofluoric acid, sulfur dioxide, and acidic wastewater [68,69]. One ton of radioactive waste is produced for every ton of mined rare earth metals. Rare earth metal processing for wind turbines already generates as much radioactive waste as the nuclear industry [69].

A typical 3 MW wind turbine weighs anywhere from 430 to 1200 tonnes [70]. All components must be transported by large trucks from manufacturing to installation sites and then erected using enormous cranes once on-site. As previously noted, neither heavy-duty trucks nor cranes can yet operate on battery power. As shown later, electrified freight on a Paris Agreement schedule (~50% emissions reductions by 2030) is improbable, if not impossible.

Massive concrete bases—often requiring more than 1000 tons of concrete and steel rebar and measuring 30 to 50 feet across and anywhere from six to 30 feet deep—are needed to fix the tower to the ground. Heavy-duty fossil powered machinery is required to excavate the site. Cement, which is the primary ingredient in concrete, is produced in industrial kilns heated to 2700 °F (1500 °C). At least one ton of CO_2 is emitted for every ton of cement produced [71], and the cement must then be transported on fossil-fueled trucks to the installation site.

A 3.1 MW wind turbine creates anywhere from 772 to 1807 tons of landfill waste, 40 to 85 tons of waste sent for incineration, and about 7.3 tons of e-waste [20]. Wind turbine blades, made of composite materials, are completely unrecyclable at present [28].

Finally, while superior to solar PV, neither onshore nor offshore wind power has an EROEI >3:1—far less than necessary to sustain modern civilization [52].

3.1.6. Eco-Impacts of Hydropower

Large hydroelectric dams have enormous ecological impacts [72]. They disrupt water flow, degrade water quality, block the transport of vital nutrients and sediment, destroy fish and wildlife habitat, impede the migration of fish and other aquatic species, and compromise certain recreational opportunities. Reservoirs slow and broaden rivers, making

them warmer. Many dams are not operating efficiently, are not up to environmental standards, produce less energy over time, and are in need of significant repairs [73–75].

3.1.7. Problems with Nuclear

To meet the anticipated primary energy demand in 2050—assuming 60% emissions reductions from 2004 levels—approximately 26,000 1-GW nuclear power plants would have to be built. The world currently has 449, many of which are nearing the end of their lives and will soon face decommissioning [76]. The EROI and materials for facility construction and operation aside, the enormous financial costs, regulatory time frames, social opposition, and waste disposal hurdles make the all-nuclear option a practical impossibility [76].

Only two prototype Generation IV "intrinsically safe" reactors have been built, one in China and one in Russia, with significant R&D remaining and commercialization forecasted to be two to three decades out [77]. Even though Generation IV reactors use fuel more efficiently and can even use some nuclear waste, claims about greatly reduced radioactive waste are misleading [78]. The narrow focus on reduced actinides is irrelevant since it is other fission byproducts that are of the greatest concern for long-term safety. Moreover, the fuel retreatment process to reduce actinide quantities relies on exceptional technological requirements and itself generates waste that must be disposed of.

Small modular reactors (SMRs) would offer the benefits of a smaller size and transportability but are still in the R&D phase and pose two major problems [79]. Just as with large wind turbines, SMRs need to be transported long distances, which is not possible without large fossil-fueled trucks and cranes. Additionally, SMRs still produce the same radioactive waste products that large reactors do [80].

The holy grail of nuclear fusion continues to be plagued by problems [81]. To replicate fusion here on Earth, temperatures of at least 100 million degrees Celsius—about six times hotter than the sun—would be needed. Deuterium and tritium, the fuels available for Earth-bound fusion, are 24 orders of magnitude more reactive than the ordinary hydrogen burned by the sun, implying a billion times lower particle density and a trillion times poorer energy confinement. In Earth-bound fusion, energetic neutron streams comprise 80% of the energy output of deuterium–tritium reactions (the only potentially feasible reaction type). These neutron streams lead to four problems with fusion energy: radiation damage to structures, radioactive waste, the need for biological shielding, and the potential for the production of weapons-grade plutonium. Fusion reactors would share other serious problems that plague fission reactors: daunting water demands for cooling; parasitic power drains that make it uneconomic to run a fusion plant below 1000 MW; the release of biologically hazardous, radioactive tritium into the environment; and high operating costs. Additionally, they require a fuel (tritium) that is not found in Nature and is generated only by fission reactors.

Nuclear power plants cannot be built without large fossil-fueled cranes and enormous amounts of concrete, the production of which, as noted, emits a significant amount of CO_2 and requires high temperatures that cannot currently be generated without FFs.

3.1.8. Metal Extraction and Its Social Injustices

A shift to the RE technologies covered here would simply increase society's dependence on non-renewable resources—not just FFs but also more metals and minerals, adding massive exploitation of the geosphere to the existing over-exploitation of the atmosphere [17]. The demand for minerals is expected to rise substantially through 2050. Hund et al. [18] project increases of up to 500% from 2018 production levels, particularly for those used in energy storage (e.g., lithium, graphite, and cobalt), and a recent International Energy Agency (IEA) [82] report estimates that reaching "net zero" globally by 2050 would require six times the amount of mineral resources used today. This would entail a quantity of metal production—requiring considerable FF combustion—over the next 15 years roughly equal to that from the start of humanity until 2013 [17].

The explosion in demand is already underway. Michaux [19] shows that the production/consumption of industrial minerals increased by 144% between 2000 and 2018; precious metal consumption is up by 40% and base metal consumption by 96%. However, both the rate of mineral discovery and the grade of processed ores are well into decline. Michaux concludes that "global reserves are not large enough to supply enough metals to build the renewable non-fossil fuels industrial system or satisfy long term demand in the current system". Clearly, without extraordinary advances in mining and refining technology, the 10% of world energy consumption currently used for mineral extraction and processing would rise as poorer and more remote deposits are tapped [17].

Social injustices abound in the production of current so-called RE technologies, confounding demands for social justice in the energy transition. Much of the mining and refining of the material building blocks of so-called renewables takes place in developing countries and contributes to environmental destruction, air pollution, water contamination, and risk of cancer and birth defects [20]. Low-paid labor is often the norm, as is gender inequality and the subjugation and exploitation of ethnic minorities and refugees [20]. Mining often relies on the exploitation of children, some of whom are exposed to risks of death and injury, are worked to death in e-waste scrapyards, or drown in waterlogged pits [20]. Land grabs and other forms of conflict and violence are routinely linked to climate change mitigation efforts around the world [21]. In short, while so-called RE technologies may deliver cleaner point-of-use conditions in the Global North, substantial ecological costs and social damage have been displaced to the Global South [20]. As the push for "green" energy and technology intensifies, such harms are increasingly spilling over into North America and Europe [21].

