

EXHIBIT W – Application for Site Certificate

FACILITY RETIREMENT

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

REVIEWER CHECKLIST

(w) Exhibit W. Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant shall include:

Rule Sections	Section	✓
(A) The estimated useful life of the proposed facility.	W.2	
(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition.	W.3	
(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.	W.4	
(D) A discussion and justification of the methods and assumptions used to estimate site restoration costs.	W.5	
(E) For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.	W.6	

EXHIBIT W – Application for Site Certificate

FACILITY RETIREMENT

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

TABLE OF CONTENTS

W.1	INTRODUCTION.....	W-1
W.2	USEFUL LIFE	W-2
W.3	SITE RESTORATION.....	W-2
W.4	COST ESTIMATE.....	W-3
W.5	COST ESTIMATE METHODS AND ASSUMPTIONS.....	W-3
W.6	MONITORING PLAN.....	W-4

APPENDICES

Appendix W-1 Detailed Estimated Unit Retirement Costs (PV Plus Storage)

W.1 INTRODUCTION

Obsidian Solar Center LLC (Applicant) proposes to construct the Obsidian Solar Center (Facility) in Lake County, Oregon, with an alternating current generating capacity of up to 400 megawatts. Refer to Exhibit B for Facility layout information and Exhibit C for Facility location information.

Exhibit W provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(w): *Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1)*. Applicant prepared this exhibit based on a decommissioning bid and technical costing input from Swinerton Renewable Energy (SRE), a division of Swinerton Builders. This exhibit describes the expected operating life of the Facility, how it will be retired, and how the site will be restored at the end of its useful life, and provides an estimate of the total and unit costs of restoring the Facility site. This exhibit also explains how Applicant will manage and monitor hazardous waste during retirement.

Facility owner will provide a final retirement plan to Oregon Energy Facility Siting Council (EFSC) for approval at least 2 years prior to the start of retirement activities. The retirement plan will address all requirements necessary to protect public health and the environment, in addition to other permitting requirements. The retirement plan will include a complete description of all actions that would be necessary to restore the site to a useful, non-hazardous condition.

Executive Summary

As described in Exhibit B, this Application for Site Certificate analyzes the potential impacts from two design scenarios: a stand-alone photovoltaic (PV) solar power generation build-out, and PV solar power generation plus battery storage build-out. This exhibit analyzes the PV plus storage design scenario, which would likely have a greater decommissioning cost due to the footprint and inclusion of battery storage.

This exhibit explains how Applicant can restore the Facility site to a useful and non-hazardous condition and provides the information required by OAR 345-021-0010(1)(w). As described in more detail below, the cost of site restoration for PV solar power generation plus battery storage build-out is expected to be approximately \$19,581,000 (or approximately \$4,994 per acre), expressed in Q3 2018 dollars.

Applicant proposes the following Site Certificate condition of approval related to Facility retirement.

1. 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 or a portion of the site to a useful, non-hazardous condition.

W.2 USEFUL LIFE

OAR 345-021-0010(1)(w)(A) *The estimated useful life of the proposed facility.*

Response: The estimated useful life of the proposed Facility is 30 years.

W.3 SITE RESTORATION

OAR 345-021-0010(1)(w)(B) *Specific actions and tasks to restore the site to a useful, non-hazardous condition.*

Response: For purposes of demonstrating compliance with the Retirement Standard, Applicant defines a useful, non-hazardous condition as a condition consistent with the local comprehensive land use plans and regulations and state environmental regulations that are applicable at the time of the Facility's retirement.

Site restoration will consist primarily of dismantling and removing the aboveground equipment and structures, cutting off cabling up to 3 feet below ground, and restoring the site to its pre-construction condition. Applicant will remove transmission line poles and foundations (installed in the County right-of-way), if not in use by another entity, that are up to 5 feet below grade or as required by the County. Underground cables greater than 3 feet below the ground surface will typically be left in place, as removing them would cause unnecessary habitat disturbance. Transformers and other substation equipment will be removed to be reconditioned for use elsewhere or recycled as scrap metal. The operations and maintenance buildings will be demolished and disposed of in an appropriate manner or converted to agricultural buildings for the use of landowners as appropriate, subject to lease terms.

Battery storage units will be disconnected and removed and the underlying ground restored. Unless the landowners at that time desire to maintain access roads or other gravel-surfaced areas on their private land, gravel-surfaced materials will be removed, the impacted area de-compacted as needed, and the area revegetated as appropriate. Gravel-surfaced materials on public land will be removed, the impacted area de-compacted as needed, and the area revegetated as appropriate. Any exempt groundwater wells, if not in use by another entity, will be abandoned in accordance with applicable Oregon laws and regulations. There are no natural gas or water pipelines associated with the Facility.

None of the materials involved are considered hazardous in nature, and their presence and ultimate removal will leave the site in a non-hazardous condition suitable for other uses. At least two years prior to the date on which Applicant expects to permanently shut down the Facility, Applicant will prepare a site restoration plan and submit it to EFSC for approval.

