

## **APPENDIX A: PRELIMINARY DECOMMISSIONING PLAN**

# **Preliminary Decommissioning Plan for the Horse Heaven Wind Farm**

Benton County, Washington

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# 1 INTRODUCTION

Horse Heaven Wind Farm, LLC (the Applicant) proposes to construct the Horse Heaven Wind Farm (Project), a wind, solar, and battery energy storage project with a nameplate generating capacity of approximately 1,150 megawatts (MW), in Benton County, Washington (Figure 1). The Project would be located on privately held land within an area that encompasses approximately 72,428 acres (Project's Lease Boundary). This preliminary Decommissioning Plan (Plan) provides a description of the decommissioning and restoration phase of the Project, including a list of the primary wind and solar farm components, and sequence of dismantling and removal activities.

## 1.1 Project Background

The Project's wind energy component comprises up to 244 wind turbine generators (Turbines), depending on the Turbine model selected and the final layout determined during the micrositing process. The solar array will include solar modules across up to approximately 6,570 acres, depending on the final technology and layout selected. Other major components for this Project include electrical collection system, up to four project substations, up to two battery energy storage facilities, access roads, up to two operations and maintenance (O&M) facilities, up to four meteorological towers, a supervisory control and data acquisition (SCADA) system and communication systems, and transmission lines as described below.

## 1.2 Anticipated Life of the Project

The economic operating life of the Project is expected to be at least 30 years. Once the Project has met its full design life and is not repowered or retrofitted, it will need to be decommissioned. The following sections provide an overview of the decommissioning work. The process described in this plan may be updated to reflect current best practices at the time decommissioning takes place but will comply with all requirements of the Project's Site Certification Agreement and relevant Washington Administrative Code (WAC).

## 1.3 Decommissioning Plan Objective

At the end of the Project's useful life, the Applicant will decommission the Project, provided it is not repowered or retrofitted in accordance with applicable state and local regulations.

The purpose of this Decommissioning Plan is to establish the protocols for disassembly of the wind, solar, and battery energy storage facility at the end of its useful life and to financially guarantee funding of the decommissioning process so that there is assurance that the site can be restored to a condition as close to a pre-construction state as feasible.

Prior to construction, the Applicant will furnish a financial surety, bond, or other financial instrument in a form and an amount sufficient to ensure the decommissioning of the Project. That financial surety will ensure that in the unlikely event the Applicant is unable to timely or adequately manage the decommissioning process, adequate funds will be available to EFSEC for administering and financing the decommissioning and reclamation process.

This Decommissioning Plan has been created to establish the approach for the following activities:

- Site preparation and obtaining of necessary permits required for the structural dismantling activities;

- Installation of soil erosion and sedimentation control best management practices (BMPs) during and following decommissioning;
- Disassembly and removal of existing Turbines and solar panels;
- Removal of existing aboveground infrastructure (substations, O&M buildings, etc.) associated with the Turbines and solar panels;
- Removal of transmission lines and poles, and aboveground electrical collection lines and poles;
- Restoration or reclamation of Project roads to their pre-construction condition, unless the site owner elects to retain them; and
- Scarification and reseeded of disturbed areas and establishment of vegetation, where applicable, in accordance with the project Revegetation and Noxious Weed Management Plan, as updated.

The preliminary Decommissioning Plan has been developed in accordance with WAC 463-72. Participating landowners will be consulted to determine the scope and extent of reclamation work to be completed. Some Project infrastructure such as access roads may be left in place at the landowners' request.

## **2 DECOMMISSIONING PROCESS PROTOCOL**

When the Project has reached the end of its useful life and no further infrastructure replacements or upgrades are warranted, a detailed plan will be prepared. This plan is intended as a preliminary guide to the steps that will be followed.

### **2.1 Decommissioning Preparation Activities**

In order to establish the detailed plan, a review of existing conditions will be conducted, and a detailed list of components requiring removal will be developed. The Applicant will develop a Storm Water Pollution Prevention Plan (SWPPP) and submit for a National Pollutant Discharge Elimination System (NPDES) permit based on the anticipated disturbances for both demolition and new temporary construction required for component removal. Other permits (such as those that may be needed for impacts to wetlands or other sensitive environmental features) will also be obtained, as applicable.

