

Klondike III Wind Project: Revegetation Plan

[NOVEMBER 3, 2006]

I. Introduction

This plan describes methods and standards for restoration of areas temporarily disturbed during the construction, maintenance or repair of the Klondike III Wind Project (KWP).¹ The objective of revegetation is to restore the temporarily disturbed areas to pre-construction condition or better. Restoration of these areas is required by the site certificate for the facility.

An estimated 223 acres of land will be temporarily affected during construction of the facility.² Approximately 201 acres of the temporarily disturbed area is cultivated or otherwise developed agricultural land and the remainder is grassland, shrub-steppe or CRP.³ The certificate holder shall maintain erosion and sediment control measures put in place during construction until the affected areas are restored as described in this plan and the risk of erosion has been eliminated.

This plan has been prepared to guide the revegetation efforts. Seed mixes, planting methods and weed control techniques have been developed for the project area in consultation with the Oregon Department of Fish and Wildlife (ODFW). The plan specifies monitoring procedures to evaluate revegetation success and recommended remediation if revegetation appears unsuccessful in certain areas.

II. Description of the Project Area

The facility is located in Sherman County, Oregon. The project area is on private agricultural land used primarily for dry land winter wheat production. Soils are typically loess formations of well-drained, moderately permeable, fertile silt loams over basalt. Some areas are used for livestock grazing. Depth to bedrock is generally 20 to 60 inches. The area receives approximately 11 inches of precipitation annually, most of which occurs between October 1 and March 31.

The project area is within the Deschutes-Columbia Plateau physiographic province. Topography within the area is typically gently rolling to level ground with steep slope areas at the northeast and southern margins of the site. Elevation ranges from 1,250 to 1,500 feet. Most of the native vegetation in the project area has been modified by human activities. Very little native plant area exists, occurring predominantly along the plateau margins and steep side slopes of Grass Valley Canyon. Plant communities in these areas consist of sagebrush and rabbitbrush dominated shrub lands and native bunchgrass grasslands, each with varying degrees of invasive species present. CRP areas have been planted with a mix of native and non-native bunch grasses.

III. Revegetation Methods

The certificate holder shall restore areas of temporary disturbance by preparing the soil and seeding using common application methods. The certificate holder shall use mulching and

¹ This plan is incorporated by reference in the site certificate for the KWP and must be understood in that context. It is not a “stand-alone” document. This plan does not contain all mitigation required of the certificate holder.

² In addition to the area permanently occupied by facility structures (approximately 71 acres).

³ “CRP” is formerly cultivated land that the landowner has enrolled in the Conservation Reserve Program.

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1 other appropriate practices to control erosion and sediment during facility construction and
2 during revegetation work. The certificate holder shall restore agricultural topsoil to pre-
3 construction condition. The certificate holder shall select the seed mix to apply based on the pre-
4 construction land use, as described below.

5 **1. Seed Planting Methods**

6 Restoration of temporarily disturbed areas should begin as soon as possible after
7 completion of facility construction, maintenance or repair activity in the area to be restored.
8 Planting should be done at the appropriate time of year based on weather conditions and the time
9 of year when ground disturbance occurs. The certificate holder shall choose planting methods
10 based on site-specific factors such as slope, erosion potential and the size of the area in need of
11 revegetation. Disturbed ground may require chemical or mechanical weed control before weeds
12 have a chance to go to seed. Two common application methods are described as follows.

13 (a) Broadcasting

14 Broadcast the seed mix at the specified application rate. Where feasible, apply half of the
15 total mix in one direction and the second half of mix in direction perpendicular to first half.
16 Apply weed free straw from a certified field or sterile straw at a rate of two tons per acre
17 immediately after applying seed. Crimp straw into the ground to a depth of two inches using a
18 crimping disc or similar device. As an alternative to crimping, a tackifier may be applied using
19 hydroseed equipment at a rate of 100 pounds per acre. Prior to mixing the tackifier, visually
20 inspect the tank for cleanliness. If remnants from previous hydroseed applications exist, wash
21 tank to remove remnants. Include a tracking dye with the tackifier to visibly aid uniform
22 application. Broadcasting should not be used if winds exceed five miles per hour.

23 (b) Drilling

24 Using an agricultural or range seed drill, drill seed at 70 percent of the recommended
25 application rate to a depth of ¼ inch or as recommended by the seed supplier. Where feasible,
26 apply half of the total mix in one direction and the second half of mix in direction perpendicular
27 to first half. If mulch has been previously applied, seed may be drilled through the mulch
28 provided the drill is capable of penetrating the straw resulting in seed-to-soil contact conducive
29 for germination.