W.4 COST ESTIMATE

OAR 345-021-0010(1)(w)(C) *An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.*

Response: Appendix W-1 presents the Facility retirement and restoration cost estimate for the PV plus battery storage Facility design scenario. The maximum estimated cost for removal of all improvements to retire and restore the Facility to pre-construction condition is \$19,581,000 in Q3 2018 dollars.

W.5 COST ESTIMATE METHODS AND ASSUMPTIONS

OAR 345-021-0010(1)(w)(D) *A discussion and justification of the methods and assumptions used to estimate site restoration costs.*

Response: Applicant enlisted the help of SRE to develop the detailed unit retirement cost estimates for the Facility. Applicant assumes that components and other materials will be recycled to the maximum extent possible, as also described in Exhibit V. Several components have significant scrap or resale value, but no scrap value was assumed in the estimate. In reality, many Facility components, like transformers, would still have a substantial useful life remaining at the time of Facility retirement and would not be scrapped, but the estimate assumes that any such value is recovered by SRE and therefore is not accounted for in the retirement calculations. The estimate is based on the assumptions, exclusions, and qualifications described below.

The following documents were used to prepare this Indicative Estimate:

- Blymyer layout *Obsidian Solar Center G-100* 2018-09-06.pdf

The following assumptions were included in development of the estimate:

- 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 and non-union and no prevailing wage for all other scopes of work; and
- No scrap or recycling value to the project and site is left vacant.

The following methodology was used in development of the estimate:

- This indicative estimate was developed based on material take-off quantities generated from referenced drawings and/or data. This estimate is based on professional experience and interpretation of project documents, and on SRE's resource data, current in-house information, and SRE's judgment regarding this type of project.

W.6 MONITORING PLAN

OAR 345-021-0010(1)(w)(E) *For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.*

Response: Facility materials and equipment are not expected to cause site contamination by hazardous materials. The Facility will be managed in accordance with a spill prevention plan. Thus, no monitoring plan is required or proposed. Use of hazardous materials on the Facility site will be limited to items used during Facility maintenance (e.g., small amounts of oils, small appliance batteries, small amounts of fuel for back-up generator and operation vehicles, and cleaning solvents). Hazardous materials will be used and stored in a manner that will minimize the chance of accidental release to the environment. Hazardous waste will be disposed of through an appropriate waste disposal service provider.

Appendix W-1
Detailed Estimated Unit Retirement Costs
(PV Plus Storage)

679,603 kw dc - Obsidian Solar Center 08.30.18	Unit Cost	Cost Estimate	Assumption
Cost Estimate Component			
Module Blocks			
Disconnect combiner boxes and ready array for disassembly	\$ 0.00410	\$ 2,786,372	
Remove panels	\$ 0.00410	\$ 2,786,372	1,742,572
Remove racking and steel posts	\$ 0.00500	\$ 3,398,015	679,603 dc
Remove inverters and their foundations (per inverter)	\$ 8,000	\$ 1,280,000	160
Restore site (per acre) (primarily re-seeding disturbed areas)	\$ 200	\$ 260,000	1300 acres
O&M Facilities			
Remove O&M facility (per building)	\$ 40,000	\$ 80,000	2 buildings
Remove fences/gates (per foot)	\$1.25/ft	\$ 118,800	18 miles
Substations			
Remove collector substation(s) (115 Kv; Remove high-voltage collector system junction boxes and foundations)	\$ 400,000	\$ 1,600,000	4 buildings
Battery System			
Disconnect building and prepare for removal	\$ 5,000	\$ 670,000	134 buildings
Remove building and foundation (each)	\$ 25,000	\$ 3,350,000	134 buildings
Restore battery bulding site	\$ 1,500	\$ 201,000	134 buildings
Haul and disposal	\$ 1,000	\$ 67,000	67 trips
Transmission Lines			
Remove aboveground transmission line (per mile)	\$ 300,000	\$ 600,000	2 miles
Road Restoration			
Internal service roads (per mile)	\$ 5,000	\$ 250,000	50 miles
Restore Additional Areas Distributed by Facility Removal			
Restore and seed temporary disturbance areas	\$ 500	\$ 12,500	25 acres
General Costs			
Haul charges and disposal fees (per load)	\$ 1,000	\$ 250,000	250 loads
Permits		\$ 10,000	
Subtotal		\$ 17,720,060	
Mobilization and Supervisory		\$ 177,201	1%
Subcontractor Bonding/Liability Insurance		\$ 221,501	1.25%
General Conditions		\$ 221,501	1.25%
Performance Bond		\$ 177,201	1%
Administration and Project Mgmt		\$ 531,602	3%
Future Developments Contingency		\$ 531,602	3%
Total Site Restoration Cost (current dollars)		\$ 19,580,666	
Total Site Restoration Cost (rounded to nearest \$1,000)		\$ 19,581,000	