3.1.9. Problems with Technological Carbon Sequestration

Carbon capture and storage (CCS) and direct air capture (DAC) are widely advanced as mechanisms for removing carbon. Like all other so-called RE technologies, both carry hidden costs and problems. CCS presupposes the continued use of FFs, which is problematic given FFs' rapidly declining EROI and environmental and human health concerns. Both CCS and DAC pose energetic, ecological, resource, and financial problems. Over their life cycles, some technologies emit more CO_2 than they capture [83]. It would cost around $600 billion to capture and sequester 1 Gt of carbon [84]. The largest DAC facility in the world captures only 4000 t CO_2 per year, which is 0.000004 Gt [83]. A larger plant is now being engineered but will still capture only one Mt (0.001 Gt) of CO_2 annually [85]. These quantities are minuscule in comparison to what is needed: the world emitted roughly 38 Gt CO_2 in 2019 [86]. Vast quantities of natural resources and land would be needed to scale up such operations. "Renewably" powered DAC alone would use all wind and solar energy generated in the United States in 2018—and this would capture only one-tenth of a Gt of CO_2 [83]. Advocates of CCS and DAC also largely ignore their ecological impacts, including the transportation, injection, and storage of CO_2 in the Earth, as well as potential groundwater contamination, earthquakes, and fugitive emissions.

3.1.10. Hidden Fossil Fuel Subsidy

Every so-called RE technology today is subsidized by FFs throughout its entire life cycle. The metals and other raw materials are mined and processed using petroleum-fueled, large-scale machinery. These metals and raw materials are transported around the world on cargo ships that burn bunker fuel and on trucks that are powered by diesel and travel on roads constructed with FFs. Manufacturing processes use very high temperatures that can only be generated reliably and at scale from FFs. Finished products are transported from manufacturing to installation sites on trucks powered by diesel and, in the case of industrial-scale wind turbines, nuclear facilities, and hydroelectric dams, erected on-site with large petroleum-fueled machinery. At the end of their lives, they are then deconstructed, oftentimes with FFs, and transported to landfills or recycling facilities on large petroleum-fueled trucks. There is no possibility that all these FF-demanding processes

can be replaced by renewable electricity in the foreseeable future, let alone on a schedule consistent with the Paris Agreement.

3.1.11. Performance Gains in Energy Extraction

Moore's Law, which states that the number of transistors on a microprocessor chip will double every two years or so, has driven the information technology revolution for 60 years. This accounts for the billion-fold exponential increase in the efficiency of microchips in storing and processing information.

Moore's Law is sometimes used to assure society that there can be equivalent exponential increases in future renewable energy output [32]. Regrettably, the analogy does not hold—Moore's law is irrelevant to the physics of energy systems. Combustion engines are subject to the Carnot Efficiency Limit, solar cells are subject to the Shockley–Queisser Limit, and wind turbines are subject to the Betz Limit. Bound by the Shockley–Queisser Limit, a conventional, single-junction PV cell can convert a maximum of only about 33% of incoming solar energy into electricity (multi-layered solar cells could theoretically double this efficiency but can be orders of magnitude more expensive; useful in space exploration, they are impractical for large-scale terrestrial applications) [87,88]. State-of-the-art commercial PVs achieve just over 26% conversion efficiency—close to their theoretical efficiency limit. The Betz Limit states that the theoretical maximum efficiency of a wind turbine is just over 59%, meaning that blades can convert at most this amount of the kinetic energy in wind into electricity [89,90]. Turbines today exceed 45% efficiency, again making additional gains difficult to achieve.

Starry-eyed optimists who argue that the amount of solar radiation that reaches the Earth's surface far exceeds global energy consumption confuse total energy flow with practical harvestability and thus generally ignore the limiting laws of physics.

3.1.12. The Liquid Fuels Question

Liquid fuels currently account for 81% of non-electric global energy consumption. It is highly unlikely that synthetic liquid fuel substitutes for FFs can be produced sustainably in any more than small quantities for niche applications. This is highly problematic, as modern urban civilization is dependent on highway transportation for essential supplies. As noted above, battery-powered cars and, in particular, trucks have serious limitations and raise many questions regarding resource use and manufacturing. We must also ask how asphalt roads and highways—made of petroleum-based products and laid with heavy machinery—will be maintained and built in the future. Like the bright green dream of electrified transportation, synthetic substitutes for liquid FFs pose myriad problems.

3.1.13. Biofuels vs. Food Production

The current population—and projected growing populations—can only be fed by using an array of fossil-fueled subsidies. The FF-based synthetic pesticides, herbicides, and fungicides, not to mention the petroleum-fueled heavy machinery, responsible for The Green Revolution have allowed for much higher agricultural outputs per unit of land area—at great ecological cost—than was previously attainable. Today's global food distribution system also relies on liquid-fossil-powered transportation and refrigeration systems. Clearly, removing FFs from the agricultural system would result in significantly reduced output. Even if a global one-child policy were enacted soon, we would still have eight to 3.5 billion mouths to feed by the end of the century [91]. Even under such an optimistic scenario, virtually every square inch of arable land would have to be dedicated to food production. This would ethically prohibit the widescale production of fuels like bioethanol and biodiesel. (It is scandalous that 40% of the U.S. corn crop is dedicated to heavily subsidized, carbon-emitting ethanol production, with virtually no net energy gains over the history of its production [92,93]). The delay in enacting, or the absolute failure to enact, fertility reduction policies, particularly in high-fertility countries, raises the specter of an even more dire scenario.

3.1.14. The Pipedream of Other Synthetic Fuels

Algae is not a solution to our liquid fuel needs [29]. More energy is consumed to cultivate the algae than it usefully generates. Major technical difficulties still need to be overcome despite 60 years of research. Protozoans that invade a pond can eat all the algae within 12–18 h. The National Research Council concluded that scaling up algal biofuel production to replace even 5% of U.S. transportation fuel would place unsustainable demands on energy, water, and nutrients. The U.S. Department of Energy found that "systems for large-scale production of biofuels from algae must be developed on scales that are orders of magnitude larger than all current world-wide algal culturing facilities combined".

Nor is synthetic hydrogen an option. As discussed earlier, hydrogen is also a net energy sink and is extremely difficult to transport and store.

3.1.15. Electrification of Transportation

Electrifying the rail freight system seems improbable [29]. The current U.S. fleet of 25,000 mostly diesel–electric locomotives would use as much grid electricity as 55 million electric cars. Electrifying major routes (160,000 of the 200,000 miles of tracks) would require the energy equivalent of that generated by 240 power plants (keeping in mind, too, that railway load is one of the most difficult for an electric utility to cope with). It would also require a national grid—which does not yet exist—or at least a much-expanded grid.

An all-electric passenger rail system is equally improbable. Just as with freight, it would require an expanded grid. Passenger trains are highly inefficient due to the constant stopping and accelerating [94] and are extremely costly. California's planned high-speed rail connecting the length of the state was originally estimated to cost $33 billion but, by 2019, the price tag had ballooned to $79 billion. Annual operation and maintenance costs are currently pegged at $228 million [95].

With accelerating climate change, possible food shortages, no viable alternatives to FFs, and the time when "the trucks stop running" not far off [29], the prospects for our globalized, transport-based, just-in-time urbanized civilization are dire [96].

4. Summary and What Might Actually Salvage Civilization

We have exposed fatal weaknesses in society's dominant aspirational pathway for combating climate change. The GND illusion paints a picture of "affordable clean energy" that ignores innumerable costs that cannot be afforded by any reasonable measure. It suggests solutions to the climate–energy conundrum that are impossible to deliver with current technologies, and certainly not within the timeframe specified by the IPCC and Paris Agreement.

