

Shepherds Flat Wind Farm: Habitat Mitigation Plan

[JULY 25, 2008]

I. Introduction

This plan describes methods and standards for preservation and enhancement of an area of land near the Shepherds Flat Wind Farm (SFWF) to mitigate for the impacts of the facility on wildlife habitat.¹ This plan addresses mitigation for both the permanent impacts of facility components and the temporal impacts of facility construction. The certificate holder shall protect and enhance the mitigation area as described in this plan. This plan specifies habitat enhancement actions and monitoring procedures to evaluate the success of those actions. This plan does not address additional mitigation that might be required under the Shepherds Flat Wind Farm Wildlife Monitoring and Mitigation Plan.

II. Description of the Impacts Addressed by the Plan

The SFWF footprint (area covered by permanent facility components) occupies areas of Category 3 and Category 4 grassland and shrub-steppe vegetation, Category 5 habitat (predominantly cultivated cropland) and Category 6 habitat. In compliance with a site certificate condition, the certificate holder would avoid any permanent or temporary impact on Category 1 and 2 habitat.

In addition to the areas affected by the SFWF footprint, construction would temporarily affect areas of Category 3, 4, 5 and 6 habitat. After disturbance, the recovery of temporarily disturbed Category 3 and 4 grassland areas to a mature stage might take two to four years; recovery of shrub-steppe vegetation might take ten to 30 years to reach maximum height and vertical branching. During the period needed to achieve full recovery of these habitat subtypes, habitat quality is temporarily degraded until recovery is successful (temporal impact).

III. Calculation of the Size of the Mitigation Area

The habitat mitigation area (HMA) must be large enough to achieve, within a reasonable time, the habitat mitigation goals and standards of the Oregon Department of Fish and Wildlife (ODFW) described in OAR 635-415-0025. The ODFW goals require mitigation to achieve “no net loss” of habitat in Categories 3 and 4 (acre-for-acre mitigation). For Category 5 impacts, mitigation is achieved by a “net benefit in habitat quantity or quality.” To mitigate for Category 5 impacts, ODFW recommends that “the applicant enhance at least ½ acre of Category 3, 4, or 5 habitat” for every acre of impact on Category 5 habitat.² For Category 6, mitigation is achieved by actions that minimize direct habitat loss and avoid impacts to off-site habitat.

The actual SFWF footprint and construction disturbance areas cannot be determined until the final design layout of the facility is known. Before beginning construction of the facility, the certificate holder must provide to the Oregon Department of Energy (Department) and ODFW a map showing the final design configuration of the facility and a table showing the acres of permanent impacts and construction area impacts on habitat (by category, habitat types and

¹ This plan is incorporated by reference in the site certificate for the Shepherds Flat Wind Farm 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 Email from Jon Germond, ODFW, February 26, 2008.

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1 habitat subtypes). The certificate holder shall calculate the size of the HMA, as illustrated below,
2 based on the final design configuration of the facility.

3 For the footprint impacts, the HMA must include at least one acre for every acre of
4 footprint impacts to Category 3 and Category 4 habitat (a 1:1 ratio). To mitigate for the impact to
5 Category 5 habitat, the HMA must include ½ acre for every acre of impact (a 0.5:1 ratio).

6 To address the temporal loss of habitat quality during the recovery of Category 3 shrub-
7 steppe-sage (SS-S) habitat temporarily disturbed during construction of the SFWF (outside the
8 footprint), the HMA must include ½ acre for every acre of Category 3 SS-S habitat affected (a
9 0.5:1 ratio). To address the temporal loss of habitat quality during the recovery of Category 3
10 shrub-steppe-purshia (SS-P) habitat temporarily disturbed during construction, the HMA must
11 include ½ acre for every acre of SS-P habitat affected. If the revegetation success criteria are not
12 met in the affected areas of temporarily disturbed SS-S and SS-P habitat, as determined under the
13 SFWF Revegetation Plan, then the Council may require the certificate holder to provide
14 additional mitigation.

15 Based on worst-case estimates, the SFWF would have the following footprint impacts:³

Habitat Category	Footprint Impact (acres)
Category 3	124.34
Category 4	33.789
Category 5	13.117
Category 6	2.01
Total area	173.256

16 For the purpose of illustrating the calculation of the overall size of the HMA, the area of
17 impact within each affected habitat category and the corresponding mitigation area requirements,
18 sample calculations are shown below, based on the worst-case estimates in the table above:

19 Category 3

20 Footprint impacts: 124.34 acres

21 Temporal impacts to SS-S and SS-P: 3.276 acres

22 Mitigation area requirement: 124.34 acres + (3.276 acres x 0.5) = 125.978 acres

23 Category 4

24 Footprint impacts: 33.789 acres

25 Mitigation area requirement: 33.789 acres

26 Category 5

27 Footprint impacts: 13.117 acres

28 Mitigation area requirement: 13.117 x 0.5 = 6.559 acres of Category 3, 4, or 5 habitat⁴

29 **Total mitigation area (rounded to nearest whole acre): 166 acres**

³ Estimates of the area that the facility components would occupy are shown in Tables 11 and 12 of the Final Order on the Application.

