

# Helix Wind Power Facility: Habitat Mitigation Plan

[JULY 31, 2009]

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1 **I. Introduction**

2 This plan describes methods and standards for preservation and enhancement of an area  
3 of land near the Helix Wind Power Facility (HWPF) to mitigate for the impacts of the facility on  
4 wildlife habitat.<sup>1</sup> This plan addresses mitigation for both the permanent impacts of facility  
5 components and the temporary impacts of facility construction. The certificate holder shall  
6 protect and enhance the mitigation area as described in this plan. This plan specifies habitat  
7 enhancement actions and monitoring procedures to evaluate the success of those actions. This  
8 plan does not address additional mitigation that might be required under the Wildlife Monitoring  
9 and Mitigation Plan. This plan has been developed in consultation with the Oregon Department  
10 of Fish and Wildlife (ODFW).

11 **II. Description of the Impacts Addressed by the Plan**

12 The HWPF footprint (area covered by permanent facility components) may occupy areas  
13 of Category 2, 3 and 4 grassland-steppe vegetation and Conservation Reserve Program (CRP)  
14 planted grassland vegetation.<sup>2</sup> The remainder of the footprint would occupy Category 6 habitat  
15 (cultivated cropland). In compliance with a site certificate condition, the certificate holder would  
16 avoid any permanent or temporary impact on Category 1 habitat.

17 In addition to the areas affected by the HWPF footprint, construction would temporarily  
18 affect areas of Category 2, 3, 4 and 6 habitat. After disturbance, the recovery of Category 2, 3  
19 and 4 perennial bunchgrass species to a mature stage might take 5 to 7 years; recovery of  
20 desirable shrubs such as sagebrush might take 10 to 30 years to reach maximum height and  
21 vertical branching. During the period needed to achieve full recovery of these habitat subtypes,  
22 habitat quality is temporarily degraded until recovery is successful (temporal impact). The  
23 duration of this impact on wildlife is variable, depending on the wildlife species' needs.

24 **III. Calculation of the Size of the Mitigation Area**

25 The habitat mitigation area (HMA) must be large enough to achieve, within a reasonable  
26 time, the habitat mitigation goals and standards of the ODFW's Fish and Wildlife Habitat  
27 Mitigation Policy described in OAR 635-415-0025. For Category 2 impacts, ODFW goals  
28 require mitigation to achieve both "no net loss" and a "net benefit" in habitat quantity or quality.  
29 The ODFW goals require mitigation to achieve "no net loss" of habitat in Categories 3 and 4  
30 (acre-for-acre mitigation). For Category 5 impacts, mitigation is achieved by a "net benefit in  
31 habitat quantity or quality." For Category 6, mitigation is achieved by actions that minimize  
32 direct habitat loss and avoid impacts to offsite habitat.

33 The actual facility footprint and construction disturbance areas cannot be determined  
34 until the final design layout is known. Before beginning construction of the facility, the  
35 certificate holder shall provide to the Oregon Department of Energy (Department) and ODFW a  
36 map showing the final design of the HWPF and a table showing the acres of permanent impacts

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<sup>1</sup> This plan is incorporated by reference in the site certificate for the HWPF 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.

<sup>2</sup> Habitat is designated according to the Oregon Department of Fish and Wildlife categories (OAR 635-415-0025).

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1 and construction area impacts on habitat (by category, habitat types and habitat subtypes). Before  
2 beginning construction, the certificate holder shall calculate the size of the HMA, as illustrated  
3 below, based on the final configuration of the facility and subject to the approval of the  
4 Department.