Not only is the GND technically flawed, but it fails to situate climate disruption within the broader context of ecological overshoot. Anthropogenic climate change is merely one symptom of overshoot and cannot be treated in isolation from the greater disease. The GND offers little more than a green-washed version of the unsustainable growth-based status quo. Even if feasible, its operationalization would only exacerbate human ecological dysfunction.

What, then, might actually salvage a fossil-dependent world in overshoot? The answer is both stunningly simple and wretchedly complex: the world must abandon neoliberal capitalism's material growth imperative and face head-on that material life after fossil fuels will closely resemble life before fossil fuels. Put another way, we must act on the ecological imperative to achieve one-Earth living. This entails moving on three broad fronts.

4.1. Energy Realism

First, we must relinquish our faith in modern high technology and instead shift our attention to understanding what a genuinely renewable energy landscape will look like. As noted, the so-called RE technologies being advanced as solutions are neither renewable nor possible to construct and implement in the absence of FFs. They are not carbon

neutral and will simply increase human dependence on non-renewable resources and cause unacceptable social and environmental harm.

Truly renewable energy sources will be largely based on biomass (especially wood), simple mechanical wind and water generation, passive solar, and animal and human labor. This means society will have to innovate and adapt its way through major reductions in energy supply. The upside is that new variants on old extraction technologies will be more ecologically sophisticated than today's so-called renewables, closely tuned to essential needs, and cognizant of the conservation imperative. On this latter point, it is important to highlight that approximately 62% of energy flow through the modern economy is wasted through inefficiency [97], and more still is wasted through trivial or at least non-essential uses (think leaf-blowers and recreational ATVs). Globally, per capita energy consumption has increased nine-fold since 1850, though perceived well-being certainly has not. Together, these facts show there is much latitude for painless reductions in energy use.

A reduction in energy means there will be a resurgence in demand for human muscle and draft animals. Denizens of FF-rich societies tend to forget that that industrial energy now does the work that people and animals used to do. How many Americans are conscious of the fact that they have hundreds of "energy slaves", per capita, in continuous employment to provide them with goods and services they have come to take for granted? According to Hagens and White [98], if we ignore nuclear and hydropower electricity, "99.5% of 'labor' in human economies is done by oil, coal, and natural gas" (for a summary of the energy slave concept and various definitions, see [99]). It is again important to highlight the silver lining accompanying this shift. More human labor will mean more physically active lives in closer contact with each other and Nature, which can restore our shattered sense of well-being and connection to the land. Similarly, a waning focus on material progress will allow for emphasis to shift to progress of the mind and spirit—largely untapped frontiers at present with unlimited potential.

On the draft animal side, the number of working horses and mules in the United States peaked at 26 million around 1915—when the human population was about 100 million—only to be gradually replaced by fossil-powered farm and industrial equipment [100]. Should the United States again become as dependent on animal labor, the country may once more need this many draft animals if the population shrinks to 100 million. If human numbers remain in the vicinity of 2021's population of 333 million, the required horse/mule population might be as high as 87 million and require around 172 million acres of land for range and fodder production (note that of the five to 10 million horses in the United States today, only about 15% are working farm or ranch animals [100]).

4.2. Population Reduction

The second front in a one-Earth living strategy is a global one-child fertility standard. This is needed to reduce the global population to the one billion or so people that can thrive sustainably in reasonable material comfort within the constraints of a non-fossil energy future and already much damaged Earth [101,102]. Even a step as seemingly bold as this may be insufficient to avoid widespread suffering, as such a policy implemented within a decade or two would still leave us with about three billion souls by the end of the century [91]. Failure to implement a planned, relatively painless population reduction strategy would guarantee a traumatic population crash imposed by Nature in a climate-ravaged, fossil-energy-devoid world. (A human population crash imposed by a human-compromised environment (not Nature) may already be underway. Controversial studies have documented evidence of falling sperm counts (50%+) and other symptoms of the feminization of males, particularly in western countries, caused by female-hormone-mimicking industrial chemicals; see, for example, [103]).

Concerns over the restriction of procreative freedom, racism, and physical coercion that dominate much of the present discourse on population reduction must be put into perspective. Population is an ecological issue that, if left unchecked, can have catastrophic consequences. The human population growth curve over the past 200 years resembles the

boom, or "plague", phase of the kind of population outbreak that occurs in non-human species under unusually favorable ecological conditions (in our case, the resource bounty made available by abundant cheap energy). Plague outbreaks invariably end in collapse under the pressure of social stress or as crucial resources are depleted [104].

Previous cultures have recognized this fact, along with the need for population regulation, for thousands of years [105,106]. A judicious balance between the freedom and well-being of individuals and society involves knowing when to arc nimbly between these poles as circumstances change. There is perhaps no greater rallying cry for the restriction of certain individual freedoms than the imminent threat of global social–ecological collapse.

Though it hardly seems worth stating, a universal one-child policy applied globally is not discriminatory. Moreover, it is entirely justified when the restoration of ecological integrity for the well-being of present and future generations—of humans and non-humans alike—is the motivation. Fortunately, there is a full toolbox of socially just and humane tools for bringing about the necessary population reduction [107,108]. That some inhumane practices have been used in particular circumstances historically is no reason to ignore the gravity of contemporary overshoot and the ample mechanisms available for sustainable population planning. When it comes to both the environmental and social aspects of overshoot, no other single individual action comes close to being as negatively consequential as having a child [109].

We should note that the human population at carrying capacity is a manageable variable whose magnitude will depend, in part, on society's preferred material standard of living. This is a finite planet with limited productive capacity. A constant, sustainable rate of energy and material throughput will obviously support fewer people at a high average material standard than it will at a lower material standard.

We cannot stress enough that a non-fossil energy regime simply cannot support anywhere close to the present human population of nearly eight billion; this urgently necessitates reducing human numbers as rapidly as possible to avoid unprecedented levels of social unrest and human suffering in the coming decades. (This flies in the face of mainstream concerns that the falling fertility rate in many (particularly high-income) countries is cause for alarm; see, for example, [110]).

4.3. Radical Societal Contraction and Transformation

The third major front of a one-Earth sustainability strategy is a fully transformative plan to reshape the social and economic foundations of society while simultaneously managing a systematic contraction of the human enterprise (the latter to be consistent with Global Footprint Network estimates that humanity is in 75% overshoot). This is necessitated, in part, by the need to phase out fossil energy within a set time and carbon budget. (The situation is becoming increasingly urgent; Spratt et al. [111] argue that little or no budget exists to remain even within 2 °C). Whatever the identified FF budget, it must be rationed and allocated to: (1) essential uses, such as agriculture and essential bulk transportation; and (2) de-commissioning hazardous fossil-based infrastructure and replacing it with renewable-based infrastructure and supply chains.

