

**Draft Proposed Order on Request for Amendment 5
of the Montague Wind Power Facility Site Certificate
June 26, 2020**

Attachments D – H (Draft Amended Mitigation Plans)

Attachment D Draft Amended Habitat Mitigation Plans

Draft Amended Montague Wind Facility Habitat Mitigation Plan

Draft Montague Solar Facility Habitat Mitigation Plan

Draft Oregon Trail Solar Facility Habitat Mitigation Plan

Draft Amended Montague Wind Facility Habitat Mitigation Plan

Montague Wind Power Facility: Amended Habitat Mitigation Plan

[~~AUGUST 2017~~Amended XX 2020]

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 ~~The certificate holder will construct the facility in two phases.~~ This plan addresses mitigation for both the permanent impacts of facility components and the temporal impacts associated with ~~the first phase (Phase 1) 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.

This plan was approved in September 2010 as part of the Energy Facility Siting Council’s (EFSC) Final Order on the Application for Site Certificate for the Montague Wind Power Facility (Final Order on ASC). Final Order on ASC approved construction and operation of a 404 megawatt (MW) wind energy generation facility, to be developed in phases (Phase 1 and Phase 2). The plan was finalized in August 2017, prior to construction of Phase 1. In XX, 2020, the Council approved Final Order on Request for Amendment 5 of the Montague Wind Power Facility site certificate (Final Order on RFA5), authorizing amendment of the Montague Wind Power Facility site certificate to cover only Phase 1 facility components; and, previously approved facility components (Phase 2) to be allocated under original site certificates for facilities named Montague Solar Facility and Oregon Trail Solar Facility.

This plan is based on the plan finalized prior to Phase 1 facility construction (August 2017), revised accordingly to describe and apply to the facility components allocated in the Montague Wind Power Facility, as approved in Final Order on RFA5. The Montague Wind Power Facility is a 201 MW wind energy facility, including 56 wind turbines, located in northeastern Gilliam County. The Montague Wind Power Facility resulted in permanent impacts to Category 2, 3 and 4 habitat. Mitigation requirements are described in the following sections.

II. Description of the Impacts Addressed by the Plan

The land area that will be occupied by permanent facility components (the “footprint”) is approximately 79 acres, based on the final design configuration ~~for Phase 1~~ of the MWPF. In addition to the footprint impacts, construction ~~of Phase 1~~ of the facility could disturb approximately 658 acres. Although much of the area is cropland, habitat that will be affected by construction disturbance includes areas of perennial bunchgrass, and desirable shrubs. After disturbance, the recovery of perennial bunchgrass species to a mature stage might take five to seven years; recovery of 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 23 impact).

2324

2425 **III. Calculation of the Size of the Mitigation Area**

2526

2627 Before beginning construction ~~on Phase 1~~ of the facility, the certificate holder shall provide to the Oregon Department of Energy (Department) a map showing the final design configuration of ~~Phase 1~~ 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 Phase 1~~ 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 is required under the Montague Wind Power Facility Wildlife Monitoring and Mitigation Plan.

2728 The mitigation area must be large enough to meet the habitat mitigation goals and
2829 standards of the Oregon Department of Fish and Wildlife (ODFW) described in OAR 635-415-

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: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~XX 2020]

1 0025. The ODFW goals require mitigation to achieve “no net loss” of habitat in Categories 2, 3
2 and 4 and a “net benefit” in habitat quantity or quality for impacts to habitat in Categories 2 and
3 5. The MWPF would not have any impacts on Category 1 or Category 5 habitats.

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

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

21 Category 2

22 Footprint impacts: 3.77 acres

23 Temporary impacts to SSA: 1.43 acres

24 Mitigation area requirement: $(3.77 \text{ acres} \times 2) + (1.43 \text{ acres} \times$
25 $0.5) = 8.26 \text{ acres}$

26 Category 3

27 Footprint impacts: 5.30 acres

28 Temporary impacts to SSA: 0.53 acre

29 Mitigation area requirement: $5.30 \text{ acres} + (0.53 \text{ acre} \times 0.5) =$
30 5.56 acres

31 Category 4

32 Footprint impacts: 2.33 acres

33 Mitigation area requirement: 2.33 acres

34 **Total mitigation area for ~~Phase 1 of the~~ MWPF (rounded up to nearest whole acre):**
35 **~~(16.8)~~ acres**

Montague Wind Power Facility: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~XX 2020]

IV. Description of the Mitigation Area

The certificate holder has selected a mitigation area in proximity to the facility where habitat protection and enhancement are feasible consistent with this plan.³ The applicant has 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 ~~Phase 1 of~~ 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 ~~Phase 1 of~~ the facility, the certificate holder shall determine the final size of the mitigation area needed for ~~Phase 1 of~~ 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 Phase 1 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 Phase 1 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 Phase 1 of~~ the facility as soon as 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

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: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~XX 2020]

1 vegetative structure and complexity for a variety of wildlife. Reduced livestock grazing
2 may be used as a vegetation management tool, limited to the period from February 1
3 through April 15.

- 4 2) **Shrub Planting.** The certificate holder shall plant sagebrush shrubs in locations where
5 existing sagebrush is stressed or where recent (2008) wildfires have occurred. The
6 certificate holder shall determine the size of the shrub-planting areas based on the
7 professional judgment of a qualified biologist after a ground survey of actual conditions.
8 The size of the shrub-planting areas will depend on the available mitigation area and
9 opportunity for survival of planted shrubs. The shrub survival rate at four years after
10 planting is an indicator of successful enhancement of habitat quality to Category 2. The
11 certificate holder shall plant at least 2 acres of sagebrush.

12 Although a minimum 2-acre area of shrub planting is anticipated, the certificate holder
13 may choose to plant a larger area. The certificate holder shall complete the initial
14 sagebrush planting within one year after the beginning of construction ~~of Phase 1~~ of the
15 MWPF. Supplementing existing, but disturbed, sagebrush areas with sagebrush seedlings
16 would assist the recovery of this valuable shrub-steppe component. The certificate holder
17 shall obtain shrubs from a qualified nursery or grow shrubs from native seeds gathered
18 from the mitigation area. The certificate holder shall identify the area to be planted with
19 sagebrush shrubs after consultation with ODFW and subject to final approval by the
20 Department. The certificate holder shall mark the planted sagebrush clusters at the time
21 of planting for later monitoring purposes and shall keep a record of the number of shrubs
22 planted.

- 3) Weed Control. The certificate holder shall implement a weed control program.
23 Under the weed control program, the certificate holder shall monitor the mitigation area
24 to locate weed infestations. The certificate holder shall continue weed control monitoring,
25 as needed, for the life of the facility. As needed, the certificate holder shall use
26 appropriate methods to control weeds. Weed control on the mitigation site will reduce the
27 spread of noxious weeds within the habitat mitigation area and on any nearby grassland,
28 CRP or cultivated agricultural land. Weed control will promote the growth of desirable
29 native vegetation and planted sagebrush. The certificate holder may consider weeds to be

Montague Wind Power Facility: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~XX 2020]

1 successfully controlled when weed clusters have been eradicated or reduced to a non-
2 competing level. Weeds may be controlled with herbicides or hand-pulling. The
3 certificate holder shall notify the landowner of the specific chemicals to be used on the
4 site and when spraying will occur. To protect locations where young desirable forbs may
5 be growing, spot-spraying may be used instead of total area spraying.

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

14 6)5) Nest platforms. The certificate holder shall construct at least one artificial raptor
15 nest platform in the mitigation area tailored to the opportunities of the site, using best
16 professional judgment of raptor use in the general area. The certificate holder may
17 construct more than one nest platform based on the availability of suitable locations. The
18 certificate holder shall maintain the nest platforms for the life of the facility.

19 7)6) Habitat Protection. The certificate holder shall restrict uses of the mitigation area
20 that are inconsistent with the goals of no net loss of habitat in Categories 2, 3 and 4 and a
21 net benefit in Categories 2 habitat quantity or quality.

22 VI. Monitoring

23 1. Monitoring Procedures

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

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

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

Montague Wind Power Facility: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~XX 2020]

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

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

Montague Wind Power Facility: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~XX 2020]

- 1 7) Between April 21 and May 21 beginning in the first spring season after the
2 beginning of construction ~~of Phase 1~~ of the MWPF, the investigator will conduct an
3 area search survey of avian species. An “area search” survey consists of recording all
4 birds seen or heard in specific areas (for example, square or circular plots that are 5 to
5 10 acres in size). Area searches will be conducted during morning hours on days with
6 low or no wind. The investigator shall determine the number searches and the number
7 of search areas in consultation with ODFW. The investigator shall repeat the area
8 search survey every five years during the life of the facility.
- 9 8) Beginning in the first year after the beginning of construction ~~of Phase 1~~ of the
10 MWPF and repeating every five years during the life of the facility, the investigator
11 shall record observations of special status plant or wildlife species (federal or state
12 threatened or endangered species and state sensitive species) during appropriate
13 seasons for 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 for ~~Phase 1~~ of the facility. The certificate holder shall determine the actual
30 mitigation area requirements for ~~Phase 1~~ of the facility, subject to Department approval, before
31 beginning construction ~~of Phase 1~~ of the facility. If the land selected for the mitigation area does
32 not already contain sufficient habitat in each category to meet these requirements, then the
33 certificate holder must demonstrate improvement of habitat quality sufficient to change lower-
34 value habitat to a higher value (for example, to convert Category 3 habitat to Category 2). The
35 certificate holder may demonstrate improvement of habitat quality based on evidence of
36 indicators such as increased avian use by a diversity of species, survival of planted shrubs,
37 more abundant seed production of desirable native bunchgrass, natural recruitment
38 of sagebrush, and successful weed control. If the certificate holder cannot demonstrate that the
39 habitat mitigation area is trending toward the habitat quality goals described above within four
40 years after the initial sagebrush planting, the certificate holder shall propose remedial action. The
41 Department may require supplemental 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: Amended Habitat Mitigation Plan
[~~AUGUST 2017~~ 2020]

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.

Draft Montague Solar Facility Habitat Mitigation Plan

Montague ~~Wind Power~~Solar Facility: Phase 2Draft Habitat Mitigation Plan [AS AMENDED APRIL 2019XXX 2020]

I. Introduction

This plan describes methods and standards for preservation and enhancement of an area of land near the Montague ~~Wind Power~~Solar Facility (MWPF) to mitigate for the impacts of the facility on wildlife habitat.¹ ~~The certificate holder will construct the facility in two phases. This plan addresses mitigation for both the permanent impacts of facility components and the temporal impacts associated with the second phase (Phase 2) 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.

This plan was approved in September 2019 as part of the Energy Facility Siting Council's (EFSC) Final Order on Request for Amendment 4 of the Montague Wind Power Facility site certificate (Final Order on RFA4). Final Order on RFA4 approved modifications to the previously approved layout and specifications of wind facility components and the addition of approximately 1,189 acres of solar photovoltaic energy generation equipment. Within the 1,189 acres approved for solar facility components, the land was used for cultivation of dryland winter wheat and was designated habitat Category 6. In XX, 2020, the Council approved Final Order on Request for Amendment 5 of the Montague Wind Power Facility site certificate (Final Order on RFA5), authorizing previously approved facility components (Phase 2) to be allocated under original site certificates for facilities named Montague Solar Facility and Oregon Trail Solar Facility. The site certificate issued for the Montague Solar Facility was based entirely on the previously approved Montague Wind Power Facility site certificate; mitigation plans were based entirely on those approved in the Final Order on RFA4; modifications were incorporated into the site certificates and mitigation plans based on the allocation of previously approved facility components, location and type of equipment.

This Habitat Mitigation Plan is based on the draft amended plan provided as Attachment D of the Final Order on RFA4, revised accordingly to describe and apply to the Montague Solar Facility. The Montague Solar Facility is a 162 megawatt (MW) solar photovoltaic energy facility located within a 1,496 solar micro-siting area and 1,763 acre site boundary, in northeastern Gilliam County. The Montague Solar Facility would predominately result in permanent impacts to Category 6 habitat; however, due to the sharing of related or supporting facilities with the Montague Wind Power Facility and Oregon Trail Solar Facility, where impacts to habitat Category 2, 3 or 4 could occur, the requirements of the plan apply. This plan will be finalized, based on final facility layout and evaluation of habitat categories impacted, prior to construction.

II. Description of the Impacts Addressed by the Plan

The land area that will be occupied by ~~permanent Phase 2~~ facility components will mostly be cropland, but also includes areas of perennial bunchgrass and desirable shrubs. After

¹ This plan is incorporated by reference in the site certificate for the Montague ~~Wind Power~~Solar 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~~Solar Facility: ~~Phase 2~~ Habitat Mitigation Plan

[AS AMENDED APRIL 2019XXX 2020]

1 disturbance, the recovery of perennial bunchgrass species to a mature stage might take five to
2 seven years; recovery of desirable shrubs such as bitterbrush and sagebrush might take ten to
3 30 years to reach maximum height and vertical branching. Even where recovery of these habitat
4 subtypes is successful, there is a loss of habitat quality during the period of time needed to
5 achieve recovery (temporal impact).

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

7 Before beginning construction ~~on Phase 2~~ of the facility, the certificate holder shall
8 provide to the Oregon Department of Energy (Department) a map showing the final design
9 configuration of ~~Phase 2 of~~ the facility and a table showing the estimated areas of permanent
10 impacts and construction area impacts on habitat (by category, habitat types, and habitat
11 subtypes). The certificate holder shall calculate the size of the mitigation area, as illustrated
12 below, based on the final design configuration ~~of Phase 2~~ of the facility. The certificate holder
13 shall implement the habitat enhancement actions described in this plan, after the Department has
14 approved the size of the mitigation area. This plan does not address additional mitigation that is
15 required under the Montague ~~Wind Power~~Solar Facility Wildlife Monitoring and Mitigation
16 Plan.

17 The mitigation area must be large enough to meet the habitat mitigation goals and
18 standards of the Oregon Department of Fish and Wildlife (ODFW) described in Oregon
19 Administrative Rule (OAR) 635-415-0025. The ODFW goals require mitigation to achieve “no
20 net loss” of habitat quantity or quality in Categories 2, 3 and 4 and a “net benefit” in habitat
21 quantity or quality for impacts to habitat in Categories 2 and 5. The ~~MWPF-Montague Solar~~
22 ~~Facility~~ would not have any impacts on Category 1 or Category 5 habitats. Impacts on Category
23 6 habitat does not require mitigation.

24 For the footprint impacts, the mitigation area includes two acres for every one acre of
25 Category 2 habitat affected (a 2:1 ratio) and one acre for every acre of footprint impacts to
26 Category 3 and 4 habitat (a 1:1 ratio). The 2:1 ratio for Category 2 is intended to meet the
27 ODFW goals of “no net loss” and “net benefit” of habitat quantity or quality for impacts to
28 Category 2 habitat. The 1:1 ratio for the footprint impacts to Category 3 and 4 habitat is intended
29 to meet the ODFW goal of “no net loss” of habitat in these categories.

30 To mitigate for temporary construction impacts, the mitigation area includes 2 acres for
31 every acre of Category 2 SSA (sagebrush shrub-steppe) habitat affected (a 2:1 ratio) and 1 acre
32 for every Category 3 or Category 4 SSA habitat affected (a 1:1 ratio). This portion of the
33 mitigation area is intended to address the temporal loss of habitat quality during the recovery of
34 SSA habitat disturbed during construction. The size of this portion of the mitigation area
35 assumes that restoration of disturbed SSA habitat is successful, as determined under the
36 Montague ~~Wind Power~~Solar Facility Revegetation Plan. If the revegetation success criteria are
37 not met in the affected areas, then the Oregon Energy Facility Siting Council (“Council”) may
38 require the certificate holder to provide additional mitigation.

Montague ~~Wind Power~~Solar Facility: ~~Phase 2~~ Habitat Mitigation Plan

[~~AS AMENDED APRIL 2019~~XXX 2020]

1 Areas of potential impact within each affected habitat category and the corresponding
2 mitigation area for each category are calculated as follows, based on maximum high-quality
3 habitat (Categories 2, 3, and 4) impact estimates ~~for Phase 2 (Design Scenario A)~~.²

4 Category 2

5 Footprint impacts: 2.10 acres

6 Temporary impacts to SSA: 0.2 acre

7 Mitigation area requirement: $(2.10 \text{ acres} \times 2) + (0.2 \text{ acre} \times 2) = 4.60 \text{ acres}$

8 Category 3

9 Footprint impacts: 0.44 acre

10 Temporary impacts to SSA: 0.09 acre

11 Mitigation area requirement: $0.44 \text{ acre} + (0.09 \text{ acre} \times 1) = 0.53 \text{ acre}$

12 Category 4

13 Footprint impacts: 0.09 acre

14 Mitigation area requirement: 0.09 acre

15 **Total mitigation area ~~for Phase 2 (Design Scenario A) of the MWPF~~ (rounded up to**
16 **nearest whole acre): 6 (5.22) acres**

² Table 9 [Temporary and Permanent Disturbance by Habitat Category and Subtype – Phase 2 Design Scenario A (Maximum Wind Layout)] in Attachment P-11 (Avian Use and Habitat Disturbance Supporting Data) of Exhibit P in Request for Amendment No. 4 to the Site Certificate for the Montague Wind Power Facility (Montague Wind Power Facility, LLC, 2017).

Montague ~~Wind Power~~Solar Facility: ~~Phase 2~~ Habitat Mitigation Plan

[AS AMENDED APRIL 2019XXX 2020]

1 IV. Description of the Mitigation Area

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

21 V. Habitat Enhancement Actions

22 The objectives of habitat enhancement are to protect habitat within the mitigation area from
23 degradation and to improve the habitat quality of the mitigation area. By achieving these goals,
24 the certificate holder can address the permanent and temporal habitat impacts ~~of Phase 2~~ of the
25 ~~MWPF-Montague Solar Facility~~ and meet the ODFW goals of no net loss of habitat quantity or
26 quality in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to
27 Category 2 habitat. The certificate holder shall initiate the habitat enhancement actions for ~~Phase~~
28 ~~2 of~~ the facility as soon as the size of the mitigation area has been determined and approved by
29 the Department. The certificate holder shall implement the following enhancement actions within
30 the habitat mitigation area:

- 31 1) Modification of Livestock Grazing Practices. The certificate holder shall restrict grazing
32 within the habitat mitigation area. Eliminating livestock grazing within the mitigation
33 area during most of the year will enable recovery of native bunchgrass and sagebrush in
34 areas where past grazing or recent (2008) wildfires have occurred, resulting in better

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-Montague Wind Power Facility~~ 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~~Solar Facility: Phase 2 Habitat Mitigation Plan

[~~AS AMENDED APRIL 2019~~XXX 2020]

1 vegetative structure and complexity for a variety of wildlife. Reduced livestock grazing
2 may be used as a vegetation management tool, limited to the period from February 1
3 through April 15.

- 4 2) Shrub Planting. The certificate holder shall plant sagebrush shrubs in locations within the
5 habitat mitigation area where existing sagebrush is stressed or where recent (2008)
6 wildfires have occurred. The certificate holder shall determine the size of the shrub-
7 planting areas based on the professional judgment of a qualified biologist after a ground
8 survey of actual conditions. The size of the shrub-planting areas will depend on the
9 available mitigation area and opportunity for survival of planted shrubs. The certificate
10 holder shall complete the initial sagebrush planting within one year after the beginning of
11 construction ~~of Phase 2 of the MWPF~~. Supplementing existing, but disturbed, sagebrush
12 areas with sagebrush seedlings would assist the recovery of this valuable shrub-steppe
13 component. The certificate holder shall obtain shrubs from a qualified nursery or grow
14 shrubs from native seeds gathered from the mitigation area. The certificate holder shall
15 identify the area to be planted with sagebrush shrubs after consultation with ODFW and
16 subject to final approval by the Department. The certificate holder shall mark the planted
17 sagebrush clusters at the time of planting for later monitoring purposes and shall keep a
18 record of the number of shrubs planted.
- 19 3) Weed Control. The certificate holder shall implement a weed control program. Under the
20 weed control program, the certificate holder shall monitor the mitigation area to locate
21 weed infestations. The certificate holder shall continue weed control monitoring, as
22 needed, for the life of the facility. As needed, the certificate holder shall use appropriate
23 methods to control weeds. Weed control on the mitigation site will reduce the spread of
24 noxious weeds within the habitat mitigation area and on any nearby grassland,
25 Conservation Reserve Program or cultivated agricultural land. Weed control will promote
26 the growth of desirable native vegetation and planted sagebrush. The certificate holder
27 may consider weeds to be successfully controlled when weed clusters have been
28 eradicated or reduced to a non-competing level. Weeds may be controlled with herbicides
29 or hand-pulling. The certificate holder shall notify the landowner of the specific
30 chemicals to be used on the site and when spraying will occur. To protect locations where
31 young desirable forbs may be growing, spot-spraying may be used instead of total area
32 spraying.
- 33 4) Fire Control. The certificate holder shall implement a fire control plan for wildfire
34 suppression within the mitigation area. The certificate holder shall provide a copy of the
35 fire control plan to the Department before starting habitat enhancement actions. The
36 certificate holder shall include in the plan appropriate fire prevention measures, methods
37 to detect fires that occur and a protocol for fire response and suppression. The certificate
38 holder shall maintain fire control for the life of the facility. If any part of the mitigation
39 area is damaged by wildfire, the certificate holder shall assess the extent of the damage
40 and implement appropriate actions to restore habitat quality in the damaged area.
- 41 5) Habitat Protection. The certificate holder shall restrict uses of the mitigation area that are
42 inconsistent with the goals of no net loss of habitat quantity or quality in Categories 2, 3
43 and 4 and a net benefit in Category 2 habitat quantity or quality.

Montague ~~Wind Power~~Solar Facility: ~~Phase 2~~ Habitat Mitigation Plan

[~~AS AMENDED APRIL 2019~~XXX 2020]

1 **VI. Monitoring**

2 **1. Monitoring Procedures**

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

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

- 11 1) Annually assess vegetation cover (species, structural stage, etc.) and progress toward
12 meeting the success criteria.
- 13 2) Annually record environmental factors (such as precipitation at the time of surveys
14 and precipitation levels for the year).
- 15 3) Annually record any wildfire that occurs within the mitigation area and any remedial
16 actions taken to restore habitat quality in the damaged area.
- 17 4) Annually assess the success of the weed control program and recommend remedial
18 action, if needed.
- 19 5) Assess the recovery of native bunchgrass and natural recruitment of sagebrush
20 resulting from removal of livestock grazing pressure and recovery post-fire by
21 comparing the quality of bunchgrass and sagebrush cover at the time of each
22 monitoring visit with the quality observed in previous monitoring visits and as
23 observed when the mitigation area was first established. The investigator shall
24 establish photo plots of naturally recovering sagebrush and native bunchgrass during
25 the first year following the beginning of construction of the MWPF Montague Solar
26 Facility. The investigator shall take comparison photos in the first year and in every
27 other year thereafter until the subject vegetation has achieved mature stature. The
28 investigator shall determine the extent of successful recovery of native bunchgrass
29 based on measurable indicators (such as signs of more abundant seed production) and
30 shall report on the progress of recovery within in the monitoring plots. The
31 investigator shall report on the timing and extent of any livestock grazing that has
32 occurred within the mitigation area since the previous monitoring visit.
- 33 6) Assess the survival rate and growth of planted sagebrush. At the time of planting,
34 sagebrush clusters will be marked for monitoring. The investigator shall select several
35 planted clusters for photo monitoring and shall take close-up and long-distance digital
36 images of each selected cluster during monitoring visits. The certificate holder shall
37 determine the number of clusters to be photo-monitored at the time of planting in
38 consultation with the Department and ODFW, based on the number of clusters
39 planted. The investigator shall take comparison photos in the first year following the
40 initial sagebrush planting and in every other year thereafter until the surviving planted
41 sagebrush has achieved mature stature. In each monitoring year, the investigator shall
42 determine and report the survival rate of planted sagebrush. Based on past experience
43 of restoration specialists for other sagebrush planting projects, a survival rate as high

Montague ~~Wind Power~~Solar Facility: ~~Phase 2~~ Habitat Mitigation Plan

[~~AS AMENDED APRIL 2019~~XXX 2020]

1 as 50 percent can be achieved if there are years of high soil moisture, but a more
2 typical survival rate is 2 surviving shrubs per 10 planted (20 percent) after four years.
3 Shrub planting will be considered successful if a 20 percent survival rate is achieved
4 after four years. The investigator shall recommend remedial action when, in the
5 investigator's judgment, the survival rate of planted sagebrush is inadequate to
6 demonstrate a trend toward an improvement in habitat quality.

7 The certificate holder shall report the investigator's findings and recommendations
8 regarding the monitoring of the mitigation area to the Department and to ODFW on an annual
9 basis. In the annual mitigation area report, the certificate holder shall describe all habitat
10 mitigation actions carried out during the reporting year. The mitigation area report may be
11 included as part of the annual report on the ~~MWPF~~Montague Solar Facility that is required by
12 the site certificate.

13 **2. Success Criteria**

14 Mitigation of the permanent and temporal habitat impacts of the facility may be
15 considered successful if the certificate holder protects and enhances sufficient habitat within the
16 mitigation area to meet the ODFW goals of no net loss of habitat quantity or quality in
17 Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to Category 2
18 habitat. The certificate holder must protect the quantity and quality of habitat within the
19 mitigation area for the life of the facility. ODFW has advised the Department that protection of
20 habitat alone (without enhancement activity) will not meet the intent of the "net benefit" goal.

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

36 After the certificate holder has demonstrated that the habitat quantity goals have been
37 achieved, the investigator shall verify, during subsequent monitoring visits, that the mitigation
38 area continues to meet the ODFW "no net loss" and "net benefit" goals described above. The
39 investigator shall recommend remedial action if the habitat quality within the mitigation area
40 falls below the habitat quantity goals listed above. The Department may require supplemental
41 planting, other corrective measures and additional monitoring as necessary to ensure that the
42 habitat quantity goals are achieved and maintained.

Montague ~~Wind Power~~Solar Facility: ~~Phase 2~~ Habitat Mitigation Plan

~~[AS AMENDED APRIL 2019]~~XXX 2020

1 **VII. Amendment of the Plan**

2 This *Habitat Mitigation Plan* may be amended from time to time by agreement of the
3 certificate holder and the Council. Such amendments may be made without amendment of the
4 site certificate. The Council authorizes the Department to agree to amendments to this plan. The
5 Department shall notify the Council of all amendments, and the Council retains the authority to
6 approve, reject or modify any amendment of this plan agreed to by the Department.

Draft Oregon Trail Solar Facility Habitat Mitigation Plan

Montague-Oregon Trail Wind PowerSolar Facility: Phase 2Draft Habitat Mitigation Plan

[AS AMENDED APRIL 2019XXX 2020]

I. Introduction

This plan describes methods and standards for preservation and enhancement of an area of land near the Montague-Oregon Trail Wind PowerSolar Facility (MWPF) to mitigate for the impacts of the facility on wildlife habitat.¹ ~~The certificate holder will construct the facility in two phases.~~ This plan addresses mitigation for ~~both~~ the permanent impacts of facility components ~~and the temporal impacts associated with the second phase (Phase 2) 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.