5 For the footprint impacts on Category 2 habitat, the HMA must include at least 2 acres  
6 for every acre of footprint impacts (a 2:1 ratio) to achieve both “no net loss” and a “net benefit”  
7 for Category 2 habitat. The HMA must include at least one acre for every acre of footprint  
8 impacts to Category 3 and Category 4 habitat (a 1:1 ratio) to achieve “no net loss.” In order to  
9 achieve the “no net loss” goals, enhancement actions will be undertaken on the mitigation  
10 acreage. To mitigate for the impact to Category 5 habitat, the HMA must include ½ acre of  
11 Category 3, 4, or 5 habitat for every acre of impact (a 0.5:1 ratio). No additional mitigation area  
12 is needed for impacts to Category 6 habitat.

13 To address the temporary loss of habitat quality during the recovery of Category 2 or 3  
14 shrub-steppe (SS) habitat temporarily disturbed during construction of the HWPF (outside the  
15 footprint), the HMA must include ½ acre for every acre of Category 2 or 3 SS habitat affected (a  
16 0.5:1 ratio). If the revegetation success criteria are not met in the affected areas of temporarily  
17 disturbed SS habitat, as determined under the *Revegetation Plan* and taking into consideration  
18 CRP requirements specified by the USDA Farm Service Agency, then the Council may require  
19 the certificate holder to provide additional mitigation.

20 Based on maximum habitat impact estimates, the HWPF would have the footprint and  
21 temporal impacts shown in the following table:<sup>3</sup>

Habitat Category	Footprint Impact (acres)	Temporal Impact on Shrub-Steppe Habitat (acres)
Category 2	11.8	4.0
Category 3	14.1	3.1
Category 4	8.13	n/a
Category 5	0.02	n/a
Category 6	17.8	n/a
Total area	51.85	7.1

22 To illustrate the calculation of the overall size of the HMA, the area of impact within  
23 each affected habitat category and the corresponding mitigation area requirements, sample  
24 calculations are shown below, based on the worst-case estimates in the table above:

25 Category 2

26 Footprint impacts: 11.8 acres

27 Temporal impacts to SS: 4.0 acres

28 Mitigation area requirement:  $(11.8 \text{ acres} \times 2) + (4.0 \text{ acres} \times 0.5) = 25.6 \text{ acres}$

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<sup>3</sup> Maximum habitat impact estimates are the estimated maximum impacts of the HWPF components on high-value wildlife habitat as shown in Table 8 of the Final Order on the Application.

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1        Category 3

2        Footprint impacts: 14.1 acres

3        Temporal impacts to SS: 3.1 acres

4        Mitigation area requirement: 14.1 acres + (3.1 acres x 0.5) = 15.65 acres

5        Category 4

6        Footprint impacts: 8.13 acres

7        Mitigation area requirement: 8.13 acres

8        Category 5

9        Footprint impacts: 0.02 acres

10       Mitigation area requirement: (0.02 acres x 0.5) = 0.01 acres

11       **Total mitigation area (rounded to nearest whole acre): 49 acres**

12       Based on the sample calculations shown above, the size of the HMA would be 49 acres.  
13       Within four months after beginning construction of the HWPF, the certificate holder shall  
14       determine the final size and boundaries of the mitigation area in consultation with ODFW and  
15       the affected landowners and subject to the approval of the Department. Within four months after  
16       beginning construction of the HWPF, the certificate holder shall acquire the legal right to create,  
17       maintain and protect the HMA for the life of the facility by means of an outright purchase,  
18       conservation easement or similar conveyance, and shall provide a copy of the documentation to  
19       the Department.<sup>4</sup>

20       **IV. Description of the Mitigation Area**

21       The ODFW standards require mitigation for Category 2 and 3 impacts to be “in  
22       proximity” to a project, and the HMA must be located where habitat protection and enhancement  
23       are feasible consistent with this plan.<sup>5</sup> The applicant has identified a 60-acre area in proximity to  
24       the project. The site provides habitat and habitat enhancement opportunities for many species  
25       potentially affected by the HWPF, including Washington ground squirrels and grasshopper  
26       sparrows. ODFW has approved this area as suitable for the HMA. The area is described further  
27       in the *Final Order on the Application*. The certificate holder shall select this area or a different  
28       area that is consistent with this plan.