#### **2.1.1 Erosion Control and Sedimentation Control Measures**

General erosion control measures will be utilized, as appropriate, in the SWPPP and consist of the following BMPs:

- Silt fence or straw wattle will be installed on the downslope and adjacent to sensitive water features.
- Slopes greater than four to one should be protected with erosion control blankets or mulch blankets.
- Stabilization of disturbed soils with seed application.
- Stripped topsoil shall be placed in soil stockpiles and placed in a manner to not interfere with natural drainage to waterways which could promote soil erosion. Topsoil stockpiles should be surrounded by either silt fence or straw wattles. If the stockpile is to remain for an extended period of time, it should be temporarily seeded.
- Temporary construction entrances should be established consisting of 1-inch x 3-inch aggregate to limit off-site tracking of sediment to paved roads.

- Dust control.
- Dewatering activities requiring a filtration bag.

## **2.2 Removal of Facilities**

Decommissioning will include the dismantling and removal of the Turbines, solar arrays, substations, BESS, and all associated aboveground equipment along with below-ground equipment to a depth of not less than 3 feet. Project access roads may be removed and restored or left in place at the discretion of the landowner.

After dismantling the facility, high value components will be removed for scrap value. The remaining materials will be reduced to transportable size and removed from the site for disposal. Unsalvageable materials will be disposed of at authorized sites in accordance with applicable regulations.

Following the dismantling and removal of Project infrastructure, the Applicant will return the Project Area as close to preconstruction conditions as reasonable in accordance with the lease agreement between the landowner and the Applicant.

### **2.2.1 Turbines and Meteorological Towers**

The disassembly and removal of this equipment will essentially be the same as its installation, but in reverse order. For Turbines, the rotor (hub and blades) are removed from the nacelle and, with the help of a smaller crane, turned horizontally and set on the ground. Next, the nacelle will be removed from the top of the tower, followed by each portion of the tower. Turbine tower portions will be sized onsite for transport by regular sized haul trucks (no oversize permits or specialized equipment needed). Once the Turbine rotor has been removed, a crew and small crane will disassemble it into the hub and three loose Turbine blades. When the rotor is disassembled, the blades will be sized for transport by regular sized haul trucks (no oversize permits or specialized equipment needed). The hub can also be removed once it is disassembled from the blades. Turbine foundations will be removed to a depth of not less than 3 feet. The concrete will be reduced in size by excavator attachments and transported for disposal offsite.

The meteorological towers will also be removed in a similar fashion to the Turbines. A small crane will be used to dismantle the structure from the top down and will be loaded onto trucks to be removed from the site.

### **2.2.2 Solar Array**

Solar photovoltaic modules used in the project are manufactured within regulatory requirements for toxicity based on the Toxicity Characteristic Leaching Procedure (TCLP). The solar panels are not considered hazardous waste. The panels used in the Project will contain silicon, glass, and aluminum which have value for recycling. Modules will be dismantled and packaged per manufacturer or approved recycler specifications and shipped to an approved off-site recycler.

Control cabinets, electronic components, and internal cables will be removed. The panels, racks and inverters will be lowered to the ground where they may be transported whole for reconditioning and reuse, or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

Pads will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and concrete to a depth of not less than 3 feet below grade. The remaining excavation will be filled with clean sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding subgrade material. All unexcavated areas compacted by

equipment used in decommissioning shall be decompacted in a manner to adequately restore the topsoil and surface material to the proper density consistent and compatible with the surrounding area and to support revegetation.

Electric wire made from copper or aluminum has value for recycling. Direct current (DC) wiring can be removed manually from the panels to the inverter. Underground wire in the vicinity of the array will be pulled and removed from the ground. Overhead cabling for the interconnection will be removed from poles. All wire will be sent to an approved recycling facility.

All racking and fencing material will be broken down into manageable units, removed from the facility, and sent to an approved recycler. All racking posts driven into the ground will be pulled and removed.

Concrete slabs used as equipment pads will be broken and removed to a depth of not less than 3 feet below grade. Clean concrete will be crushed and disposed of offsite and/or recycled and reused onsite or offsite.

### **2.2.3 Access Roads**

After decommissioning is complete in an area, access roads that were installed or improved will be restored to their pre-existing conditions as appropriate. The Applicant will work with landowners to determine whether the landowner prefers to keep the access roads in place. In the event landowners do not want to keep the access roads, or portions thereof, the access roads will be removed, and the land will be regraded to natural contours. Any geotextile fabric that is encountered during demolition will be taken to an approved landfill.

