

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

I. Introduction

This plan describes methods and standards for preservation and enhancement of an area of land near the Montague Wind Power Facility (MWPF) 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. Remedial action may be necessary if progress toward habitat enhancement success is not demonstrated in the mitigation area.

II. Description of the Impacts Addressed by the Plan

The estimated land area that could be occupied by permanent facility components (the “footprint”) is approximately 256 acres, based on the expected configuration for the MWPF. In addition to the footprint impacts, construction of the facility could disturb approximately 1,778 acres. Although much of the area is cropland, habitat that could be affected by construction disturbance includes areas of perennial bunchgrass, desirable shrubs and juniper trees. After disturbance, the recovery of perennial bunchgrass species to a mature stage might take five to seven years; recovery of juniper trees and desirable shrubs such as bitterbrush and sagebrush might take ten to 30 years to reach maximum height and vertical branching. Even where recovery of these habitat subtypes is successful, there is a loss of habitat quality during the period of time needed to achieve recovery (temporal impact).

III. Calculation of the Size of the Mitigation Area

The actual 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 shall provide to the Oregon Department of Energy (Department) a map showing the final design configuration of the facility and a table showing the estimated areas of permanent impacts and construction area impacts on habitat (by category, habitat types and habitat subtypes). The certificate holder shall calculate the size of the mitigation area, as illustrated below, based on the final design configuration of the facility. The certificate holder shall implement the habitat enhancement actions described in this plan, after the Department has approved the size of the mitigation area. This plan does not address additional mitigation that might be required under the Montague Wind Power Facility Wildlife Monitoring and Mitigation Plan.

The mitigation area must be large enough to meet 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 2, 3

¹ This plan is incorporated by reference in the site certificate for the Montague Wind Power Facility 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.

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

1 and 4 and a “net benefit” in habitat quantity or quality for impacts to habitat in Categories 2 and
2 5. The MWPF would not have any impacts on Category 1 or Category 5 habitats.

3 For the footprint impacts, the mitigation area includes two acres for every one acre of
4 Category 2 habitat affected (a 2:1 ratio) and one acre for every acre of footprint impacts to
5 Category 3 and 4 habitat (a 1:1 ratio). The 2:1 ratio for Category 2 is intended to meet the
6 ODFW goals of “no net loss” and “net benefit” of habitat quantity for impacts to Category 2
7 habitat. The 1:1 ratio for the footprint impacts to Category 3 and 4 habitat is intended to meet the
8 ODFW goal of “no net loss” of habitat in these categories.

9 To mitigate for construction impacts outside the footprint, the mitigation area includes ½
10 acre for every acre of Category 2 or 3 SSA (shrub-steppe-sagebrush) and WJ (juniper woodland)
11 habitat affected (a 0.5:1 ratio). This portion of the mitigation area is intended to address the
12 temporal loss of habitat quality during the recovery of SSA and WJ habitat disturbed during
13 construction. The size of this portion of the mitigation area is based on the assumption that
14 restoration of disturbed SSA and WJ habitat is successful, as determined under the Montague
15 Wind Power Facility Revegetation Plan. If the revegetation success criteria are not met in the
16 affected areas, then the Council may require the certificate holder to provide additional
17 mitigation.

18 Areas of potential impact within each affected habitat category and the corresponding
19 mitigation area for each category are calculated as follows, based on maximum habitat impact
20 estimates:²

21 Category 2

22 Footprint impacts: 52.74 acres

23 Temporary impacts to SSA and WJ: 112.64 acres

24 Mitigation area requirement: $(52.74 \text{ acres} \times 2) + (112.64 \text{ acres} \times 0.5) = 161.79 \text{ acres}$

25 Category 3

26 Footprint impacts: 88.11 acres

27 Temporary impacts to SSA and WJ: 3.62 acres

28 Mitigation area: $88.11 \text{ acres} + (3.62 \text{ acres} \times 0.5) = 89.93 \text{ acres}$

29 Category 4

30 Footprint impacts: 8.53 acres

31 Mitigation area requirement: 8.53 acres

32 **Total mitigation area for MWPF (rounded to nearest whole acre): 260 acres**

² The maximum impact estimates are shown in Table 7 of the Draft Proposed Order.