29       **V. Habitat Enhancement Actions**

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

33       The certificate holder shall begin the enhancement actions described in this section  
34       without unreasonable delay after the final configuration of the HWPF is known and the size and

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<sup>4</sup> 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.

<sup>5</sup> 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.”

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1 boundaries of the HMA have been determined and approved by the Department. Specific  
2 enhancement actions are described below.

- 3 1. Modification of Livestock Grazing. The certificate holder shall restrict grazing within  
4 the habitat mitigation area. Removing livestock from the mitigation area during most  
5 of the year will enable recovery of native bunchgrass and sagebrush in areas where  
6 past grazing has occurred, resulting in better vegetative structure and complexity for  
7 wildlife. Reduced livestock grazing may be used as a vegetation management tool,  
8 limited to the period from approximately November 15 through March 1, depending  
9 on annual precipitation and soil moisture and the level of stocking (livestock animals  
10 on site).
- 11 2. Shrub Planting and Seeding. The certificate holder shall plant sagebrush shrubs in  
12 lower elevation drainages degraded by past land uses such as concentrated livestock  
13 grazing. Within the 60-acre area described above, shrub areas are very small but  
14 could be enhanced with shrub plantings. Sagebrush seed planting can be used in these  
15 areas instead of planting young shrubs. The certificate holder shall determine the size  
16 of the shrub planting area based on the professional judgment of a qualified biologist  
17 after a ground survey of actual conditions at the time of plan implementation. The  
18 size of the shrub planting in the HMA will depend on opportunity for survival of  
19 planted shrubs. The shrub survival rate at 4 years after planting is an indicator of  
20 successful enhancement of habitat quality in these small areas. A qualified  
21 investigator shall assess the success of shrub planting and seeding annually as  
22 discussed in Section VI.

23 The certificate holder shall complete the initial sagebrush planting or seeding within  
24 one year after the beginning of construction of the facility. The certificate holder shall  
25 obtain seed or shrubs from a qualified nursery or grow shrubs from native seeds  
26 gathered from the HMA or adjacent areas. The certificate holder shall identify the  
27 area to be planted or seeded with sagebrush shrubs after consultation with ODFW and  
28 subject to final approval by the Department. To enable monitoring, the certificate  
29 holder shall mark the planted sagebrush clusters or seeded area at the time of planting  
30 and shall keep a record of the number of shrubs planted.

31 The certificate holder shall not allow livestock grazing in the shrub planting or  
32 seeding areas during the period beginning with the planting or seeding and continuing  
33 until there is a sufficient level of shrub establishment for sustained survival, based on  
34 the professional judgment of a qualified biologist.

- 35 3. Weed Control and Related Seeding. The certificate holder shall implement a weed  
36 control program. A qualified investigator shall assess the success of weed control and  
37 related area seeding annually as discussed in Section VI. Under the weed control  
38 program, the certificate holder shall monitor the HMA to locate and reduce weed  
39 infestations. The certificate holder shall continue the weed control program, as  
40 needed, for the life of the facility.

41 The certificate holder shall use appropriate methods to reduce and control weeds.  
42 Weed control will reduce the spread of noxious weeds within the HMA and on nearby  
43 grassland, CRP or cultivated agricultural land. Weed control will promote the growth  
44 of desirable native vegetation. Where substantial areas of soil (greater than 100 ft<sup>2</sup>)

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1 are left bare from weed control activities, the certificate holder shall hand-seed the  
2 area in the appropriate time of year with a mixture containing native grass and shrub  
3 seeds. The certificate holder may consider weeds to be successfully controlled when  
4 weed clusters have been eradicated or reduced to a non-competing level, based on the  
5 professional judgment of a qualified biologist. Weeds may be controlled with  
6 herbicides or hand-pulling. If herbicides are used, the certificate holder shall notify  
7 the landowner in advance of the times when spraying will occur and of the specific  
8 chemicals to be used. To protect locations where young desirable forbs may be  
9 growing, spot-spraying may be used instead of total area spraying.