This plan was approved in September 2019 as part of the Energy Facility Siting Council's (EFSC) Final Order on Request for Amendment 4 of the Montague Wind Power Facility site certificate (Final Order on RFA4). Final Order on RFA4 approved modifications to the previously approved layout and specifications of wind facility components and the addition of approximately 1,189 acres of solar photovoltaic energy generation equipment. Within the 1,189 acres approved for solar facility components, the land was used for cultivation of dryland winter wheat and was designated habitat Category 6. In XX, 2020, the Council approved Final Order on Request for Amendment 5 of the Montague Wind Power Facility site certificate (Final Order on RFA5), authorizing previously approved facility components (Phase 2) to be allocated under original site certificates for facilities named Oregon Trail Solar Facility and Montague Solar Facility. The site certificate issued for the Oregon Trail Solar Facility was based entirely on the previously approved Montague Wind Power Facility site certificate; mitigation plans were based entirely on those approved in the Final Order on RFA4; modifications were incorporated into the site certificates and mitigation plans based on the allocation of previously approved facility components, location and type of equipment.

This Habitat Mitigation Plan is based on the draft amended plan provided as Attachment D of the Final Order on RFA4, revised accordingly to describe and apply to the Oregon Trail Solar Facility. The Oregon Trail Solar Facility is a 41 megawatt (MW) wind and solar photovoltaic energy facility. The facility could include use of up to 1,228 acres for solar photovoltaic energy generation components or up to 16 wind turbines, or any combination of equipment not to exceed 41 MW, within a 13,866 acre site boundary, in northeastern Gilliam County. This plan will be finalized, based on final facility layout and evaluation of habitat categories impacted, prior to construction.

II. Description of the Impacts Addressed by the Plan

The land area that will be occupied by ~~permanent Phase 2~~ facility components will mostly be cropland, but also includes areas of perennial bunchgrass and desirable shrubs. After

¹ This plan is incorporated by reference in the site certificate for the Montague-Oregon Trail Wind PowerSolar 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-Oregon Trail Wind PowerSolar Facility: Phase 2 Habitat Mitigation Plan

[AS AMENDED APRIL 2019XXX 2020]

1 disturbance, the recovery of perennial bunchgrass species to a mature stage might take five to
2 seven years; recovery of desirable shrubs such as bitterbrush and sagebrush might take ten to
3 30 years to reach maximum height and vertical branching. Even where recovery of these habitat
4 subtypes is successful, there is a loss of habitat quality during the period of time needed to
5 achieve recovery (temporal impact).

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

7 Before beginning construction ~~on Phase 2~~ of the facility, the certificate holder shall
8 provide to the Oregon Department of Energy (Department) a map showing the final design
9 configuration of ~~Phase 2 of~~ the facility and a table showing the estimated areas of permanent
10 impacts and construction area impacts on habitat (by category, habitat types, and habitat
11 subtypes). The certificate holder shall calculate the size of the mitigation area, as illustrated
12 below, based on the final design configuration ~~of Phase 2~~ of the facility. The certificate holder
13 shall implement the habitat enhancement actions described in this plan, after the Department has
14 approved the size of the mitigation area. This plan does not address additional mitigation that is
15 required under the Montague-Oregon Trail Wind PowerSolar Facility Wildlife Monitoring and
16 Mitigation Plan.

17 The mitigation area must be large enough to meet the habitat mitigation goals and
18 standards of the Oregon Department of Fish and Wildlife (ODFW) described in Oregon
19 Administrative Rule (OAR) 635-415-0025. The ODFW goals require mitigation to achieve “no
20 net loss” of habitat quantity or quality in Categories 2, 3 and 4 and a “net benefit” in habitat
21 quantity or quality for impacts to habitat in Categories 2 and 5. The MWPF MontagueOregon
22 Trail Solar Facility would not have any impacts on Category 1 or Category 5 habitats. Impacts
23 on Category 6 habitat does not require mitigation.

24 For the footprint impacts, the mitigation area includes two acres for every one acre of
25 Category 2 habitat affected (a 2:1 ratio) and one acre for every acre of footprint impacts to
26 Category 3 and 4 habitat (a 1:1 ratio). The 2:1 ratio for Category 2 is intended to meet the
27 ODFW goals of “no net loss” and “net benefit” of habitat quantity or quality for impacts to
28 Category 2 habitat. The 1:1 ratio for the footprint impacts to Category 3 and 4 habitat is intended
29 to meet the ODFW goal of “no net loss” of habitat in these categories.

30 To mitigate for temporary construction impacts, the mitigation area includes 2 acres for
31 every acre of Category 2 SSA (sagebrush shrub-steppe) habitat affected (a 2:1 ratio) and 1 acre
32 for every Category 3 or Category 4 SSA habitat affected (a 1:1 ratio). This portion of the
33 mitigation area is intended to address the temporal loss of habitat quality during the recovery of
34 SSA habitat disturbed during construction. The size of this portion of the mitigation area
35 assumes that restoration of disturbed SSA habitat is successful, as determined under the
36 Montague-Oregon Trail Wind PowerSolar Facility Revegetation Plan. If the revegetation success
37 criteria are not met in the affected areas, then the Oregon Energy Facility Siting Council
38 (“Council”) may require the certificate holder to provide additional mitigation.

Montague Oregon Trail Wind PowerSolar Facility: Phase 2 Habitat Mitigation Plan
[AS AMENDED APRIL 2019XXX 2020]

1 Areas of potential impact within each affected habitat category and the corresponding
2 mitigation area for each category are calculated as follows, based on maximum high-quality
3 habitat (Categories 2, 3, and 4) impact estimates ~~for Phase 2 (Design Scenario A)~~.²

4 Category 2

5 Footprint impacts: 2.10 acres

6 Temporary impacts to SSA: 0.2 acre

7 Mitigation area requirement: $(2.10 \text{ acres} \times 2) + (0.2 \text{ acre} \times 2) = 4.60 \text{ acres}$

8 Category 3

9 Footprint impacts: 0.44 acre

10 Temporary impacts to SSA: 0.09 acre

11 Mitigation area requirement: $0.44 \text{ acre} + (0.09 \text{ acre} \times 1) = 0.53 \text{ acre}$

12 Category 4

13 Footprint impacts: 0.09 acre

14 Mitigation area requirement: 0.09 acre

15 **Total mitigation area ~~for Phase 2 (Design Scenario A) of the MWPF~~ (rounded up to**
16 **nearest whole acre): 6 (5.22) acres**

² Table 9 [Temporary and Permanent Disturbance by Habitat Category and Subtype – Phase 2 Design Scenario A (Maximum Wind Layout)] in Attachment P-11 (Avian Use and Habitat Disturbance Supporting Data) of Exhibit P in Request for Amendment No. 4 to the Site Certificate for the Montague Wind Power Facility (Montague Wind Power Facility, LLC, 2017).

IV. Description of the Mitigation Area

The certificate holder has selected a mitigation area in proximity to the facility where habitat protection and enhancement are feasible consistent with this plan.³ The certificate holder has 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 certificate holder has an option for establishing a conservation easement for the MWPF Oregon Trail Solar Facility on the remaining acres.⁵ If sufficient land for Phase 2 of the MWPF the 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 Phase 2~~ of the facility, the certificate holder shall determine the final size of the mitigation area needed ~~for Phase 2~~. 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 quantity or quality 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 Phase 2~~ 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 Phase 2~~ of the MWPF Oregon Trail Solar Facility and meet the ODFW goals of no net loss of habitat quantity or quality 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 ~~Phase 2 of~~ the facility as soon as the size of the mitigation area has been determined and approved by the Department. The certificate holder shall implement the following enhancement actions within the habitat mitigation area:

- 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

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 Montague Wind Power Facility 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-Oregon Trail Wind PowerSolar Facility: Phase 2 Habitat Mitigation Plan

[AS AMENDED APRIL 2019XXX 2020]

1 vegetative structure and complexity for a variety of wildlife. Reduced livestock grazing
2 may be used as a vegetation management tool, limited to the period from February 1
3 through April 15.

4 2) Shrub Planting. The certificate holder shall plant sagebrush shrubs in locations within the
5 habitat mitigation area where existing sagebrush is stressed or where recent (2008)
6 wildfires have occurred. The certificate holder shall determine the size of the shrub-
7 planting areas based on the professional judgment of a qualified biologist after a ground
8 survey of actual conditions. The size of the shrub-planting areas will depend on the
9 available mitigation area and opportunity for survival of planted shrubs. The certificate
10 holder shall complete the initial sagebrush planting within one year after the beginning of
11 construction ~~of Phase 2 of the MWPF~~. Supplementing existing, but disturbed, sagebrush
12 areas with sagebrush seedlings would assist the recovery of this valuable shrub-steppe
13 component. The certificate holder shall obtain shrubs from a qualified nursery or grow
14 shrubs from native seeds gathered from the mitigation area. The certificate holder shall
15 identify the area to be planted with sagebrush shrubs after consultation with ODFW and
16 subject to final approval by the Department. The certificate holder shall mark the planted
17 sagebrush clusters at the time of planting for later monitoring purposes and shall keep a
18 record of the number of shrubs planted.

19 3) Weed Control. The certificate holder shall implement a weed control program. Under the
20 weed control program, the certificate holder shall monitor the mitigation area to locate
21 weed infestations. The certificate holder shall continue weed control monitoring, as
22 needed, for the life of the facility. As needed, the certificate holder shall use appropriate
23 methods to control weeds. Weed control on the mitigation site will reduce the spread of
24 noxious weeds within the habitat mitigation area and on any nearby grassland,
25 Conservation Reserve Program or cultivated agricultural land. Weed control will promote
26 the growth of desirable native vegetation and planted sagebrush. The certificate holder
27 may consider weeds to be successfully controlled when weed clusters have been
28 eradicated or reduced to a non-competing level. Weeds may be controlled with herbicides
29 or hand-pulling. The certificate holder shall notify the landowner of the specific
30 chemicals to be used on the site and when spraying will occur. To protect locations where
31 young desirable forbs may be growing, spot-spraying may be used instead of total area
32 spraying.

33 4) Fire Control. The certificate holder shall implement a fire control plan for wildfire
34 suppression within the mitigation area. The certificate holder shall provide a copy of the
35 fire control plan to the Department before starting habitat enhancement actions. The
36 certificate holder shall include in the plan appropriate fire prevention measures, methods
37 to detect fires that occur and a protocol for fire response and suppression. The certificate
38 holder shall maintain fire control for the life of the facility. If any part of the mitigation
39 area is damaged by wildfire, the certificate holder shall assess the extent of the damage
40 and implement appropriate actions to restore habitat quality in the damaged area.

41 5) Habitat Protection. The certificate holder shall restrict uses of the mitigation area that are
42 inconsistent with the goals of no net loss of habitat quantity or quality in Categories 2, 3
43 and 4 and a net benefit in Category 2 habitat quantity or quality.

1 **VI. Monitoring**

2 **1. Monitoring Procedures**

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

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

- 11 1) Annually assess vegetation cover (species, structural stage, etc.) and progress toward
12 meeting the success criteria.
- 13 2) Annually record environmental factors (such as precipitation at the time of surveys
14 and precipitation levels for the year).
- 15 3) Annually record any wildfire that occurs within the mitigation area and any remedial
16 actions taken to restore habitat quality in the damaged area.
- 17 4) Annually assess the success of the weed control program and recommend remedial
18 action, if needed.
- 19 5) Assess the recovery of native bunchgrass and natural recruitment of sagebrush
20 resulting from removal of livestock grazing pressure and recovery post-fire by
21 comparing the quality of bunchgrass and sagebrush cover at the time of each
22 monitoring visit with the quality observed in previous monitoring visits and as
23 observed when the mitigation area was first established. The investigator shall
24 establish photo plots of naturally recovering sagebrush and native bunchgrass during
25 the first year following the beginning of construction of the MWPF Oregon Trail Solar
26 Facility. The investigator shall take comparison photos in the first year and in every
27 other year thereafter until the subject vegetation has achieved mature stature. The
28 investigator shall determine the extent of successful recovery of native bunchgrass
29 based on measurable indicators (such as signs of more abundant seed production) and
30 shall report on the progress of recovery within in the monitoring plots. The
31 investigator shall report on the timing and extent of any livestock grazing that has
32 occurred within the mitigation area since the previous monitoring visit.
- 33 6) Assess the survival rate and growth of planted sagebrush. At the time of planting,
34 sagebrush clusters will be marked for monitoring. The investigator shall select several
35 planted clusters for photo monitoring and shall take close-up and long-distance digital
36 images of each selected cluster during monitoring visits. The certificate holder shall
37 determine the number of clusters to be photo-monitored at the time of planting in
38 consultation with the Department and ODFW, based on the number of clusters
39 planted. The investigator shall take comparison photos in the first year following the
40 initial sagebrush planting and in every other year thereafter until the surviving planted
41 sagebrush has achieved mature stature. In each monitoring year, the investigator shall
42 determine and report the survival rate of planted sagebrush. Based on past experience
43 of restoration specialists for other sagebrush planting projects, a survival rate as high

Montague Oregon Trail Wind Power Solar Facility: Phase 2 Habitat Mitigation Plan

[AS AMENDED APRIL 2019 XXX 2020]

1 as 50 percent can be achieved if there are years of high soil moisture, but a more
2 typical survival rate is 2 surviving shrubs per 10 planted (20 percent) after four years.
3 Shrub planting will be considered successful if a 20 percent survival rate is achieved
4 after four years. The investigator shall recommend remedial action when, in the
5 investigator’s judgment, the survival rate of planted sagebrush is inadequate to
6 demonstrate a trend toward an improvement in habitat quality.

7 The certificate holder shall report the investigator’s findings and recommendations
8 regarding the monitoring of the mitigation area to the Department and to ODFW on an annual
9 basis. In the annual mitigation area report, the certificate holder shall describe all habitat
10 mitigation actions carried out during the reporting year. The mitigation area report may be
11 included as part of the annual report on the MWPF Oregon Trail Solar Facility that is required by
12 the site certificate.

13 **2. Success Criteria**

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

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

36 After the certificate holder has demonstrated that the habitat quantity goals have been
37 achieved, the investigator shall verify, during subsequent monitoring visits, that the mitigation
38 area continues to meet the ODFW “no net loss” and “net benefit” goals described above. The
39 investigator shall recommend remedial action if the habitat quality within the mitigation area
40 falls below the habitat quantity goals listed above. The Department may require supplemental
41 planting, other corrective measures and additional monitoring as necessary to ensure that the
42 habitat quantity goals are achieved and maintained.

1 **VII. Amendment of the Plan**

2 This *Habitat Mitigation Plan* may be amended from time to time by agreement of the
3 certificate holder and the Council. Such amendments may be made without amendment of the
4 site certificate. The Council authorizes the Department to agree to amendments to this plan. The
5 Department shall notify the Council of all amendments, and the Council retains the authority to
6 approve, reject or modify any amendment of this plan agreed to by the Department.

Attachment E Draft Amended Revegetation Plans

Draft Amended Montague Wind Facility Revegetation Plan

Draft Montague Solar Facility Revegetation Plan

Draft Oregon Trail Solar Facility Revegetation Plan

Draft Amended Montague Wind Facility Revegetation Plan

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ **XX 2020**]

1 I. Introduction

2 This plan describes methods, success criteria, monitoring and reporting requirements for
3 restoration of areas temporarily disturbed during the construction of the Montague Wind Power
4 Facility (MWPF), excluding areas occupied by permanent facility components (the “footprint”).¹
5 The objective of revegetation is to restore the disturbed areas to pre-disturbance conditions or
6 better. The evaluation of pre-disturbance conditions is based upon evaluation of the revegetated
7 area conditions compared to conditions of approved, fixed-point reference sites, which serve as a
8 proxy for pre-disturbance conditions. It is important to note, however, that habitat conditions at
9 reference sites may fluctuate over time depending on climate and landscape-scale shifts in plant
10 communities, as further described in Section VII. The site certificate for the facility requires
11 restoration of disturbed areas to satisfy the requirements of the Fish and Wildlife Habitat
12 standard (OAR 345-022-0060).

13 This plan was developed in consultation with the Oregon Department of Fish and
14 Wildlife (ODFW) and approved by the Energy Facility Siting Council in the *Final Order on the*
15 *Application for Site Certificate* issued in September 2010. The Revegetation Plan was amended
16 in September 2017, to satisfy requirements of Condition 92, based upon final **Phase 1** facility
17 design/layout and habitat impact assessment completed in 2017 to satisfy requirements of
18 Condition 31. Temporary habitat impacts (Categories 2, 3 and 4) required to be mitigated
19 through revegetation, as evaluated in September 2017 during pre-construction of the facility, are
20 represented in Table 1 below and temporary disturbance locations are presented in the attached
21 figure.

22 The amended Habitat Mitigation Plan (Condition 93), as approved in September 2017,
23 describes the area of both permanent and temporary disturbance anticipated during construction
24 and operation of the MWPF. In XX, 2020, the Council approved Final Order on Request for
Amendment 5 of the Montague Wind Power Facility site certificate (Final Order on RFA5),
authorizing amendment of the Montague Wind Power Facility site certificate to cover only Phase
1 facility components; and, previously approved facility components (Phase 2) to be allocated
under original site certificates for facilities named Montague Solar Facility and Oregon Trail Solar
Facility. This plan is based on the plan finalized prior to Phase 1 facility construction (August
2017), revised accordingly to describe and apply to the facility components allocated in the
Montague Wind Power Facility, as approved in Final Order on RFA5. The Montague Wind Power
Facility is a 201 MW wind energy facility, including 56 wind turbines, located in northeastern
Gilliam County. The Montague Wind Power Facility resulted in permanent impacts to Category 2,
3 and 4 habitat. Mitigation requirements are described in the following sections.

2425 The temporarily affected area includes cultivated or otherwise developed agricultural land
(cropland) as well as areas of grassland, shrub-steppe habitat and other habitat subtypes (wildlife
habitat areas). The intensity of the construction impact will vary.

2526

2627 In some areas, the impact will be relatively light, but in other areas, heavy construction activity
2728 will remove all vegetation, remove topsoil, and compact the remaining subsoil. Where vegetation
2829 has been damaged or removed during construction, the certificate holder must restore suitable
2930 vegetation. In addition, the certificate holder shall maintain erosion and sediment control

~~3031~~ measures put in place during construction until the affected areas are restored as described in this
~~3432~~ plan and the revegetation efforts have succeeded enough to control erosion. When there is
~~3233~~ enough grass in place to hold the soil the control measures can be removed. The plan specifies
~~3334~~ monitoring procedures to evaluate revegetation success of disturbed wildlife habitat areas.
~~3435~~ Remedial action may be necessary for wildlife habitat areas that do not show revegetation
~~3536~~ progress. Compensatory mitigation may be necessary if revegetation is unsuccessful.
~~3637~~

¹This 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: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

1 II. Description of the Facility Site

2 The facility is in Gilliam County, Oregon. The facility site is on private agricultural land
3 used primarily for wheat and hay farming and livestock grazing. Most of the facility components
4 are located on four primary soil types: the Olex Unit, the Ritzville Unit, the Warden Unit and the
5 Willis Unit. Soils are typically well-drained, moderately permeable, fertile silt loams formed in
6 loess deposits. The area receives between approximately 9 and 14 inches of precipitation
7 annually, most of which occurs between October 1 and March 31.

8 The site is within the Columbia Plateau physiographic province. The facility is located on an
9 upland plateau at elevations ranging from approximately 530 feet to 1,520 feet. Most of the
10 native vegetation within the site boundary has been modified by historic and ongoing livestock
11 grazing and past wildfires.

12 The general land cover types within the site boundary are Developed, Exposed Rock, Grassland,
13 Shrub-steppe and Woodland. Specifically, functional, mature sagebrush (big sage) shrub-steppe
14 and juniper woodland habitat is patchy, occurring in specific locations within the site boundary.
15 Sagebrush (big sage) shrub-steppe is found on deep soils in patches throughout the site and
16 higher quality habitat is usually found on slopes or in draws that have been avoided for
17 agricultural development. Juniper woodland habitat is present in portions of the site, but
18 individual juniper trees are scattered sparsely in other habitats. Wildfires have removed some
19 juniper trees in the Eightmile Canyon area. Riparian woodland habitat within the site is limited to
20 one narrow intermittent linear course in Eightmile canyon. Rabbitbrush/Snakeweed shrub-steppe
21 habitat is the most prevalent native habitat type within the site. Rabbitbrush/Snakeweed shrub-
22 steppe is more prevalent in the north, west and middle portions of the site, with smaller patches
23 distributed throughout much of the site. Native perennial grassland is also present throughout
24 much of the north, middle and south portions of the site.

25 1. Description of the Wildlife Habitat Revegetation Areas

26 Wildlife habitat areas temporarily impacted during construction, based upon the
27 certificate holder's pre-construction evaluation, are presented in Table 1 below and depicted in
28 the attached figure.²

Table 1: Summary of Wildlife Habitat Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Category 2	
Grassland – Exotic Annual	1.1
Grassland – Native Perennial	0.9
Shrub-steppe – Sagebrush (Big Sage)	1.4
Shrub-steppe – Rabbitbrush/Snakeweed	12.4
Category 2 Subtotal =	15.8
Developed – CRP or Other Planted Grassland	1.4
Developed-Revegetated or Other Planted Grassland	1.0

² MWPOPS Condition 31 Habitat Mitigation Plan (August 2017)

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

Table 1: Summary of Wildlife Habitat Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Grassland – Native Perennial	13.9
Shrub-steppe – Sagebrush (Big Sage)	0.5
Shrub-steppe – Rabbitbrush/Snakeweed	2.7
Category 3 Subtotal =	19.5
Developed-Revegetated or Other Planted Grassland	1.8
Grassland – Exotic Annual	4.2
Shrub-steppe – Rabbitbrush/Snakeweed	5.2
Category 4 Subtotal =	11.2
Total Temporary Impacts to Wildlife Habitat Areas (Categories 2, 3 and 4) =	46.5 Acres

1
2 **2. Description of the Cropland Revegetation Areas**
3 Cropland areas temporarily impacted during construction, based upon the certificate
4 holder’s pre-construction evaluation, are presented in Table 2 below and depicted in the attached
5 figure.³

Table 2: Summary of Cropland Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Category 6	
Developed – Dryland Wheat	607.6
Developed – Other	3.3
Total Temporary Impacts to Cropland Areas (Category 6) =	610.9

6
7 **III. Pre-Revegetation Agency Consultation and Revegetation Methods**

8 The certificate holder shall consult with ODFW, ODOE and Gilliam County Weed
9 Control Authority prior to construction to discuss the area(s) to be restored, habitat category and
10 habitat subtype conditions, reference plot location and conditions, topsoil restoration and
11 revegetation methods, erosion and sediment control measures, and implementation schedule.

12
13 During construction the certificate holder will implement site stabilization measures, including
14 seeding of temporarily disturbed areas according to its NPDES permit. Six months prior to
15 commercial operation, the certificate holder will meet with ODFW, ODOE, and Gilliam County
16 Weed Control Authority to review the actual extent and conditions of temporarily impacted
17 areas, confirm the revegetation methods agreed to during pre-construction review are still
18 appropriate, and to re-visit reference areas.

³ MWPOPS Condition 31 Habitat Mitigation Plan DATE
MONTAGUE WIND POWER FACILITY

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

1 The certificate holder shall restore temporarily disturbed wildlife habitat areas by
2 preparing the soil and seeding using common application methods. In areas where soil is
3 removed during construction, the topsoil shall be stockpiled separately from the subsurface soils.
4 The conserved soil shall be put back in place as topsoil prior to revegetation activities.
5 Additional site-specific soil preparation and seeding methods may be determined during the
6 agency consultation period. The certificate holder shall use mulching and other appropriate
7 practices to control erosion and sediment during construction and during revegetation work. The
8 certificate holder shall select the seed mixes to apply based on the pre-construction land use, as
9 described below. At the recommendation of ODFW, the grass seed mix will be comprised of
10 grasses only in order to maximize flexibility for weed control. The certificate holder shall consult
11 with ODFW as described in Section V below regarding appropriate seeding or planting per site-
12 specific restoration needs.

13 1. Seed Planting Methods

14 Planting should be done based on ODFW and Gilliam County Weed Control Authority
15 recommendations and in consultation with the seeding contractor at the appropriate time of year
16 to facilitate seed germination, based on weather conditions and the time of year when
17 construction-related ground disturbance occurs. The certificate holder shall choose planting
18 methods based on site-specific factors such as slope, erosion potential and the size of the area in
19 need of revegetation. Disturbed ground may require chemical or mechanical weed control before
20 weeds have a chance to go to seed. Two common application methods are described as follows.

21 (a) Broadcasting

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

31 (b) Drilling

32 Using an agricultural or range seed drill, drill seed at 70 percent of the recommended
33 application rate to a depth of ¼ inch or as recommended by the seed supplier. Where feasible,
34 apply half of the total mix in one direction and the second half of mix in the direction
35 perpendicular to first half. If mulch has been previously applied, seed may be drilled through the
36 mulch provided the drill can penetrate the straw resulting in seed-to-soil contact conducive for
37 germination.

38 IV. Restoration of Cropland

39 The certificate holder shall seed disturbed cropland areas with wheat or other crop seed.
40 The certificate holder shall consult with the landowner and farm operator to determine species
41 composition, seed and fertilizer application rates and application methods.

42 Cropland areas are successfully revegetated when the replanted areas achieve crop
43 production comparable to adjacent non-disturbed cultivated areas. The certificate holder shall

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~XX 2020]

1 consult with the landowner or farmer to determine whether these areas have been successfully
2 revegetated and shall report to the Oregon Department of Energy (Department) on the success of
3 revegetation in these areas.

4 **V. Restoration of Wildlife Habitat Areas**

5 The certificate holder shall implement topsoil salvage and restoration methods as
6 recommended by ODFW , the Gilliam County Weed Control Authority and the contractor, and
7 could include measures such as scraping and stockpiling the upper 6 inches of topsoil containing
8 the fertile nutrients, to be segregated in windrows, kept intact and protected, for use as the top-
9 dressing for the area of disturbance.

10 The certificate holder shall seed all disturbed grassland, shrub-steppe, and other wildlife
11 habitat subtype areas, as identified in Table 1 above, that are not cropland or other developed
12 lands. The certificate holder shall consult with ODFW, Gilliam County Weed Control Authority,
13 the landowner and the contractor to determine the appropriate seed mix and application rate for
14 these areas based on the characteristics of the affected area. At the recommendation of ODFW,
15 the grass seed mix will be comprised of grasses only in order to maximize flexibility for weed
16 control. The mix should contain native or native like species selected based on relative
17 availability and compatibility with local growing conditions. Seed mix selection should consider
18 soil erosion potential, soil type, seed availability and the need for using native or native-like
19 species. The certificate holder shall obtain approval of the composition of the seed mix from the
20 Department. The certificate holder shall use seed provided by a reputable supplier and complying
21 with the Oregon Seed Law. The certificate holder shall obtain young native shrub species from a
22 qualified nursery or suitable transplants from MWPF construction zones.

23 **VI. Noxious Weed Prevention and Control**

24 The certificate holder shall implement weed prevention and control measures prior to and during
25 revegetation efforts. The construction contractor will take the following measures to avoid, minimize, or
26 reduce the impacts of noxious weeds:

- 27 • Use weed-free project staging areas.
- 28 • Clean equipment prior to entry into revegetation areas.
- 29 • Existing infestations of noxious weed shall be treated prior to revegetation.
- 30 • Infestation of noxious weeds that appear during revegetation efforts shall be spot treated
31 immediately to prevent expansion.
- 32 • Ground application of herbicides will be with a driplless wand applicator carried over the
33 site either on foot in a backpack sprayer or in a tank on a rubber-tired all-terrain vehicle.
34 Herbicide(s) used will be limited to types that do not move through the soil and whose
35 affect is immediate but short-lived. Herbicide(s) used within 200 feet of waterbodies will be
36 approved for use near or in wetlands to avoid unintentional affects to aquatic species.
- 37 • Herbicide mixes will be colored with dye to aid in post-application monitoring.
- 38 • Following completion of revegetation, weed monitoring and any necessary control efforts
39 will be completed annually.