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

IV. Description of the Mitigation Area

The certificate holder shall select a mitigation area in proximity to the facility where habitat protection and enhancement are feasible consistent with this plan.³ The applicant identified a 440-acre parcel in a relatively remote setting where habitat protection and enhancement are feasible.⁴ Conservation easements for other wind energy facilities have been established within the 440-acre parcel, and the applicant has an option for establishing a conservation easement for the MWPF on the remaining acres.⁵ If sufficient land for the MWPF mitigation area is not acquired within the 440-acre parcel, the certificate holder shall select other land that is suitable for meeting the mitigation area requirement consistent with this plan. Before beginning construction of the facility, the certificate holder shall determine the final size of the mitigation area needed for the facility. The certificate holder shall determine the location and boundaries of the mitigation area in consultation with ODFW and the affected landowners and subject to the approval of the Department. The final mitigation area must contain suitable habitat to achieve the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to Category 2 habitat through appropriate enhancement actions. Before beginning construction of the facility, the certificate holder shall acquire the legal right to create, maintain and protect the habitat mitigation area for the life of the facility by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the Department.⁶

V. Habitat Enhancement Actions

The objectives of habitat enhancement are to protect habitat within the mitigation area from degradation and to improve the habitat quality of the mitigation area. By achieving these goals, the certificate holder can address the permanent and temporal habitat impacts of the MWPF and meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to Category 2 habitat. The certificate holder shall initiate the habitat enhancement actions for the facility as soon as the final design configuration is known and the size of the mitigation area has been determined and approved by the Department. The certificate holder shall implement the following enhancement actions:

- 1) Modification of Livestock Grazing Practices. The certificate holder shall restrict grazing within the habitat mitigation area. Eliminating livestock grazing within the mitigation area during most of the year will enable recovery of native bunchgrass and sagebrush in areas where past grazing or recent (2008) wildfires have occurred, resulting in better vegetative structure and complexity for a variety of wildlife. Reduced livestock grazing

³ 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.”

⁴ The 440-acre parcel is described in Section IV.4.(b)(F) of the *Final Order on the Application for the Leaning Juniper II Wind Power Facility*, September 21, 2007, pp. 97-100.

⁵ The 440-acre parcel is shown in Figures P-10 and P-11 of the MWPF site certificate application.

⁶ 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.

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

1 may be used as a vegetation management tool, limited to the period from February 1
2 through April 15.

- 3 2) Shrub Planting. The certificate holder shall plant sagebrush shrubs in locations where
4 existing sagebrush is stressed or where recent (2008) wildfires have occurred. The
5 certificate holder shall determine the size of the shrub-planting areas based on the
6 professional judgment of a qualified biologist after a ground survey of actual conditions.
7 The size of the shrub-planting areas will depend on the available mitigation area and
8 opportunity for survival of planted shrubs. The shrub survival rate at four years after
9 planting is an indicator of successful enhancement of habitat quality to Category 2. The
10 certificate holder shall plant sagebrush on a total of at least 10 acres. Although a
11 minimum 10-acre area of shrub planting is anticipated, the certificate holder may choose
12 to plant a larger area. The certificate holder shall complete the initial sagebrush planting
13 within one year after the beginning of construction of the MWPF. Supplementing
14 existing but disturbed sagebrush areas with sagebrush seedlings would assist the recovery
15 of this valuable shrub-steppe component. The certificate holder shall obtain shrubs from a
16 qualified nursery or grow shrubs from native seeds gathered from the mitigation area.
17 The certificate holder shall identify the area to be planted with sagebrush shrubs after
18 consultation with ODFW and subject to final approval by the Department. The certificate
19 holder shall mark the planted sagebrush clusters at the time of planting for later
20 monitoring purposes and shall keep a record of the number of shrubs planted.
- 21 3) Tree Planting. If areas of juniper woodland are disturbed during construction, the
22 certificate holder shall plant juniper trees in the mitigation area in locations of deeper
23 soils near canyon bottoms. The certificate holder shall assess specific locations and
24 provide a map of possible planting locations to ODFW and the Department before
25 planting begins. The certificate holder shall determine the number and size of the juniper
26 tree plants based on the professional judgment of a qualified biologist after a ground
27 survey of actual conditions. The size of the tree-planting area will depend on the
28 available mitigation area and opportunity for survival of planted trees. The tree survival
29 rate at four years after planting is an indicator of successful enhancement of habitat
30 quality to Category 2. The certificate holder shall obtain trees from a qualified nursery or
31 suitable transplants from MWPF construction zones. The certificate holder shall identify
32 the area to be planted with juniper trees after consultation with ODFW and subject to
33 final approval by the Department. The certificate holder shall mark the planted trees at
34 the time of planting for later monitoring purposes and shall keep a record of the number
35 of trees planted.
- 36 4) Weed Control. The certificate holder shall implement a weed control program. Under the
37 weed control program, the certificate holder shall monitor the mitigation area to locate
38 weed infestations. The certificate holder shall continue weed control monitoring, as
39 needed, for the life of the facility. As needed, the certificate holder shall use appropriate
40 methods to control weeds. Weed control on the mitigation site will reduce the spread of
41 noxious weeds within the habitat mitigation area and on any nearby grassland, CRP or
42 cultivated agricultural land. Weed control will promote the growth of desirable native
43 vegetation and planted sagebrush. The certificate holder may consider weeds to be
44 successfully controlled when weed clusters have been eradicated or reduced to a non-
45 competing level. Weeds may be controlled with herbicides or hand-pulling. The

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

1 certificate holder shall notify the landowner of the specific chemicals to be used on the
2 site and when spraying will occur. To protect locations where young desirable forbs may
3 be growing, spot-spraying may be used instead of total area spraying.