⁴ ODFW has advised the Department that the Category 5 “net benefit” goal “recognizes that Category 5 habitats are generally in a ‘degraded’ state, but have high restoration potential” and that “fish and wildlife species would not benefit much from mitigation taking place on Category 5 habitat” (email from Jon Germond, ODFW, February 26, 2008).

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1 Based on the sample calculations shown above, the size of the HMA would be 166 acres.
2 Before beginning construction, the certificate holder shall determine the final size and
3 boundaries of the mitigation area in consultation with ODFW and the affected landowners and
4 subject to the approval of the Department. Before beginning construction of the facility, the
5 certificate holder shall acquire the legal right to create, maintain and protect the HMA for the life
6 of the facility by means of an outright purchase, conservation easement or similar conveyance
7 and shall provide a copy of the documentation to the Department.⁵

8 IV. Description of the Mitigation Area

9 The ODFW standards require mitigation for Category 3 impacts to be “in proximity” to
10 the SFWF, and the HMA must be located where habitat protection and enhancement are feasible
11 consistent with this plan.⁶ The applicant identified a 435-acre parcel in proximity to the SFWF
12 but outside the site boundary. The baseline habitat characteristics of the 435-acre parcel are
13 described in Section IV.4(b)(F) of the Final Order on the Application. Based on the applicant’s
14 preliminary assessment, the parcel includes 250 acres of Category 3 or better habitat, 135 acres
15 of Category 4 habitat, 48 acres of Category 5 habitat and 2 acres of Category 6 habitat.

16 V. Habitat Enhancement Actions

17 The certificate holder shall implement the habitat enhancement actions described in this
18 plan. The objectives of the plan are to protect the habitat within the HMA for the life of the
19 facility and to enhance the baseline condition of the habitat to meet the ODFW mitigation goals.

20 To achieve “no net loss” of habitat quantity or quality to mitigate for the permanent
21 impacts of the SFWF in Category 3 and 4 habitats and to achieve a “net benefit in habitat
22 quantity or quality” to mitigate for the permanent impacts in Category 5 habitat, the certificate
23 holder shall protect the habitat within the HMA for the life of the facility and shall implement the
24 enhancement actions.⁷ The certificate holder shall, without unreasonable delay, begin the
25 enhancement actions described in this section after the final design configuration of the SFWF is
26 known and the size and boundaries of the HMA have been determined and approved by the
27 Department. Specific enhancement actions are described below.

- 28 1. Elimination of Livestock Grazing. The certificate holder shall install and maintain
29 fencing, as necessary, to eliminate grazing within the habitat mitigation area.
30 Removing livestock from the mitigation area will enable recovery of native
31 bunchgrass and sagebrush in areas where past grazing has occurred, resulting in better
32 vegetative structure and complexity for wildlife.

⁵ As used in this plan, “life of the facility” means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

⁶ OAR 635-415-0005 defines “in-proximity habitat mitigation” as follows: “habitat mitigation measures undertaken within or in proximity to areas affected by a development action. For the purposes of this policy, ‘in proximity to’ means within the same home range, or watershed (depending on the species or population being considered) whichever will have the highest likelihood of benefiting fish and wildlife populations directly affected by the development.”

⁷ ODFW has advised the Department that protection of habitat alone (without enhancement activity) will not meet the intent of ODFW’s Fish and Wildlife Mitigation Policy (Letter from Rose Owens, November 9, 2006, in reference to the Leaning Juniper II Wind Power Facility).

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- 1 2. Weed Control and Area Seeding. The certificate holder shall implement a weed
2 control program. Under the weed control program, the certificate holder shall monitor
3 the mitigation area to locate weed infestations. The certificate holder shall continue
4 weed control monitoring, as needed, for the life of the facility. As needed, the
5 certificate holder shall use appropriate methods to control weeds. Weed control on the
6 mitigation site will reduce the spread of noxious weeds within the habitat mitigation
7 area and on any nearby grassland, CRP or cultivated agricultural land. Weed control
8 will promote the growth of desirable native vegetation. Where substantial areas of
9 soil (greater than 100 ft²) are left bare from weed control activities, the certificate
10 holder shall hand-seed the area in the appropriate time of year with a mixture
11 containing native grass and shrub seeds. The certificate holder may consider weeds to
12 be successfully controlled when weed clusters have been eradicated or reduced to a
13 non-competing level. Weeds may be controlled with herbicides or hand-pulling. The
14 certificate holder shall notify the landowner of the specific chemicals to be used on
15 the site and when spraying will occur. To protect locations where young desirable
16 forbs may be growing, spot-spraying may be used instead of total area spraying.
- 17 3. Fire Control. The certificate holder shall implement a fire control plan for wildfire
18 suppression within the HMA. The certificate holder shall provide a copy of the fire
19 control plan to the Department before starting habitat enhancement actions. The
20 certificate holder shall include in the plan appropriate fire prevention measures,
21 methods to detect fires that occur and a protocol for fire response and suppression.
22 The certificate holder shall maintain fire control for the life of the facility. If wildfire
23 damages any part of the HMA during the life of the facility, the certificate holder
24 shall assess the extent of the damage and implement appropriate actions to restore
25 habitat quality in the damaged area.
- 26 4. Erosion Control. The certificate holder shall monitor the HMA to locate sites at which
27 past livestock grazing or vegetation loss has caused soil erosion. As needed, the
28 certificate holder shall control erosion by a combination of sediment barriers (such as
29 hay bales, mulch or native rock) and seeding the affected area with a mixture
30 containing native grasses and shrub seeds. The certificate holder may consider
31 erosion control to be successful when eroded areas can support vegetation and no
32 indications of new soil loss are evident.
- 33 5. Habitat Protection. For the life of the facility, the certificate holder shall restrict uses
34 of the HMA that are inconsistent with achieving the habitat mitigation goals.