Other elements of such a plan would include: (3) economic and political restructuring in conformity with the new energy and material realities (e.g., the cessation of interest-bearing debt and possibly even a shift to negative interest; a renewed focus on community building and regional self-reliance; re-localization of essential production and other economic activities; emphasis on economic resilience over mere efficiency; and a down-shifting of control over land and resource use to local self-governing bodies); (4) worker retraining for new forms of work and employment; (5) social planning to ensure a just allocation and distribution of societal resources, as it is inherently unjust for some individuals to appropriate much more than their fair share of the Earth's limited bounty; (6) planned migrations and resettlement from unsustainable dense urban centers and vulnerable coastlines; and (7) large-scale ecosystem restoration. Restoration would serve the multiple purposes of not only creating meaningful employment but also reclaiming

ecosystem integrity for the benefit of humans and non-humans alike, capturing carbon, increasing social–ecological resilience, and increasing the stock of biomass available for human energy consumption. In many respects, this endeavor will resemble Polanyi's [112] Great Transformation (about the emergent dominance of neoliberal market economics) in reverse, all contained within an envelope of ecological necessity.

Actions to embark swiftly, judiciously, and systematically on the transformation will be of a far greater scale and level of effort than WWII mobilization and will involve unprecedented levels of global cooperation. In our view, two main conditions must be satisfied concurrently for such an undertaking to have any chance of succeeding. First, we must have politicians in office who care about people and the planet (i.e., who are not beholden to corporate, monied, or otherwise compromised interests) and who are willing to fight fiercely for ecological stability and social justice. This starts with whom we choose to elect (politicians do not magically fall into office—we put them there), holding them relentlessly accountable, and fighting to get money out of politics. Second, history shows that monied and ruling elites do not relinquish their power willingly—their hand must be forced. Virtually no important gain has ever been made by simply asking those in power to do the right thing. Unrelenting pressure must be exerted such that the people and/or systems in question have no choice but to capitulate to specific, well-thought-out demands. We must reacquaint ourselves with the revolutionary change-makers of the past who, at great cost, delivered for us the better world we live in now through intelligent, direct action and risk-taking.

To adopt a biblical metaphor, it may very well be easier for a camel to go through the eye of a needle than for humanity to shift its prevailing paradigm and embark on a planned, voluntary descent from a state of overshoot to a steady-state harmonic relationship with the ecosphere—in just a decade or two. On the other hand, history shows that virtually all important achievements have only ever arisen from a dogged pursuit of the seemingly impossible. To contemplate the alternative is unthinkable.

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Attachment 2: Summary of Oral Comments at EFSC Draft Proposed Order Public Hearing
Obsidian Solar Center, Request for Amendment 1

August 24, 2023

Name	Organization	Comment
Laurie Hutchinson	Obsidian Renewables	Thanks to Lake County participants for coming. Proposed changes to the site certificate are basic – many of you know, I am the main liaison for this project in Lake county. We have added irrigated land to the project area – we know this is a sensitive issue; there is not a lot of private, irrigated land here. We checked with the landowners to ensure they can move their water right – landowners have provided a letter on the record that they will move the water rights and the DPO requirements for no-net-loss. Other changes are technical. Upgrading of the voltage to 138 kilovolts would occur for either interconnect option. Length of gen-tie line has been adjusted based on micrositing. Siting the substation in Area E in the northern most portion of get farthest away from any residences.
Perry Chocktoot	Council Member	Conflict on this project. Will be recusing himself consistent with past recusal on this facility.
Anne Beier	Council Member	Proposal is to give you options for gen-tie? Response: We will most likely connect with the east set of lines (what RFA1 is requesting). Thanks members of public for attending in person. All previous conditions carry forward so all that is being proposed are minor adjustments to existing conditions, and wildfire, to adjust for the changes in this amendment request.
Richard Devlin	Council Member	In this changing of where water rights are being used, what are the landowner costs and impacts to soils (types and condition of soils)? Is the landowner being compensated? Response: Landowner is being compensated for the land. It's a 5/8 pivot – they are a large landowner. Land close to a viable powerline goes for a premium value.
Marcy Grail	Chair Grail	Appreciates in person attendance. One of the things that I want you to know is that my peers and I take the role very seriously – I don't think anyone would be surprised to know that we are concerned about wildfire, and expertise; we are working with staff to make sure we are holding applicants/certificate holder accountable to meet standards/requirements.
Laurie Hutchinson	Obsidian Renewables	Confirmed that certificate holder agreed to close the record.

11 attendees in the room; 7 participants on the WebEx – no comments received from the public during hearing. Video/Audio file available online at: https://www.youtube.com/watch?v=WH5fWjs_mmk
Obsidian Solar Center RFA1 Public Hearing: Timer 1:49 through 2:06 of video/audio file

Attachment P-3

Draft Amended Revegetation and Noxious Weed Control Plan

Obsidian Solar Center

Revegetation and Noxious Weed Control Plan

Prepared by:

Obsidian Solar Center LLC

5 Centerpointe Drive, Suite 250
Lake Oswego, Oregon 97035

August 2023

TABLE OF CONTENTS

LIST OF TABLES

Table **Page**

Acronyms and Abbreviations

Applicant	Obsidian Solar Center LLC
CWMA	Cooperative Weed Management Area
EPA	U.S. Environmental Protection Agency
Facility	Obsidian Solar Center
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy

1.0 INTRODUCTION

Obsidian Solar Center LLC (Applicant) proposes to construct the Obsidian Solar Center (Facility) in Lake County, Oregon, which would have alternating current generating capacity of up to 400 megawatts and may include battery storage technology. The Facility will be located approximately 8 miles southeast of Fort Rock, Oregon, in the Christmas Valley portion of northern Lake County.

The site boundary contains about 3,921 acres, but approximately 331 acres will not be developed in order to avoid impacts on sensitive resources, or because these areas fall within unused portions of the generation-tie transmission line corridor. Construction of the Facility will disturb approximately 3,590 acres of vegetation within the site boundary, comprising sagebrush shrubland (95.3 percent), sand dune (3.0 percent), non-native forb (1.2 percent), and playa (0.5 percent).

This Revegetation and Noxious Weed Control Plan outlines the objectives, methods, and success criteria that Applicant will use to direct revegetation efforts in areas of soil disturbance not associated with permanent Facility components, and to control noxious weeds on the Facility site. Applicant is coordinating with the Oregon Department of Fish and Wildlife (ODFW) to develop an approach to mitigating permanent habitat impacts on the majority of the area within the site boundary (refer to Exhibit P for details). Applicant's two primary goals are (1) encouraging revegetation within the site boundary to reduce the potential for windblown and water erosion by reestablishing vegetation ground cover and root structure, and (2) avoiding or controlling the introduction and spread of noxious weeds. With the exception of controlling noxious weeds, Applicant is not required to meet specific restoration standards, such as meeting specific success criteria, except as they pertain to Facility permit conditions (e.g., 1200-C Construction Stormwater permit), or conditions of approval to the Site Certificate. However, to help promote use by native wildlife species after construction, Applicant will focus on revegetating with mostly native plant species, to the extent practicable.

Applicant consulted Lake County and the Cooperative Weed Management Area (CWMA) program in developing this plan. Lake County works closely with private landowners and the CWMA to control noxious weeds in Lake County. Section 3.0 provides details of correspondence with the CWMA.