4 5) Fire Control. The certificate holder shall implement a fire control plan for wildfire
5 suppression within the mitigation area. The certificate holder shall provide a copy of the
6 fire control plan to the Department before starting habitat enhancement actions. The
7 certificate holder shall include in the plan appropriate fire prevention measures, methods
8 to detect fires that occur and a protocol for fire response and suppression. The certificate
9 holder shall maintain fire control for the life of the facility. If any part of the mitigation
10 area is damaged by wildfire, the certificate holder shall assess the extent of the damage
11 and implement appropriate actions to restore habitat quality in the damaged area.

12 6) Nest platforms. The certificate holder shall construct at least one artificial raptor nest
13 platform in the mitigation area tailored to the opportunities of the site, using best
14 professional judgment of raptor use in the general area. The certificate holder may
15 construct more than one nest platform based on the availability of suitable locations. The
16 certificate holder shall maintain the nest platforms for the life of the facility.

17 7) Habitat Protection. The certificate holder shall restrict uses of the mitigation area that are
18 inconsistent with the goals of no net loss of habitat in Categories 2, 3 and 4 and a net
19 benefit in Categories 2 habitat quantity or quality.

20 VI. Monitoring

21 1. Monitoring Procedures

22 The certificate holder shall hire a qualified investigator (an independent botanist, wildlife
23 biologist or revegetation specialist) to conduct a comprehensive monitoring program for the
24 mitigation area. The purpose of this monitoring is to evaluate on an ongoing basis the protection
25 of habitat quality, the results of enhancement actions and the use of the area by avian and
26 mammal species, especially during the wildlife breeding season.

27 The investigator shall monitor the habitat mitigation area for the life of the facility
28 beginning in the year following the initial sagebrush planting. The investigator shall visit the site
29 as necessary to carry out the following monitoring procedures:

- 30 1) Annually assess vegetation cover (species, structural stage, etc.) and progress toward
31 meeting the success criteria.
- 32 2) Annually record environmental factors (such as precipitation at the time of surveys
33 and precipitation levels for the year).
- 34 3) Annually record any wildfire that occurs within the mitigation area and any remedial
35 actions taken to restore habitat quality in the damaged area.
- 36 4) Annually assess the success of the weed control program and recommend remedial
37 action, if needed.
- 38 5) Assess the recovery of native bunchgrass and natural recruitment of sagebrush
39 resulting from removal of livestock grazing pressure and recovery post-fire by
40 comparing the quality of bunchgrass and sagebrush cover at the time of each
41 monitoring visit with the quality observed in previous monitoring visits and as

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

1 observed when the mitigation area was first established. The investigator shall
2 establish photo plots of naturally recovering sagebrush and native bunchgrass during
3 the first year following the beginning of construction of the MWPF. The investigator
4 shall take comparison photos in the first year and in every other year thereafter until
5 the subject vegetation has achieved mature stature. The investigator shall determine
6 the extent of successful recovery of native bunchgrass based on measurable indicators
7 (such as signs of more abundant seed production) and shall report on the progress of
8 recovery within in the monitoring plots. The investigator shall report on the timing
9 and extent of any livestock grazing that has occurred within the mitigation area since
10 the previous monitoring visit.

11 6) Assess the survival rate and growth of planted sagebrush. At the time of planting,
12 sagebrush clusters will be marked for the purpose of monitoring. The investigator
13 shall select several planted clusters for photo monitoring and shall take close-up and
14 long-distance digital images of each selected cluster during monitoring visits. The
15 certificate holder shall determine the number of clusters to be photo-monitored at the
16 time of planting in consultation with the Department and ODFW, based on the
17 number of clusters planted. The investigator shall take comparison photos in the first
18 year following the initial sagebrush planting and in every other year thereafter until
19 the surviving planted sagebrush has achieved mature stature. In each monitoring year,
20 the investigator shall determine and report the survival rate of planted sagebrush.
21 Based on past experience of restoration specialists for other sagebrush planting
22 projects, a survival rate as high as 50 percent can be achieved if there are years of
23 high soil moisture, but a more typical survival rate is 2 surviving shrubs per 10
24 planted (20 percent) after four years. Shrub planting will be considered successful if a
25 20-percent survival rate is achieved after four years. The investigator shall
26 recommend remedial action when, in the investigator's judgment, the survival rate of
27 planted sagebrush is inadequate to demonstrate a trend toward an improvement in
28 habitat quality.