### **2.2.4 Underground Collection, Communications Systems, and Pad Mounted Transformers**

All underground collection lines buried above not less than 3 feet below the surface will be removed. In order to remove the collection and communication lines, a trench will be opened and the cables pulled out. The cables will be cut into manageable sections and removed from the site.

Pad-mounted transformers will be disconnected from the collection system and Turbines once the electrical system has been shut off and hauled offsite. The concrete pads will be reduced in size by excavator attachments and transported for disposal offsite.

### **2.2.5 Transmission lines, Collection Substations, BESS, and O&M Facilities**

All aboveground structures at the transmission lines, BESS, and collection substation including the conductors, switches, transformers, fencing, and other components will be dismantled and removed from the site. All recyclable materials such as copper wiring or other metals will be transported to approved locations for recycling. Batteries will be recycled if feasible and otherwise will be transported to an approved disposal facility. Additionally, the structures at the Project O&M facilities and BESS will be removed. All concrete foundations will be crushed and transported for disposal offsite. Where feasible, all underground infrastructure associated with the substation or O&M facilities, including underground conduits and grounding wires, will also be removed to a depth of not less than 3 feet.

## **2.3 Salvage and Disposal**

After dismantling the Project, high value components will be removed for scrap value. The remaining materials will be reduced to transportable size and removed from the site for disposal. Materials will be disposed of where disposal is permitted and where there is capacity for the disposal. Generally, Turbines, transformers, electrical components, towers, and solar panels are refurbished and resold or are recycled

for scrap. All unsalvageable materials will be disposed of at authorized sites in accordance with applicable regulations. Decommissioning of the Turbines and solar arrays will include removal and transport of generators, step-up transformers, inverters, and towers offsite for sale or disposal at approved facilities.

## **2.4 Hazardous Materials**

During decommissioning, hazardous materials will be temporarily stored and utilized. These hazardous materials may consist of fuel, lubricating oil, hydraulic oil, propylene glycol, and other materials required for the decommissioning. Also, decommissioning will require the removal of pad-mounted transformers that contain large quantities of cooling fluids, likely consisting of mineral oil. BESS components may contain hazardous materials such as lithium.

Due to the presence of hazardous materials during decommissioning, there is the potential for spills and/or leaks. The primary concerns associated with these spills and/or leaks are the potential impacts to surface and ground water resources and the potential for soil contamination. A Spill Prevention, Control, and Countermeasure Plan (SPCC) will be created for decommissioning. The SPCC Plan will detail the appropriate storage, cleanup, and disposal of hazardous wastes to ensure potential impacts are avoided.

Any wastes generated will be handled and disposed of in accordance with state and local rules and regulations, and the site-specific SPCC Plan. Any monitoring, transportation, or handling of materials will be conducted by trained and qualified personnel utilizing established procedures and proper equipment.

## **2.5 Restoration**

Following the dismantling and removal of Project infrastructure, the Applicant will return the Project site to preconstruction conditions to the extent practicable and as required by lease agreements. The Applicant will implement the following:

- After removal of all foundation materials, the areas will be filled with clean, compatible sub-grade material compacted to a density similar to the surrounding sub-grade material.
- All areas where infrastructure has been removed will be graded and reseeded, as appropriate. The Project's Revegetation and Noxious Weed Management Plan (Appendix N to this application) will be updated to address current best practices for approval by the Washington Energy Facility Site Evaluation Council (EFSEC) and implemented accordingly. Site restoration will include monitoring in accordance with the revegetation plan to review compliance with success criteria and identify any necessary corrective measures.
- Topsoil will be removed prior to removal of structures from all work areas and stockpiled and separated from other excavated material. The topsoil will be replaced to original depth and natural surface contours reestablished. Any topsoil deficiency and trench settling shall be mitigated with imported topsoil consistent with the quality of the affected site.
- Areas compacted by equipment used in the decommissioning may be tilled in a manner adequate to restore the topsoil and subgrade material to a density consistent with the surrounding areas and then will be reseeded. The depth of compaction relief will depend on site-specific conditions.



### **3 DECOMMISSIONING SECURITY**

A detailed estimate of decommissioning costs will be prepared prior to construction for approval by EFSEC, such as a site closure bond, sinking fund, or other financial instrument. The Applicant will provide financial assurance in a form and an amount sufficient for site restoration, including evidence of pollution liability insurance coverage.