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

1 VII. Monitoring

2 1. Revegetation Record

3 The certificate holder shall maintain a record of revegetation work for wildlife habitat
4 areas. In the record, the certificate holder shall include the date that construction activity was
5 completed in the area to be restored, a description of the affected area and supporting figures
6 representing the location (location, acres affected and pre-disturbance condition), the date that
7 revegetation work began and a description of the work done within the affected area. The
8 certificate holder shall report restoration activities to the Department for the first 5-years after the
9 completion of facility construction. After five years, any restoration actions will be described in
10 the annual report per OAR 345-026-0080(e).

11 2. Monitoring Procedures

12 The certificate holder shall identify reference sites in consultation with ODFW.
13 Reference sites shall be chosen to represent each of the habitat types shown in Table 1 above.
14 Once the reference sites are approved by ODFW, the certificate holder shall monitor those sites
15 to establish baseline conditions as they relate to the success criteria for the project.
16 Documentation of baseline conditions at reference sites shall occur prior to commencement of
17 revegetation efforts. The certificate holder shall monitor the revegetation of wildlife habitat areas
18 as described in this section, unless the landowner has converted the area to a use inconsistent
19 with the success criteria. The certificate holder shall employ a qualified investigator (a botanist
20 or revegetation specialist) to examine all non-cropland revegetation areas to assess vegetation
21 cover of the reference sites prior to construction (species, structural stage, etc.); and following
22 completion of construction, the qualified investigator shall assess the progress of disturbed areas
23 toward meeting the success criteria described below.

24 Weed Control

25 A qualified investigator shall inspect each revegetation area on an annual basis during
26 the first five years following initial seeding to assess weed growth and to recommend weed
27 control measures. The investigator shall report to the certificate holder, the Department, and
28 ODFW in the semi-annual revegetation monitoring report following each inspection, describing
29 weed growth and the success of control measures. If control measures are ineffective, the
30 certificate holder will confer with the Department, ODFW, and the Gilliam County Weed
31 Control Authority to develop alternative control measures.

32 Wildlife Habitat Recovery

33 After the first growing season following initial seeding (Year 1), a qualified investigator
34 shall inspect each revegetation area to assess revegetation success based on the success criteria
35 and to recommend remedial actions, if needed. The qualified investigator shall reinspect these
36 areas annually for the first 5-years following the completion of construction. The certificate
37 holder shall submit, electronically, to the Department and ODFW the investigator revegetation
38 inspection report in the semi-annual revegetation monitoring report following each inspection.
39 The report shall include the investigator's assessment of whether the revegetated areas are
40 trending toward meeting the success criteria; assessment of factors impacting the ability of the
41 revegetated area to trend towards meeting the success criteria; description of appropriate weed
42 control measures as recommended by the Department, ODFW and Gilliam County Weed
43 Control Authority; and, any remedial actions recommended.

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

1 Following the Year 5 revegetation monitoring the certificate holder shall confer with the
2 Department and ODFW to develop an action plan for subsequent years. If an area is not trending
3 toward meeting the success criteria at Year 5 and has not been converted by the landowner to an
4 inconsistent use, the certificate holder may propose and the Department may require remedial
5 action and additional monitoring based on an evaluation of site capability. As an alternative, the
6 certificate holder or the Department may conclude that revegetation of the area was unsuccessful
7 and propose appropriate mitigation for the permanent loss of habitat quality and quantity. The
8 certificate holder shall implement the action plan, subject to the approval of the Department.

9 The certificate holder's qualified investigator shall evaluate whether a wildlife habitat
10 area is trending toward meeting the success criteria by comparing the revegetation area to an
11 approved reference area. In consultation with the Department and ODFW, prior to construction,
12 the investigator shall choose reference sites near the revegetation area to represent the target
13 conditions for the revegetation effort. The investigator shall select one or more reference sites
14 that closely resemble the pre-disturbance characteristics of the revegetation area as indicated by
15 site conditions, including vegetation density, relative proportion of desirable vegetation, and
16 species diversity of desirable vegetation. "Desirable vegetation" means those species included in
17 the seed mix or native or native-like species, excluding noxious weeds. "Noxious weeds" are
18 defined as non-native species as identified as noxious on state or county noxious weed lists. The
19 investigator shall consider land use patterns, soil type, local terrain, and noxious weed densities
20 in selecting reference sites. It is likely that different reference sites will be needed to represent
21 different pre-disturbance habitat conditions of the disturbed areas. Once reference sites are
22 selected by the certificate holder and approved by the Department and ODFW, the reference site
23 shall remain in the same location unless approval for use of a differing reference site is obtained
24 by the Department and ODFW. In the first semi-annual revegetation monitoring report submitted
25 to the Department, the certificate holder shall provide a map and table presenting the latitude and
26 longitude of the reference sites.

27 During the initial 5-years of annual monitoring, the certificate holder's qualified
28 investigator shall compare the revegetation area to the selected reference sites, unless some event
29 (such as wildfire, tilling, or intensive livestock grazing) has changed the vegetation conditions of
30 a reference site so that it no longer represents undisturbed conditions of the revegetation area. If
31 such events have eliminated all suitable reference sites for a revegetation area, the investigator,
32 in consultation with the Department and ODFW, shall select one or more new reference sites.
33 Following the selection of a new reference site, an updated table and latitude/longitudinal data
34 shall be provided to the Department within the semi-annual monitoring report or annual
35 compliance report, whichever report is submitted first.

36 The certificate holder will submit its vegetation monitoring methodology to ODFW and
37 ODOE for approval prior to assessing baseline conditions and prior to annual monitoring. Within
38 each revegetation area, the investigator shall evaluate the progress of wildlife habitat recovery in
39 comparison to the reference sites. The investigator shall evaluate the following site conditions
40 (both within the revegetation area and within the reference sites):

- 41 • Degree of erosion due to disturbance activities (high, moderate, or low).
- 42 • Vegetation density.

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

- 1 • Relative proportion of desirable vegetation as determined by the average number of
2 stems of desirable vegetation per square foot or by a visual scan of the area, noting
3 overall recovery status.
- 4 • Species diversity of desirable vegetation.

5 The certificate holder shall report the investigator's findings and recommendations
6 regarding wildlife habitat recovery and revegetation success in the semi-annual revegetation
7 monitoring report to the Department and to ODFW.

8 **3. Success Criteria**

9 In each revegetation monitoring report to the Department, the certificate holder shall
10 provide an assessment of revegetation success for all previously-disturbed wildlife habitat areas.
11 A wildlife habitat area is successfully revegetated when its habitat quality is equal to, or better
12 than, the habitat quality of the reference site as follows:

- 13 • Vegetation density is equal to or greater than that of the reference site.
- 14 • Relative proportion of desirable vegetation is equal to or greater than that of the
15 reference site.
- 16 • Species diversity of desirable vegetation is equal to or greater than that of the
17 reference site.

18 When the Department finds that the condition of a wildlife habitat area satisfies the
19 criteria for revegetation success, the Department shall conclude that the certificate holder has met
20 its restoration obligations for that area. If the Department finds that the landowner has converted
21 a wildlife habitat area to a use that is inconsistent with these success criteria, the Department
22 shall conclude that the certificate holder has no further obligation to restore the area for wildlife
23 habitat uses.

24 **4. Remedial Action**

25 After each monitoring visit, the certificate holder's qualified investigator shall report to
26 the certificate holder regarding the revegetation progress of each wildlife habitat area. The
27 investigator shall make recommendations to the certificate holder for reseeding, weed control or
28 other remedial measures for areas that are not showing progress toward achieving revegetation
29 success based upon consultation with the Department, ODFW, the Gilliam County Weed Control
30 authority, and the contractor. The investigator shall provide a description of causal factors that
31 may be contributing to the lack of revegetation success. The certificate holder shall take
32 appropriate action to meet the objectives of this revegetation plan. The certificate holder shall
33 report the investigator's recommendations and the remedial measures taken to the Department in
34 the semi-annual revegetation monitoring report. The Department may require reseeding, weed
35 control or other remedial measures in those areas that are not trending towards meeting the
36 success criteria by year 5.

37 If a wildlife habitat area is damaged by wildfire during the first five years following
38 initial seeding, the certificate holder shall work with the landowner to restore the damaged area.
39 The certificate holder shall continue to report on revegetation progress during the remainder of
40 the five-year period. The certificate holder shall report to the Department and ODFW the area

Montague Wind Power Facility: Revegetation Plan

[AS AMENDED ~~SEPTEMBER 2017~~ XX 2020]

1 impacted by the fire (map or figure), damage caused by wildfire (including acreage and facility
2 components impacted) and the cause of the fire, if known.

3 **VIII. Amendment of the Plan**

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

Draft Montague Solar Facility Revegetation Plan

Montague ~~Wind Power Solar~~ Facility: ~~Phase 2~~ Revegetation Plan

[AS AMENDED APRIL 2019 XX 2020]

I. Introduction

This plan describes methods, success criteria, and monitoring and reporting requirements for restoration of areas temporarily disturbed during the construction of ~~Phase 2~~ of the Montague ~~Wind Power Solar~~ Facility (~~MWPF~~), excluding areas occupied by permanent facility components (the “footprint”).¹ The objective of revegetation is to restore the disturbed areas to pre-disturbance conditions or better. The evaluation of pre-disturbance conditions is based on evaluation of the revegetated area conditions compared to conditions of approved, fixed-point reference sites, which serve as a proxy for pre-disturbance condition. It is important to note, however, that habitat conditions at reference sites may fluctuate over time depending on climate and landscape-scale shifts in plant communities, as further described in Section VI. The site certificate for the facility requires restoration of disturbed areas to satisfy the requirements of the Fish and Wildlife Habitat standard (OAR 345-022-0060).

This plan was developed in consultation with the Oregon Department of Fish and Wildlife (ODFW) and approved by the Oregon Energy Facility Siting Council (“Council”) in the *Final Order on the Application for Site Certificate* issued in September 2010. The plan was amended in September 2017 to satisfy the requirements of Condition 92, based on the final Phase 1 facility design/layout and habitat impact assessment completed in 2017 to satisfy requirements of Condition 31. Temporary habitat impacts (Categories 2, 3 and 4) required to be mitigated through revegetation, as evaluated in September 2017 during pre-construction of the facility, are represented in Table 1 below and temporary disturbance locations are presented on the attached figure.

In XX, 2020, the Council approved Final Order on Request for Amendment 5 of the Montague Wind Power Facility site certificate (Final Order on RFA5), authorizing previously approved facility components (Phase 2) to be allocated under original site certificates for facilities named Montague Solar Facility and Oregon Trail Solar Facility. The site certificate issued for the Montague Solar Facility was based entirely on the previously approved Montague Wind Power Facility site certificate; mitigation plans were based entirely on those approved in the Final Order on RFA4; modifications were incorporated into the site certificates and mitigation plans based on the allocation of previously approved facility components, location and type of equipment.

The Montague Solar Facility is a 162 megawatt (MW) solar photovoltaic energy facility located within a 1,496 solar micro-siting area and 1,763 acre site boundary, in northeastern Gilliam County.

The ~~Phase 2~~ *Habitat Mitigation Plan* (Condition 93) describes the area of both permanent and temporary disturbance anticipated during construction and operation of the ~~MWPF~~ facility. The temporarily affected area includes cultivated or otherwise developed agricultural land (cropland) as well as areas of grassland, shrub-steppe habitat and other habitat subtypes (wildlife habitat areas). The intensity of the construction impact will vary. In some areas, the impact will

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~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 be relatively light, but in other areas, heavy construction activity will remove all vegetation,
2 remove topsoil, and compact the remaining subsoil. Where vegetation has been damaged or
3 removed during construction, the certificate holder must restore suitable vegetation. In addition,
4 the certificate holder shall maintain erosion and sediment control measures put in place during
5 construction until the affected areas are restored as described in this plan and the revegetation
6 efforts have succeeded enough to control erosion. When there is enough grass in place to hold
7 the soil, the control measures can be removed. The plan specifies monitoring procedures to
8 evaluate revegetation success of disturbed wildlife habitat areas. Remedial action may be
9 necessary for wildlife habitat areas that do not show revegetation progress. Compensatory
10 mitigation may be necessary if revegetation is unsuccessful.

11 **II. Description of the Facility Site**

12 The facility is in Gilliam County, Oregon. The facility site is on private agricultural land
13 used primarily for wheat and hay farming and livestock grazing. Most of the facility components
14 are located on four primary soil types: the Olex Unit, the Ritzville Unit, the Warden Unit, and the
15 Willis Unit. Soils are typically well-drained, moderately permeable, fertile silt loams formed in
16 loess deposits. The area receives between approximately 9 and 14 inches of precipitation
17 annually, most of which occurs between October 1 and March 31.

18 The site is within the Columbia Plateau physiographic province. The facility is located on
19 an upland plateau at elevations ranging from approximately 530 feet to 1,520 feet. Most of the
20 native vegetation within the site boundary has been modified by historical and ongoing livestock
21 grazing and past wildfires.

22 The general land cover types within the site boundary are Developed, Exposed Rock,
23 Grassland, Shrub-steppe, and Woodland. Specifically, functional, mature sagebrush (big sage)
24 shrub-steppe and juniper woodland habitat is patchy, occurring in specific locations within the
25 site boundary. Sagebrush (big sage) shrub-steppe is found on deep soils in patches throughout
26 the site and higher quality habitat is usually found on slopes or in draws that have been avoided
27 for agricultural development. Juniper woodland habitat is present in portions of the site, but
28 individual juniper trees are scattered sparsely in other habitats. Wildfires have removed some
29 juniper trees in the Eightmile Canyon area. Riparian woodland habitat within the site is limited to
30 one narrow intermittent linear course in Eightmile canyon. Rabbitbrush/Snakeweed shrub-steppe
31 habitat is the most prevalent native habitat type within the site. Rabbitbrush/Snakeweed shrub-
32 steppe is more prevalent in the north, west and middle portions of the site, with smaller patches
33 distributed throughout much of the site. Native perennial grassland is also present throughout
34 much of the north, middle and south portions of the site.

35 **1. Description of the Wildlife Habitat Revegetation Areas**

36 Wildlife habitat areas temporarily impacted during construction, based on the certificate
37 holder’s pre-construction evaluation, are presented in Table 1 and depicted on the attached
38 figure.²

Table 1: Summary of Wildlife Habitat Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Category 2	

² MWPOPS Condition 31 *Habitat Mitigation Plan* (amended January 2018)

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan
[AS AMENDED JANUARY 2018XX 2020]

Table 1: Summary of Wildlife Habitat Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Grassland – Exotic Annual	10.22
Developed-Revegetated or Other Planted Grassland	11.03
Category 2 Subtotal =	21.25
Category 3	
Developed – CRP or Other Planted Grassland	0.14
Developed-Revegetated or Other Planted Grassland	7.82
Grassland – Native Perennial	0.01
Shrub-steppe – Sagebrush (Big Sage)	0.29
Category 3 Subtotal =	8.26
Category 4	
Grassland – Exotic Annual	0.85
Category 4 Subtotal =	0.85
Total Temporary Impacts to Wildlife Habitat Revegetation Areas (Categories 2, 3 and 4) =	30.36 Acres

1

2 **2. Description of the Cropland Revegetation Areas**

3 Cropland areas temporarily impacted during construction, based on the certificate
 4 holder’s pre-construction evaluation, are presented in Table 2 and depicted on the attached
 5 figure.³

Table 2: Summary of Cropland Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Category 6	
Developed – Dryland Wheat	460.41
Developed – Irrigated Agriculture	5.98
Developed – Other	2.58
Total Temporary Impacts to Cropland Revegetation Areas (Category 6) =	468.97

6

7 **III. Pre-Revegetation Agency Consultation and Revegetation Methods**

8 The certificate holder shall consult with ODFW, ODOE and Gilliam County Weed
 9 Control Authority prior to construction to discuss the area(s) to be restored, habitat category and
 10 habitat subtype conditions, reference plot location and conditions, topsoil restoration and
 11 revegetation methods, erosion and sediment control measures, and implementation schedule.

³ MWPOPS Condition 31 *Habitat Mitigation Plan* (amended January 2018)

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 During construction, the certificate holder will implement site stabilization measures, including
2 seeding of temporarily disturbed areas according to its National Pollutant Discharge Elimination
3 System permit. Six months prior to commercial operation, the certificate holder will meet with
4 ODFW, ODOE and Gilliam County Weed Control Authority to review the actual extent and
5 conditions of temporarily impacted areas, confirm the revegetation methods agreed to during
6 pre-construction review are still appropriate, and to revisit reference areas.

7 The certificate holder shall restore temporarily disturbed wildlife habitat areas by
8 preparing the soil and seeding using common application methods. In areas where soil is
9 removed during construction, the topsoil shall be stockpiled separately from the subsurface soils.
10 The conserved soil shall be put back in place as topsoil prior to revegetation activities.
11 Additional site-specific soil preparation and seeding methods may be determined during the
12 agency consultation period. The certificate holder shall use mulching and other appropriate
13 practices to control erosion and sediment during construction and during revegetation work. The
14 certificate holder shall select the seed mix to apply based on the pre-construction land use, as
15 described below. In order to maximize flexibility for weed control, the seed mix shall consist of
16 grasses only, with shrub seeding to occur through normal plant succession. The certificate holder
17 shall consult with ODFW as described in Section 1 below regarding appropriate seeding or
18 planting per site-specific restoration needs.

19 **1. Seed Planting Methods**

20 Planting should be done based on ODFW and Gilliam County Weed Control Authority
21 recommendations and in consultation with the seeding contractor at the appropriate time of year
22 to facilitate seed germination, based on weather conditions and the time of year when
23 construction-related ground disturbance occurs. The certificate holder shall choose planting
24 methods based on site-specific factors such as slope, erosion potential and the size of the area in
25 need of revegetation. Disturbed ground may require chemical or mechanical weed control before
26 weeds have a chance to go to seed. Two common application methods are described as follows.

27 (a) Broadcasting

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

37 (b) Drilling

38 Using an agricultural or range seed drill, drill seed at 70 percent of the recommended
39 application rate for broadcasting to a depth of ¼ inch or as recommended by the seed supplier.
40 Where feasible, apply half of the total mix in one direction and the second half of mix in the
41 direction perpendicular to first half. If mulch has been previously applied, seed may be drilled
42 through the mulch provided the drill can penetrate the straw resulting in seed-to-soil contact
43 conducive for germination.

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 **IV. Restoration of Cropland**

2 The certificate holder shall seed disturbed cropland areas with wheat or other crop seed.
3 The certificate holder shall consult with the landowner and farm operator to determine species
4 composition, seed and fertilizer application rates and application methods.

5 Cropland areas are successfully revegetated when the replanted areas achieve crop
6 production comparable to adjacent, undisturbed cultivated areas. The certificate holder shall
7 consult with the landowner or farmer to determine whether these areas have been successfully
8 revegetated and shall report to the Oregon Department of Energy (Department) on the success of
9 revegetation in these areas.

10 **V. Restoration of Wildlife Habitat Areas**

11 The certificate holder shall implement topsoil salvage and restoration methods as
12 recommended by ODFW, the Gilliam County Weed Control Authority, and the contractor, and
13 could include measures such as scraping and stockpiling the upper 6 inches of topsoil containing
14 the fertile nutrients, to be segregated in windrows, kept intact and protected, and used as the top-
15 dressing for the area of disturbance.

16 The certificate holder shall seed all disturbed grassland, shrub-steppe, and other wildlife
17 habitat subtype areas, as identified in Table 1 above, that are not cropland or other developed
18 lands. The certificate holder shall consult with ODFW, Gilliam County Weed Control Authority,
19 the landowner, and the contractor to determine the appropriate seed mix and application rate for
20 these areas based on the characteristics of the affected area. In order to maximize flexibility for
21 weed control, the seed mix shall consist of grasses only, with shrub seedling to occur through
22 normal plant succession. The mix should contain native or native like species selected based on
23 relative availability and compatibility with local growing conditions. Seed mix selection should
24 consider soil erosion potential, soil type, seed availability and the need for using native or native-
25 like species. The certificate holder shall obtain approval of the composition of the seed mix from
26 the Department. The certificate holder shall use seed provided by a reputable supplier and
27 complying with the Oregon Seed Law. The certificate holder shall obtain young native shrub
28 species from a qualified nursery or suitable transplants from ~~MWPF~~-construction zones.

29 **VI. Noxious Weed Prevention and Control**

30 The certificate holder shall implement weed prevention and control measure prior to and
31 during revegetation efforts. The construction contractor will take the following measures to
32 avoid, minimize or reduce the impacts of noxious weeds:

- 33 • Information regarding target weed species will be provided at the operations and
34 maintenance building.
- 35 • Weed prevention and control measures, including facility inspection and
36 documentation, will be included in operations plans.
- 37 • Temporary ground-disturbing operations in weed-infested areas will be inspected and
38 documented in accordance with the facility monitoring plan.
- 39 • Vehicles and equipment will be cleaned before entry into and exit from revegetation
40 areas to help minimize introduction of noxious weed seeds to the site.

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

- 1 • To prevent conditions favoring weed establishment, temporarily disturbed areas will
2 be revegetated soon as possible.
- 3 • The site will be revegetated with appropriate, locally collected native seed or native
4 plants; when these are not available, noninvasive and nonpersistent, nonnative species
5 may be used.
- 6 • Seed and straw mulch to be used for site rehabilitation will be inspected and certified
7 free of weed seed and propagules.

8 **VII. Monitoring**

9 **1. Revegetation Record**

10 The certificate holder shall maintain a record of revegetation work for wildlife habitat
11 areas. In the record, the certificate holder shall include the date that construction activity was
12 completed in the area to be restored, a description of the affected area and supporting figures
13 representing the location (location, acres affected and pre-disturbance condition), the date that
14 revegetation work began and a description of the work done within the affected area. The
15 certificate holder shall report restoration activities to the Department for the first five years after
16 the completion of facility construction. After five years, any restoration actions will be described
17 in the annual report per OAR 345-026-0080(e).

18 **2. Monitoring Procedures**

19 The certificate holder shall identify reference sites in consultation with ODFW.
20 Reference sites shall be chosen to represent each of the native habitat types shown in Table 1
21 above: Grassland – Native perennial and Shrub-steppe – Sagebrush (big sage). Once the
22 reference sites are approved by ODFW, the certificate holder shall monitor those sites to
23 establish baseline conditions as they relate to the success criteria for the project. Documentation
24 of baseline conditions at reference sites shall occur prior to commencement of revegetation
25 efforts. The certificate holder shall monitor the revegetation of wildlife habitat areas as described
26 in this section, unless the landowner has converted the area to a use inconsistent with the success
27 criteria. The certificate holder shall employ a qualified investigator (a botanist or revegetation
28 specialist) to examine all noncropland revegetation areas to assess vegetation cover of the
29 reference sites prior to construction (species, structural stage, etc.); and following completion of
30 construction, the qualified investigator shall assess the progress of disturbed areas toward
31 meeting the success criteria described below.

32 Weed Control

33 Before the initial weed treatment begins, the herbicide applicator personnel will meet with a
34 botanist for a ½-day session to review the target species and their identification, and to identify
35 native species to be avoided, such as the native thistle (*Cirsium undulatum*) onsite. Following the
36 initial meeting between the botanist and herbicide applicators, the applicators will be responsible
37 for identifying and treating the target species.

38 Control will be accomplished through use of herbicides targeted to the individual weed
39 species. The herbicide is to be applied by a licensed applicator, using appropriate best
40 management practices. Herbicide application will occur twice in year 1, in the spring
41 (knapweeds, thistles, bindweed) and fall (other species), and once a year thereafter during the

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 spring (mid to late May), if necessary, until the success criteria are met. Herbicide will be
2 applied with a spreader sticker surfactant (e.g., Dynamic Green Concepts, Phase). Rush
3 skeletonweed will be treated throughout the growing season as it occurs. Information on
4 identification of this and other target weed species will be included in the environmental training
5 materials to be provided to Montague operations staff. If rush skeletonweed is observed during
6 routine operations activities at any time during the growing season, the licensed applicator will
7 be contacted to treat this species as soon after it is observed as practicable. If control measures
8 are ineffective, the certificate holder will confer with the Department, ODFW, and the Gilliam
9 County Weed Control Authority to develop alternative control measures.

10 Wildlife Habitat Recovery

11 After the first growing season following initial seeding (Year 1), a qualified investigator
12 shall inspect each revegetation area to assess revegetation success based on the success criteria
13 and to recommend remedial actions, if needed. The qualified investigator shall reinspect these
14 areas annually for the first five years following the completion of construction. The certificate
15 holder shall submit, electronically, to the Department and ODFW the investigator revegetation
16 inspection report within 60 days following each inspection. The report shall include the
17 investigator’s assessment of whether the revegetated areas are trending toward meeting the
18 success criteria; assessment of factors impacting the ability of the revegetated area to trend
19 towards meeting the success criteria; description of appropriate weed control measures as
20 recommended by the Department, ODFW and Gilliam County Weed Control Authority; and, any
21 remedial actions recommended.

22 The certificate holder shall confer with the Department and ODFW within 60 days of
23 receipt of the investigator’s inspection report to develop an action plan for subsequent years. If
24 an area is not trending toward meeting the success criteria at Year 5 and has not been converted
25 by the landowner to an inconsistent use, the certificate holder may propose and the Department
26 may require remedial action and additional monitoring based on an evaluation of site capability.
27 As an alternative, the certificate holder or the Department may conclude that revegetation of the
28 area was unsuccessful and propose appropriate mitigation for the permanent loss of habitat
29 quality and quantity. The certificate holder shall implement the action plan, subject to the
30 approval of the Department.

31 The certificate holder’s qualified investigator shall evaluate whether a wildlife habitat
32 area is trending toward meeting the success criteria by comparing the revegetation area to an
33 approved reference area. In consultation with the Department and ODFW, prior to construction,
34 the investigator shall choose reference sites near the revegetation area to represent the target
35 conditions for the revegetation effort. The investigator shall select one or more reference sites
36 that closely resemble the pre-disturbance characteristics of the revegetation area as indicated by
37 site conditions, including vegetation density, relative proportion of desirable vegetation and
38 species diversity of desirable vegetation. “Desirable vegetation” means those species included in
39 the seed mix or native or native-like species, excluding noxious weeds. The investigator shall
40 consider land use patterns, soil type, local terrain, and noxious weed densities in selecting
41 reference sites. It is likely that different reference sites will be needed to represent different pre-
42 disturbance habitat conditions of the disturbed areas. Once reference sites are selected by the
43 certificate holder and approved by the Department and ODFW, the reference site shall remain in
44 the same location unless approval for use of a differing reference site is obtained by the
45 Department and ODFW. In the first six-month revegetation record report submitted to the

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 Department, the certificate holder shall provide a map and table presenting the latitude and
2 longitude of the reference sites.