- 10 4. Fire Control. The certificate holder shall implement a fire control plan for wildfire  
11 suppression within the HMA. The certificate holder shall provide a copy of the fire  
12 control plan to the Department before starting habitat enhancement actions. The  
13 certificate holder shall include in the plan appropriate fire prevention measures,  
14 methods to detect fires that occur and a protocol for fire response and suppression.  
15 The certificate holder shall maintain fire control for the life of the HWPF. If wildfire  
16 damages any part of the HMA during the life of the facility, the certificate holder  
17 shall assess the extent of the damage and implement appropriate actions to restore  
18 habitat quality in the damaged area.
- 19 5. Erosion Control. The certificate holder shall monitor the HMA to locate sites where  
20 past livestock grazing or vegetation loss has caused soil erosion. As needed, the  
21 certificate holder shall control erosion by a combination of sediment barriers (such as  
22 straw bales, mulch or native rock) and seeding the affected area with a mixture  
23 containing native grass and shrub seeds. The certificate holder may consider erosion  
24 control to be successful when eroded areas can support vegetation and no indications  
25 of new soil loss are evident.
- 26 6. Habitat Protection. For the life of the facility, the certificate holder shall restrict uses  
27 of the HMA that are inconsistent with achieving the habitat mitigation goals.

## 28 VI. Monitoring

### 29 1. Monitoring Procedures

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

- 37 1. Annually assess the general quality of vegetation cover (species, structural stage, etc).  
38 2. Annually assess progress toward meeting the success criteria described below in  
39 Subsection 3.  
40 3. Annually record environmental factors (such as precipitation at the time of surveys  
41 and precipitation levels for the year).

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- 1 4. Annually record any wildfires that occur within the HMA and any remedial actions  
2 taken to restore habitat quality in the damaged areas.
- 3 5. Annually assess the success of the weed control (including area seeding) and erosion  
4 control programs and recommend remedial action, if needed.
- 5 6. Assess the recovery of native bunchgrass and natural recruitment of sagebrush  
6 resulting from removal of livestock grazing pressure by comparing the quality of  
7 bunchgrass and sagebrush cover at the time of each monitoring visit with the quality  
8 observed in previous monitoring visits and as observed when the HMA was first  
9 established. The investigator shall establish photo plots of naturally recovering  
10 sagebrush and native bunchgrass during the first year following the beginning of  
11 enhancement actions. The investigator shall take comparison photos in the first year  
12 and every two years thereafter until desirable vegetation has achieved mature stature.  
13 The investigator shall determine the extent of successful recovery of native  
14 bunchgrass based on measurable indicators (such as signs of more abundant seed  
15 production) and shall report on the progress of recovery in the monitoring plots.
- 16 7. Assess the survival rate and growth of planted and seeded native grasses and shrubs.  
17 At the time of planting or seeding, sagebrush plant clusters and seeded areas will be  
18 marked for monitoring. The certificate holder shall determine the number of planted  
19 or seeded areas to be photo-monitored in consultation with the Department and  
20 ODFW, based on the total number of planted or seeded areas. The investigator shall  
21 take comparison photos (close-up and long-distance digital images) in the first year  
22 following the initial planting or seeding and in every other year thereafter until the  
23 planted or seeded native grasses and shrubs have achieved mature stature.

24 In each monitoring year, the investigator shall determine and report the survival rate  
25 of planted sagebrush. Based on past experience of restoration specialists for other  
26 sagebrush planting projects, a survival rate as high as 50 percent can be achieved if  
27 there are years of high soil moisture, but a more typical survival rate is two surviving  
28 shrubs per ten planted (20 percent) after 4 years. Shrub planting will be considered  
29 successful if a 20-percent survival rate is achieved after 4 years. The investigator shall  
30 recommend remedial action when, in the investigator's judgment, the survival rate of  
31 planted sagebrush is inadequate to demonstrate a trend toward an improvement in  
32 habitat quality.

