

Exhibit X

Facility Retirement and Site Restoration

**Wheatridge Renewable Energy Facility East
December 2022**

**Prepared for
Wheatridge East Wind, LLC**

Prepared by



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Table of Contents

1.0 Introduction..... 1

2.0 Estimated Useful Life of the Project – OAR 345-021-0010(1)(x)(A)..... 1

3.0 Actions to Restore the Site – OAR 345-021-0010(1)(x)(B) 2

4.0 Total Costs, Estimating Methods, and Assumptions 3

 4.1 Estimate of Cost – OAR 345-021-0010(1)(x)(C)..... 3

 4.2 Estimating Methods and Assumptions – OAR 345-021-0010(1)(x)(D)..... 3

5.0 Monitoring Plan – OAR 345-021-0010(1)(x)(E) 5

List of Attachments

Attachment X-1. Wheatridge Renewable Energy Facility East Decommissioning Estimate

Acronyms and Abbreviations

ASC	Application for Site Certificate
Certificate Holder	Wheatridge East Wind, LLC
Facility	Wheatridge Renewable Energy Facility East
met tower	meteorological tower
MW	megawatts
OAR	Oregon Administrative Rules
ODOE	Oregon Department of Energy
RFA	Request for Amendment

1.0 Introduction

The Wheatridge Renewable Energy Facility East (Facility) is an approved, but not yet constructed, wind energy generation facility consisting of up to 66 turbines and related or supporting facilities with a peak generating capacity of up to 200 megawatts (MW), to be located in an Approved Site Boundary of approximately 4,582 acres on over 42,000 acres of leased land in Morrow and Umatilla counties, Oregon. As part of Request for Amendment (RFA) 1 to the Facility Site Certificate, Wheatridge East Wind, LLC (Certificate Holder) is proposing to expand wind power generation at the Facility to provide the opportunity for increased power capacity and availability. This includes expanding the Site Boundary and micrositing corridors, increasing the peak generating capacity by adding more and newer turbines, change the intraconnection routes, and extending the construction date. See the RFA 1's Division 27 document (*Request for Amendment #1 for the Wheatridge Renewable Energy Facility East*) for a more detailed summary of the proposed changes.

This Exhibit X was prepared to meet the submittal requirements in Oregon Administrative Rules (OAR) 345-021-0010(1)(x). Analysis in this exhibit incorporates and/or relies on reference information, analysis, and findings found in the Application for Site Certificate (ASC), previous RFAs, and Oregon Department of Energy (ODOE) Final Orders to demonstrate that the Facility, as modified by RFA 1, continues to comply with applicable Site Certificate conditions and the approval standard in OAR 345-022-0050.

2.0 Estimated Useful Life of the Project – OAR 345-021-0010(1)(x)(A)

OAR 345-021-0010(1)(x) Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant must include:

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

The Energy Facility Siting Council (Council) previously found that the Certificate Holder demonstrated compliance with the Retirement and Financial Assurance standard. The changes proposed in RFA 1 would not result in changes in tasks or actions previously approved by the Council as reasonable for facility decommissioning. The retirement cost estimate for Facility components has been updated (Attachment X-1).

For financial and engineering purposes, the Facility is estimated to have a useful life of at least 50 years. The Facility may be repowered or upgraded during or after that period to extend its lifespan. In the case of a facility upgrade, the Certificate Holder would follow the Council's rules for amending the Site Certificate as defined in OAR Chapter 345, Division 27.

3.0 Actions to Restore the Site – OAR 345-021-0010(1)(x)(B)

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

In the ASC, the Certificate Holder provided a list of specific actions and tasks needed to remove wind turbines and related or supporting facilities and restore the site to a useful, non-hazardous condition. This RFA 1 lists these actions to be taken for the Facility, in the unlikely event that the Certificate Holder elects to retire the Facility.