3 During the initial five years of annual monitoring, the certificate holder’s qualified
4 investigator shall compare the revegetation area to the selected reference sites, unless some event
5 (such as wildfire, tilling, or intensive livestock grazing) has changed the vegetation conditions of
6 a reference site so that it no longer represents undisturbed conditions of the revegetation area. If
7 such events have eliminated all suitable reference sites for a revegetation area, the investigator,
8 in consultation with the Department and ODFW, shall select one or more new reference sites.
9 Following the selection of a new reference site, an updated table and latitude/longitudinal data
10 shall be provided to the Department within a six-month revegetation record report or annual
11 compliance report, whichever report is submitted first.

12 The certificate holder will submit its vegetation monitoring methodology to ODFW and
13 ODOE for approval prior to assessing baseline conditions and prior to annual monitoring. Within
14 each revegetation area, the investigator shall evaluate the progress of wildlife habitat recovery in
15 comparison to the reference sites. The investigator shall evaluate the following site conditions
16 (both within the revegetation area and within the reference sites):

- 17 • Degree of erosion due to disturbance activities (high, moderate, or low).
- 18 • Vegetation density.
- 19 • Relative proportion of desirable vegetation as determined by the average number of
20 stems of desirable vegetation per square foot or by a visual scan of the area, noting
21 overall recovery status. Desirable vegetation is defined as native plant species and
22 nonnative plant species not occurring on state or county noxious weed lists.
- 23 • Species diversity of desirable vegetation.

24 The certificate holder shall report the investigator’s findings and recommendations
25 regarding wildlife habitat recovery and revegetation success within 60 days of the inspector’s
26 investigation to the Department and to ODFW.

27 **3. Success Criteria**

28 In each monitoring report to the Department, the certificate holder shall provide an
29 assessment of revegetation success for all previously-disturbed wildlife habitat areas. A wildlife
30 habitat area is successfully revegetated when its habitat quality is equal to, or better than, the
31 habitat quality of the reference site as follows:

- 32 • Native Shrubs: The average density or frequency of the shrub component should
33 be at least 50-% of the reference site within 5 years. At least 15-% of the shrub
34 density or frequency should be the dominant species found on the reference site.
35 The diversity of shrub species within the revegetated areas should at least equal
36 the shrub species diversity measured on the reference site.
- 37
- 38 • Native Grasses: Revegetated sites should maintain grass species diversity and
39 density that is at least 85% similar to reference sites. Native bunchgrasses should
40 be given preference. Native grasses are to be planted at rates sufficient to achieve

Montague ~~Wind Power~~Solar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 abundance and diversity characteristics of the grass component at the reference
2 site.

- 3
- 4 • Non-Native Weeds: all species listed on county, state, and federal noxious weed
5 lists shall be controlled. Revegetation sites should not contain a higher percentage
6 of non-native weed cover than the reference site. All state and federal laws
7 pertaining to noxious weeds must be followed. Highly competitive invasive
8 species such as cheatgrass and other weedy brome grasses are prohibited in seed
9 mixtures and should be actively controlled if any are found in the reclaimed areas.
- 10

11 When the Department finds that the condition of a wildlife habitat area satisfies the
12 criteria for revegetation success, the Department shall conclude that the certificate holder has met
13 its restoration obligations for that area. If the Department finds that the landowner has converted
14 a wildlife habitat area to a use that is inconsistent with these success criteria, the Department
15 shall conclude that the certificate holder has no further obligation to restore the area for wildlife
16 habitat uses.

17 **4. Remedial Action**

18 After each monitoring visit, the certificate holder’s qualified investigator shall report to
19 the certificate holder regarding the revegetation progress of each wildlife habitat area. The
20 investigator shall make recommendations to the certificate holder for reseedling, weed control or
21 other remedial measures for areas that are not showing progress toward achieving revegetation
22 success based upon consultation with the Department, ODFW, the Gilliam County Weed Control
23 authority and the contractor. The investigator shall provide a description of causal factors that
24 may be contributing to the lack of revegetation success. The certificate holder shall take
25 appropriate action to meet the objectives of this revegetation plan. Within 60 days of receipt of
26 the investigator’s monitoring report, the certificate holder shall report to the Department the
27 investigator’s recommendations and the remedial actions taken. The Department may require
28 reseedling, weed control or other remedial measures in those areas that are not trending towards
29 meeting the success criteria by year 5.

30 If a wildlife habitat area is damaged by wildfire during the first five years following
31 initial seeding, the certificate holder shall work with the landowner to restore the damaged area.
32 The certificate holder shall continue to report on revegetation progress during the remainder of
33 the five-year period. The certificate holder shall report to the Department and ODFW the area
34 impacted by the fire (map or figure), damage caused by wildfire (including acreage and facility
35 components impacted) and the cause of the fire, if known.

36 **VIII. Amendment of the Plan**

37 This revegetation plan may be amended from time to time by agreement of the certificate
38 holder and the Council. Such amendments may be made without amendment of the site
39 certificate. The Council authorizes the Department to agree to amendments to this plan. The
40 Department shall notify the Council of all amendments, and the Council retains the authority to
41 approve, reject or modify any amendment of this plan agreed to by the Department.

Draft Oregon Trail Solar Facility Revegetation Plan

Montague Oregon Trail Wind Power Solar Facility: Phase 2 Revegetation Plan
[AS AMENDED APRIL 2019 XX 2020]

1 **I. Introduction**

2 This plan describes methods, success criteria, and monitoring and reporting requirements
3 for restoration of areas temporarily disturbed during the construction ~~of Phase 2~~ of the **Montague**
4 **Oregon Trail Wind Power Solar** Facility (~~MWPF~~), excluding areas occupied by permanent
5 facility components (the “footprint”).¹ The objective of revegetation is to restore the disturbed
6 areas to pre-disturbance conditions or better. The evaluation of pre-disturbance conditions is
7 based on evaluation of the revegetated area conditions compared to conditions of approved,
8 fixed-point reference sites, which serve as a proxy for pre-disturbance condition. It is important
9 to note, however, that habitat conditions at reference sites may fluctuate over time depending on
10 climate and landscape-scale shifts in plant communities, as further described in Section VI. The
11 site certificate for the facility requires restoration of disturbed areas to satisfy the requirements of
12 the Fish and Wildlife Habitat standard (OAR 345-022-0060).

13 This plan was developed in consultation with the Oregon Department of Fish and
14 Wildlife (ODFW) and approved by the Oregon Energy Facility Siting Council (“Council”) in the
15 *Final Order on the Application for Site Certificate* issued in September 2010. The plan was
16 amended in September 2017 to satisfy the requirements of Condition 92, based on the final Phase
17 1 facility design/layout and habitat impact assessment completed in 2017 to satisfy requirements
18 of Condition 31. Temporary habitat impacts (Categories 2, 3 and 4) required to be mitigated
19 through revegetation, as evaluated in September 2017 during pre-construction of the facility, are
20 represented in Table 1 below and temporary disturbance locations are presented on the attached
21 figure.

22 In XX, 2020, the Council approved Final Order on Request for Amendment 5 of the
23 Montague Wind Power Facility site certificate (Final Order on RFA5), authorizing previously
24 approved facility components (Phase 2) to be allocated under original site certificates for
25 facilities named Oregon Trail Solar Facility and Montague Solar Facility. The site certificate
26 issued for the Oregon Trail Solar Facility was based entirely on the previously approved
27 Montague Wind Power Facility site certificate; mitigation plans were based entirely on those
28 approved in the Final Order on RFA4; modifications were incorporated into the site certificates
29 and mitigation plans based on the allocation of previously approved facility components,
30 location and type of equipment.

31 The Oregon Trail Solar Facility is- a 41 megawatt (MW) wind and solar photovoltaic
32 energy facility. The facility could include use of up to 1,228 acres for solar photovoltaic energy
33 generation components or up to 16 wind turbines, or any combination of equipment not to
34 exceed 41 MW, within a 13,866 acre site boundary, in northeastern Gilliam County.

35 The ~~Phase 2~~ *Habitat Mitigation Plan* (Condition 93) describes the area of both permanent
36 and temporary disturbance anticipated during construction and operation of the ~~MWPF~~ facility.
37 The temporarily affected area includes cultivated or otherwise developed agricultural land
38 (cropland) as well as areas of grassland, shrub-steppe habitat and other habitat subtypes (wildlife

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 Oregon Trail Wind PowerSolar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 habitat areas). The intensity of the construction impact will vary. In some areas, the impact will
2 be relatively light, but in other areas, heavy construction activity will remove all vegetation,
3 remove topsoil, and compact the remaining subsoil. Where vegetation has been damaged or
4 removed during construction, the certificate holder must restore suitable vegetation. In addition,
5 the certificate holder shall maintain erosion and sediment control measures put in place during
6 construction until the affected areas are restored as described in this plan and the revegetation
7 efforts have succeeded enough to control erosion. When there is enough grass in place to hold
8 the soil, the control measures can be removed. The plan specifies monitoring procedures to
9 evaluate revegetation success of disturbed wildlife habitat areas. Remedial action may be
10 necessary for wildlife habitat areas that do not show revegetation progress. Compensatory
11 mitigation may be necessary if revegetation is unsuccessful.

12 **II. Description of the Facility Site**

13 The facility is in Gilliam County, Oregon. The facility site is on private agricultural land
14 used primarily for wheat and hay farming and livestock grazing. Most of the facility components
15 are located on four primary soil types: the Olex Unit, the Ritzville Unit, the Warden Unit, and the
16 Willis Unit. Soils are typically well-drained, moderately permeable, fertile silt loams formed in
17 loess deposits. The area receives between approximately 9 and 14 inches of precipitation
18 annually, most of which occurs between October 1 and March 31.

19 The site is within the Columbia Plateau physiographic province. The facility is located on
20 an upland plateau at elevations ranging from approximately 530 feet to 1,520 feet. Most of the
21 native vegetation within the site boundary has been modified by historical and ongoing livestock
22 grazing and past wildfires.

23 The general land cover types within the site boundary are Developed, Exposed Rock,
24 Grassland, Shrub-steppe, and Woodland. Specifically, functional, mature sagebrush (big sage)
25 shrub-steppe and juniper woodland habitat is patchy, occurring in specific locations within the
26 site boundary. Sagebrush (big sage) shrub-steppe is found on deep soils in patches throughout
27 the site and higher quality habitat is usually found on slopes or in draws that have been avoided
28 for agricultural development. Juniper woodland habitat is present in portions of the site, but
29 individual juniper trees are scattered sparsely in other habitats. Wildfires have removed some
30 juniper trees in the Eightmile Canyon area. Riparian woodland habitat within the site is limited to
31 one narrow intermittent linear course in Eightmile canyon. Rabbitbrush/Snakeweed shrub-steppe
32 habitat is the most prevalent native habitat type within the site. Rabbitbrush/Snakeweed shrub-
33 steppe is more prevalent in the north, west and middle portions of the site, with smaller patches
34 distributed throughout much of the site. Native perennial grassland is also present throughout
35 much of the north, middle and south portions of the site.

36 **1. Description of the Wildlife Habitat Revegetation Areas**

37 Wildlife habitat areas temporarily impacted during construction, based on the certificate
38 holder’s pre-construction evaluation, are presented in Table 1 and depicted on the attached
39 figure.²

² MWPOPS Condition 31 *Habitat Mitigation Plan* (amended January 2018)

Table 1: Summary of Wildlife Habitat Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Category 2	
Grassland – Exotic Annual	10.22
Developed-Revegetated or Other Planted Grassland	11.03
Category 2 Subtotal =	21.25
Category 3	
Developed – CRP or Other Planted Grassland	0.14
Developed-Revegetated or Other Planted Grassland	7.82
Grassland – Native Perennial	0.01
Shrub-steppe – Sagebrush (Big Sage)	0.29
Category 3 Subtotal =	8.26
Category 4	
Grassland – Exotic Annual	0.85
Category 4 Subtotal =	0.85
Total Temporary Impacts to Wildlife Habitat Revegetation Areas (Categories 2, 3 and 4) =	30.36 Acres

1

2 **2. Description of the Cropland Revegetation Areas**

3 Cropland areas temporarily impacted during construction, based on the certificate
 4 holder’s pre-construction evaluation, are presented in Table 2 and depicted on the attached
 5 figure.³

Table 2: Summary of Cropland Revegetation Areas

Habitat Description	Temporary Impact (Acres)
Category 6	
Developed – Dryland Wheat	460.41
Developed – Irrigated Agriculture	5.98
Developed – Other	2.58
Total Temporary Impacts to Cropland Revegetation Areas (Category 6) =	468.97

6

7 **III. Pre-Revegetation Agency Consultation and Revegetation Methods**

8 The certificate holder shall consult with ODFW, ODOE and Gilliam County Weed
 9 Control Authority prior to construction to discuss the area(s) to be restored, habitat category and

³ MWPOPS Condition 31 *Habitat Mitigation Plan* (amended January 2018)

Montague-Oregon Trail Wind PowerSolar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 habitat subtype conditions, reference plot location and conditions, topsoil restoration and
2 revegetation methods, erosion and sediment control measures, and implementation schedule.
3 During construction, the certificate holder will implement site stabilization measures, including
4 seeding of temporarily disturbed areas according to its National Pollutant Discharge Elimination
5 System permit. Six months prior to commercial operation, the certificate holder will meet with
6 ODFW, ODOE and Gilliam County Weed Control Authority to review the actual extent and
7 conditions of temporarily impacted areas, confirm the revegetation methods agreed to during
8 pre-construction review are still appropriate, and to revisit reference areas.

9 The certificate holder shall restore temporarily disturbed wildlife habitat areas by
10 preparing the soil and seeding using common application methods. In areas where soil is
11 removed during construction, the topsoil shall be stockpiled separately from the subsurface soils.
12 The conserved soil shall be put back in place as topsoil prior to revegetation activities.
13 Additional site-specific soil preparation and seeding methods may be determined during the
14 agency consultation period. The certificate holder shall use mulching and other appropriate
15 practices to control erosion and sediment during construction and during revegetation work. The
16 certificate holder shall select the seed mix to apply based on the pre-construction land use, as
17 described below. In order to maximize flexibility for weed control, the seed mix shall consist of
18 grasses only, with shrub seeding to occur through normal plant succession. The certificate holder
19 shall consult with ODFW as described in Section 1 below regarding appropriate seeding or
20 planting per site-specific restoration needs.

21 **1. Seed Planting Methods**

22 Planting should be done based on ODFW and Gilliam County Weed Control Authority
23 recommendations and in consultation with the seeding contractor at the appropriate time of year
24 to facilitate seed germination, based on weather conditions and the time of year when
25 construction-related ground disturbance occurs. The certificate holder shall choose planting
26 methods based on site-specific factors such as slope, erosion potential and the size of the area in
27 need of revegetation. Disturbed ground may require chemical or mechanical weed control before
28 weeds have a chance to go to seed. Two common application methods are described as follows.

29 (a) Broadcasting

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

39 (b) Drilling

40 Using an agricultural or range seed drill, drill seed at 70 percent of the recommended
41 application rate for broadcasting to a depth of ¼ inch or as recommended by the seed supplier.
42 Where feasible, apply half of the total mix in one direction and the second half of mix in the
43 direction perpendicular to first half. If mulch has been previously applied, seed may be drilled

1 through the mulch provided the drill can penetrate the straw resulting in seed-to-soil contact
2 conducive for germination.

3 **IV. Restoration of Cropland**

4 The certificate holder shall seed disturbed cropland areas with wheat or other crop seed.
5 The certificate holder shall consult with the landowner and farm operator to determine species
6 composition, seed and fertilizer application rates and application methods.

7 Cropland areas are successfully revegetated when the replanted areas achieve crop
8 production comparable to adjacent, undisturbed cultivated areas. The certificate holder shall
9 consult with the landowner or farmer to determine whether these areas have been successfully
10 revegetated and shall report to the Oregon Department of Energy (Department) on the success of
11 revegetation in these areas.

12 **V. Restoration of Wildlife Habitat Areas**

13 The certificate holder shall implement topsoil salvage and restoration methods as
14 recommended by ODFW, the Gilliam County Weed Control Authority, and the contractor, and
15 could include measures such as scraping and stockpiling the upper 6 inches of topsoil containing
16 the fertile nutrients, to be segregated in windrows, kept intact and protected, and used as the top-
17 dressing for the area of disturbance.

18 The certificate holder shall seed all disturbed grassland, shrub-steppe, and other wildlife
19 habitat subtype areas, as identified in Table 1 above, that are not cropland or other developed
20 lands. The certificate holder shall consult with ODFW, Gilliam County Weed Control Authority,
21 the landowner, and the contractor to determine the appropriate seed mix and application rate for
22 these areas based on the characteristics of the affected area. In order to maximize flexibility for
23 weed control, the seed mix shall consist of grasses only, with shrub seedling to occur through
24 normal plant succession. The mix should contain native or native like species selected based on
25 relative availability and compatibility with local growing conditions. Seed mix selection should
26 consider soil erosion potential, soil type, seed availability and the need for using native or native-
27 like species. The certificate holder shall obtain approval of the composition of the seed mix from
28 the Department. The certificate holder shall use seed provided by a reputable supplier and
29 complying with the Oregon Seed Law. The certificate holder shall obtain young native shrub
30 species from a qualified nursery or suitable transplants from ~~MWPF~~ construction zones.

31 **VI. Noxious Weed Prevention and Control**

32 The certificate holder shall implement weed prevention and control measure prior to and
33 during revegetation efforts. The construction contractor will take the following measures to
34 avoid, minimize or reduce the impacts of noxious weeds:

- 35 • Information regarding target weed species will be provided at the operations and
36 maintenance building.
- 37 • Weed prevention and control measures, including facility inspection and
38 documentation, will be included in operations plans.
- 39 • Temporary ground-disturbing operations in weed-infested areas will be inspected and
40 documented in accordance with the facility monitoring plan.

~~Montague Oregon Trail Wind PowerSolar~~ Facility: Phase 2 Revegetation Plan

~~[AS AMENDED JANUARY 2018XX 2020]~~

- 1 • Vehicles and equipment will be cleaned before entry into and exit from revegetation
2 areas to help minimize introduction of noxious weed seeds to the site.
- 3 • To prevent conditions favoring weed establishment, temporarily disturbed areas will
4 be revegetated soon as possible.
- 5 • The site will be revegetated with appropriate, locally collected native seed or native
6 plants; when these are not available, noninvasive and nonpersistent, nonnative species
7 may be used.
- 8 • Seed and straw mulch to be used for site rehabilitation will be inspected and certified
9 free of weed seed and propagules.

10 **VII. Monitoring**

11 **1. Revegetation Record**

12 The certificate holder shall maintain a record of revegetation work for wildlife habitat
13 areas. In the record, the certificate holder shall include the date that construction activity was
14 completed in the area to be restored, a description of the affected area and supporting figures
15 representing the location (location, acres affected and pre-disturbance condition), the date that
16 revegetation work began and a description of the work done within the affected area. The
17 certificate holder shall report restoration activities to the Department for the first five years after
18 the completion of facility construction. After five years, any restoration actions will be described
19 in the annual report per OAR 345-026-0080(e).

20 **2. Monitoring Procedures**

21 The certificate holder shall identify reference sites in consultation with ODFW.
22 Reference sites shall be chosen to represent each of the native habitat types shown in Table 1
23 above: Grassland – Native perennial and Shrub-steppe – Sagebrush (big sage). Once the
24 reference sites are approved by ODFW, the certificate holder shall monitor those sites to
25 establish baseline conditions as they relate to the success criteria for the project. Documentation
26 of baseline conditions at reference sites shall occur prior to commencement of revegetation
27 efforts. The certificate holder shall monitor the revegetation of wildlife habitat areas as described
28 in this section, unless the landowner has converted the area to a use inconsistent with the success
29 criteria. The certificate holder shall employ a qualified investigator (a botanist or revegetation
30 specialist) to examine all noncropland revegetation areas to assess vegetation cover of the
31 reference sites prior to construction (species, structural stage, etc.); and following completion of
32 construction, the qualified investigator shall assess the progress of disturbed areas toward
33 meeting the success criteria described below.

34 Weed Control

35 Before the initial weed treatment begins, the herbicide applicator personnel will meet with a
36 botanist for a ½-day session to review the target species and their identification, and to identify
37 native species to be avoided, such as the native thistle (*Cirsium undulatum*) onsite. Following the
38 initial meeting between the botanist and herbicide applicators, the applicators will be responsible
39 for identifying and treating the target species.

40 Control will be accomplished through use of herbicides targeted to the individual weed
41 species. The herbicide is to be applied by a licensed applicator, using appropriate best

Montague-Oregon Trail Wind PowerSolar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 management practices. Herbicide application will occur twice in year 1, in the spring
2 (knapweeds, thistles, bindweed) and fall (other species), and once a year thereafter during the
3 spring (mid to late May), if necessary, until the success criteria are met. Herbicide will be
4 applied with a spreader sticker surfactant (e.g., Dynamic Green Concepts, Phase). Rush
5 skeletonweed will be treated throughout the growing season as it occurs. Information on
6 identification of this and other target weed species will be included in the environmental training
7 materials to be provided to Montague operations staff. If rush skeletonweed is observed during
8 routine operations activities at any time during the growing season, the licensed applicator will
9 be contacted to treat this species as soon after it is observed as practicable. If control measures
10 are ineffective, the certificate holder will confer with the Department, ODFW, and the Gilliam
11 County Weed Control Authority to develop alternative control measures.

12 *Wildlife Habitat Recovery*

13 After the first growing season following initial seeding (Year 1), a qualified investigator
14 shall inspect each revegetation area to assess revegetation success based on the success criteria
15 and to recommend remedial actions, if needed. The qualified investigator shall reinspect these
16 areas annually for the first five years following the completion of construction. The certificate
17 holder shall submit, electronically, to the Department and ODFW the investigator revegetation
18 inspection report within 60 days following each inspection. The report shall include the
19 investigator’s assessment of whether the revegetated areas are trending toward meeting the
20 success criteria; assessment of factors impacting the ability of the revegetated area to trend
21 towards meeting the success criteria; description of appropriate weed control measures as
22 recommended by the Department, ODFW and Gilliam County Weed Control Authority; and, any
23 remedial actions recommended.

24 The certificate holder shall confer with the Department and ODFW within 60 days of
25 receipt of the investigator’s inspection report to develop an action plan for subsequent years. If
26 an area is not trending toward meeting the success criteria at Year 5 and has not been converted
27 by the landowner to an inconsistent use, the certificate holder may propose and the Department
28 may require remedial action and additional monitoring based on an evaluation of site capability.
29 As an alternative, the certificate holder or the Department may conclude that revegetation of the
30 area was unsuccessful and propose appropriate mitigation for the permanent loss of habitat
31 quality and quantity. The certificate holder shall implement the action plan, subject to the
32 approval of the Department.

33 The certificate holder’s qualified investigator shall evaluate whether a wildlife habitat
34 area is trending toward meeting the success criteria by comparing the revegetation area to an
35 approved reference area. In consultation with the Department and ODFW, prior to construction,
36 the investigator shall choose reference sites near the revegetation area to represent the target
37 conditions for the revegetation effort. The investigator shall select one or more reference sites
38 that closely resemble the pre-disturbance characteristics of the revegetation area as indicated by
39 site conditions, including vegetation density, relative proportion of desirable vegetation and
40 species diversity of desirable vegetation. “Desirable vegetation” means those species included in
41 the seed mix or native or native-like species, excluding noxious weeds. The investigator shall
42 consider land use patterns, soil type, local terrain, and noxious weed densities in selecting
43 reference sites. It is likely that different reference sites will be needed to represent different pre-
44 disturbance habitat conditions of the disturbed areas. Once reference sites are selected by the
45 certificate holder and approved by the Department and ODFW, the reference site shall remain in

Montague-Oregon Trail Wind PowerSolar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 the same location unless approval for use of a differing reference site is obtained by the
2 Department and ODFW. In the first six-month revegetation record report submitted to the
3 Department, the certificate holder shall provide a map and table presenting the latitude and
4 longitude of the reference sites.

5 During the initial five years of annual monitoring, the certificate holder's qualified
6 investigator shall compare the revegetation area to the selected reference sites, unless some event
7 (such as wildfire, tilling, or intensive livestock grazing) has changed the vegetation conditions of
8 a reference site so that it no longer represents undisturbed conditions of the revegetation area. If
9 such events have eliminated all suitable reference sites for a revegetation area, the investigator,
10 in consultation with the Department and ODFW, shall select one or more new reference sites.
11 Following the selection of a new reference site, an updated table and latitude/longitudinal data
12 shall be provided to the Department within a six-month revegetation record report or annual
13 compliance report, whichever report is submitted first.

14 The certificate holder will submit its vegetation monitoring methodology to ODFW and
15 ODOE for approval prior to assessing baseline conditions and prior to annual monitoring. Within
16 each revegetation area, the investigator shall evaluate the progress of wildlife habitat recovery in
17 comparison to the reference sites. The investigator shall evaluate the following site conditions
18 (both within the revegetation area and within the reference sites):

- 19 • Degree of erosion due to disturbance activities (high, moderate, or low).
- 20 • Vegetation density.
- 21 • Relative proportion of desirable vegetation as determined by the average number of
22 stems of desirable vegetation per square foot or by a visual scan of the area, noting
23 overall recovery status. Desirable vegetation is defined as native plant species and
24 nonnative plant species not occurring on state or county noxious weed lists.
- 25 • Species diversity of desirable vegetation.

26 The certificate holder shall report the investigator's findings and recommendations
27 regarding wildlife habitat recovery and revegetation success within 60 days of the inspector's
28 investigation to the Department and to ODFW.

29 **3. Success Criteria**

30 In each monitoring report to the Department, the certificate holder shall provide an
31 assessment of revegetation success for all previously-disturbed wildlife habitat areas. A wildlife
32 habitat area is successfully revegetated when its habitat quality is equal to, or better than, the
33 habitat quality of the reference site as follows:

- 34 • Native Shrubs: The average density or frequency of the shrub component should
35 be at least 50-% of the reference site within 5 years. At least 15-% of the shrub
36 density or frequency should be the dominant species found on the reference site.
37 The diversity of shrub species within the revegetated areas should at least equal
38 the shrub species diversity measured on the reference site.
- 39 • Native Grasses: Revegetated sites should maintain grass species diversity and
40 density that is at least 85% similar to reference sites. Native bunchgrasses should
41 be given preference. Native grasses are to be planted at rates sufficient to achieve

Montague Oregon Trail Wind PowerSolar Facility: Phase 2 Revegetation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 abundance and diversity characteristics of the grass component at the reference
2 site.

- 3 • Non-Native Weeds: all species listed on county, state, and federal noxious weed
4 lists shall be controlled. Revegetation sites should not contain a higher percentage
5 of non-native weed cover than the reference site. All state and federal laws
6 pertaining to noxious weeds must be followed. Highly competitive invasive
7 species such as cheatgrass and other weedy brome grasses are prohibited in seed
8 mixtures and should be actively controlled if any are found in the reclaimed areas.
9

10 When the Department finds that the condition of a wildlife habitat area satisfies the
11 criteria for revegetation success, the Department shall conclude that the certificate holder has met
12 its restoration obligations for that area. If the Department finds that the landowner has converted
13 a wildlife habitat area to a use that is inconsistent with these success criteria, the Department
14 shall conclude that the certificate holder has no further obligation to restore the area for wildlife
15 habitat uses.