2.0 REVEGETATION METHODS

Applicant will not mow vegetation in most areas within the site boundary prior to starting other construction activities. In some areas, vegetation will be smashed by trucks driving over it, and in other areas where trenching or grading will occur, vegetation will be removed either entirely or to within several inches of the ground. Vegetation root structures and topsoil seed bases will

be preserved in most Facility areas, and additional soil management measures, such as topsoil stripping and segregation, will not be required. In most of these areas, Applicant will allow vegetation to restore "passively," i.e., without re-seeding. Noxious weed prevention and control will be necessary within the site boundary.

Soil disturbances at permanent Facility components, such as inverter pad and substation footprints, will not be restored. However, in other areas with soil disturbance, such as trenches for underground cable installation, "active" restoration, i.e., with re-seeding, may be necessary to ensure timely recovery of vegetation, control erosion, and prevent the establishment and spread of noxious weeds. The following subsections describe the measures and practices that Applicant will employ to actively restore vegetation in areas of soil disturbance, with the exception of noxious weed control.

2.1 Soil Management

Soil management measures will begin at the start of construction. Construction crews will adhere to the soil management measures and practices listed below. Applicant will maintain these measures and practices until the affected areas meet the success criteria detailed in Section 4.2.

- Establish stable surface and drainage conditions and use standard erosion control devices and techniques to minimize soil erosion and sedimentation, including the installation of silt fencing, straw bales, mulch, straw wattle, erosion control fabric, and slope breakers, as appropriate. Applicant will use certified weed-free straw bales, straw mulch, hydromulch, and/or other appropriate weed-free mulch materials.
- Due to the limited extent of grading during construction, and due the relatively narrow areas (approximately 3 feet wide) where trenching will occur, Applicant does not foresee the need to strip and segregate topsoil. However, if large areas of soil disturbance (e.g., 50 by 50 feet or larger) that require revegetation are identified during construction, Applicant may implement topsoil stripping and segregation to preserve topsoil. In such instances, Applicant would strip topsoil (generally defined as the upper 6 to 12 inches of soil) from subsoil, segregate it into stockpiles, and then reapply the topsoil to its original location after construction.

2.2 Revegetation

Applicant will initiate revegetation measures (i.e., re-seeding) in construction disturbance areas that create gaps in vegetation, as soon as appropriate after activities in work areas are completed. For example, Applicant expects to install solar modules on approximately 60-acre portions of the Facility at a time. Therefore, any necessary reseeding would occur in the next approved seeding window (refer to Section 2.2.1) after construction activities in each 60-acre area are complete. Applicant may delay some revegetation activities based on seasonal considerations or weather conditions. Areas that require re-seeding that cannot be done so promptly will be stabilized with

mulch or otherwise treated to minimize erosion, if necessary, until seeding can be conducted. Applicant will implement measures to prevent the establishment and spread of noxious weeds (refer to Section 3.0) in conjunction with re-seeding efforts.

2.2.1 Seed Mixture

Applicant will consult the ODFW to develop a final seed mixture appropriate for revegetation efforts on the Facility site. Table 1 provides Applicant's preliminary proposed revegetation seed mixture developed by consulting the Natural Resources Conservation Service office in Lakeview, Oregon (Corning 2019) and the Lake County CWMA (Jaeger 2019). Applicant may modify this preliminary seed mixture ahead of revegetation at the request of landowners, Lake County, or further coordination with the CWMA or ODFW. The seed mixture may be modified in consultation with ODFW and LCCWA if nonnative seeds (like Crested Wheatgrass and/or Covar sheep fescue) may be needed to more aggressive respond to noxious weeds. The preliminary seed mixture uses four native and one non-native species that are adapted to the conditions of the Facility site to help ensure the greatest probability of germination and long-term survival. All plant materials shall meet the following requirements:

- Seeds will be "source identified." The original source for the seed mixture(s) should be the Northern Basin and Range ecoregion. The seed should be a locally adapted biotype, adapted to conditions similar to the Facility site.
- Seed will be certified "weed-free."
- Seed application rates presented in Table 1 assume that drill seeding methods will be employed. If broadcast seeding methods are used, the seed application rates in Table 1 will be doubled.

Table 1 Preliminary Revegetation Seed Mixture

Common Name	Latin Name	Variety	Pure Live Seed Pounds per Acre[1]	Purpose
Bluebunch wheatgrass	*Pseudoregneria spicata*	Secar	4	(N) (EC)
Thickspike wheatgrass	*Elymus lanceolaus*	Critana	4	(N) (EC)
Indian ricegrass	*Achnatherum hymenoides*	Nezpar	3	(N) (EC)
Basin wildrye	*Elymus cinereus*	Magnar	4	(N) (EC)
Crested Wheatgrass	*Agropyron desertorum*	Hycrest	4	(I) (EC)
TOTALS			**19**	

Notes to Table 1:

[1] assume drill seeding methods will be employed. If broadcast seeding methods are used, the seed application rates in Table 1 will be doubled.

Key: (N) = Native, (I) = Introduced, NA = not applicable, (EC) = Erosion Control

2.2.2 Seed Planting Methods and Schedule

Applicant will apply the proposed seed mixture (Table 1) at an approximate rate of 19 pounds per acre (for drill rate; double the rate for broadcast or hydroseeding). Applicant may employ a combination of broadcast seeding, drill seeding, and hydroseeding, depending on slope and other site conditions. Applicant may apply straw mulch, hydromulch, and/or other appropriate weed-free mulch material, as needed, immediately after seeding. When hydroseeding, Applicant will add green-dyed, wood-fiber mulch to the slurry mixture at a rate of 1,000 pounds per acre. In addition to serving as a carrying agent for the seed, the biodegradable green mulch serves as a tracer for visually checking distribution to ensure uniform coverage of the disturbed areas.

Applicant will attempt to conduct re-seeding efforts in November to early March in order to take advantage of soil moisture needed for germination by April. Reseeding may occur in February to early April, depending on weather conditions, for construction activities completed during the winter. In areas where crews complete construction activities from mid-April to early November, re-seeding will occur in October or early November. If construction crews complete activities during time periods that do not allow for prompt re-seeding, the affected areas will be stabilized with mulch or otherwise treated to minimize erosion, if necessary, until seeding can be conducted.

3.0 NOXIOUS WEEDS

Invasive, non-native plants are opportunistic, may readily colonize disturbed areas, and can inhibit native plant species from re-establishing. Invasive plants may have significant adverse impacts on agricultural operations and on natural resources, including wildlife habitat. Lake County and the State of Oregon designate certain invasive plant species with elevated economic or environmental concerns as noxious weeds and prioritize these species during weed management planning and operations.

The Oregon Department of Agriculture designates three categories of noxious weeds: “A” list species, “B” list species, and “T” species (ODA 2018). A-listed weeds are economically important and occur in the state in small enough infestations to make eradication or containment possible, or are rare species not known to occur in the state but have a presence in neighboring states, making future occurrence imminent. B-listed weeds are economically important and regionally abundant, but may have limited distribution in some counties. T-designated weeds are selected by the Oregon State Weed Board to be the focus for prevention and control by the Noxious Weed Control Program. T-designated noxious weeds are species selected from either

the A or B lists. Refer to ODA's 2018 Noxious Weed Policy and Classification System for a list of state-designated noxious weeds. In addition, Lake County maintains a list that designates three categories of Noxious Weeds: "A," "B," and "C" (Lake County 2018). The County's "A" and "B" designations are similar to ODA's definitions, and the "C" category denotes species that are of economic importance and are abundant county-wide and in neighboring counties. Note that there is only partial overlap between the ODA's and the County's weed designations for each species (e.g., a species may have one designation per the ODA and another per the county).

