

Echanis Wind Energy Project – Restoration and Re-Vegetation Plan

1. Introduction

Echanis, LLC (Echanis) is constructing the Echanis wind power project (Project) in Harney County, Oregon. The wind energy facility is located on private lands. As part of the development of the Project, Echanis will restore and re-vegetate lands disturbed during the construction of the Project under terms of the lease with the landowner and the Conditional Use Permit (CUP) issued to Echanis by Harney County. In addition to elements of the Project located on private land, facilities such as access roads and overhead transmission lines are being constructed to implement the Project on lands administered by the Bureau of Land Management (BLM).

The Restoration and Re-vegetation Plan (Plan) has been prepared to guide re-vegetation efforts associated with portions of the Project's transmission line located on BLM-administered lands as specified under the North Steens 230-kV Transmission Line Right-of-Way (ROW) and as described in the Environmental Impact Statement (EIS), pages 3.3-15 thru 3.3-21 and page 3.3-25. Seed mixes, planting methods, and weed control techniques will be developed specifically for the project area through consultations with affected agencies, reviews of current literature, and site visits by re-vegetation specialists. This Plan also specifies monitoring procedures to evaluate success of re-vegetation efforts, including recommended remedial action should initial re-vegetation efforts prove unsuccessful in certain areas.

This Plan describes procedures for both re-vegetation and restoration. The goal for a specific area (re-vegetation or restoration) will depend on condition of the habitat at the time. For specific discussion of plant types and acreages that occur within the ROW see the North Steens Final EIS pages 3.3-15 thru 3.3-21. For a list of acreages please see page 3.3-25.

2. Project Area

2.1. Project Description

The transmission line project will result in construction and operation of a 230-kV transmission line across approximately 12.1 miles (220.55 acres – 150 foot ROW width) of public lands administered by the BLM, new access roads (8.82 acres), improvement of existing roads (7.18 acres), overland access roads (6.94 acres), and conductor pulling/tensioning sites (2.75 acres).

2.2. Physiography, Geology, and Soils

Of the soils crossed by the transmission line, 33 percent have moderate erosion potential by water and 64 percent have low erosion potential. Wind erosion is moderate in 1.3 percent of the soil units; the rest are rated as slow. The soil units mapped within the ROW for the access roads have a moderate potential in 62.6 percent of the units for water erosion and 0.1 percent for wind erosion. All other soil units within the access road ROWs have low potential for erosion.

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Permanent effects to vegetation from construction will occur primarily in big sagebrush steppe, dwarf sagebrush steppe, and juniper woodlands. Temporary effects to vegetation from construction will occur primarily in big sagebrush steppe and native grassland.

2.3. Land Use

The lands on which the transmission line will be located are both publicly and privately owned. Portions of the transmission line will cross previously disturbed land including agricultural lands and annual grasslands located along State Highway 78 between Princeton and Crane, Oregon. The transmission line will parallel several existing roads and highways including State Highway 78.

2.4. Environmental Conditions

A variety of environmental conditions along the ROW make the establishment of desirable plant species difficult. Low precipitation and sandy soils provide very little available moisture for germinating seeds. In addition, past and present disturbance to the vegetative communities have created many areas dominated by non-native, weedy species. These species could spread to areas disturbed by construction activities and compete with planted species for the limited resources. Three of these species have been reported along various transmission line alternatives: Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), and perennial pepperweed (*Lepidium latifolium*). An additional "B" designated species, kochia (*Kochia scoparia*), has also been reported to be present along the transmission line alternatives. More occurrences may be found when additional surveys are completed. The noxious weed species most prevalent in the vicinity of the project include: Canada thistle, bull thistle, Scotch thistle (*Onopordum acanthium*) and perennial pepperweed. Some of the roads in the vicinity of the project contain whitetop (*Cardaria draba*), and medusahead rye (*Taeniatherum caput-medusae*) is also present in the vicinity and could spread into areas disturbed by Project activities. Please refer to the Weed Management and Control Plan for additional information. Finally, high winds in the project area further complicate efforts to establish desirable vegetation.

3. Re-vegetation Procedures (Temporarily Disturbed Areas)

The following methods are to be used for all areas of temporary ground and/or vegetation disturbance in the upland habitats along the portions of the transmission line on BLM-administered lands. No temporary disturbance to wetland habitats is expected on BLM-administered lands. Any permanent effects are described in the Project's Compensatory Wetland Mitigation Plan submitted with the Project's Joint Permit Application to the U.S. Army Corps of Engineers (COE). The COE mitigation will replace any lost areas at a ratio of 1:1.5. Therefore, wetland re-vegetation methods are not specified in this Plan. (See page 3.4-25 and 3.4-26 of the North Steens Final EIS.)

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3.1. Seed Mixture (Temporary Disturbed Upland Areas)

One seed mixture suitable for the variety of upland habitats (e.g. deep-soiled, shallow soiled, rock outcrop) will be developed and used to re-vegetate all temporarily disturbed areas. This mixture will be comprised of both native and non-native, desirable species.

3.2. Seed Planting Methods

The following planting methods will be used. The choice of methods should be based on site-specific factors such as slope, erosion potential, and the size of the area in need of re-vegetation. Hand planting should be done in March or April. Disturbed, unseeded ground may require chemical or mechanical weed control in May or June, before weeds have a chance to go to seed. Please refer to the Weed Management and Control Plan for additional information.

3.2.1 Broadcast Method

1. Obtain certified weed free seed.
2. Broadcast the seed mixture at 12-14 pounds per acre.
3. Broadcast seed on top of snow in late fall or early winter to improve moisture conditions.

3.2.3 Drill Method

1. Obtain certified weed free seed.
2. Plant seed mixture at 8-10 pounds of seed per acre using a seed drill.

Prior notice of methods used and where will be submitted to the BLM botanist and approved by the BLM authorized officer.

4. Monitoring Procedures (Temporarily Disturbed Habitats)

In June or July of the year following each seeding, and continuing for a minimum of five years or until restoration and/or re-vegetation is deemed successful, a qualified independent botanist or re-vegetation specialist will examine a representative cross section of the re-vegetated sites. Care will be taken to survey areas in all the major habitat types and throughout the geographic extent of the project area. A minimum of 20% of the re-vegetated acreage will be examined.

At each survey area, the re-vegetation investigator shall evaluate the following parameters:

- Percent cover for the following four classes: native forbs and grasses, non-native forbs and grasses, shrubs, bare ground and rock.
- Restorative percent cover will be determined based on habitat type and re-vegetative composition and will vary across the entirety of the project area.
- Degree of erosion due to the construction activities (High, Medium or Low)

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4.1 Success Criteria

All areas (except the lithosol plant communities) will be deemed successfully re-vegetated when total cover of all vegetation exceeds 30%, and at least 25% of the ground surface is covered by native species. For the lithosol communities, where total vegetative cover under natural conditions is typically less than 30%, an area will be deemed successfully re-vegetated when at least 25% of the total vegetative cover is composed of native species. Shrub plantings will be considered successful when at least 25% of the sagebrush or bitterbrush seedlings have survived. In the event that success criteria are not met for a site, the re-vegetation investigator may recommend reseeding or replanting of those areas. In certain instances, the re-vegetation area may be small enough that weed encroachment may make native seed establishment impossible. In these areas, additional reseedings will not be recommended if erosion from construction activities is moderate or low, and vegetative cover of non-native species exceeds 30%.

5. Amendment of the Plan

Amendment of this Plan may occur if specific site conditions warrant adaptive management and such amendment will require prior approval from BLM's authorized officer.