16 **4. Remedial Action**

17 After each monitoring visit, the certificate holder’s qualified investigator shall report to
18 the certificate holder regarding the revegetation progress of each wildlife habitat area. The
19 investigator shall make recommendations to the certificate holder for reseeding, weed control or
20 other remedial measures for areas that are not showing progress toward achieving revegetation
21 success based upon consultation with the Department, ODFW, the Gilliam County Weed Control
22 authority and the contractor. The investigator shall provide a description of causal factors that
23 may be contributing to the lack of revegetation success. The certificate holder shall take
24 appropriate action to meet the objectives of this revegetation plan. Within 60 days of receipt of
25 the investigator’s monitoring report, the certificate holder shall report to the Department the
26 investigator’s recommendations and the remedial actions taken. The Department may require
27 reseeding, weed control or other remedial measures in those areas that are not trending towards
28 meeting the success criteria by year 5.

29 If a wildlife habitat area is damaged by wildfire during the first five years following
30 initial seeding, the certificate holder shall work with the landowner to restore the damaged area.
31 The certificate holder shall continue to report on revegetation progress during the remainder of
32 the five-year period. The certificate holder shall report to the Department and ODFW the area
33 impacted by the fire (map or figure), damage caused by wildfire (including acreage and facility
34 components impacted) and the cause of the fire, if known.

35 **VIII. Amendment of the Plan**

36 This revegetation plan may be amended from time to time by agreement of the certificate
37 holder and the Council. Such amendments may be made without amendment of the site
38 certificate. The Council authorizes the Department to agree to amendments to this plan. The
39 Department shall notify the Council of all amendments, and the Council retains the authority to
40 approve, reject or modify any amendment of this plan agreed to by the Department.

Attachment F Draft Weed Control Plans

Draft Amended Montague Wind Facility Weed Control Plan

Draft Montague Solar Facility Weed Control Plan

Draft Oregon Trail Solar Facility Weed Control Plan

Draft Amended Montague Wind Facility Weed Control Plan

MITIGATION PLAN

Weed Control Plan Montague Wind Power Facility— ~~Phase 1~~

Prepared for

Avangrid Renewables, LLC
d/b/a Montague Wind Power Facility, LLC
Arlington, Oregon

~~February 2018~~ XX 2020



CH2M HILL Engineers, Inc.
2020 SW 4th Avenue, Suite 300
Portland, Oregon 97201

Contents

Section	Page	
1.0 Introduction	1	
1.1 Background Information	1	
1.2 Weed Control Goals	1	
2.0 Weed Species of Concern	1	
3.0 Weed Control Plan	3	
3.1 Overview	3	
3.2 Best Management Practices	3	
3.3 Treatment Specifics	4	
3.3.1 Disturbed Areas	4	
3.3.2 Special Considerations	5	
4.0 Monitoring	5	
5.0 References.....	6	
Appendix		
Noxious Weed Policy and Classification System 2017		
Table		
1	Weed Species of Greatest Concern in Vicinity of Facility Site Boundary..... 2	
2	Recommended Weed Treatments for Target Weed Species	4

Acronyms and Abbreviations

CH2M/CH2M HILL CH2M HILL Engineers, Inc.

Facility Montague Wind Power Facility

Montague Montague Wind Power Facility, LLC

1.0 Introduction

Montague Wind Power Facility, LLC (Montague) holds a Site Certificate from the Oregon Energy Facility Siting Council for the Montague Wind Power Facility (Facility) in Gilliam County, Oregon. Condition 43 of the site certificate requires the following:

“During construction and operation of the facility, the certificate holder shall implement a weed control plan approved by the Gilliam County Weed Control Officer or other appropriate County officials to control the introduction and spread of noxious weeds.”

This plan was prepared to comply with Condition 43 and describes the weed control measures that will be implemented during construction and operation of the Facility.

1.1 Background Information

The Gilliam County Weed Department works to keep noxious weed at a minimum on roadways and throughout the county, assists area landowners with land maintenance needs, and follows the Oregon Department of Agriculture (ODA) noxious weed policy and classification system as part of ODA’s Noxious Weed Control Program (ODA, 2017a; see the appendix to this plan). Noxious weeds are identified on the State of Oregon noxious weed list and mapped by ODA as occurring in Gilliam County. “A” listed weeds are economically important, nonnative species with limited distribution in the county. “B” listed weeds are economically important, nonnative species that are regionally abundant. At the County level, eradication is required for “A” listed weeds at an intensive level, with containment the goal for “B” listed weeds. “T” listed weeds are a designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority (see the appendix to this plan).

For the purposes of this weed control plan, the term “weed” refers to any species on the Gilliam County weed list regardless of its “A” or “B” status. The Facility area includes cultivated or otherwise developed agricultural land (cropland) as well as areas of grassland, shrub-steppe habitat, and other habitat subtypes (wildlife habitat areas). Noxious weeds are present within the site boundary, and construction activities could spread these weeds. This plan outlines the measures Montague will implement to control weeds within areas disturbed by Facility construction and operation. The Facility will temporarily disturb approximately 47 acres of wildlife habitat and approximately 611 acres of cropland during road, transmission line, and wind turbine construction. Temporarily disturbed areas will be revegetated as described in the site revegetation plan (Montague, 2017).

1.2 Weed Control Goals

Weed species can adversely affect the structure and composition, and therefore the inherent values of the revegetation and habitat mitigation areas. Overarching goals of post-construction operations are prevention, identification, and control of weeds. Guidance and best management practices to accomplish these goals are provided in Section 3.0.

2.0 Weed Species of Concern

Montague completed field surveys during spring and summer 2009 through 2010, and in spring 2017 to map habitat types and other resources. Although these surveys were not targeted at weed species, a number of species on the ODA weed list (ODA, 2017b) were observed (see Table 1). These species were noted to occur in low densities throughout the site boundary and were not necessarily located within or

adjacent to the disturbance areas. Where the weed species occurred, their cover was between 1 and 3 percent.

The results of these preconstruction surveys were reviewed along with the weed maps for Gilliam County (ODA, 2017a) to identify the weed species of greatest concern either occurring or with a high potential for occurring in the vicinity of the Facility site boundary. Additional monitoring will be necessary to ensure that each weed species on the Gilliam County list is identified and treated appropriately.

Table 1. Weed Species of Greatest Concern in Vicinity of Facility Site Boundary

Common Name	Scientific Name	Mapped in Facility Vicinity ^a	Observed 2009-2010 ^b	Observed 2017 ^c
A List Weeds				
Musk thistle	<i>Carduus nutans</i>	X		
Rush skeletonweed	<i>Chondrilla juncea</i>	X	X	
Spotted knapweed	<i>Centaurea stoebe</i>	X		
Yellow starthistle	<i>Centaurea solstitialis</i>	X		
B List Weeds				
<i>Dicots</i>				
Bull thistle	<i>Cirsium vulgare</i>	X		
Canada thistle	<i>Cirsium arvense</i>	X		
Dalmation toadflax	<i>Linaria dalmatica</i>	X		
Diffuse knapweed	<i>Centaurea diffusa</i>	X		X
Field bindweed	<i>Convolvulus arvensis</i>		X	X
Knapweed	<i>Centaurea sp.</i>	X		X
Kochia	<i>Kochia (Bassia) sp.</i>	X		
Poison hemlock	<i>Conium maculatum</i>	X		
Puncturevine	<i>Tribulus terrestris</i>	X		
Russian knapweed	<i>Acroptilon repens</i>	X		
Scotch thistle	<i>Onopordum acanthium</i>	X		
Spikeweed	<i>Hemizonia pungens</i>	X		
Whitetop	<i>Cardaria draba</i>	X		X
<i>Monocots</i>				
Jointed goatgrass	<i>Aegilops cylindrica</i>	X	X	X
Medusahead rye	<i>Taeniatherum caput-medusae</i>	X	X	X
T List Weeds				
Dalmation Toadflax	<i>Linaria dalmatica</i>	X		
Kochia	<i>Kochia (Bassia) sp.</i>	X		
Rush skeletonweed	<i>Chondrilla juncea</i>	X	X	
Puncturevine	<i>Tribulus terrestris</i>	X		
Yellow starthistle	<i>Centaurea solstitialis</i>	X		

^a Source: ODA, 2017b.

Table 1. Weed Species of Greatest Concern in Vicinity of Facility Site Boundary

Common Name	Scientific Name	Mapped in Facility Vicinity ^a	Observed 2009-2010 ^b	Observed 2017 ^c
-------------	-----------------	--	---------------------------------	----------------------------

^b Sources:

CH2M HILL, 2010a. Field surveys conducted June 2010.

CH2M HILL, 2010b. Field surveys conducted October 2009 and February 2010.

^c Sources:

CH2M, 2017a. Field surveys conducted May - June 2017.

CH2M, 2017b. Field surveys conducted April - May 2017.

HDR Engineering, Inc., 2017. Field surveys conducted April 2017.

3.0 Weed Control Plan

3.1 Overview

Long-term weed control will be accomplished through the seeding of perennial grasses known to compete well with noxious weeds, such as thickspike wheatgrass (*Elymus lanceolatus*) and Sherman big bluegrass (*Poa secunda*), or by maintaining the existing cover in the buffers. Short-term weed control will be through herbicide use. However, it will be important to ensure that the short-term herbicide use does not affect the establishment of the perennial grass cover intended to provide long-term control. Early detection and management of small populations before they can expand into larger populations is extremely important for successful control.

Weed control will continue until the disturbed areas meet the success criteria described above with respect to the designated reference sites. Supplemental seeding may be needed to achieve this goal. Subsequent fertilizer application will be limited in areas treated for weeds, and the timing of the seeding will need to be coordinated with any herbicide applications.

The knapweeds, rush skeletonweed, field bindweed, whitetop, yellow starthistle, and medusahead rye are the species of primary concern (“target” species) as they were observed onsite during the preconstruction surveys. Treatment specifics will differ depending on the following variables:

- Disturbed area or buffer
- Proximity to biologically sensitive areas

The target species will be the same for all onsite areas, but the treatment implementation will vary slightly according to these parameters.

The herbicides used and the timing of application will differ depending on whether the species are (1) perennial, broad-leaved, or dicot weeds (knapweeds and thistles, field bindweed, whitetop), or (2) annual grasses or monocots (goatgrass and medusahead). Appropriate herbicides differ substantially between dicots and monocots.

3.2 Best Management Practices

Montague will implement best management practices during Facility construction and operation to help prevent the invasion and spread of noxious weeds onsite. These may include the following:

- Information regarding target weed species will be provided at the operations and maintenance building.

- Weed prevention and control measures, including Facility inspection and documentation, will be included in operations plans.
- Temporary ground-disturbing operations in weed-infested areas will be inspected and documented in accordance with Facility monitoring plan.
- Vehicles and equipment will be cleaned prior to entry into revegetation areas to help minimize introduction of noxious weed seeds to the site.
- To prevent conditions favoring weed establishment, temporarily disturbed areas will be revegetated soon as possible.
- The site will be revegetated with appropriate, locally collected native seed or native plants; when these are not available, noninvasive and nonpersistent, nonnative species may be used.
- Seed and straw mulch to be used for site rehabilitation will be inspected and certified free of weed seed and propagules.

3.3 Treatment Specifics

3.3.1 Disturbed Areas

Before the initial weed treatment begins, the herbicide applicator personnel will meet with a botanist for a ½-day session to review the target species and their identification, and to identify native species to be avoided, such as the native thistle (*Cirsium undulatum*) onsite. Following the initial meeting between the botanist and herbicide applicators, the applicators will be responsible for identifying and treating the target species.

Control will be accomplished through use of herbicides targeted to the individual weed species. The herbicide is to be applied by a licensed applicator, using appropriate best management practices. Herbicide application will occur twice in year 1, in the spring (knapweeds, thistles, bindweed) and fall (other species), and once a year thereafter during the spring (mid to late May), if necessary, until the success criteria are met. Herbicide will be applied with a spreader sticker surfactant (e.g., Dynamic Green Concepts, Phase). Rush skeletonweed will be treated throughout the growing season as it occurs. Information on identification of this and other target weed species will be included in the environmental training materials to be provided to Montague operations staff. If rush skeletonweed is observed during routine operations activities at any time during the growing season, the licensed applicator will be contacted to treat this species as soon after it is observed as practicable. Table 2 provides a summary of recommended treatment by target species.

Table 2. Recommended Weed Treatments for Target Weed Species

Weed Category	Common name	Scientific Name	Recommended Treatment
Knapweeds			
	Diffuse knapweed	<i>Centaurea diffusa</i>	Spot application of post-emergent, species-specific herbicide.
	Spotted knapweed	<i>Centaurea maculosa</i>	
	Russian knapweed	<i>Acroptilon repens</i>	
	Yellow starthistle	<i>Centaurea solstitialis</i>	
Thistles			
	Bull thistle	<i>Cirsium vulgare</i>	Spot application of post-emergent, species-specific herbicide.
	Creeping thistle	<i>Cirsium arvense</i>	
	Musk thistle	<i>Carduus nutans</i>	

Table 2. Recommended Weed Treatments for Target Weed Species

Weed Category	Common name	Scientific Name	Recommended Treatment
	Scotch thistle	<i>Onopordum acanthium</i>	
Other Dicot (Broad-leaved) Weeds			
	Dalmatian toadflax	<i>Linaria dalmatica</i>	Spot application of post-emergent, species-specific herbicide.
	Field bindweed	<i>Convolvulus arvensis</i>	
	Kochia	<i>Kochia sp.</i>	
	Poison hemlock	<i>Conium maculatum</i>	
	Puncturevine	<i>Tribulus terrestris</i>	
	Spikeweed	<i>Hemizonia pungens</i>	
	Rush skeletonweed	<i>Chondrilla juncea</i>	
	Whitetop	<i>Lepidium draba</i>	
Grasses			
	Jointed goatgrass	<i>Aegilops cylindrica</i>	Spot application of post-emergent, species-specific herbicide.
	Medusahead rye	<i>Taeniatherum caput-medusae</i>	

3.3.2 Special Considerations

During treatment activities, Montague will consider the following sensitive areas:

- **Washington ground squirrel sites.** The Washington ground squirrel is sensitive to disturbance during the breeding season (generally January through March, sometimes lasting through April). The diet of the Washington ground squirrel consists mostly of herbaceous vegetation, as well as flowers, roots, bulbs, seeds, and insects. Therefore, no herbicides will be sprayed within 400 meters (1,200 feet) of identified Washington ground squirrel sites during the breeding season.
- **Ephemeral streams/draws.** No herbicide will be sprayed where the drift can enter standing water or saturated soil. This precaution will likely only be necessary during the spring. However, it will be the herbicide applicators’ responsibility to ensure that no herbicide or drift enters standing water.

4.0 Monitoring

Monitoring will be conducted on an annual basis by a qualified botanist for the first 5 years following initial seeding to assess weed growth and to recommend weed control measures. The weed monitoring will consist of two general components:

- Site survey to identify weed species that have established within the disturbed areas
- Inspections of treated areas to assess the success of the weed treatments

The site survey will be a pedestrian survey of disturbed areas in mid to late May. The survey will be scheduled to be initiated slightly before the herbicide application to identify any weed species. The focus will be on weed species observed prior to construction on the site (knapweed, starthistle, field bindweed, whitetop, jointed goatgrass, medusahead rye), as well as any other species on the Gilliam County weed list that might require different control methods.

The results of the site survey will be summarized in a short memorandum in which (1) any new weed species observed and treatment protocols are identified, (2) the location and weed species within the buffers are described, and (3) reference plot cover values are listed.

Subsequent monitoring results will be summarized in short memorandums in which the treatment success is described, any recommendations to improve treatment success (if necessary) are made, and any new weed species or emergence are noted.

5.0 References

CH2M HILL. 2010a. *Rare Plant Survey Report, Montague Wind Power Facility, Gilliam County, Oregon.*

CH2M HILL. 2010b. *Montague Wind Power Facility Wetlands and Other Waters Delineation Report, Gilliam County, Oregon.*

CH2M. 2017a. *2017 Rare Plant Surveys for Montague Wind Power Facility – Phase 1.*

CH2M. 2017b. *2017 Washington Ground Squirrel Surveys and Habitat Mapping for Montague Wind Power Facility – Phase 1.*

HDR Engineering, Inc. 2017. *Wetlands and Water Bodies Delineation, Montague Wind Power Facility.* Prepared for Avangrid Renewables. July 10.

Montague Wind Power Facility, LLC (Montague). 2017. *Montague Wind Power Facility: Revegetation Plan.* December.

Oregon Department of Agriculture (ODA). 2017a. *Noxious Weed Policy and Classification System.* Noxious Weed Control Program, Salem, Oregon.

<http://www.oregon.gov/ODA/shared/Documents/Publications/Weeds/NoxiousWeedPolicyClassification.pdf>.

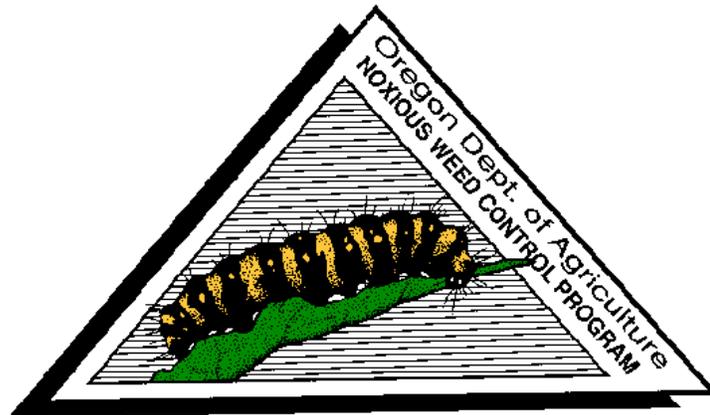
Oregon Department of Agriculture (ODA). 2017b. *Weed Mapper.*

<http://www.oregon.gov/ODA/programs/Weeds/Pages/WeedMapper.aspx>.

Appendix
Noxious Weed Policy and Classification
System 2017

Oregon Department of Agriculture

Noxious Weed Policy
and Classification System
2017



Noxious Weed Control Program

Address: 635 Capitol Street NE Salem, Oregon 97301

Phone: (503) 986-4621 Fax: (503) 986-4786

www.oregon.gov/ODA/programs/Weeds/Pages/AboutWeeds.aspx

Mission Statement

To protect Oregon's natural resources and agricultural economy from the invasion and proliferation of invasive noxious weeds.

Program Overview

The Oregon Department of Agriculture (ODA) Noxious Weed Control Program provides statewide leadership for coordination and management of state listed noxious weeds. The state program focuses on noxious weed control efforts by implementing early detection and rapid response projects for new invasive noxious weeds, implementing biological control, implementing statewide inventory and survey, assisting the public and cooperators through technology transfer and noxious weed education, maintaining noxious weed data and maps for priority listed noxious weeds, and assisting land managers and cooperators with integrated weed management projects. The Noxious Weed Control Program also supports the Oregon State Weed Board (OSWB) with administration of the OSWB Grant Program, developing statewide management objectives, developing Weed Risk Assessments, and maintaining the State Noxious Weed List.

Tim Butler
Program Manager
tbutler@oda.state.or.us
503-986-4621

Table of Contents

Policy and Classification System.....	1
Criteria.....	3
Classification Definitions.....	4
A Listed Weeds.....	5
B Listed Weeds.....	7

Noxious Weed Control Policy and Classification System

Definition

“Noxious Weed” means a terrestrial, aquatic or marine plant designated by the State Weed Board under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed control programs.

Noxious weeds have become so thoroughly established and are spreading so rapidly on private, state, county, and federally owned lands, that they have been declared by ORS 569-350 to be a menace to public welfare. Steps leading to eradication, where possible, and intensive control are necessary. It is further recognized that the responsibility for eradication and intensive control rests not only on the private landowner and operator, but also on the county, state, and federal government.

Weed Control Policy

Therefore, it shall be the policy of ODA to:

1. Assess non-native plants through risk assessment processes and make recommendations to the State Weed Board for potential listing.
2. Rate and classify weeds at the state level.
3. Prevent the establishment and spread of listed noxious weeds.
4. Encourage and implement the control or containment of infestations of listed noxious weed species and, if possible, eradicate them.
5. Develop and manage a biological weed control program.
6. Increase awareness of potential economic losses and other undesirable effects of existing and newly invading noxious weeds, and to act as a resource center for the dissemination of information.
7. Encourage and assist in the organization and operation of noxious weed control programs with government agencies and other weed management entities.
8. Develop partnerships with county weed control districts, universities, and other cooperators in the development of control methods.
9. Conduct statewide noxious weed surveys and weed control efficacy studies.

Weed Classification System

The purpose of this Classification System is to:

1. Act as the ODA's official guideline for prioritizing and implementing noxious weed control projects.
2. Assist the ODA in the distribution of available funds through Oregon State Weed Board to assist county weed programs, cooperative weed management groups, private landowners, and other weed management entities.
3. Serve as a model for private and public sectors in developing noxious weed classification systems that aid in setting effective noxious weed control strategies.

Criteria for Determining Economic and Environmental Significance of Noxious Weeds is Based Upon:

Detrimental Effects

1. A plant species that causes or has the potential to cause severe negative impacts to Oregon's agricultural economy and natural resources.
2. A plant species that has the potential to or does endanger native flora and fauna by its encroachment into forest, range, and conservation areas.
3. A plant species that has the potential or does hamper the full utilization and enjoyment of recreational areas.
4. A plant species that is poisonous, injurious, or otherwise harmful to humans and/or animals.

Plant Reproduction

1. A plant that reproduces by seed capable of being dispersed over wide areas or that is long-lived, or produced in large numbers.
2. A plant species that reproduces and spreads by tubers, creeping roots, stolons, rhizomes, or other natural vegetative means.

Distribution

1. A weed of known economic importance which occurs in Oregon in small enough infestations to make eradication/containment possible; or not known to occur, but its presence in neighboring states makes future occurrence seem imminent.
2. A weed of economic or ecological importance and of limited distribution in Oregon.
3. A weed that has not infested the full extent of its potential habitat in Oregon.

Difficulty of Control

A plant species that is not easily controlled with current management practices such as chemical, cultural, biological, and physical methods.

Noxious Weed Control Classification Definitions

Noxious weeds, for the purpose of this system, shall be listed as either A or B, and may also be designated as T, which are priority targets for control, as directed by the Oregon State Weed Board.

- **A Listed Weed:**

A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent (Table I).

Recommended action: Infestations are subject to eradication or intensive control when and where found.

- **B Listed Weed:**

A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties (Table II).

Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.

- **T Designated Weed (T):**

A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board and directs ODA to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

Table I: A Listed Weeds

Common Name	Scientific Name
African rue (T)	<i>Peganum harmala</i>
Cape-ivy (T)	<i>Delairea odorata</i>
Camelthorn	<i>Alhagi pseudalhagi</i>
Coltsfoot	<i>Tussilago farfara</i>
Cordgrass Common (T) Dense-flowered (T) Saltmeadow (T) Smooth (T)	<i>Spartina anglica</i> <i>Spartina densiflora</i> <i>Spartina patens</i> <i>Spartina alterniflora</i>
Common frogbit	<i>Hydrocharis morsus-ranae</i>
European water chestnut	<i>Trapa natans</i>
Flowering rush (T)	<i>Butomus umbellatus</i>
Garden yellow loosestrife (T)	<i>Lysimachia vulgaris</i>
Giant hogweed (T)	<i>Heracleum mantegazzianum</i>
Goatgrass Barbed (T) Ovate	<i>Aegilops triuncialis</i> <i>Aegilops ovata</i>
Goatsrue (T)	<i>Galega officinalis</i>
Hawkweed King-devil Mouse-ear (T) Orange (T) Yellow (T)	<i>Pilosella piloselloides</i> (Hieracium) <i>Pilosella pilosella</i> (Hieracium) <i>Pilosella aurantiacum</i> (Hieracium) <i>Pilosella floribundum</i> (Hieracium)
Hoary alyssum (T)	<i>Berteroa incana</i>
Hydrilla	<i>Hydrilla verticillata</i>
Japanese dodder	<i>Cuscuta japonica</i>
Kudzu (T)	<i>Pueraria lobata</i>
Matgrass (T)	<i>Nardus stricta</i>
Oblong spurge (T)	<i>Euphorbia oblongata</i>
Paterson's curse (T)	<i>Echium plantagineum</i>
Purple nutsedge	<i>Cyperus rotundus</i>
Ravennagrass (T)	<i>Saccharum ravennae</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
West Indian spongeplant	<i>Limnobium laevigatum</i>

(T) T Designated Weed (See page 4)

(Continued)

Table I: A Listed Weeds

Common Name	Scientific Name
Squarrose knapweed (T)	<i>Centaurea virgata</i>
Starthistle Iberian (T) Purple (T)	<i>Centaurea iberica</i> <i>Centaurea calcitrapa</i>
Syrian bean-caper	<i>Zygophyllum fabago</i>
Thistle Plumeless (T) Smooth distaff Taurian (T) Welted (Curly plumeless) (T) Woolly distaff (T)	<i>Carduus acanthoides</i> <i>Carthamus baeticus</i> <i>Onopordum tauricum</i> <i>Carduus crispus</i> <i>Carthamus lanatus</i>
Water soldiers	<i>Stratiotes aloides</i>
White bryonia	<i>Bryonia alba</i>
Yellow floating heart (T)	<i>Nymphoides peltata</i>
Yellowtuft (T)	<i>Alyssum murale</i> , <i>A. corsicum</i>

(T) T Designated Weed (See page 4)

Table II: B Listed Weeds

Common Name	Scientific Name
Armenian (Himalayan) blackberry	<i>Rubus armeniacus</i> (<i>R. procerus</i> , <i>R. discolor</i>)
Biddy-biddy	<i>Acaena novae-zelandiae</i>
Broom French* Portuguese (T) Scotch* Spanish	<i>Genista monspessulana</i> <i>Cytisus striatus</i> <i>Cytisus scoparius</i> <i>Spartium junceum</i>
Buffalobur	<i>Solanum rostratum</i>
Butterfly bush	<i>Buddleja davidii</i> (<i>B. variabilis</i>)
Common bugloss (T)	<i>Anchusa officinalis</i>
Common crupina	<i>Crupina vulgaris</i>
Common reed	<i>Phragmites australis</i> ssp. <i>australis</i>
Creeping yellow cress	<i>Rorippa sylvestris</i>
Cutleaf teasel	<i>Dipsacus laciniatus</i>
Dodder	<i>Cuscuta</i> spp.
Dyer's woad	<i>Isatis tinctoria</i>
Ivy Atlantic English	<i>Hedera hibernica</i> <i>Hedera helix</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
False brome	<i>Brachypodium sylvaticum</i>
Field bindweed* (T)	<i>Convolvulus arvensis</i>
Garlic mustard (T)	<i>Alliaria petiolata</i>
Geranium Herb Robert Shiny leaf geranium	<i>Geranium robertianum</i> <i>Geranium lucidum</i>
Gorse* (T)	<i>Ulex europaeus</i>
Halogeton	<i>Halogeton glomeratus</i>
Houndstongue	<i>Cynoglossum officinale</i>
Indigo bush	<i>Amorpha fruticosa</i>
Johnsongrass	<i>Sorghum halepense</i>
Jointed goatgrass	<i>Aegilops cylindrica</i>
Jubata grass	<i>Cortaderia jubata</i>

* Targeted for biocontrol

(T) T Designated Weed (See page 4)

(Continued)