- 33 8. Between April 21 and May 21, beginning in the first spring season after the beginning  
34 of construction of the HWPF, the investigator shall conduct an area search survey of  
35 avian species in the HMA. An area search survey consists of recording all birds seen  
36 or heard in specific areas (for example, square or circular plots that are 5 to 10 acres  
37 in size). Area searches will be conducted during morning hours on days with low or  
38 no wind. The investigator shall determine the number of searches and the number of  
39 search areas in consultation with ODFW. The investigator shall repeat the area search  
40 survey every 5 years during the life of the HWPF. The results of these avian surveys  
41 may be used to demonstrate the enhancement of habitat quality as discussed under  
42 Subsection 3.
- 43 9. Beginning in the first year after the beginning of construction of the HWPF and  
44 repeating every 5 years during the life of the facility, the investigator shall record

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1 observations of special status plant and wildlife species (federal or State threatened or  
2 endangered species and State Sensitive species) in the HMA during the appropriate  
3 seasons for detection of these species.

## 4 **2. Reporting**

5 The certificate holder shall report the investigator's findings and recommendations  
6 regarding the monitoring of the HMA to the Department and to ODFW on an annual basis. The  
7 certificate holder shall describe all habitat mitigation actions carried out during the reporting year  
8 and all additional work performed based on recommendations of the qualified investigator. The  
9 report shall include an evaluation of mitigation success, based on the success criteria described  
10 below, and a description of the methods used to perform the evaluation. The report to the  
11 Department may be included as part of the annual report on the HWPF that is required under the  
12 Site Certificate. The certificate holder shall facilitate site visits to the HMA upon request by the  
13 Department or ODFW for the purpose of inspecting mitigation progress.

## 14 **3. Success Criteria**

15 Mitigation of the permanent and temporary habitat impacts of the facility may be  
16 considered successful if the certificate holder protects and enhances sufficient habitat within the  
17 HMA to meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a "net  
18 benefit" for impacts to habitat in Categories 2 and 5. The certificate holder must protect the  
19 quantity and quality of habitat within the HMA for the life of the facility. The mitigation goals  
20 are successfully achieved when the HMA contains a sufficient quantity of habitat in each  
21 category to meet the mitigation area requirements calculated under Section III. The certificate  
22 holder may count habitat of higher value within the HMA toward meeting the mitigation acreage  
23 requirements for Category 3, 4 and 5 habitats. The certificate holder shall determine the actual  
24 mitigation area requirements, subject to Department approval, before beginning construction of  
25 the HWPF. If the land selected for the HMA does not already contain sufficient habitat in each  
26 category to meet these requirements, then the certificate holder must demonstrate improvement  
27 of habitat quality sufficient to change lower-value habitat to a higher value (for example, to  
28 convert Category 3 habitat to Category 2).

29 The certificate holder may demonstrate enhancement of habitat quality based on  
30 indicators such as: (1) increased avian use by a diversity of species, (2) more abundant seed  
31 production of desirable native bunchgrass, (3) natural recruitment of sagebrush and (4)  
32 successful weed control.

33 If the certificate holder cannot demonstrate that the HMA is trending toward meeting the  
34 success criteria within 5 years after the date construction of the HWPF begins, the certificate  
35 holder shall propose remedial action. The Department may require supplemental planting or  
36 other corrective measures, which may include increasing the size of the HMA.

## 37 **VII. Amendment of the Plan**

38 This Habitat Mitigation Plan may be amended from time to time by agreement of the  
39 certificate holder and the Oregon Energy Facility Siting Council ("Council"). Such amendments  
40 may be made without amendment of the site certificate. The Council authorizes the Department  
41 to agree to amendments to this plan. The Department shall notify the Council of all amendments,

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- 1 and the Council retains the authority to approve, reject or modify any amendment of this plan
- 2 agreed to by the Department.