30 **2. Seed Mix**

31 (a) Seed Mix 1 – Dry Land Wheat

32 The certificate holder shall seed temporarily disturbed agricultural areas with wheat or
33 other crop seed. The certificate holder shall consult with the landowner and farm operator to
34 determine species composition, seed and fertilizer application rates and application methods.

35 (b) Seed Mix 2 – CRP

36 The certificate holder shall seed temporarily disturbed CRP areas with a mix compatible
37 with the CRP goals. The certificate holder shall consult with ODFW and the landowner to
38 determine the species composition, application rate, use of fertilizers and application methods.

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1 (c) Seed Mix 3 – Grassland

2 The certificate holder shall apply Seed Mix 3 to all temporarily disturbed areas that are
3 not cultivated farmland or CRP areas. The composition and application rate of Seed Mix 3 will
4 be determined in consultation with ODFW and the landowners and will be subject to the
5 approval of the Oregon Department of Energy (Department). The certificate holder shall use seed
6 provided by a reputable supplier and complying with the Oregon Seed Law. The mix should
7 contain native species selected based on relative availability and compatibility with local
8 growing conditions. Factors that will be taken into consideration are soil erosion potential, soil
9 type, seed availability and the need for using native or native-like species.

10 IV. Monitoring

11 1. Monitoring Procedures

12 In the year following each seeding, the certificate holder shall employ a qualified
13 investigator (an independent botanist or revegetation specialist) to examine all seeded grassland
14 and CRP areas to assess vegetation cover (species, structural stage, etc.) and progress toward
15 meeting the success criteria. The qualified investigator shall revisit the revegetation areas on an
16 annual basis until the certificate holder and the Department agree that the areas are trending
17 toward meeting the success criteria. Thereafter, the qualified investigator shall revisit the
18 revegetation areas every five years for the life of the KWP to assess vegetation cover and
19 success. The certificate holder shall report the investigator's findings and recommendations
20 regarding revegetation progress and success to the Department on an annual basis as part of the
21 annual report on the KWP.

22 In consultation with the ODFW, the certificate holder's qualified investigator shall
23 choose reference sites near the revegetated areas to represent the target conditions for the
24 revegetation effort. The target conditions for each revegetated area are conditions that would be
25 realistically attainable for the area. Land use patterns, soil type, local terrain and noxious weed
26 densities should be considered in selecting reference sites. It is likely that several reference sites
27 will be necessary to adequately represent the various habitat conditions within the project area.

28 Once the reference sites are chosen, they will be used for comparison during all
29 subsequent monitoring visits, unless some event (such as wildfire) significantly changes
30 vegetation conditions so that a particular reference site no longer represents a realistically
31 attainable goal for the associated revegetated area. In that case, the qualified investigator shall
32 choose a new reference site.

33 At each monitoring location, the investigator shall evaluate the following parameters
34 (both within the revegetated area and within the reference site):

- 35 • Degree of erosion due to construction activities (high, moderate or low).
- 36 • Average number of stems of desirable vegetation per square foot.

37 The investigator shall evaluate the revegetated area and the reference site separately to
38 determine revegetation success.

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1 2. Success Criteria

2 A temporarily disturbed grassland or CRP area is successfully revegetated when the
3 average desirable vegetation stem density within the revegetated area is greater than, or equal to,
4 that observed in the comparable reference site. Desirable vegetation means those species
5 included in the seed mix or native or naturalized species common to similar areas.

6 In each monitoring report to the Department, the certificate holder shall provide an
7 assessment of revegetation success in grassland or CRP restoration areas. The Department may
8 require reseeding or other corrective measures in those areas that do not meet the success criteria.
9 The Department may exclude small areas from the reseeding requirement, if erosion from
10 construction activities is low, if total vegetative cover (of native and non-native species together)
11 exceeds 30% and if weed encroachment has made native seed establishment impossible.

12 Cultivated agricultural areas are successfully revegetated if the replanted areas achieve
13 crop production comparable to adjacent non-disturbed cultivated areas. The certificate holder
14 shall consult with the landowner or farmer to determine whether these areas have been
15 successfully revegetated and shall report to the Department on the success of revegetation in
16 these areas.

17 V. Amendment of the Plan

18 This Revegetation Plan may be amended from time to time by agreement of the
19 certificate holder and the Oregon Energy Facility Siting Council (“Council”). Such amendments
20 may be made without amendment of the site certificate. The Council authorizes the Department
21 to agree to amendments to this plan. The Department shall notify the Council of all amendments,
22 and the Council retains the authority to approve, reject or modify any amendment of this plan
23 agreed to by the Department.