Applicant consulted Lake County and the CWMA program in developing this plan. Lake County works closely with private landowners and the CWMA to control noxious weeds in Lake County (Johnson 2018). Applicant provided draft noxious weed measures for the Facility to the CWMA program contact, who provided feedback. The CWMA's primary concern is to prevent the spread of noxious weeds to adjacent agricultural areas. With regards to specific noxious weed species, the CMWA is most concerned about the introduction and spread of diffuse knapweed (*Centaurea diffusa*) and spotted knapweed (*Centaurea maculosa*) (Jaeger 2018, 2019). Although diffuse knapweed is a category "B" on the state list, Lake County considers this species to be category "A." The CWMA offered to coordinate with Applicant to further refine noxious weed control approaches for the Facility during construction and operation (Jaeger 2018).

Applicant intends for the measures described in this section to meet the requirements of Lake County, prevent the introduction of new noxious weed species to the Facility site, and control existing populations of noxious weeds, where feasible.

3.1 Prevention and Control Measures

Applicant will implement noxious weed control measures in accordance with existing state and Lake County regulations. Applicant will attempt to prevent and eradicate new populations of noxious weeds that are identified during construction or operation, and that are caused by the Facility. Applicant's consultants did not document noxious weed populations during habitat mapping efforts and other field surveys within the site boundary (refer to Exhibit P, Appendix P-1). Should noxious weeds be identified within the site boundary prior to, during, or after construction, the goal will be to prevent further spread, unless eradication is feasible.

Applicant will implement the following measures, as appropriate:

- **Environmental training**: Conduct environmental awareness and sensitivity training before soil and vegetation disturbance activities to educate all personnel regarding environmental concerns and requirements, including weed identification (particularly diffuse knapweed), prevention, and control methods. Qualified personnel will conduct this training.
- **Pre-construction surveys and reporting**: Conduct surveys for designated noxious weeds within proposed Facility disturbance areas concurrently with other pre-construction surveys, such as pre- construction surveys for migratory bird nests. Noxious weed surveys shall record observations of Boggs Lake hyssop. Survey report(s) shall be submitted to the

Department and Oregon Department of Agriculture – Native Plant Conservation Program contacts.

- **Signage**: Demarcate any problem noxious weeds areas on the site (e.g., infestations of ODA or Lake County category A species, or potentially large but well-defined areas of ODA or Lake County category B, C, or T species) with signs, as appropriate.
- **Pretreatment**: Prior to vegetation or soil disturbance, Applicant may treat areas of known noxious weeds with herbicides or manually remove them, if practicable.
- **Treatment during construction**: During construction, Applicant may treat identified new noxious weed populations, as necessary. Treatment methods and timing will be based on species-specific and area-specific conditions (e.g., proximity to water, agricultural areas, topography, land use, and time of year) and will be coordinated with and follow requirements and guidelines of Lake County or the ODA.
- **Clean vehicles/equipment**: Personnel will thoroughly clean all vehicles and equipment of soil and plant material before mobilizing to the Facility site, and will clean all clearing and grading equipment prior to leaving any identified noxious weed sites.
- **Cleaning station**: If some vehicles or equipment cannot be cleaned prior to mobilization to the Facility site, and pre-construction surveys have identified multiple problem noxious weed areas, Applicant will construct a fixed water cleaning station at the point of Facility site entry for construction equipment and vehicles. The Facility environmental inspectors and management staff will determine the need for a fixed water cleaning station, taking the findings of pre-construction surveys into consideration. The water cleaning station will use high-pressure water over a non-permeable synthetic fabric so that the soil and plant material from the cleaning operation can be removed and disposed of without contaminating the underlying soil. Cleaning efforts will be concentrated on tracks, feet, or tires and on the undercarriage, with special emphasis on axles, frames, cross members, motor mounts, the underside of running boards, and front bumper/brush guard assemblies.
- **Mobile cleaning stations**: As needed, construction crews will clean seeds, roots, and rhizomes off equipment and vehicles used to move vegetation and topsoil in identified noxious weed-infested areas during the clearing phases before proceeding to other parts of the Facility site. In most infestation locations, personnel will clean vehicles with compressed air.
- **Weed-free stray bales**: The contractor will ensure that all straw bales used for sediment and erosion controls, mulch distribution, and restoration seed mixes—if used—are certified as weed-free from the supplier.
- **Post-construction monitoring:** After construction, during operation, Facility staff will monitor for noxious weeds and treat weeds, as appropriate. If needed, a state-licensed weed control contractor will be used to treat noxious weeds.

3.2 Treatment Methods

Noxious weed treatment methods typically include manual methods (e.g., pulling plants by hand

or clipping seed heads), mechanical methods (e.g., mowing or burning), chemical methods (i.e., application of herbicides), or biological methods (e.g., introduction of insects for biological control). For construction and operation of the Facility, Applicant expects to utilize manual or chemical weed control methods only. Applicant will coordinate with Lake County and the CWMA to determine appropriate treatment methods and schedules. The decision to use either manual or chemical methods will depend on a variety of factors, including the species of the noxious weed population, the density and geographic extent of the population, and the location of the population in relation to other sensitive resources (e.g., proximity to waters or sensitive crops).

If manual control methods are used, any removed plant parts, including seeds, roots, and rhizomes, will be removed from the Facility site and disposed of properly. If herbicide treatment is necessary, Applicant will only use herbicides that are approved for use in the state of Oregon by the U.S. Environmental Protection Agency (EPA) and the ODA. Applicant will notify landowners of the herbicide proposed for use on their lands and obtain approval prior to application. Applicant will apply herbicides to treatable noxious weed populations as described below.

Applicant will hire a state-licensed weed control contractor to apply herbicides according to EPA and ODA standards. In general, herbicide application will not occur when the following conditions exist:

- Wind velocity exceeds 15 miles per hour for granular application or 10 miles per hour for liquid applications;
- Snow or ice covers the foliage of target species; or
- Adverse weather conditions are forecasted in the next few days.

The weed control contractor will use vehicle-mounted sprayers (e.g., handgun, boom, and injector) mainly in open areas that are readily accessible by vehicle. They may use hand application methods (e.g., backpack spraying) in areas not accessible by vehicle. Equipment will be calibrated prior to spraying and periodically during spraying to ensure proper application rates.

The state-licensed weed control contractor will follow all applicable state requirements and guidelines in effect at the time.