Table II: B Listed Weeds

Common Name	Scientific Name
Knapweed	
Diffuse*	<i>Centaurea diffusa</i>
Meadow*	<i>Centaurea pratensis</i>
Russian*	<i>Acroptilon repens</i>
Spotted* (T)	<i>Centaurea stoebe (C. maculosa)</i>
Knotweed	
Giant	<i>Fallopia sachalinensis (Polygonum)</i>
Himalayan	<i>Polygonum polystachyum</i>
Japanese	<i>Fallopia japonica (Polygonum)</i>
Kochia	<i>Kochia scoparia</i>
Lesser celandine	<i>Ranunculus ficaria</i>
Meadow hawkweed (T)	<i>Pilosella caespitosum (Hieracium)</i>
Mediterranean sage	<i>Salvia aethiopis</i>
Medusahead rye	<i>Taeniatherum caput-medusae</i>
Old man's beard	<i>Clematis vitalba</i>
Parrot feather	<i>Myriophyllum aquaticum</i>
Perennial peavine	<i>Lathyrus latifolius</i>
Perennial pepperweed (T)	<i>Lepidium latifolium</i>
Pheasant's eye	<i>Adonis aestivalis</i>
Poison hemlock	<i>Conium maculatum</i>
Policeman's helmet	<i>Impatiens glandulifera</i>
Puncturevine*	<i>Tribulus terrestris</i>
Purple loosestrife*	<i>Lythrum salicaria</i>
Ragweed	<i>Ambrosia artemisiifolia</i>
Ribbongrass (T)	<i>Phalaris arundinacea var. Picta</i>
Rush skeletonweed* (T)	<i>Chondrilla juncea</i>
Saltcedar* (T)	<i>Tamarix ramosissima</i>
Small broomrape	<i>Orabanche minor</i>
South American waterweed	<i>Egeria densa (Elodea)</i>
Spanish heath	<i>Erica lusitanica</i>
Spikeweed	<i>Hemizonia pungens</i>
Spiny cocklebur	<i>Xanthium spinosum</i>
Spurge laurel	<i>Daphne laureola</i>

* Targeted for biocontrol

(T) T Designated Weed (See page 4)

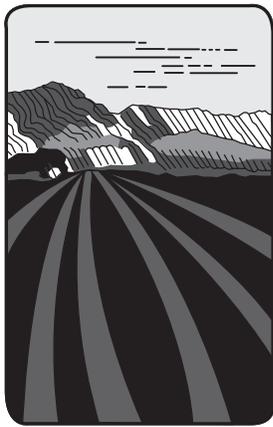
(Continued)

Table II: B Listed Weeds

Common Name	Scientific Name
Spurge Leafy* (T) Myrtle	<i>Euphorbia esula</i> <i>Euphorbia myrsinites</i>
St. Johnswort*	<i>Hypericum perforatum</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Swainsonpea	<i>Sphaerophysa salsula</i>
Tansy ragwort* (T)	<i>Senecio jacobaea</i> (<i>Jacobaea vulgaris</i>)
Thistle Bull* Canada* Italian Milk* Musk* Scotch Slender-flowered*	<i>Cirsium vulgare</i> <i>Cirsium arvense</i> <i>Carduus pycnocephalus</i> <i>Silybum marianum</i> <i>Carduus nutans</i> <i>Onopordum acanthium</i> <i>Carduus tenuiflorus</i>
Toadflax Dalmatian* (T) Yellow*	<i>Linaria dalmatica</i> <i>Linaria vulgaris</i>
Tree of heaven	<i>Ailanthus altissima</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Primrose Willow Large-flower (T) Floating (T) Water primrose (T)	<i>Ludwigia grandiflora</i> <i>Ludwigia hexapetala</i> <i>Ludwigia peploides</i>
Whitetop	
Hairy	<i>Lepidium pubescens</i>
Lens-podded	<i>Lepidium chalepensis</i>
Whitetop (hoary cress)	<i>Lepidium draba</i>
Yellow archangel	<i>Lamiastrum galeobdolon</i>
Yellow flag iris	<i>Iris pseudacorus</i>
Yellow nutsedge	<i>Cyperus esculentus</i>
Yellow starthistle*	<i>Centaurea solstitialis</i>

* Targeted for biocontrol

(T) T Designated Weed (See page 4)



Oregon

Department
of Agriculture

ESTERSON Sarah * ODOE

From: Hicks, Paul/PDX <Paul.Hicks@jacobs.com>
Sent: Tuesday, July 10, 2018 9:11 AM
To: Hutchinson, Matthew
Cc: Fossum, Linnea
Subject: FW: [EXTERNAL] RE: Montague Wind Project - Weed Management Plan

Matt,

Please see below for your records, confirmation that Don Farrar/Gilliam County Weed Control has approved the Montague Weed Management Plan with no further questions or comments.

-Paul

[Paul Hicks](#) | [Jacobs](#) | Planning and Permitting | Global Environmental Solutions | 503.872.4421 | 916.764.8382 mobile | paul.hicks@ch2m.com | www.jacobs.com

From: O'Neill, Peggy/PDX
Sent: Monday, July 09, 2018 7:01 PM
To: Hicks, Paul/PDX <Paul.Hicks@ch2m.com>
Cc: Eng, Linnea/SEA <Linnea.Eng@CH2M.com>
Subject: Fwd: [EXTERNAL] RE: Montague Wind Project - Weed Management Plan

Paul,

See below for approval of Montague weed management plan. Please forward to Matt.

Peggy

Get [Outlook for iOS](#)

From: Don Farrar <don.farrar@co.gilliam.or.us>
Sent: Monday, July 9, 2018 1:00 PM
To: O'Neill, Peggy/PDX
Subject: [EXTERNAL] RE: Montague Wind Project - Weed Management Plan

[The Montague Weed Management Plan Looks good](#)

Thanks Don Farrar
Gilliam county weed control

If I can help in anyway let me know

From: O'Neill, Peggy/PDX [<mailto:Peggy.ONeill@jacobs.com>]
Sent: Thursday, June 21, 2018 10:22 AM
To: Don Farrar <don.farrar@co.gilliam.or.us>
Subject: FW: Montague Wind Project - Weed Management Plan

Don,

Re-sending the Montague Weed Control Plan (attached). Please contact me with any questions.

Peggy

Peggy O'Neill, PWS

Senior Project Technologist
Wetlands, Botanical Studies, & Environmental Permitting

JACOBS

2020 SW 4th Ave,
Suite 300
Portland, OR 97201-4953
Direct 503.872.4652
Mobile 503.708.7722
Fax 503.736.2000
www.ch2mhill.com



Please consider the environment before printing this email.

From: O'Neill, Peggy/PDX [<mailto:Peggy.ONeill@CH2M.com>]
Sent: Monday, February 12, 2018 2:15 PM
To: don.farrar@co.gilliam.or.us

Cc: Hutchinson, Matthew <matthew.hutchinson@avangrid.com>; Eng, Linnea/SEA <Linnea.Eng@CH2M.com>

Subject: RE: Montague Wind Project - Weed Management Plan

Hello, Don,

Attached is the Weed Management Plan for the Montague Wind Project, revised per your recommendations. We request your approval of this plan as required by the project Site Certificate requires approval of this plan. Please feel free to contact me with any questions or comments.

Thanks,

Peggy

Peggy O'Neill, PWS

Senior Project Technologist
Wetlands, Botanical Studies, & Environmental Permitting

ch2m is now **JACOBS**

2020 SW 4th Ave,
Suite 300
Portland, OR 97201-4953
Direct 503.872.4652
Mobile 503.708.7722
Fax 503.736.2000
www.ch2mhill.com



Please consider the environment before printing this email.

From: O'Neill, Peggy/PDX

Sent: Tuesday, November 28, 2017 3:37 PM

To: 'don.farrar@co.gilliam.or.us' <don.farrar@co.gilliam.or.us>

Cc: 'Hutchinson, Matthew' <matthew.hutchinson@avangrid.com>; Eng, Linnea/SEA <Linnea.Eng@CH2M.com>

Subject: Montague Wind Project - Weed Management Plan

Hello, Don

Draft Montague Solar Facility Weed Control Plan

MITIGATION PLAN

Weed Control Plan
Montague ~~Wind Power~~Solar
Facility ~~— Phase 1~~

Prepared for

Avangrid Renewables, LLC
d/b/a Montague ~~Wind Power~~
~~Facility~~Solar, LLC Arlington, Oregon

~~February 2018~~XX 2020



CH2M HILL Engineers, Inc.
2020 SW 4th Avenue, Suite 300
Portland, Oregon 97201

Contents

Section	Page	
1.0 Introduction	1	
1.1 Background Information	1	
1.2 Weed Control Goals	1	
2.0 Weed Species of Concern	1	
3.0 Weed Control Plan	3	
3.1 Overview	3	
3.2 Best Management Practices	3	
3.3 Treatment Specifics	4	
3.3.1 Disturbed Areas	4	
3.3.2 Special Considerations	5	
4.0 Monitoring	5	
5.0 References.....	6	
Appendix		
Noxious Weed Policy and Classification System 2017		
Table		
1	Weed Species of Greatest Concern in Vicinity of Facility Site Boundary..... 2	
2	Recommended Weed Treatments for Target Weed Species	4

Acronyms and Abbreviations

CH2M/CH2M HILL CH2M HILL Engineers, Inc.

Facility Montague Wind Power Facility

Montague Montague ~~Wind Power Facility~~Solar, LLC

1.0 Introduction

Montague ~~Wind Power Facility~~Solar, LLC (Montague) holds a Site Certificate from the Oregon Energy Facility Siting Council for the Montague ~~Wind Power~~Solar Facility (Facility) in Gilliam County, Oregon. Condition 43 of the site certificate requires the following:

“During construction and operation of the facility, the certificate holder shall implement a weed control plan approved by the Gilliam County Weed Control Officer or other appropriate County officials to control the introduction and spread of noxious weeds.”

This plan was prepared to comply with Condition 43 and describes the weed control measures that will be implemented during construction and operation of the Facility.

1.1 Background Information

The Gilliam County Weed Department works to keep noxious weed at a minimum on roadways and throughout the county, assists area landowners with land maintenance needs, and follows the Oregon Department of Agriculture (ODA) noxious weed policy and classification system as part of ODA’s Noxious Weed Control Program (ODA, 2017a; see the appendix to this plan). Noxious weeds are identified on the State of Oregon noxious weed list and mapped by ODA as occurring in Gilliam County. “A” listed weeds are economically important, nonnative species with limited distribution in the county. “B” listed weeds are economically important, nonnative species that are regionally abundant. At the County level, eradication is required for “A” listed weeds at an intensive level, with containment the goal for “B” listed weeds. “T” listed weeds are a designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority (see the appendix to this plan).

For the purposes of this weed control plan, the term “weed” refers to any species on the Gilliam County weed list regardless of its “A” or “B” status. The Facility area includes cultivated or otherwise developed agricultural land (cropland) as well as areas of grassland, shrub-steppe habitat, and other habitat subtypes (wildlife habitat areas). Noxious weeds are present within the site boundary, and construction activities could spread these weeds. This plan outlines the measures Montague will implement to control weeds within areas disturbed by Facility construction and operation. The Facility will temporarily disturb approximately 47 acres of wildlife habitat and approximately 611 acres of cropland during road, transmission line, and wind turbine construction. Temporarily disturbed areas will be revegetated as described in the site revegetation plan (Montague, 2017).

1.2 Weed Control Goals

Weed species can adversely affect the structure and composition, and therefore the inherent values of the revegetation and habitat mitigation areas. Overarching goals of post-construction operations are prevention, identification, and control of weeds. Guidance and best management practices to accomplish these goals are provided in Section 3.0.

2.0 Weed Species of Concern

Montague completed field surveys during spring and summer 2009 through 2010, and in spring 2017 to map habitat types and other resources. Although these surveys were not targeted at weed species, a number of species on the ODA weed list (ODA, 2017b) were observed (see Table 1). These species were noted to occur in low densities throughout the site boundary and were not necessarily located within or

adjacent to the disturbance areas. Where the weed species occurred, their cover was between 1 and 3 percent.

The results of these preconstruction surveys were reviewed along with the weed maps for Gilliam County (ODA, 2017a) to identify the weed species of greatest concern either occurring or with a high potential for occurring in the vicinity of the Facility site boundary. Additional monitoring will be necessary to ensure that each weed species on the Gilliam County list is identified and treated appropriately.

Table 1. Weed Species of Greatest Concern in Vicinity of Facility Site Boundary

Common Name	Scientific Name	Mapped in Facility Vicinity ^a	Observed 2009-2010 ^b	Observed 2017 ^c
A List Weeds				
Musk thistle	<i>Carduus nutans</i>	X		
Rush skeletonweed	<i>Chondrilla juncea</i>	X	X	
Spotted knapweed	<i>Centaurea stoebe</i>	X		
Yellow starthistle	<i>Centaurea solstitialis</i>	X		
B List Weeds				
<i>Dicots</i>				
Bull thistle	<i>Cirsium vulgare</i>	X		
Canada thistle	<i>Cirsium arvense</i>	X		
Dalmation toadflax	<i>Linaria dalmatica</i>	X		
Diffuse knapweed	<i>Centaurea diffusa</i>	X		X
Field bindweed	<i>Convolvulus arvensis</i>		X	X
Knapweed	<i>Centaurea sp.</i>	X		X
Kochia	<i>Kochia (Bassia) sp.</i>	X		
Poison hemlock	<i>Conium maculatum</i>	X		
Puncturevine	<i>Tribulus terrestris</i>	X		
Russian knapweed	<i>Acroptilon repens</i>	X		
Scotch thistle	<i>Onopordum acanthium</i>	X		
Spikeweed	<i>Hemizonia pungens</i>	X		
Whitetop	<i>Cardaria draba</i>	X		X
<i>Monocots</i>				
Jointed goatgrass	<i>Aegilops cylindrica</i>	X	X	X
Medusahead rye	<i>Taeniatherum caput-medusae</i>	X	X	X
T List Weeds				
Dalmation Toadflax	<i>Linaria dalmatica</i>	X		
Kochia	<i>Kochia (Bassia) sp.</i>	X		
Rush skeletonweed	<i>Chondrilla juncea</i>	X	X	
Puncturevine	<i>Tribulus terrestris</i>	X		
Yellow starthistle	<i>Centaurea solstitialis</i>	X		

^a Source: ODA, 2017b.

Table 1. Weed Species of Greatest Concern in Vicinity of Facility Site Boundary

Common Name	Scientific Name	Mapped in Facility Vicinity ^a	Observed 2009-2010 ^b	Observed 2017 ^c
^b Sources:				
CH2M HILL, 2010a. Field surveys conducted June 2010.				
CH2M HILL, 2010b. Field surveys conducted October 2009 and February 2010.				
^c Sources:				
CH2M, 2017a. Field surveys conducted May - June 2017.				
CH2M, 2017b. Field surveys conducted April - May 2017.				
HDR Engineering, Inc., 2017. Field surveys conducted April 2017.				

3.0 Weed Control Plan

3.1 Overview

Long-term weed control will be accomplished through the seeding of perennial grasses known to compete well with noxious weeds, such as thickspike wheatgrass (*Elymus lanceolatus*) and Sherman big bluegrass (*Poa secunda*), or by maintaining the existing cover in the buffers. Short-term weed control will be through herbicide use. However, it will be important to ensure that the short-term herbicide use does not affect the establishment of the perennial grass cover intended to provide long-term control. Early detection and management of small populations before they can expand into larger populations is extremely important for successful control.

Weed control will continue until the disturbed areas meet the success criteria described above with respect to the designated reference sites. Supplemental seeding may be needed to achieve this goal. Subsequent fertilizer application will be limited in areas treated for weeds, and the timing of the seeding will need to be coordinated with any herbicide applications.

The knapweeds, rush skeletonweed, field bindweed, whitetop, yellow starthistle, and medusahead rye are the species of primary concern (“target” species) as they were observed onsite during the preconstruction surveys. Treatment specifics will differ depending on the following variables:

- Disturbed area or buffer
- Proximity to biologically sensitive areas

The target species will be the same for all onsite areas, but the treatment implementation will vary slightly according to these parameters.

The herbicides used and the timing of application will differ depending on whether the species are (1) perennial, broad-leaved, or dicot weeds (knapweeds and thistles, field bindweed, whitetop), or (2) annual grasses or monocots (goatgrass and medusahead). Appropriate herbicides differ substantially between dicots and monocots.

3.2 Best Management Practices

Montague will implement best management practices during Facility construction and operation to help prevent the invasion and spread of noxious weeds onsite. These may include the following:

- Information regarding target weed species will be provided at the operations and maintenance building.

- Weed prevention and control measures, including Facility inspection and documentation, will be included in operations plans.
- Temporary ground-disturbing operations in weed-infested areas will be inspected and documented in accordance with Facility monitoring plan.
- Vehicles and equipment will be cleaned prior to entry into revegetation areas to help minimize introduction of noxious weed seeds to the site.
- To prevent conditions favoring weed establishment, temporarily disturbed areas will be revegetated soon as possible.
- The site will be revegetated with appropriate, locally collected native seed or native plants; when these are not available, noninvasive and nonpersistent, nonnative species may be used.
- Seed and straw mulch to be used for site rehabilitation will be inspected and certified free of weed seed and propagules.

3.3 Treatment Specifics

3.3.1 Disturbed Areas

Before the initial weed treatment begins, the herbicide applicator personnel will meet with a botanist for a ½-day session to review the target species and their identification, and to identify native species to be avoided, such as the native thistle (*Cirsium undulatum*) onsite. Following the initial meeting between the botanist and herbicide applicators, the applicators will be responsible for identifying and treating the target species.

Control will be accomplished through use of herbicides targeted to the individual weed species. The herbicide is to be applied by a licensed applicator, using appropriate best management practices. Herbicide application will occur twice in year 1, in the spring (knapweeds, thistles, bindweed) and fall (other species), and once a year thereafter during the spring (mid to late May), if necessary, until the success criteria are met. Herbicide will be applied with a spreader sticker surfactant (e.g., Dynamic Green Concepts, Phase). Rush skeletonweed will be treated throughout the growing season as it occurs. Information on identification of this and other target weed species will be included in the environmental training materials to be provided to Montague operations staff. If rush skeletonweed is observed during routine operations activities at any time during the growing season, the licensed applicator will be contacted to treat this species as soon after it is observed as practicable. Table 2 provides a summary of recommended treatment by target species.

Table 2. Recommended Weed Treatments for Target Weed Species

Weed Category	Common name	Scientific Name	Recommended Treatment
Knapweeds			
	Diffuse knapweed	<i>Centaurea diffusa</i>	Spot application of post-emergent, species-specific herbicide.
	Spotted knapweed	<i>Centaurea maculosa</i>	
	Russian knapweed	<i>Acroptilon repens</i>	
	Yellow starthistle	<i>Centaurea solstitialis</i>	
Thistles			
	Bull thistle	<i>Cirsium vulgare</i>	Spot application of post-emergent, species-specific herbicide.
	Creeping thistle	<i>Cirsium arvense</i>	
	Musk thistle	<i>Carduus nutans</i>	

Table 2. Recommended Weed Treatments for Target Weed Species

Weed Category	Common name	Scientific Name	Recommended Treatment
	Scotch thistle	<i>Onopordum acanthium</i>	
Other Dicot (Broad-leaved) Weeds			
	Dalmatian toadflax	<i>Linaria dalmatica</i>	Spot application of post-emergent, species-specific herbicide.
	Field bindweed	<i>Convolvulus arvensis</i>	
	Kochia	<i>Kochia sp.</i>	
	Poison hemlock	<i>Conium maculatum</i>	
	Puncturevine	<i>Tribulus terrestris</i>	
	Spikeweed	<i>Hemizonia pungens</i>	
	Rush skeletonweed	<i>Chondrilla juncea</i>	
	Whitetop	<i>Lepidium draba</i>	
Grasses			
	Jointed goatgrass	<i>Aegilops cylindrica</i>	Spot application of post-emergent, species-specific herbicide.
	Medusahead rye	<i>Taeniatherum caput-medusae</i>	

3.3.2 Special Considerations

During treatment activities, Montague will consider the following sensitive areas:

- **Washington ground squirrel sites.** The Washington ground squirrel is sensitive to disturbance during the breeding season (generally January through March, sometimes lasting through April). The diet of the Washington ground squirrel consists mostly of herbaceous vegetation, as well as flowers, roots, bulbs, seeds, and insects. Therefore, no herbicides will be sprayed within 400 meters (1,200 feet) of identified Washington ground squirrel sites during the breeding season.
- **Ephemeral streams/draws.** No herbicide will be sprayed where the drift can enter standing water or saturated soil. This precaution will likely only be necessary during the spring. However, it will be the herbicide applicators’ responsibility to ensure that no herbicide or drift enters standing water.

4.0 Monitoring

Monitoring will be conducted on an annual basis by a qualified botanist for the first 5 years following initial seeding to assess weed growth and to recommend weed control measures. The weed monitoring will consist of two general components:

- Site survey to identify weed species that have established within the disturbed areas
- Inspections of treated areas to assess the success of the weed treatments

The site survey will be a pedestrian survey of disturbed areas in mid to late May. The survey will be scheduled to be initiated slightly before the herbicide application to identify any weed species. The focus will be on weed species observed prior to construction on the site (knapweed, starthistle, field bindweed, whitetop, jointed goatgrass, medusahead rye), as well as any other species on the Gilliam County weed list that might require different control methods.

The results of the site survey will be summarized in a short memorandum in which (1) any new weed species observed and treatment protocols are identified, (2) the location and weed species within the buffers are described, and (3) reference plot cover values are listed.

Subsequent monitoring results will be summarized in short memorandums in which the treatment success is described, any recommendations to improve treatment success (if necessary) are made, and any new weed species or emergence are noted.

5.0 References

CH2M HILL. 2010a. *Rare Plant Survey Report, Montague Wind Power Facility, Gilliam County, Oregon.*

CH2M HILL. 2010b. *Montague Wind Power Facility Wetlands and Other Waters Delineation Report, Gilliam County, Oregon.*

CH2M. 2017a. *2017 Rare Plant Surveys for Montague Wind Power Facility – Phase 1.*

CH2M. 2017b. *2017 Washington Ground Squirrel Surveys and Habitat Mapping for Montague Wind Power Facility – Phase 1.*

HDR Engineering, Inc. 2017. *Wetlands and Water Bodies Delineation, Montague Wind Power Facility.* Prepared for Avangrid Renewables. July 10.

Montague Wind Power Facility, LLC (Montague). 2017. *Montague Wind Power Facility: Revegetation Plan.* December.

Oregon Department of Agriculture (ODA). 2017a. *Noxious Weed Policy and Classification System.* Noxious Weed Control Program, Salem, Oregon.

<http://www.oregon.gov/ODA/shared/Documents/Publications/Weeds/NoxiousWeedPolicyClassification.pdf>.

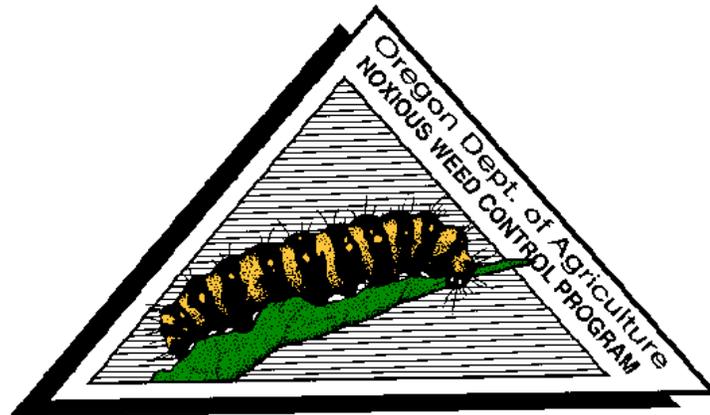
Oregon Department of Agriculture (ODA). 2017b. *Weed Mapper.*

<http://www.oregon.gov/ODA/programs/Weeds/Pages/WeedMapper.aspx>.

Appendix
Noxious Weed Policy and Classification
System 2017

Oregon Department of Agriculture

Noxious Weed Policy
and Classification System
2017



Noxious Weed Control Program

Address: 635 Capitol Street NE Salem, Oregon 97301

Phone: (503) 986-4621 Fax: (503) 986-4786

www.oregon.gov/ODA/programs/Weeds/Pages/AboutWeeds.aspx

Mission Statement

To protect Oregon's natural resources and agricultural economy from the invasion and proliferation of invasive noxious weeds.

Program Overview

The Oregon Department of Agriculture (ODA) Noxious Weed Control Program provides statewide leadership for coordination and management of state listed noxious weeds. The state program focuses on noxious weed control efforts by implementing early detection and rapid response projects for new invasive noxious weeds, implementing biological control, implementing statewide inventory and survey, assisting the public and cooperators through technology transfer and noxious weed education, maintaining noxious weed data and maps for priority listed noxious weeds, and assisting land managers and cooperators with integrated weed management projects. The Noxious Weed Control Program also supports the Oregon State Weed Board (OSWB) with administration of the OSWB Grant Program, developing statewide management objectives, developing Weed Risk Assessments, and maintaining the State Noxious Weed List.

Tim Butler
Program Manager
tbutler@oda.state.or.us
503-986-4621

Table of Contents

Policy and Classification System.....	1
Criteria.....	3
Classification Definitions.....	4
A Listed Weeds.....	5
B Listed Weeds.....	7

Noxious Weed Control Policy and Classification System

Definition

“Noxious Weed” means a terrestrial, aquatic or marine plant designated by the State Weed Board under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed control programs.

Noxious weeds have become so thoroughly established and are spreading so rapidly on private, state, county, and federally owned lands, that they have been declared by ORS 569-350 to be a menace to public welfare. Steps leading to eradication, where possible, and intensive control are necessary. It is further recognized that the responsibility for eradication and intensive control rests not only on the private landowner and operator, but also on the county, state, and federal government.

Weed Control Policy

Therefore, it shall be the policy of ODA to:

1. Assess non-native plants through risk assessment processes and make recommendations to the State Weed Board for potential listing.
2. Rate and classify weeds at the state level.
3. Prevent the establishment and spread of listed noxious weeds.
4. Encourage and implement the control or containment of infestations of listed noxious weed species and, if possible, eradicate them.
5. Develop and manage a biological weed control program.
6. Increase awareness of potential economic losses and other undesirable effects of existing and newly invading noxious weeds, and to act as a resource center for the dissemination of information.
7. Encourage and assist in the organization and operation of noxious weed control programs with government agencies and other weed management entities.
8. Develop partnerships with county weed control districts, universities, and other cooperators in the development of control methods.
9. Conduct statewide noxious weed surveys and weed control efficacy studies.

Weed Classification System

The purpose of this Classification System is to:

1. Act as the ODA's official guideline for prioritizing and implementing noxious weed control projects.
2. Assist the ODA in the distribution of available funds through Oregon State Weed Board to assist county weed programs, cooperative weed management groups, private landowners, and other weed management entities.
3. Serve as a model for private and public sectors in developing noxious weed classification systems that aid in setting effective noxious weed control strategies.

Criteria for Determining Economic and Environmental Significance of Noxious Weeds is Based Upon:

Detrimental Effects

1. A plant species that causes or has the potential to cause severe negative impacts to Oregon's agricultural economy and natural resources.
2. A plant species that has the potential to or does endanger native flora and fauna by its encroachment into forest, range, and conservation areas.
3. A plant species that has the potential or does hamper the full utilization and enjoyment of recreational areas.
4. A plant species that is poisonous, injurious, or otherwise harmful to humans and/or animals.

Plant Reproduction

1. A plant that reproduces by seed capable of being dispersed over wide areas or that is long-lived, or produced in large numbers.
2. A plant species that reproduces and spreads by tubers, creeping roots, stolons, rhizomes, or other natural vegetative means.