29 7) Assess the survival rate and growth of planted juniper trees. At the time of planting,
30 juniper trees will be marked for the purpose of monitoring. The investigator shall
31 select several planted trees for photo monitoring and shall take close-up and long-
32 distance digital images of each selected tree during monitoring visits. The certificate
33 holder shall determine the number of trees to be photo-monitored at the time of
34 planting in consultation with the Department and ODFW, based on the number of
35 trees planted. The investigator shall take comparison photos in the first year following
36 planting and in every other year thereafter until the surviving planted trees have
37 achieved mature stature. In each monitoring year, the investigator shall determine and
38 report the survival rate of planted trees and shall note overall vigor, height of tree and
39 the extent of branching. Based on past experience of restoration specialists, one in
40 five planted juniper trees may typically survive. Juniper planting will be considered
41 successful when, in the investigator's judgment, one in five has survived. The
42 investigator shall recommend remedial action when, in the investigator's judgment,
43 the survival rate is inadequate to demonstrate a trend toward an improvement in
44 habitat quality.

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

- 1 8) Between April 21 and May 21 beginning in the first spring season after the beginning
2 of construction of the MWPF, conduct an area search survey of avian species. An
3 “area search” survey consists of recording all birds seen or heard in specific areas (for
4 example, square or circular plots that are 5 to 10 acres in size). Area searches will be
5 conducted during morning hours on days with low or no wind. The investigator shall
6 determine the number searches and the number of search areas in consultation with
7 ODFW. The investigator shall repeat the area search survey every five years during
8 the life of the facility.
- 9 9) Beginning in the first year after the beginning of construction of the MWPF and
10 repeating every five years during the life of the facility, the investigator shall record
11 observations of special status plant or wildlife species (federal or state threatened or
12 endangered species and state sensitive species) during appropriate seasons for
13 detection of these species.

14 The certificate holder shall report the investigator’s findings and recommendations
15 regarding the monitoring of the mitigation area to the Department and to ODFW on an annual
16 basis. In the annual mitigation area report, the certificate holder shall describe all habitat
17 mitigation actions carried out during the reporting year. The mitigation area report may be
18 included as part of the annual report on the MWPF that is required by the site certificate.

19 2. Success Criteria

20 Mitigation of the permanent and temporal habitat impacts of the facility may be
21 considered successful if the certificate holder protects and enhances sufficient habitat within the
22 mitigation area to meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a
23 net benefit in habitat quantity or quality for impacts to Categories 2 habitat. The certificate
24 holder must protect the quantity and quality of habitat within the mitigation area for the life of
25 the facility. ODFW has advised the Department that protection of habitat alone (without
26 enhancement activity) will not meet the intent of the “net benefit” goal.

27 The certificate holder must protect a sufficient quantity of habitat in each category to
28 meet the mitigation area requirements calculated under Section III based on the final design
29 configuration of the facility. The certificate holder shall determine the actual mitigation area
30 requirements for the facility, subject to Department approval, before beginning construction of
31 the facility. If the land selected for the mitigation area does not already contain sufficient habitat
32 in each category to meet these requirements, then the certificate holder must demonstrate
33 improvement of habitat quality sufficient to change lower-value habitat to a higher value (for
34 example, to convert Category 3 habitat to Category 2). The certificate holder may demonstrate
35 improvement of habitat quality based on evidence of indicators such as increased avian use by a
36 diversity of species, survival of planted shrubs and juniper trees, more abundant seed production
37 of desirable native bunchgrass, natural recruitment of sagebrush and successful weed control. If
38 the certificate holder cannot demonstrate that the habitat mitigation area is trending toward the
39 habitat quality goals described above within four years after the initial sagebrush planting, the
40 certificate holder shall propose remedial action. The Department may require supplemental
41 planting or other corrective measures.

42 After the certificate holder has demonstrated that the habitat quantity goals have been
43 achieved, the investigator shall verify, during subsequent monitoring visits, that the mitigation

Montague Wind Power Facility: Habitat Mitigation Plan

[DATE]

1 area continues to meet the ODFW “no net loss” and “net benefit” goals described above. The
2 investigator shall recommend remedial action if the habitat quality within the mitigation area
3 falls below the habitat quantity goals listed above. The Department may require supplemental
4 planting, other corrective measures and additional monitoring as necessary to ensure that the
5 habitat quantity goals are achieved and maintained.

6 **VII. Amendment of the Plan**

7 This *Habitat Mitigation Plan* may be amended from time to time by agreement of the
8 certificate holder and the Oregon Energy Facility Siting Council (“Council”). Such amendments
9 may be made without amendment of the site certificate. The Council authorizes the Department
10 to agree to amendments to this plan. The Department shall notify the Council of all amendments,
11 and the Council retains the authority to approve, reject or modify any amendment of this plan
12 agreed to by the Department.