4.0 MONITORING, SUCCESS CRITERIA, AND REPORTING

As stated above, after construction of the Facility Applicant will comply with the requirements of specific Facility permit conditions, including the 1200-C Construction Stormwater permit, and of any applicable conditions of approval to the Site Certificate. In addition, Applicant will comply with state and county requirements to control noxious weeds. Applicant's primary goals for post-construction monitoring are (1) meet the Oregon Department of Environmental

Quality's final vegetative stabilization measures, as will be described in the 1200-C Construction Stormwater permit, and (2) avoid the introduction to or spread from the Facility of noxious weeds. Applicant will include mostly native plant species within the seed mixture to revegetate the Facility site to help promote use by native wildlife species after construction.

4.1 Monitoring

Applicant will conduct revegetation and noxious weed monitoring. The purpose of monitoring is to evaluate soil stability, vegetation composition and cover, and occurrence of noxious weeds within areas of construction-related soil disturbance.

Vegetation will be allowed to reestablish on most portions of the Facility. The monitors will inspect and record general (visual) observations of revegetation success across the entire Facility site. More detailed observations may be recorded in portions of the Facility site boundary where Applicant conducted reseeding activities.

The monitors will survey a representative sample of Facility areas (including both revegetated and undisturbed areas) annually to gauge revegetation success and noxious weed control needs. In addition, monitors will survey for noxious weeds along all perimeter and main internal access roads.

Monitoring will begin in the first year following initial revegetation of disturbance areas and continue until the revegetation areas meet the success criteria (refer to Section 4.2). If areas do not meet success criteria within five years, Applicant will coordinate additional monitoring with Lake County and notify the Oregon Department of Energy (ODOE).

During revegetation monitoring surveys, monitors will collect the information listed below from representative monitoring locations, including along main access roads and areas of especially heavy disturbance, as well as at sample plots across the Facility site (one sample plot per quarter-section, or 160 acres). One sample plot will be randomly selected from a grid of 10 square 16-acre (approximately 0.025 square miles) plots within each quarter-section. The sample plots will be compared with reference sample plots in undisturbed areas of the same habitat type within the site boundary (i.e., avoidance areas).

- Confirmation that all disturbance areas requiring active revegetation have been re-seeded;
- Visual estimates of:
    - Percentage of total vegetative ground cover of individual plant species in two categories (grasses/forbs and shrubs), and
    - Percentage of bare soil;
- Presence of noxious weeds species (including density and geographical extent of populations); and

- Presence of windblown or water erosion problems that require additional measures.

Applicant will maintain records of monitoring results and assess the progress of vegetation establishment. If the field observations indicate that the revegetation efforts are not trending toward success, the monitors will describe remedial measures—including additional re-seeding—to correct deficiencies or shortcomings. Following each monitoring event, Applicant will implement remedial measures, as needed. The nature of the remedial actions will depend on the specific issues that arise. Applicant will report recommended remedial action in an annual report to ODOE (refer to Section 4.2). Applicant will implement warranted remedial actions promptly, taking into account the season, weather conditions, and other site-dependent constraints.

4.2 Success Criteria and Reporting

The success criteria for revegetation efforts will largely be driven by the Oregon Department of Environmental Quality's requirements in the 1200-C Construction Stormwater permit. The success criteria for noxious weed control will be based on qualitative observations to attempt to comply with Lake County and ODA recommended actions to control each category of noxious weed (ODA 2018; Lake County 2018).

Applicant will use the following criteria to determine success of revegetation efforts, unless instructed to use other criteria by Lake County or ODA:

1. The vegetation percent cover (both seeded and naturally recruited) is approximately 70 percent or more, or not substantially less than the percent vegetation cover of surrounding undisturbed areas.
2. State- or County-listed noxious weeds are absent or constitute only a very small percentage (e.g., less than 1%) of vegetation otherwise dominated by native or desirable non-native species, unless the noxious weeds present are similar to pre-construction conditions or adjacent undisturbed areas.
3. The percentage of bare soil in the sample plot is not substantially greater than the percentage of bare soil in surrounding undisturbed areas.

In general, Applicant will consider restoration successful when the restored areas are similar to surrounding undisturbed areas in vegetation percent cover and erosion potential, and noxious weeds are not dominant in the plant community (or the noxious weeds present are similar to pre-construction conditions).

Applicant will prepare a Revegetation and Noxious Weed Control Monitoring Report annually, following the initial re-seeding effort until success criteria are achieved. Each annual report will be submitted to ODOE and will summarize field data collected during field visits and assess

whether revegetation efforts are meeting the success criteria. The reports will also document remedial actions taken to date, additional remedial actions planned for areas that are not trending toward success, and the anticipated dates of completion of each of these actions. Once the Department determines that revegetation and noxious weed control is successful, certificate holder will report this in the relevant annual report. Upon reaching success, Applicant will have no further obligation to monitor revegetation of the Facility site. Noxious weed control will continue for the life of the Facility, as required by county and state regulations.

5.0 REFERENCES

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Attachment X: Draft Amended Wildfire Mitigation Plan

Draft Amended Wildfire Mitigation Plan
Obsidian Solar Center

November 17, 2023

Contents

The Oregon Department of Energy (Department) provides this Draft Wildfire Mitigation Plan based on the information presented in the application for site certificate (ASC) for the Obsidian Solar Center.

1.0 Facility Summary

Obsidian Solar LLC (certificate holder), a subsidiary of Obsidian Renewables, LLC, obtained approval for the construction and operation of the Obsidian Solar Center, a 400-megawatt solar photovoltaic energy generation facility (facility) in Lake County, Oregon near the unincorporated communities of Fort Rock and Christmas Valley. The facility is located on private agriculturally zoned lands in a portion of Lake County currently not covered by a rural fire district.

The requirements of this plan are intended to minimize impacts to fire-service providers and ensure fire-response in the event of both structural and non-structural related fires at the facility site. To achieve this outcome, prior to construction of the facility, the certificate holder shall:

1) Submit an application for annexation to the Christmas Valley Rural Fire Protection District (CVRFPD) and demonstrate to the Department that the facility has been annexed to be included within CVRFPD's service territory. If the facility is not annexed within CVRFPD's service territory, certificate holder shall execute a contract with CVRFPD for fire-response services at the facility; and,
2) Shall demonstrate enrollment as a lifetime member of the High Desert Rangeland Fire Protection Association (RFPA), a non-profit volunteer association, to provide fire protection and response to the site, see Section 3.0 for more details.

   The facility is located in a high-medium wildfire hazard area of Lake County due to dry, arid environmental conditions. The objective of this draft Plan is to provide the information necessary for facility personnel to maintain a safe workplace, to reduce the risk of fire hazards, and workplace emergencies. This plan applies to the applicant, all facility personnel, contracting employees, contractors, and any other personnel working at the facility.