In accordance with Condition RET-RF-01, prior to retiring the Facility, the Certificate Holder will prepare a final Retirement Plan for approval by the Council. The proposed final Retirement Plan will be submitted to the ODOE at least 90 days prior to Facility retirement, in accordance with Condition RET-RF-02. The Retirement Plan will describe the activities necessary to restore the site to a useful, nonhazardous condition, as described in OAR 345-027-0110(5). After Council approval of the Retirement Plan, the Certificate Holder will obtain the necessary authorization from the appropriate regulatory agencies and landowners to proceed with decommissioning of the site.

Decommissioning will consist of the following steps:

- Dismantle turbines, towers, met tower, and pad transformers; remove and sell for use or scrap where possible.
- Dismantle battery components.
- Dismantle the substations.
- Dismantle aboveground electrical equipment (transmission lines).
- Remove concrete turbine and met tower foundations to a minimum of 3 feet below grade.
- Remove and reclaim Facility roads or leave in place if preferred by landowner.
- Restore surface soils to original condition or as agreed with landowner.

Decommissioning measures will occur in roughly the reverse order as construction. Large aboveground structures such as wind turbines, met towers, and battery components will be dismantled and removed. Metal components, such as turbine towers and nacelles, will have considerable scrap value and will be separated from nonmetal components to be sold for re-use or scrap. Nonmetal components will be recycled to the extent practicable or disposed of at authorized sites (see Exhibit W).

Electrical components including substations and transmission lines, along with their support structures, will be dismantled and removed for off-site disposal. The battery systems will be dismantled and disposed of in the same manner as routine battery disposal. Self-contained battery components will be removed and recycled if possible or disposed of at an approved facility, and containers will be dismantled and removed for offsite recycling or disposal.

Subsurface features including underground collector lines and concrete structures will be removed to a minimum of 2 feet below ground surface or as agreed with the landowner (depending on ground slope), to allow continued use of the land for agricultural purposes. Land will be regraded and restored in accordance with the revegetation plan. Portions of underground equipment below 3 feet will be left in place. Any foundations in Exclusive Farm Use (EFU) zoned lands will be removed to a depth 3 feet below grade. For all infrastructure foundation areas, the area will then be filled with soil or gravel.

Access roads will be reclaimed by regrading and removal of road surfaces, to restore to a condition suitable for agricultural practices in accordance with landowner agreements. If the landowner prefers to retain roads, they will be left in place. Reclamation procedures will be based on site-specific requirements and techniques commonly employed at the time the area is to be reclaimed. As appropriate based on intended use of the land following decommissioning, the land will be reseeded in accordance with the Facility's revegetation plan (see Exhibit P) which will be developed in consultation with the Morrow County Weed Inspector. Vegetation will be restored to the maximum extent practicable, and all areas disturbed by construction shall be landscaped in a manner compatible with the surroundings and proposed use. No forested areas would be impacted. All line structure locations and access roads will be restored to a useful, condition consistent with site zoning. This restoration will include restoring the site to a condition suitable for uses comparable with the surrounding land uses, intended land use, and then-current technologies.

4.0 Total Costs, Estimating Methods, and Assumptions

4.1 Estimate of Cost – OAR 345-021-0010(1)(x)(C)

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

Attachment X-1 provides a detailed Facility retirement and restoration cost estimate for the Facility. The estimated cost of retirement and restoration for the Facility is \$9.5 million (in fourth-quarter 2022 dollars; with ODOE contingencies; see Attachment X-1).

The Certificate Holder's ability to achieve the objectives of the Council's financial assurance rules is described in Exhibit M; Attachment M-2 demonstrates an ability to secure a letter of credit to use towards the cost of site restoration. Decommissioning financial assurances shall be in place prior to the start of construction of the Facility.

4.2 Estimating Methods and Assumptions – OAR 345-021-0010(1)(x)(D)

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

The scope of work and individual tasks were established using professional experience, in collaboration with Certificate Holder's engineering staff and contractors. The Facility retirement is

broken into individual tasks that were each estimated separately to include labor requirements, equipment needs, and duration. Production rates were established using professional experience and published standards that include RS Means¹. Labor and equipment rates prevalent to the geographic area of the Facility were obtained based on U.S. Department of Labor wage determinations. After the estimate was completed, typical average markups that are industry standards were applied for contingency, overhead, and fee.