Distribution

1. A weed of known economic importance which occurs in Oregon in small enough infestations to make eradication/containment possible; or not known to occur, but its presence in neighboring states makes future occurrence seem imminent.
2. A weed of economic or ecological importance and of limited distribution in Oregon.
3. A weed that has not infested the full extent of its potential habitat in Oregon.

Difficulty of Control

A plant species that is not easily controlled with current management practices such as chemical, cultural, biological, and physical methods.

Noxious Weed Control Classification Definitions

Noxious weeds, for the purpose of this system, shall be listed as either A or B, and may also be designated as T, which are priority targets for control, as directed by the Oregon State Weed Board.

- **A Listed Weed:**

A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent (Table I).

Recommended action: Infestations are subject to eradication or intensive control when and where found.

- **B Listed Weed:**

A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties (Table II).

Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.

- **T Designated Weed (T):**

A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board and directs ODA to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

Table I: A Listed Weeds

Common Name	Scientific Name
African rue (T)	<i>Peganum harmala</i>
Cape-ivy (T)	<i>Delairea odorata</i>
Camelthorn	<i>Alhagi pseudalhagi</i>
Coltsfoot	<i>Tussilago farfara</i>
Cordgrass Common (T) Dense-flowered (T) Saltmeadow (T) Smooth (T)	<i>Spartina anglica</i> <i>Spartina densiflora</i> <i>Spartina patens</i> <i>Spartina alterniflora</i>
Common frogbit	<i>Hydrocharis morsus-ranae</i>
European water chestnut	<i>Trapa natans</i>
Flowering rush (T)	<i>Butomus umbellatus</i>
Garden yellow loosestrife (T)	<i>Lysimachia vulgaris</i>
Giant hogweed (T)	<i>Heracleum mantegazzianum</i>
Goatgrass Barbed (T) Ovate	<i>Aegilops triuncialis</i> <i>Aegilops ovata</i>
Goatsrue (T)	<i>Galega officinalis</i>
Hawkweed King-devil Mouse-ear (T) Orange (T) Yellow (T)	<i>Pilosella piloselloides</i> (Hieracium) <i>Pilosella pilosella</i> (Hieracium) <i>Pilosella aurantiacum</i> (Hieracium) <i>Pilosella floribundum</i> (Hieracium)
Hoary alyssum (T)	<i>Berteroa incana</i>
Hydrilla	<i>Hydrilla verticillata</i>
Japanese dodder	<i>Cuscuta japonica</i>
Kudzu (T)	<i>Pueraria lobata</i>
Matgrass (T)	<i>Nardus stricta</i>
Oblong spurge (T)	<i>Euphorbia oblongata</i>
Paterson's curse (T)	<i>Echium plantagineum</i>
Purple nutsedge	<i>Cyperus rotundus</i>
Ravennagrass (T)	<i>Saccharum ravennae</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
West Indian spongeplant	<i>Limnobium laevigatum</i>

(T) T Designated Weed (See page 4)

(Continued)

Table I: A Listed Weeds

Common Name	Scientific Name
Squarrose knapweed (T)	<i>Centaurea virgata</i>
Starthistle	
Iberian (T)	<i>Centaurea iberica</i>
Purple (T)	<i>Centaurea calcitrapa</i>
Syrian bean-caper	<i>Zygophyllum fabago</i>
Thistle	
Plumeless (T)	<i>Carduus acanthoides</i>
Smooth distaff	<i>Carthamus baeticus</i>
Taurian (T)	<i>Onopordum tauricum</i>
Wetted (Curly plumeless) (T)	<i>Carduus crispus</i>
Woolly distaff (T)	<i>Carthamus lanatus</i>
Water soldiers	<i>Stratiotes aloides</i>
White bryonia	<i>Bryonia alba</i>
Yellow floating heart (T)	<i>Nymphoides peltata</i>
Yellowtuft (T)	<i>Alyssum murale, A. corsicum</i>

(T) T Designated Weed (See page 4)

Table II: B Listed Weeds

Common Name	Scientific Name
Armenian (Himalayan) blackberry	<i>Rubus armeniacus</i> (<i>R. procerus</i> , <i>R. discolor</i>)
Biddy-biddy	<i>Acaena novae-zelandiae</i>
Broom French* Portuguese (T) Scotch* Spanish	<i>Genista monspessulana</i> <i>Cytisus striatus</i> <i>Cytisus scoparius</i> <i>Spartium junceum</i>
Buffalobur	<i>Solanum rostratum</i>
Butterfly bush	<i>Buddleja davidii</i> (<i>B. variabilis</i>)
Common bugloss (T)	<i>Anchusa officinalis</i>
Common crupina	<i>Crupina vulgaris</i>
Common reed	<i>Phragmites australis</i> ssp. <i>australis</i>
Creeping yellow cress	<i>Rorippa sylvestris</i>
Cutleaf teasel	<i>Dipsacus laciniatus</i>
Dodder	<i>Cuscuta</i> spp.
Dyer's woad	<i>Isatis tinctoria</i>
Ivy Atlantic English	<i>Hedera hibernica</i> <i>Hedera helix</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
False brome	<i>Brachypodium sylvaticum</i>
Field bindweed* (T)	<i>Convolvulus arvensis</i>
Garlic mustard (T)	<i>Alliaria petiolata</i>
Geranium Herb Robert Shiny leaf geranium	<i>Geranium robertianum</i> <i>Geranium lucidum</i>
Gorse* (T)	<i>Ulex europaeus</i>
Halogeton	<i>Halogeton glomeratus</i>
Houndstongue	<i>Cynoglossum officinale</i>
Indigo bush	<i>Amorpha fruticosa</i>
Johnsongrass	<i>Sorghum halepense</i>
Jointed goatgrass	<i>Aegilops cylindrica</i>
Jubata grass	<i>Cortaderia jubata</i>

* Targeted for biocontrol

(T) T Designated Weed (See page 4)

(Continued)

Table II: B Listed Weeds

Common Name	Scientific Name
Knapweed	
Diffuse*	<i>Centaurea diffusa</i>
Meadow*	<i>Centaurea pratensis</i>
Russian*	<i>Acroptilon repens</i>
Spotted* (T)	<i>Centaurea stoebe (C. maculosa)</i>
Knotweed	
Giant	<i>Fallopia sachalinensis (Polygonum)</i>
Himalayan	<i>Polygonum polystachyum</i>
Japanese	<i>Fallopia japonica (Polygonum)</i>
Kochia	<i>Kochia scoparia</i>
Lesser celandine	<i>Ranunculus ficaria</i>
Meadow hawkweed (T)	<i>Pilosella caespitosum (Hieracium)</i>
Mediterranean sage	<i>Salvia aethiopis</i>
Medusahead rye	<i>Taeniatherum caput-medusae</i>
Old man's beard	<i>Clematis vitalba</i>
Parrot feather	<i>Myriophyllum aquaticum</i>
Perennial peavine	<i>Lathyrus latifolius</i>
Perennial pepperweed (T)	<i>Lepidium latifolium</i>
Pheasant's eye	<i>Adonis aestivalis</i>
Poison hemlock	<i>Conium maculatum</i>
Policeman's helmet	<i>Impatiens glandulifera</i>
Puncturevine*	<i>Tribulus terrestris</i>
Purple loosestrife*	<i>Lythrum salicaria</i>
Ragweed	<i>Ambrosia artemisiifolia</i>
Ribbongrass (T)	<i>Phalaris arundinacea var. Picta</i>
Rush skeletonweed* (T)	<i>Chondrilla juncea</i>
Saltcedar* (T)	<i>Tamarix ramosissima</i>
Small broomrape	<i>Orabanche minor</i>
South American waterweed	<i>Egeria densa (Elodea)</i>
Spanish heath	<i>Erica lusitanica</i>
Spikeweed	<i>Hemizonia pungens</i>
Spiny cocklebur	<i>Xanthium spinosum</i>
Spurge laurel	<i>Daphne laureola</i>

* Targeted for biocontrol

(T) T Designated Weed (See page 4)

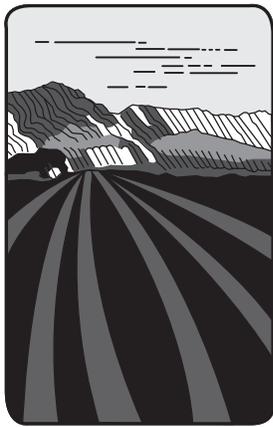
(Continued)

Table II: B Listed Weeds

Common Name	Scientific Name
Spurge Leafy* (T) Myrtle	<i>Euphorbia esula</i> <i>Euphorbia myrsinites</i>
St. Johnswort*	<i>Hypericum perforatum</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Swainsonpea	<i>Sphaerophysa salsula</i>
Tansy ragwort* (T)	<i>Senecio jacobaea</i> (<i>Jacobaea vulgaris</i>)
Thistle Bull* Canada* Italian Milk* Musk* Scotch Slender-flowered*	<i>Cirsium vulgare</i> <i>Cirsium arvense</i> <i>Carduus pycnocephalus</i> <i>Silybum marianum</i> <i>Carduus nutans</i> <i>Onopordum acanthium</i> <i>Carduus tenuiflorus</i>
Toadflax Dalmatian* (T) Yellow*	<i>Linaria dalmatica</i> <i>Linaria vulgaris</i>
Tree of heaven	<i>Ailanthus altissima</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Primrose Willow Large-flower (T) Floating (T) Water primrose (T)	<i>Ludwigia grandiflora</i> <i>Ludwigia hexapetala</i> <i>Ludwigia peploides</i>
Whitetop	
Hairy	<i>Lepidium pubescens</i>
Lens-podded	<i>Lepidium chalepensis</i>
Whitetop (hoary cress)	<i>Lepidium draba</i>
Yellow archangel	<i>Lamiastrum galeobdolon</i>
Yellow flag iris	<i>Iris pseudacorus</i>
Yellow nutsedge	<i>Cyperus esculentus</i>
Yellow starthistle*	<i>Centaurea solstitialis</i>

* Targeted for biocontrol

(T) T Designated Weed (See page 4)



Oregon

Department
of Agriculture

ESTERSON Sarah * ODOE

From: Hicks, Paul/PDX <Paul.Hicks@jacobs.com>
Sent: Tuesday, July 10, 2018 9:11 AM
To: Hutchinson, Matthew
Cc: Fossum, Linnea
Subject: FW: [EXTERNAL] RE: Montague Wind Project - Weed Management Plan

Matt,

Please see below for your records, confirmation that Don Farrar/Gilliam County Weed Control has approved the Montague Weed Management Plan with no further questions or comments.

-Paul

[Paul Hicks](#) | [Jacobs](#) | Planning and Permitting | Global Environmental Solutions | 503.872.4421 | 916.764.8382 mobile | paul.hicks@ch2m.com | www.jacobs.com

From: O'Neill, Peggy/PDX
Sent: Monday, July 09, 2018 7:01 PM
To: Hicks, Paul/PDX <Paul.Hicks@ch2m.com>
Cc: Eng, Linnea/SEA <Linnea.Eng@CH2M.com>
Subject: Fwd: [EXTERNAL] RE: Montague Wind Project - Weed Management Plan

Paul,

See below for approval of Montague weed management plan. Please forward to Matt.

Peggy

Get [Outlook for iOS](#)

From: Don Farrar <don.farrar@co.gilliam.or.us>
Sent: Monday, July 9, 2018 1:00 PM
To: O'Neill, Peggy/PDX
Subject: [EXTERNAL] RE: Montague Wind Project - Weed Management Plan

[The Montague Weed Management Plan Looks good](#)

Thanks Don Farrar
Gilliam county weed control

If I can help in anyway let me know

From: O'Neill, Peggy/PDX [<mailto:Peggy.ONeill@jacobs.com>]
Sent: Thursday, June 21, 2018 10:22 AM
To: Don Farrar <don.farrar@co.gilliam.or.us>
Subject: FW: Montague Wind Project - Weed Management Plan

Don,

Re-sending the Montague Weed Control Plan (attached). Please contact me with any questions.

Peggy

Peggy O'Neill, PWS

Senior Project Technologist
Wetlands, Botanical Studies, & Environmental Permitting

JACOBS

2020 SW 4th Ave,
Suite 300
Portland, OR 97201-4953
Direct 503.872.4652
Mobile 503.708.7722
Fax 503.736.2000
www.ch2mhill.com



Please consider the environment before printing this email.

From: O'Neill, Peggy/PDX [<mailto:Peggy.ONeill@CH2M.com>]
Sent: Monday, February 12, 2018 2:15 PM
To: don.farrar@co.gilliam.or.us

Cc: Hutchinson, Matthew <matthew.hutchinson@avangrid.com>; Eng, Linnea/SEA <Linnea.Eng@CH2M.com>

Subject: RE: Montague Wind Project - Weed Management Plan

Hello, Don,

Attached is the Weed Management Plan for the Montague Wind Project, revised per your recommendations. We request your approval of this plan as required by the project Site Certificate requires approval of this plan. Please feel free to contact me with any questions or comments.

Thanks,

Peggy

Peggy O'Neill, PWS

Senior Project Technologist
Wetlands, Botanical Studies, & Environmental Permitting

ch2m is now **JACOBS**

2020 SW 4th Ave,
Suite 300
Portland, OR 97201-4953
Direct 503.872.4652
Mobile 503.708.7722
Fax 503.736.2000
www.ch2mhill.com



Please consider the environment before printing this email.

From: O'Neill, Peggy/PDX

Sent: Tuesday, November 28, 2017 3:37 PM

To: 'don.farrar@co.gilliam.or.us' <don.farrar@co.gilliam.or.us>

Cc: 'Hutchinson, Matthew' <matthew.hutchinson@avangrid.com>; Eng, Linnea/SEA <Linnea.Eng@CH2M.com>

Subject: Montague Wind Project - Weed Management Plan

Hello, Don

Draft Oregon Trail Solar Facility Weed Control Plan

Oregon Trail Solar Weed Control Plan

June 2020

1. Introduction

This plan describes the weed control measures that will be implemented at the Oregon Trail Solar Project to prevent the unabated introduction or spread of noxious weeds.

Condition 43 of the Site Certificate requires the following:

“During construction and operation of the facility, the certificate holder shall implement a weed control plan approved by the Gilliam County Weed Control Officer or other appropriate County officials to control the introduction and spread of noxious weeds.”

This plan was prepared to comply with Condition 43 and describes the weed control measures that will be implemented during construction and operation of Oregon Trail Solar.

The Gilliam County Weed Department works to keep noxious weed at a minimum on roadways and throughout the county, assists area landowners with land maintenance needs, and follows the Oregon Department of Agriculture (ODA) noxious weed policy and classification system as part of ODA's Noxious Weed Control Program (ODA, 2019; see the appendix to this plan). Noxious weeds are identified on the State of Oregon noxious weed list and mapped by ODA as occurring in Gilliam County. “A” listed weeds are economically important, nonnative species with limited distribution in the county. “B” listed weeds are economically important, nonnative species that are regionally abundant. At the County level, eradication is required for “A” listed weeds at an intensive level, with containment the goal for “B” listed weeds. “T” listed weeds consist of a designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority (see the appendix to this plan).

For the purposes of this weed control plan, the term “weed” refers to any species on the Gilliam County weed list regardless of its “A” or “B” status. The Oregon Trail Solar site boundary includes cultivated or otherwise developed agricultural land (cropland) as well as areas of grassland, shrub-steppe habitat, and other habitat subtypes (wildlife habitat areas). Noxious weeds are present within the site boundary, and construction activities could spread these weeds. This plan outlines the measures Oregon Trail Solar will implement to control weeds within areas disturbed by construction and operation. Temporarily disturbed areas will be revegetated as described in the site revegetation plan (Montague, 2019).

2. Weed Species of Concern

The Certificate Holder completed field surveys during spring and summer 2009 through 2010, and in spring 2017 and 2018 to map habitat types and other resources in the vicinity of the Oregon Trail Solar site. Although these surveys were not targeted at weed species, a number of species on the ODA weed list (ODA, 2019) were observed (see Table 1). Where the weed species occurred, their cover was between 1 and 3 percent.

The results of these surveys were reviewed along with the weed maps for Gilliam County (ODA, 2020) to identify the weed species of greatest concern either occurring or with a high potential for occurring in the vicinity of the Oregon Trail Solar site boundary.

Table 1. Weed Species of Greatest Concern in Vicinity of Oregon Trail Solar Site Boundary

Common Name	Scientific Name	Mapped in Facility Vicinity ^a	Observed 2009-2010 ^b	Observed 2017-2018 ^c
A List Weeds				
Musk thistle	<i>Carduus nutans</i>	X		
Rush skeletonweed	<i>Chondrilla juncea</i>	X	X	X
Spotted knapweed	<i>Centaurea stoebe</i>	X		
Yellow starthistle	<i>Centaurea solstitialis</i>	X		
B List Weeds				
<i>Dicots</i>				
Bull thistle	<i>Cirsium vulgare</i>	X		
Canada thistle	<i>Cirsium arvense</i>	X		
Dalmation toadflax	<i>Linaria dalmatica</i>	X		
Diffuse knapweed	<i>Centaurea diffusa</i>	X		X
Field bindweed	<i>Convolvulus arvensis</i>		X	X
Knapweed	<i>Centaurea sp.</i>	X		X
Kochia	<i>Kochia (Bassia) sp.</i>	X		
Poison hemlock	<i>Conium maculatum</i>	X		
Puncturevine	<i>Tribulus terrestris</i>	X		
Russian knapweed	<i>Acroptilon repens</i>	X		
Scotch thistle	<i>Onopordum acanthium</i>	X		
Spikeweed	<i>Hemizonia pungens</i>	X		
Whitetop	<i>Cardaria draba</i>	X		X
<i>Monocots</i>				
Jointed goatgrass	<i>Aegilops cylindrica</i>	X	X	X
Medusahead rye	<i>Taeniatherum caput-medusae</i>	X	X	X
T List Weeds				
Dalmation Toadflax	<i>Linaria dalmatica</i>	X		
Kochia	<i>Kochia (Bassia) sp.</i>	X		
Rush skeletonweed	<i>Chondrilla juncea</i>	X	X	
Puncturevine	<i>Tribulus terrestris</i>	X		
Yellow starthistle	<i>Centaurea solstitialis</i>	X		

^aSource: ODA, 2020.

^bSources:

CH2M HILL, 2010a. Field surveys conducted June 2010.

CH2M HILL, 2010b. Field surveys conducted October 2009 and February 2010.

^cSources:

CH2M, 2017a. Field surveys conducted May - June 2017.

CH2M, 2017b. Field surveys conducted April - May 2017.

CH2M, 2018. Field surveys conducted June 2018.

Table 1. Weed Species of Greatest Concern in Vicinity of Oregon Trail Solar Site Boundary

Common Name	Scientific Name	Mapped in Facility Vicinity ^a	Observed 2009-2010 ^b	Observed 2017-2018 ^c
-------------	-----------------	--	---------------------------------	---------------------------------

HDR Engineering, Inc., 2017. Field surveys conducted April 2017.

3. Weed Control Plan

3.1 Overview

Long-term weed control will be accomplished through the seeding of perennial grasses known to compete well with noxious weeds, such as thickspike wheatgrass (*Elymus lanceolatus*) and Sherman big bluegrass (*Poa secunda*), or by maintaining the existing cover in the buffers. Short-term weed control will be through herbicide use. However, it will be important to ensure that the short-term herbicide use does not affect the establishment of the perennial grass cover intended to provide long-term control. Early detection and management of small populations before they can expand into larger populations is important for successful control. Weed control in agricultural areas will be coordinated with the landowner. The success criteria for weed control on non-agricultural areas is defined by the project's revegetation plan.

The knapweeds, rush skeletonweed, field bindweed, whitetop, yellow starthistle, and medusahead rye are the species of primary concern ("target" species) as they were observed onsite during the preconstruction surveys. Treatment specifics will differ depending on the following variables:

- Disturbed area or buffer
- Proximity to biologically sensitive areas

The target species will be the same for all onsite areas, but the treatment implementation will vary slightly according to these parameters.

The herbicides used and the timing of application will differ depending on whether the species are (1) perennial, broad-leaved, or dicot weeds (knapweeds and thistles, field bindweed, whitetop), or (2) annual grasses or monocots (goatgrass and medusahead). Appropriate herbicides differ substantially between dicots and monocots.

3.2 Best Management Practices

Oregon Trail Solar will implement best management practices during facility construction and operation to help prevent the invasion and spread of noxious weeds onsite. These may include the following:

- Information regarding target weed species will be provided at the operations and maintenance building.
- Weed prevention and control measures, including Facility inspection and documentation, will be included in operations plans.
- Vehicles and equipment will be cleaned prior to entry into revegetation areas to help minimize introduction of noxious weed seeds to the site.
- To prevent conditions favoring weed establishment, temporarily disturbed areas will be revegetated as soon as possible.
- The site will be revegetated with appropriate, locally collected native seed or native plants; when these are not available, noninvasive and nonpersistent, nonnative species may be used.

- Seed and straw mulch to be used for site rehabilitation will be inspected and certified free of weed seed and propagules.

3.3 Treatment Specifics

3.3.1 Disturbed Areas

Control will be accomplished through use of herbicides targeted to the individual weed species identified with the areas disturbed by construction. Herbicide application will occur twice in year 1, in the spring (knapweeds, thistles, bindweed) and fall (other species), and once a year thereafter during the spring (mid to late May), if necessary, until the success criteria are met. Herbicide will be applied with a spreader sticker surfactant (e.g., Dynamic Green Concepts, Phase). Rush skeletonweed will be treated throughout the growing season as it occurs. Information on identification of this and other target weed species will be included in the environmental training materials to be provided to Oregon Trail Solar operations staff. If rush skeletonweed is observed during routine operations activities at any time during the growing season, the licensed applicator will be contacted to treat this species as soon after it is observed as practicable. Table 2 provides a summary of recommended treatment by target species.

Table 2. Recommended Weed Treatments for Target Weed Species

Weed Category	Common Name	Scientific Name	Recommended Treatment
Knapweeds			
	Diffuse knapweed	<i>Centaurea diffusa</i>	Spot application of post-emergent, species-specific herbicide.
	Spotted knapweed	<i>Centaurea maculosa</i>	
	Russian knapweed	<i>Acroptilon repens</i>	
	Yellow starthistle	<i>Centaurea solstitialis</i>	
Thistles			
	Bull thistle	<i>Cirsium vulgare</i>	Spot application of post-emergent, species-specific herbicide.
	Creeping thistle	<i>Cirsium arvense</i>	
	Musk thistle	<i>Carduus nutans</i>	
	Scotch thistle	<i>Onopordum acanthium</i>	
Other Dicot (Broad-leaved) Weeds			
	Dalmatian toadflax	<i>Linaria dalmatica</i>	Spot application of post-emergent, species-specific herbicide.
	Field bindweed	<i>Convolvulus arvensis</i>	
	Kochia	<i>Kochia</i> sp.	
	Poison hemlock	<i>Conium maculatum</i>	
	Puncturevine	<i>Tribulus terrestris</i>	
	Spikeweed	<i>Hemozonia pungens</i>	
	Rush skeletonweed	<i>Chondrilla juncea</i>	
	Whitetop	<i>Lepidium draba</i>	
Grasses			
	Jointed goatgrass	<i>Aegilops cylindrica</i>	Spot application of post-emergent, species-specific herbicide.
	Medusahead rye	<i>Taeniatherum caput-medusae</i>	

3.3.2 Special Considerations

During treatment activities, Oregon Trail Solar will consider the following sensitive areas:

- **Washington ground squirrel sites.** The Washington ground squirrel is sensitive to disturbance during the breeding season (generally January through March, sometimes lasting through April). The diet of the Washington ground squirrel consists mostly of herbaceous vegetation, as well as flowers, roots, bulbs, seeds, and insects. Therefore, no herbicides will be sprayed within 400 meters (1,200 feet) of identified Washington ground squirrel sites during the breeding season.
- **Ephemeral streams/draws.** No herbicide will be sprayed where the drift can enter standing water or saturated soil. This precaution will likely only be necessary during the spring. However, it will be the herbicide applicators' responsibility to ensure that no herbicide or drift enters standing water.

4. References

CH2M HILL. 2010a. *Rare Plant Survey Report, Montague Wind Power Facility, Gilliam County, Oregon.*

CH2M HILL. 2010b. *Montague Wind Power Facility Wetlands and Other Waters Delineation Report, Gilliam County, Oregon.*

CH2M. 2017a. *2017 Rare Plant Surveys for Montague Wind Power Facility – Phase 1.*

CH2M. 2017b. *2017 Washington Ground Squirrel Surveys and Habitat Mapping for Montague Wind Power Facility – Phase 1.*

CH2M. 2018. *2018 Rare Plant Supplemental Surveys for Montague Wind Power Facility – Phase 1.*

HDR Engineering, Inc. 2017. *Wetlands and Water Bodies Delineation, Montague Wind Power Facility.* Prepared for Avangrid Renewables. July 10.

Montague Wind Power Facility, LLC (Montague). 2019. *Montague Wind Power Facility: Revegetation Plan.* December.

Oregon Department of Agriculture (ODA). 2019. *Noxious Weed Policy and Classification System.* Noxious Weed Control Program, Salem, Oregon.

<http://www.oregon.gov/ODA/shared/Documents/Publications/Weeds/NoxiousWeedPolicyClassification.pdf>.

Oregon Department of Agriculture (ODA). 2020. *Weed Mapper.*

<http://www.oregon.gov/ODA/programs/Weeds/Pages/WeedMapper.aspx>

Attachment G Draft Amended Wildlife Monitoring and Mitigation Plans

Draft Amended Montague Wind Facility Wildlife Monitoring and Mitigation Plan

Draft Montague Solar Facility Wildlife Monitoring and Mitigation Plan

Draft Oregon Trail Solar Facility Wildlife Monitoring and Mitigation Plan

Draft Amended Montague Wind Facility Wildlife Monitoring and Mitigation Plan

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~XX 2020]

1 This plan describes wildlife monitoring that the certificate holder shall conduct during
2 operation of ~~Phase 2 of~~ the Montague Wind Power Facility (MWPF).¹ This plan was approved in
3 September 2010 as part of the Energy Facility Siting Council’s (EFSC) Final Order on the
4 Application for Site Certificate for the Montague Wind Power Facility (Final Order on ASC).
5 Final Order on ASC approved construction and operation of a 404 megawatt (MW) wind energy
6 generation facility, to be developed in phases (Phase 1 and Phase 2). The plan was finalized in
7 August 2017, prior to construction of Phase 1. In XX, 2020, the Council approved Final Order on
8 Request for Amendment 5 of the Montague Wind Power Facility site certificate (Final Order on
9 RFA5), authorizing amendment of the Montague Wind Power Facility site certificate to cover
10 only Phase 1 facility components; and, previously approved facility components (Phase 2) to be
11 allocated under original site certificates for facilities named Montague Solar Facility and Oregon
12 Trail Solar Facility.

13 This plan is based on the plan finalized prior to Phase 1 facility construction (August
14 2017), revised accordingly to describe and apply to the facility components allocated in the
15 Montague Wind Power Facility, as approved in Final Order on RFA5. The Montague Wind
16 Power Facility is a 201 MW wind energy facility, including 56 wind turbines, located in
17 northeastern Gilliam County.

18 The monitoring objectives are to determine whether the facility causes significant
19 fatalities of birds and bats and to determine whether the facility results in a loss of habitat
20 quality.