35 VI. Monitoring

36 1. Monitoring Procedures

37 The certificate holder shall hire a qualified investigator (an independent botanist, wildlife
38 biologist or revegetation specialist) to conduct a comprehensive monitoring program for the
39 HMA. The purpose of monitoring is to evaluate the protection of habitat quality, the results of
40 enhancement actions and the use of the area by avian and mammal species, especially during the
41 wildlife breeding season. The investigator shall conduct HMA monitoring beginning in the first
42 year after enhancement actions begin and continuing for the life of the facility. The investigator
43 shall visit the site as necessary to carry out the following monitoring procedures:

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- 1) Annually assess the general quality of vegetation cover (species, structural stage, etc).
- 2) Annually assess progress toward meeting the success criteria.
- 3) Annually record environmental factors (such as precipitation at the time of surveys and precipitation levels for the year).
- 4) Annually record any wildfire that occurs within the HMA and any remedial actions taken to restore habitat quality in the damaged area.
- 5) Annually assess the success of the weed control (including area seeding) and erosion control programs and recommend remedial action, if needed.
- 6) Assess the recovery of native bunchgrass and natural recruitment of sagebrush resulting from removal of livestock grazing pressure by comparing the quality of bunchgrass and sagebrush cover at the time of each monitoring visit with the quality observed in previous monitoring visits and as observed when the HMA was first established. The investigator shall establish photo plots of naturally recovering sagebrush and native bunchgrass during the first year following the beginning of enhancement actions. The investigator shall take comparison photos in the first year and every two years thereafter until desirable vegetation has achieved mature stature. The investigator shall determine the extent of successful recovery of native bunchgrass based on measurable indicators (such as signs of more abundant seed production) and shall report on the progress of recovery within in the monitoring plots.
- 7) Between April 21 and May 21 beginning in the first spring season after the beginning of construction of the SFWF, conduct an area search survey of avian species. An “area search” survey consists of recording all birds seen or heard in specific areas (for example, square or circular plots that are 5 to 10 acres in size). Area searches will be conducted during morning hours on days with low or no wind. The investigator shall determine the number searches and the number of search areas in consultation with ODFW. The investigator shall repeat the area search survey every five years during the life of the facility.
- 8) Beginning in the first year after the beginning of construction of the SFWF and repeating every five years during the life of the facility, the investigator shall record observations of special status plant and wildlife species (federal or State threatened or endangered species and State sensitive species) during appropriate seasons for detection of these species.

2. Reporting

The certificate holder shall report the investigator’s findings and recommendations regarding the monitoring of the mitigation area to the Department and to ODFW on an annual basis. The certificate holder shall describe all habitat mitigation actions carried out during the reporting year and all additional work performed based on recommendations of the qualified investigator. The report shall include an evaluation of mitigation success, based on the success criteria described below, and a description of the methods used to perform the evaluation. The report to the Department may be included as part of the annual report on the SFWF.

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1 3. Success Criteria

2 Mitigation of the permanent and temporal habitat impacts of the facility may be
3 considered successful if the certificate holder protects and enhances sufficient habitat within the
4 mitigation area to meet the ODFW goals of no net loss of habitat in Categories 3 and 4 and a “net
5 benefit” for impacts to habitat in Category 5. The certificate holder must protect the quantity and
6 quality of habitat within the HMA for the life of the facility. The mitigation goals are
7 successfully achieved when the HMA contains a sufficient quantity of habitat in each category to
8 meet the mitigation area requirements calculated under Section III. The certificate holder may
9 count habitat of higher value toward meeting the acreage requirements for Category 3, 4 and 5
10 habitat. The certificate holder shall determine the actual mitigation area requirements, subject to
11 Department approval, before beginning construction of the SFWF.

12 The certificate holder may demonstrate enhancement of habitat quality based on evidence
13 of indicators such as increased avian use by a diversity of species, more abundant seed
14 production of desirable native bunchgrass, natural recruitment of sagebrush and successful weed
15 control.

16 If the certificate holder cannot demonstrate that the HMA is trending toward meeting the
17 success criteria within five years after the date construction of the SFWF begins, the certificate
18 holder shall propose remedial action. The Department may require supplemental planting or
19 other corrective measures, which may include increasing the size of the HMA.

20 VII. Amendment of the Plan

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