Estimating methods and assumptions specific to this estimate are as follows:

- Labor costs were developed by reviewing the U.S. Department of Labor wage determinations and rates published by RS Means. Using this method, an average rate is developed that includes base wage, fringe, and payroll tax liability. The final rate used in the estimate is an average of 40 hours of standard time and 10 hours of overtime per week, assuming a 50-hour work week during construction activities.
- Equipment rates used in the estimate are developed by reviewing rates published by RS Means and historical vendor quotes. Rates include fuel, maintenance, and wear and tear of ground engaging components. The rates assume the use of rental equipment, not owned equipment.
- Mobilization and demobilization costs are estimated to be approximately 2 percent of the overall contractor's costs. This reflects the actual cost to mobilize equipment, facilities, and crew to the Facility site, assuming the work is performed by local contractors. This amount does not include the front-loading of costs from other tasks.
- Restoration is estimated on a unit cost basis, priced by task that follows the progression of work from start to finish, as illustrated in Attachment X-1. Unit costs are developed by including the labor, equipment, and production rate required for each individual task. RS Means and estimator experience are utilized to establish the crew, equipment, and production for each individual task.
- Several other miscellaneous costs have been approximated, including permits, engineering, signage, fencing, traffic control, utility disconnects, etc. In the context of the overall estimate, these are incidental costs that are covered in the estimate's contingency.
- Roads would be restored pursuant to the Council-approved Retirement Plan so that they become a part of the natural surroundings and are no longer recognizable or usable as a road. On private lands, roads would be restored at the request of the current landowner.
- The costs for temporary facilities have been included in the restoration cost. These include an office trailer, two Conex storage units, portable toilets, first-aid supplies, and utilities.

¹ www.rsmeans.com

- Field management during construction activities has been added to the estimate. These include one Superintendent, one Health & Safety Representative and two Field Engineers. These positions are critical to the safe and successful execution of work.

5.0 Monitoring Plan – OAR 345-021-0010(1)(x)(E)

OAR 345-021-0010(1)(x)(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.

In the event that the Certificate Holder elects to retire the Facility, the site could be restored to a useful, non-hazardous condition consistent with site zoning, including EFU zoning. The Facility is not expected to cause site contamination with hazardous materials, and no contamination monitoring plan is proposed. The existing facilities could be removed without significant risk of contamination.

Hazardous materials associated with the Facility would largely be limited to oils in turbine gearboxes and transformers, which would be pumped out to a specialized vehicle for recycling prior to removing the equipment. The proposed Facility would not have any underground storage tanks or onsite bulk storage of hazardous materials. Small quantities of lubricants, vehicle fuel, and herbicides might be transported over and across the site during operation, and leaks, spills and improper handling of these materials could occur. Given the small amounts of such materials used at the Facility site, soil contamination is highly unlikely, and therefore a monitoring plan is unnecessary.

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Attachment X-1. Wheatridge Renewable Energy Facility East Decommissioning Estimate

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Attachment X-1: Facility Decommissioning Cost Estimate