2.0 Fire and Emergency Responders Contact List

Service Provider (w Notes)	Location/Distance from Facility	Contact Info
Law Enforcement		
Lake County Sheriff's Office – Primary law enforcement provider for the analysis area. Full law	Lakeview, Oregon (Main	

Service Provider (w Notes)	Location/Distance from Facility	Contact Info
enforcement services that operate a 24-hour 911 dispatch center for fire, police, and medical emergencies	office); Silver Lake, Oregon (Field office); and Christmas Valley, Oregon (annex)	
Oregon State Police – Secondary law enforcement provider for the Facility location	Lakeview and Lapine, Oregon	
Fire Protection		
Christmas Valley Rural Fire Protection District	Christmas Valley, Oregon	
High Desert Rangeland Fire Protection Association (RFPA)		
Medical Providers		
North Lake County Emergency Medical Services – Ambulance service to St. Charles Health System Hospital	Christmas Valley, Oregon (11 miles from Facility)	
La Pine Community Health Center – No urgent care available at this facility	Christmas Valley, Oregon (16 miles from Facility)	
St. Charles Health System Hospital – Level II Trauma Center	Bend, Oregon (83 miles from Facility)	
Air Ambulance – Applicant will contract with Air Ambulance for emergency helicopter medical transport. The Air Ambulance is able to utilize the Christmas Valley Airport.	Lands at Christmas Valley Airport	

3.0 Fire Prevention Measures: Construction and Operation

To reduce the risk of fire during construction and operation:

- Personnel will be trained in proper fire prevention and control procedures;
- Personnel will be instructed to not leave vehicles and equipment running when not in use (i.e., no idling);
- Any potential incipient fires during construction or operation will be controlled by trained Facility staff. In most cases, Applicant expects to contain fires (but not extinguish) and let them burn out. If needed, additional fire prevention measures will be coordinated with the local service providers;

- Fire suppression: Although stringent fire prevention measures will be in place during construction, the certificate holder is planning for approximately 1 percent of the total consumed water (up to 343,000 gallons total over two years, assuming worst-case conditions, or 686 gallons per construction workday) to be used for fire suppression during Facility construction activities. If more water is required for fire suppression, the certificate holder will halt other activities and divert water amounts to this activity, as needed.

During construction and operation, facility personnel will follow the SOLV Vegetation Management and Fire Prevention Plan (included below), by SOLV, Swinerton Builder's. Provisions in the SOLV Vegetation Management and Fire Prevention Plan include:

- Before the start of each daily shift, at approximately 07:00 a.m. local time, the Technician in charge will check the fire danger posting by the National Weather Service for any Red Flag Warnings for that day. If there is a Red Flag Warning for that day, all mowing activities done with power mowers using metal blades will be halted. The only vegetation mitigation that is allowed during a Red Flag Warning is that done with a string trimmer using nylon string that won't cause sparks.
- If SOLV is performing light work (eg one to two mowers per site), one operator will be designated to turn off the mower at twenty-minute intervals to perform a visual scan of the area mowed, walking approximately 20 yards in each direction and ensuring nothing is burning.
- If fire breaks out onsite, refer to the pocket card and call SOLV's OCC, they will directly contact the emergency services in the area. Use air horns or other methods to alert site personnel of danger. After assessing personal safety, assess if any countermeasures are safe. For example, use fire extinguisher, must be available, and fire is in the incipient period to mitigate small vegetation fire or small equipment fire.

Through its participation in the High Desert RFPA, Applicant will have access to federal excess personal property (FEPP), including excess U.S. Forest Service wildland fire engines and equipment. These are on loan from the federal government for the life of the equipment. Similarly, FFP (fire fighter property) held as excess by the Department of Defense, may be available, potentially modified to suit rangeland needs. Applicant, in consultation with the RFPA and RFPA members near the Facility, will identify a location for the FEPP and FFP such that it is near a main access road and can be easily accessed by Applicant and other RFPA members in the event of fire suppression needs. The most likely location will be at the eastern Facility site access gate just off Oil Dri Road. Alternatively, or perhaps in addition, equipment may be stored just off Connley Lane near the site of the GSU.

As described in Section 1.0, to ensure an ability of fire-response providers to respond to structural fires at the site, the certificate holder must demonstrate, prior to construction, that CVRFPD's service territory has been annexed to include the facility site, or, if annexation does not occur, that a service agreement with CVRFPD for fire-response services at the site has been executed. The certificate holder must provide evidence to the Department of annexation of CVRFPD's service territory or fire-response services contract execution, including the provisions

of any agreement and the term of the agreement. In addition, to ensure an ability of fire-response providers to respond to non-structural fires at the site, certificate holder shall obtain a lifetime membership in the High Desert RFPA. Evidence of lifetime membership shall be provided to the Department on an annual basis.

Design features to reduce the risk of fire from and to the facility:

- Facility perimeter roads within the fenceline will be 20 feet wide with a maintained 10-foot vegetation-free buffer zone (30 feet total vegetation free area) to act as fire breaks and help prevent the spread of potential fires to and from neighboring areas, and would allow for access by emergency vehicles.
- Facility internal array access roads within the fenceline will be 12-feet wide and maintained to act as fire breaks and help prevent the spread of potential fires to and from neighboring areas and would allow for access by emergency vehicles.
- Facility electrical equipment will meet all applicable National Electric Code and Institute of Electrical and Electronics Engineers standards to reduce potential fire risk.
- Facility will be electronically monitored through supervisory and data acquisition system. The Facility will have a supervisory control and data acquisition (SCADA) system. Alarming is one of the primary functions of the SCADA. The SCADA HMI software platform will be programmed with various multi-level priority alarms and programming will dictate who receives notice. For a high priority alarm, for example, the software can push a notice through email or SMS (text message) to all operators, operational managers, and asset managers, and perhaps even the Facility owners. Alarms will be provided for electrical hazards, fire, and other operational issues. Facility operator is immediately notified by alerts generated by the monitoring platform when any equipment goes off-line for any reason. This enables immediate safety responses to be initiated in the event the equipment functionality is compromised by fire.
- The Facility will have signage that includes safety information at all entrances to the Facility for emergency responders to identify the location of system disconnects, location of electrical conduit, and the ability to isolate and shutdown electrical power coming from the PV array.

During Facility operation, the site, including the facility components and transmission line, will be inspected periodically consistent with the SOLV Vegetation Management and Fire Prevention Plan (included below), by SOLV, Swinerton Builder's. O&M operator Vegetation and electrical equipment will be inspected (visual inspection and infra-red scanning, as appropriate for the particular area) and vegetation will be managed with mowing and spraying as necessary to avoid any hazardous conditions. SOLV will also be notified via the SCADA system, which provides constant electrical equipment monitoring.

During operations, the system operator will periodically offer training to area firefighters on the system operation and safety practices.

4.0 Emergency Response Measures: Construction and Operation

Prior to construction of the proposed facility, the certificate holder shall contact Lake County Sheriff's Office Annex in Silver Lake and notify them of the facility location, including access roads used, the facility size, estimated staffing on-site daily, and any potential service needs from the Sheriff's Office.

During all phases of the facility, the certificate holder will work directly with local emergency responders to compile and maintain a current list of adjacent landowners/property owners with contact information. The final Wildfire Mitigation Plan will identify the best notification procedures of adjacent landowners/property owners to provide to local and regional emergency services for emergency notifications, in the event of an ignition or fire at the facility.

During construction, the certificate holder will retain emergency medical technicians on site and will arrange for medical transport during medical emergencies that occur at the Facility. Patients with minor injuries will be treated on site or transported by vehicle to La Pine Community Health Center in the community of Christmas Valley. Patients with moderate injuries will be transported by vehicle to St. Charles Medical Center in Bend. For severe injuries, the certificate holder may use the services of the Air Ambulance to transport patients to Bend.