Facility Component	Unit Cost	Approved WREFE		Proposed WREFE	
		No. of Components	Total Cost	No. of Components	Total Cost
<i>Wind Facility Components (Approved in 2017)</i>					
<i>Wind Turbines</i>					
Disconnect electrical	\$212	66	\$13,992	106	\$22,472
Remove turbine blades, hubs and nacelles	\$5,900	66	\$389,400	106	\$625,400
Remove turbine towers (per ton of steel)	\$82	11,568	\$948,576	18,579	\$1,523,478
Remove turbine foundations	\$52	1,868	\$97,136	3,000	\$156,000
Remove pad transformers and foundations	\$2,538	66	\$167,508	106	\$269,028
Restore turbine site	\$1,138	66	\$75,108	106	\$120,628
<i>Meteorological Towers</i>					
Dismantle and dispose	\$10,393	5	\$51,965	5	\$51,965
<i>O&M Facilities</i>					
Dismantle and dispose	\$62,886	1	\$62,886	0	\$0
<i>Substations</i>					
Dismantle and dispose	\$188,094	1	\$188,094	2	\$376,188
<i>Transmission Lines</i>					
Above-ground collector lines (per mile)	\$6,459	18.68	\$120,654	0	\$0
Transmission lines (per mile)	\$29,611	63	\$1,865,493	52	\$1,539,772
Junction boxes (per unit)	\$51	60	\$3,060	50	\$2,550
<i>Access Roads</i>					
Road removal, grading and seeding (per mile)	\$23,555	13.63	\$321,055	21.89	\$515,619
<i>Restore Additional Areas Disturbed by Facility Removal</i>					
Grading and seeding around access roads, met towers, and turbine turnouts (per acre)	\$8,706	33.63	\$292,783	54.01	\$470,211
Seeding around collector lines, transmission lines, crane paths and temporary laydown areas (per acre)	\$3,398	144.19	\$489,958	231.58	\$786,909
<i>General Costs</i>					

Permits, mobilization, engineering, overhead	\$465,536	--	\$121,926	--	\$121,926
<i>Wind Facility Components Subtotal</i>					
Subtotal (Q3 2015) =	--	\$5,209,593	--	\$6,582,146	
Subtotal (Q2 2020) =	--	\$5,673,248	--	\$7,090,395	
Subtotal (Q4 2022) =	--	\$6,052,737	--	\$7,647,430	
<i>Battery Storage Systems (Approved in 2018)</i>					
		20MW		30MW	
Field management (per day)	\$1,341	10	\$13,410	15	\$20,115
Battery removal (per day)	\$1,482	9	\$13,338	13	\$19,266
Transport batteries (per battery)	\$1,487	5	\$7,435	7	\$10,409
Battery disposal fees (per ton)	\$200	87	\$17,400	131	\$26,200
Structural demolition (per ton)	\$110	87	\$9,570	130	\$14,300
Transport of demolition waste (per load)	\$1,375	5	\$6,875	7	\$9,625
Structural demolition waste disposal fees (per ton)	\$30	87	\$2,600	130	\$3,900
Concrete breaking and excavation (per cubic yard)	\$46	173	\$7,958	260	\$11,960
Concrete transport offsite (per cubic yard)	\$63	173	\$10,899	260	\$16,380
Underground utility removal (per day)	\$1,101	2	\$2,202	3	\$3,303
Restoration (per cubic yard)	\$33	200	\$6,600	300	\$9,900
<i>Battery Storage Systems Subtotal</i>					
Subtotal (Q3 2018) =	--	\$98,287	--	\$145,358	
15% Subcontractor Markup =	--	\$14,745	--	\$21,804	
Subtotal with Markup (Q3 2018) =	--	\$113,032	--	\$167,162	
Subtotal (Q2 2020) =	--	\$114,595	--	\$170,789	
Subtotal (Q4 2022) =	--	\$131,326	--	\$194,216	
<i>Wind Facility Components and Battery Storage Systems – Summary Total (Q4 2022 Dollars)</i>					
Wind Facility Components (Q4 2022) =				\$7,647,430	
Battery Storage Systems (Q4 2022) =				\$194,216	
Wind Facility Components and Battery Storage Systems (Q4 2022)				\$7,841,646	
(without ODOE Contingencies) =					
<i>ODOE Applied Contingencies</i>					
1% Performance Bond =				\$78,416	

10% Home Office and Project Management =	\$784,165
10% Future Development =	\$784,165
Wind Facility Components and Battery Storage Systems (Q4 2022) (with ODOE Contingencies)	\$9,488,391

Notes: Price escalation based on U.S. Gross Domestic Product Implicit Price Deflator, ChainWeight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast"

(<https://www.oregon.gov/das/oea/pages/forecastecorev.aspx>):

Q3 2015	104.9
Q3 2018	110.6
Q2 2020	113
Q4 2022	128.5

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