21 The certificate holder shall use experienced and properly trained personnel (the
22 “investigators”) to conduct the monitoring required under this plan. For all components of this
23 plan except the Wildlife Reporting and Handling System, the certificate holder shall hire
24 independent third-party investigators (not employees of the certificate holder) to perform
25 monitoring tasks.

26 The *Wildlife Monitoring and Mitigation Plan* for the MWPF has the following
27 components:

- 28 1) Fatality monitoring program including:
 - 29 a) Definitions and methods
 - 30 b) Removal trials
 - 31 c) Searcher efficiency trials
 - 32 d) Fatality monitoring search protocol
 - 33 e) Incidental finds and injured birds
 - 34 f) Statistical methods for fatality estimates

¹ This plan is incorporated by reference in the site certificate for the MWPF 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: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

g) Mitigation

- 2) Raptor nesting surveys
- 3) Washington ground squirrel surveys
- 4) Wildlife Reporting and Handling System
- 5) Data reporting

Based on the results of the monitoring programs, mitigation of significant impacts may be required. The selection of the mitigation actions should allow for flexibility in creating appropriate responses to monitoring results that cannot be known in advance. If the Department determines that mitigation is needed, the certificate holder shall propose appropriate mitigation actions to the Department and shall carry out mitigation actions approved by the Department, subject to review by the Oregon Energy Facility Council (Council).

1. Fatality Monitoring

(a) Definitions and Methods

Seasons

This plan uses the following dates for defining seasons:

Season	Dates
Spring Migration	March 16 to May 15
Summer/Breeding	May 16 to August 15
Fall Migration	August 16 to October 31
Winter	November 1 to March 15

Search Plots

The investigators shall conduct fatality monitoring within search plots. The certificate holder, in consultation with the Oregon Department of Fish and Wildlife (ODFW), shall select search plots based on a systematic sampling design with a random starting point that ensures that the selected search plots are representative of the habitat conditions in different parts of the site. Each search plot will contain one turbine. Search plots will be square or circular. Circular search plots will be centered on the turbine location and will have a radius equal to the maximum blade tip height of the turbine contained within the plot. "Maximum blade tip height" is the turbine hub-height plus one-half the rotor diameter. Square search plots will be of sufficient size to contain a circular search plot as described above. The certificate holder shall use the same search plots for each search conducted during a monitoring year.

Scheduling

Fatality monitoring will begin one month after commencement of commercial operation of the facility. Subsequent monitoring years will follow the same schedule (beginning in the same calendar month in the subsequent monitoring year).

In each monitoring year, the investigators shall conduct fatality monitoring searches at the rates of frequency shown below. Over the course of one monitoring year, the investigators will conduct 16 searches, as follows:

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~XX 2020]

Season	Frequency
Spring Migration	2 searches per month (4 searches)
Summer/Breeding	1 search per month (3 searches)
Fall Migration	2 searches per month (5 searches)
Winter	1 search per month (4 searches)

Sample Size

The sample size for fatality monitoring is the number of turbines searched per monitoring year. The investigators shall conduct fatality monitoring during each monitoring year in search plots at one-third of the turbines that are built or 50 turbines, whichever is greater. If fewer than 50 turbines are built, the certificate holder shall search all turbines. ~~The facility is being constructed in two phases (Phases 1 and 2). Phase 1 will be completed in advance of Phase 2.~~ The number of turbines constructed ~~within both phases~~ will be considered when determining the sample size for the facility, and the turbines searched will be distributed proportionally throughout the entire facility ~~(comprising Phases 1 and 2).~~

The certificate holder may choose to build the MWPF using turbine types in two size classes:

- Small: turbines having a rotor diameter of 82 meters (269 feet) or less
- Large: turbines having a rotor diameter greater than 82 meters

If the final design of the MWPF includes both small and large turbines, the certificate holder shall consult with an independent expert with experience in statistical analysis of avian fatality data to determine whether it would be possible to design a turbine sample with a sufficient number of turbines in each size class to allow a statistical comparison of fatality rates for all birds as a group. The certificate holder shall submit the expert's written analysis to the Department. If the expert's analysis shows that a comparison study is possible and if the Department approves, the certificate holder shall sample the appropriate number of turbines in each class and conduct the comparison study. The certificate holder may choose to sample more than 50 turbines in each monitoring year, if a larger sample size would allow the comparison study to be done.

Duration of Fatality Monitoring

The investigators shall perform one complete monitoring cycle during the first full year of facility operation (Year 1). ~~Although Phase 1 will be completed in advance of Phase 2, by the time Phase 1 has begun operating, Phase 2 will likely be under construction or about to begin construction. As such, the number and nature of turbines to be constructed in Phase 2 will be known at that time.~~ The certificate holder proposes to select the sample turbines from all turbines throughout the facility ~~(Phases 1 and 2)~~ using a systematic sampling regime with a random start.

Monitoring of the selected turbines ~~in Phase 1~~ will begin when ~~Phase 1~~the facility commences commercial operation and will continue for a full year (52 weeks). ~~Monitoring of the selected turbines in Phase 2 will begin when Phase 2 commences commercial operation and will also continue for a full year. As a result of this sampling plan, Phase 1 will complete a full year of monitoring in advance of Phase 2. Phase 2 will continue monitoring until it, too, has completed a full year of monitoring.~~ As a result of the construction schedule, monitoring of

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 turbines at the facility will continue without interruption for longer than one full year and
2 possibly for as long as two full years.

3 When a full year of monitoring ~~at Phase 1~~ has been completed, the raw data will be
4 compiled by the certificate holder in a memo style report, which will include any notable results
5 from the year of monitoring, and provided to the Department and ODFW. ~~Then, when a full year
6 of monitoring at Phase 2 is complete, the data for both Phases 1 and 2 will be analyzed together
7 and a report prepared for the entire facility.~~

8 The certificate holder will report the results of monitoring to the Department and ODFW.
9 In the evaluation, the certificate holder shall compare the results for the MWPF with the
10 thresholds of concern described in Section 1(g) of this plan and with comparable data from other
11 wind power facilities in the Columbia Basin, as available. If the fatality rates for the first year of
12 monitoring at the MWPF do not exceed any of the thresholds of concern and are within the range
13 of the fatality rates found at other wind power facilities in the region, then the investigators will
14 perform a second year of monitoring in Year 5 of operations. This may occur under two
15 scenarios:

16 Monitoring ~~at Phase 1~~ will begin 5 years after the first year of operation/monitoring. ~~at
17 Phase 1, and monitoring at Phase 2 will begin 5 years after the first year of operation/monitoring
18 at Phase 2.~~

19 -or-

20 ~~Monitoring at both Phases 1 and 2 will commence in Year 5 of operations at the facility
21 (Year 5 of operations at Phase 1 and Year 4 of operations at Phase 2).~~

22 If fatality rates for the first year of monitoring at the MWPF exceed any of the thresholds
23 of concern or exceed the range of fatality rates found at other wind power facilities in the region,
24 the certificate holder shall propose additional mitigation for Department and ODFW review
25 within 6 months after reporting the fatality rates to the Department. Alternatively, the certificate
26 holder may opt to conduct a second year of fatality monitoring immediately if the certificate
27 holder believes that the ~~combined~~ results ~~of both phases~~ for Year 1 monitoring were anomalous.
28 If the certificate holder takes this option, the investigators still must perform the monitoring in
29 Year 5 of operations as described above.

30 (b) Removal Trials

31 The objective of the removal trials is to estimate the length of time avian and bat
32 carcasses remain in the search area. Estimates of carcass removal rates will be used to adjust
33 carcass counts for removal bias. "Carcass removal" is the disappearance of a carcass from the
34 search area due to predation, scavenging or other means such as farming activity.

35 The investigators shall conduct carcass removal trials within each of the seasons defined
36 above during the first year of fatality monitoring. For each trial, the investigators shall use 10 to
37 15 carcasses of small- and large-bodied species. After the first year of fatality monitoring, the
38 investigators may reduce the number of removal trials and the number of removal trial carcasses
39 during any subsequent year of fatality monitoring, subject to the approval of the Department. The
40 investigators must show that the reduction is justified based on a comparison of the first-year
41 removal data with published removal data from nearby wind energy facilities.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 The investigators shall use game birds or other legal sources of avian species as test
2 carcasses for the removal trials, and the investigators may use carcasses found in fatality
3 monitoring searches. The investigators shall select species with approximately the same
4 coloration and size attributes as species found within the site boundary. If suitable trial carcasses
5 are available, trials during the fall season will include several small brown birds to simulate bat
6 carcasses. Legally obtained bat carcasses will be used if available.

7 Trial carcasses will be marked discreetly for recognition by searchers and other
8 personnel. Carcasses will be placed in a variety of postures to simulate a range of conditions. For
9 example, birds will be: (1) placed in an exposed posture (e.g., thrown over the shoulder), (2)
10 hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) or (3) partially
11 hidden. The trial carcasses will be placed randomly within the carcass removal trial plots. Trial
12 carcasses will be left in place until the end of the carcass removal trial.

13 An approximate schedule for assessing removal status is once daily for the first 4 days,
14 and on days 7, 10, 14, 21, 28 and 35. This schedule may be adjusted depending on actual carcass
15 removal rates, weather conditions and coordination with the other survey work. The condition of
16 scavenged carcasses will be documented during each assessment, and at the end of the trial all
17 traces of the carcasses will be removed from the site. Scavenger or other activity could result in
18 complete removal of all traces of a carcass in a location or distribution of feathers and carcass
19 parts to several locations. This distribution will not constitute removal if evidence of the carcass
20 remains within an area similar in size to a search plot and if the evidence would be discernible to
21 a searcher during a normal survey.

22 Before beginning removal trials for any subsequent year of fatality monitoring, the
23 certificate holder shall report the results of the first-year removal trials to the Department and
24 ODFW. In the report, the certificate holder shall analyze whether four removal trials per year, as
25 described above, provide sufficient data to accurately estimate adjustment factors for carcass
26 removal. The number of removal trials may be adjusted up or down, subject to the approval of
27 the Department.

28 (c) Searcher Efficiency Trials

29 The objective of searcher efficiency trials is to estimate the percentage of bird and bat
30 fatalities that searchers are able to find. The investigators shall conduct searcher efficiency trials
31 on the fatality monitoring search plots in both grassland/shrub-steppe and cultivated agriculture
32 habitat types. A pooled estimate of searcher efficiency will be used to adjust carcass counts for
33 detection bias.

34 The investigators shall conduct searcher efficiency trials within each of the seasons
35 defined above during the years in which the fatality monitoring occurs. Each trial will involve
36 approximately 4 to 15 carcasses. The searchers will not be notified of carcass placement or test
37 dates. The investigators shall vary the number of trials per season and the number of carcasses
38 per trial so that the searchers will not know the total number of trial carcasses being used in any
39 trial. In total, approximately 80 carcasses will be used per year, or approximately 15 to 25 per
40 season.

41 For each trial, the investigators shall use small- and large-bodied species. The
42 investigators shall use game birds or other legal sources of avian species as test carcasses for the
43 efficiency trials, and the investigators may use carcasses found in fatality monitoring searches.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ 2020]

1 The investigators shall select species with approximately the same coloration and size attributes
2 as species found within the site boundary. If suitable test carcasses are available, trials during the
3 fall season will include several small brown birds to simulate bat carcasses. Legally obtained bat
4 carcasses will be used if available. The investigators shall mark the test carcasses to differentiate
5 them from other carcasses that might be found within the search plot and shall use methods
6 similar to those used to mark removal test carcasses as long as the procedure is sufficiently
7 discreet and does not increase carcass visibility.

8 The certificate holder shall distribute trial carcasses in varied habitat in rough proportion
9 to the habitat types within the facility site. On the day of a standardized fatality monitoring
10 search (described below) but before the beginning of the search, investigators will place
11 efficiency trial carcasses randomly within search plots (one to three trial carcasses per search
12 plot) within areas to be searched. If scavengers appear attracted by placement of carcasses, the
13 carcasses will be distributed before dawn.

14 Efficiency trials will be spread over the entire season to incorporate effects of varying
15 weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a
16 range of conditions. For example, birds will be: (1) placed in an exposed posture (thrown over
17 the shoulder), (2) hidden to simulate a crippled bird or (3) partially hidden.

18 The number and location of the efficiency trial carcasses found during the carcass search
19 will be recorded. The number of efficiency trial carcasses available for detection during each
20 trial will be determined immediately after the trial by the person responsible for distributing the
21 carcasses. Following plot searches, all traces of test carcasses will be removed from the site.

22 If new searchers are brought into the search team, additional searcher efficiency trials
23 will be conducted to ensure that detection rates incorporate searcher differences. The certificate
24 holder shall include a discussion of any changes in search personnel and any additional detection
25 trials in the reporting required under Section 5 of this plan.

26 Before beginning searcher efficiency trials for any subsequent year of fatality monitoring,
27 the certificate holder shall report the results of the first-year efficiency trials to the Department
28 and ODFW. In the report, the certificate holder shall analyze whether the efficiency trials as
29 described above provide sufficient data to accurately estimate adjustment factors for searcher
30 efficiency. The number of searcher efficiency trials for any subsequent year of fatality
31 monitoring may be adjusted up or down, subject to the approval of the Department.

32 (d) Fatality Monitoring Search Protocol

33 The objective of fatality monitoring is to estimate the number of bird and bat fatalities
34 that are attributable to facility operation as an indicator of the impact of the facility on habitat
35 quality. The goal of bird and bat fatality monitoring is to estimate fatality rates and associated
36 variances. The investigators shall perform fatality monitoring using standardized carcass
37 searches according to the schedule described above.

38 Personnel trained in proper search techniques (“the searchers”) will conduct the carcass
39 searches by walking parallel transects approximately 6 meters apart within the search plots. A
40 searcher will walk at a rate of approximately 45 to 60 meters per minute along each transect,
41 searching both sides out to 3 meters for casualties. Search area and speed may be adjusted by
42 habitat type after evaluation of the first searcher efficiency trial.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 Searchers shall flag all avian or bat carcasses discovered. Carcasses are defined as a
2 complete carcass or body part, 10 or more feathers or three or more primary feathers in one
3 location. When parts of carcasses and feathers from the same species are found within a search
4 plot, searchers shall make note of the relative positions and assess whether or not these are from
5 the same fatality.

6 All carcasses (avian and bat) found during the standardized carcass searches will be
7 photographed, recorded and labeled with a unique number. Searchers shall make note of the
8 nearest two or three structures (turbine, power pole, fence, building or overhead line) and the
9 approximate distance from the carcass to these structures. The species and age of the carcass will
10 be determined when possible. Searchers shall note the extent to which the carcass is intact and
11 estimate time since death. Searchers shall describe all evidence that might assist in determination
12 of cause of death, such as evidence of electrocution, vehicular strike, wire strike, predation or
13 disease.

14 The investigators shall calculate fatality rates using the statistical methods described in
15 Section (f), except that the investigators may use different notation or methods that are
16 mathematically equivalent with prior approval of the Department. In making these calculations,
17 the investigators may exclude carcass data from the first search of each turbine plot (to eliminate
18 possible counting of carcasses that were present before the turbine was operating).

19 The investigators shall estimate the number of avian and bat fatalities attributable to
20 operation of the facility based on the number of avian and bat fatalities found at the facility site.
21 All carcasses located within areas surveyed, regardless of species, will be recorded and, if
22 possible, a cause of death determined based on blind necropsy results. If a different cause of
23 death is not apparent, the fatality will be attributed to facility operation. The total number of
24 avian and bat fatalities will be estimated by adjusting for removal and searcher efficiency bias.

25 On an annual basis, the certificate holder shall report an estimate of fatalities in eight
26 categories: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) grassland birds, (6)
27 nocturnal migrants, (7) state and federally listed threatened and endangered species and State
28 Sensitive Species listed under OAR 635-100-0040 and (8) bats. The certificate holder shall
29 report annual fatality rates on both a per-megawatt (MW) and per-turbine basis.

30 (e) Incidental Finds and Injured Birds

31 The searchers might discover carcasses incidental to formal carcass searches (e.g., while
32 driving within the project area). For each incidentally discovered carcass, the searcher shall
33 identify, photograph, record data and collect the carcass as would be done for carcasses within
34 the formal search sample during scheduled searches. If the incidentally discovered carcass is
35 found within a formal search plot, the fatality data will be included in the calculation of fatality
36 rates. If the incidentally discovered carcass is found outside a formal search plot, the data will be
37 reported separately. The certificate holder shall coordinate collection of incidentally discovered
38 state endangered, threatened, sensitive or other state protected species with ODFW. The
39 certificate holder shall coordinate incidentally discovered federally-listed endangered or
40 threatened species and Migratory Bird Treaty Act protected avian species with USFWS.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ 2020]

1 The certificate holder shall contact a qualified rehabilitation specialist approved by the
2 Department² to respond to injured wildlife. The certificate holder shall pay costs, if any, charged
3 for time and expenses related to care and rehabilitation of injured native birds found on the site,
4 unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

5 (f) Statistical Methods for Fatality Estimates

6 The estimate of the total number of wind facility-related fatalities is based on:

7 (2) The observed number of carcasses found during standardized searches during the
8 two monitoring years for which the cause of death is attributed to the facility.³

9 (3) Searcher efficiency expressed as the proportion of planted carcasses found by
10 searchers.

11 (4) Removal rates expressed as the estimated average probability a carcass is expected
12 to remain in the study area and be available for detection by the searchers during
13 the entire survey period.

14 Definition of Variables

15 The following variables are used in the equations below:

16 c_i the number of carcasses detected at plot i for the study period of interest (e.g., one
17 year) for which the cause of death is either unknown or is attributed to the facility

18 n the number of search plots

19 k the number of turbines searched (includes the turbines centered within each
20 search plot and a proportion of the number of turbines adjacent to search plots to
21 account for the effect of adjacent turbines on the search plot buffer area)

22 \bar{c} the average number of carcasses observed per turbine per year

23 s the number of carcasses used in removal trials

24 s_c the number of carcasses in removal trials that remain in the study area after 35
25 days

26 se standard error (square of the sample variance of the mean)

27 t_i the time (days) a carcass remains in the study area before it is removed

28 \bar{t} the average time (days) a carcass remains in the study area before it is removed

29 d the total number of carcasses placed in searcher efficiency trials

30 p the estimated proportion of detectable carcasses found by searchers

31 I the average interval between searches in days

32 $\hat{\pi}$ the estimated probability that a carcass is both available to be found during a
33 search and is found

² Approved specialists include Blue Mountain Wildlife, a wildlife rehabilitation center in Pendleton, and the Audubon Bird Care Center in Portland. The certificate holder must obtain Department approval before using other specialists.

³ If a different cause of death is not apparent, the fatality will be attributed to facility operation.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

- 1 m_t the estimated annual average number of fatalities per turbine per year, adjusted
2 for removal and observer detection bias
3 C nameplate energy output of turbine in MW

4 Observed Number of Carcasses

5 The estimated average number of carcasses (\bar{c}) observed per turbine per year is:

6
$$\bar{c} = \frac{\sum_{i=1}^n c_i}{k} . \quad (1)$$

7 Estimation of Carcass Removal

8 Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean carcass
9 removal time (\bar{t}) is the average length of time a carcass remains at the site before it is removed:

10
$$\bar{t} = \frac{\sum_{i=1}^s t_i}{s - s_c} . \quad (2)$$

11 This estimator is the maximum likelihood estimator assuming the removal times follow an
12 exponential distribution and there is right-censoring of data. Any trial carcasses remaining at 35
13 days are collected, yielding censored observations at 35 days. If all trial carcasses are removed
14 before the end of the trial, then s_c is 0, and \bar{t} is just the arithmetic average of the removal times.
15 Removal rates will be estimated by carcass size (small and large), habitat type and season.

16 Estimation of Observer Detection Rates

17 Observer detection rates (i.e., searcher efficiency rates) are expressed as p , the proportion
18 of trial carcasses that are detected by searchers. Observer detection rates will be estimated by
19 carcass size, habitat type and season.

20 Estimation of Facility-Related Fatality Rates

21 The estimated per turbine annual fatality rate (m_t) is calculated by:

22
$$m_t = \frac{\bar{c}}{\hat{\pi}} , \quad (3)$$

23 where $\hat{\pi}$ includes adjustments for both carcass removal (from scavenging and other means) and
24 observer detection bias assuming that the carcass removal times t_i follow an exponential
25 distribution. Under these assumptions, this detection probability is estimated by:

26
$$\hat{\pi} = \frac{\bar{t} \cdot p}{I} \cdot \left[\frac{\exp\left(\frac{I}{\bar{t}}\right) - 1}{\exp\left(\frac{I}{\bar{t}}\right) - 1 + p} \right] . \quad (4)$$

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 The estimated per MW annual fatality rate (m) is calculated by:

$$2 \quad m = \frac{m_t}{C}. \quad (5)$$

3 The final reported estimates of m , associated standard errors and 90% confidence
4 intervals will be calculated using bootstrapping (Manly, 1997). Bootstrapping is a computer
5 simulation technique that is useful for calculating point estimates, variances, and confidence
6 intervals for complicated test statistics. For each iteration of the bootstrap, the plots will be
7 sampled with replacement, trial carcasses will be sampled with replacement, and \bar{c} , \bar{t} , p , $\hat{\pi}$ and
8 m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates
9 will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap
10 estimates is the estimated standard error. The lower 5th and upper 95th percentiles of the 5000
11 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

12 Nocturnal Migrant and Bat Fatalities

13 Differences in observed nocturnal migrant and bat fatality rates for lit turbines, unlit
14 turbines that are adjacent to lit turbines and unlit turbines that are not adjacent to lit turbines will
15 be compared graphically and statistically.

16 (g) Mitigation

17 The certificate holder shall use best-available science to resolve any uncertainty in the
18 results and to determine whether the data indicate that additional mitigation should be
19 considered. The Department may require additional, targeted monitoring if the data indicate the
20 potential for significant impacts that cannot be addressed by worst-case analysis and appropriate
21 mitigation.

22 Mitigation may be appropriate if fatality rates exceed a “threshold of concern.”⁴ For the
23 purpose of determining whether a threshold has been exceeded, the certificate holder shall
24 calculate the average annual fatality rates for species groups after each year of monitoring. Based
25 on current knowledge of the species that are likely to use the habitat in the area of the facility, the
26 following thresholds apply to the MWPF:

⁴ If a different cause of death is not apparent, the fatality will be attributed to facility operation.
n species in the Final Order on the Application for the Klondike III Wind Project (June 30, 2006) and for bats in the
Final Order on the Application for the Biglow Canyon Wind Farm (June 30, 2006). As explained in the Klondike III
order: “Although the threshold numbers provide a rough measure for deciding whether the Council should be
concerned about observed fatality rates, the thresholds have a very limited scientific basis. The exceeding of a
threshold, by itself, would not be a scientific indicator that operation of the facility would result in range-wide
population level declines of any of the species affected. The thresholds are provided in the Wildlife Monitoring and
Mitigation Plan to guide consideration of additional mitigation based on two years of monitoring data.”

Montague Wind Power Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

Species Group	Threshold of Concern (fatalities per MW)
Raptors (All eagles, hawks, falcons, and owls, including burrowing owls.)	0.09
Raptor species of special concern (Swainson’s hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl and any federal threatened or endangered raptor species.)	0.06
Grassland species (All native bird species that rely on grassland habitat and are either resident species occurring year-round or species that nest in the area, excluding horned lark, burrowing owl and northern harrier.)	0.59
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.2
Bat species as a group	2.5

1 If the data show that a threshold of concern for a species group has been exceeded, the
2 certificate holder shall implement additional mitigation if the Department determines that
3 mitigation is appropriate based on analysis of the data, consultation with ODFW and
4 consideration of any other significant information available at the time. In addition, the
5 Department may determine that mitigation is appropriate if fatality rates for individual avian or
6 bat species (especially State Sensitive Species) are higher than expected and at a level of
7 biological concern. If the Department determines that mitigation is appropriate, the certificate
8 holder, in consultation with the Department and ODFW, shall propose mitigation measures
9 designed to benefit the affected species. Acceptable mitigation may include, but not limited to,
10 contributions to wildlife rehabilitators, funding of research by third parties on local raptor
11 populations, or habitat mitigation. This may take into consideration whether the mitigation
12 required or provided in conjunction with raptor nest monitoring, habitat mitigation, or other
13 components of the *Wildlife Monitoring and Mitigation Plan* or *Habitat Mitigation Plan*, would
14 also benefit the affected species.

15 The certificate holder shall implement mitigation as approved by the Department, subject
16 to review by the Council. The Department may recommend additional, targeted data collection if
17 the need for mitigation is unclear based on the information available at the time. The certificate
18 holder shall implement such data collection as approved by the Council.

19 The certificate holder shall design mitigation to benefit the affected species group.
20 Mitigation may include, but is not limited to, protection of nesting habitat for the affected group
21 of native species through a conservation easement or similar agreement. Tracts of land that are
22 intact and functional for wildlife are preferable to degraded habitat areas. Preference should be
23 given to protection of land that would otherwise be subject to development or use that would
24 diminish the wildlife value of the land. In addition, mitigation measures might include:
25 enhancement of the protected tract by weed removal and control; increasing the diversity of
26 native grasses and forbs; planting sagebrush or other shrubs; constructing and maintaining
27 artificial nest structures for raptors; improving wildfire response; and conducting or making a
28 contribution to research that will aid in understanding more about the affected species and its
29 conservation needs in the region.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 If the data show that the threshold of concern for bat species as a group has been
2 exceeded, the certificate holder shall implement additional mitigation if the Department
3 determines that mitigation is appropriate based on analysis of the data, consultation with ODFW
4 and consideration of any other significant information available at the time. For example, if the
5 threshold for bat species as a group is exceeded, the certificate holder may contribute to Bat
6 Conservation International or to a Pacific Northwest bat conservation group to fund new or
7 ongoing research in the Pacific Northwest to better understand wind facility impacts to bat
8 species and to develop possible ways to reduce impacts to the affected species.

9 Solar Array

10 ~~In addition to wind turbines, Phase 2 may include a photovoltaic (PV) solar energy array~~
11 ~~on up to 1,189 acres in Category 6 habitat within the solar micrositing area. Although publicly~~
12 ~~available fatality studies conducted at PV solar projects are rare in the literature, those that are~~
13 ~~available have documented fatalities of passerines but raptor and bat fatalities were generally~~
14 ~~absent. In the most recent study available, Walston et al. (2016) found the rate of bird mortality~~
15 ~~from known causes (i.e., collision with project infrastructure) at a large PV facility in central~~
16 ~~California was low (0.50 birds/MW/year). In comparison, Johnson and Erickson (2011)~~
17 ~~summarized fatality rates from 25 year long fatality monitoring studies conducted at 23 wind~~
18 ~~energy facilities in the Columbia Plateau Ecoregion and found the mean number of all bird~~
19 ~~(excluding raptors) mortality was 2.28 fatalities/MW/year.~~

20 ~~Some risk of avian mortality occurs with most human development (ranging from single-~~
21 ~~family homes to large-scale industrial projects), but it is unlikely that the proposed PV solar~~
22 ~~array will result in significant impacts to birds. Known risk factors for avian collision fatalities~~
23 ~~include the height of structures, size of the facility, attributes of structures (e.g., guy wires, type~~
24 ~~of lighting), as well as the type of development, siting in high risk areas, and species at potential~~
25 ~~risk. The role of these risk factors has been outlined in the USFWS guidelines for wind turbines~~
26 ~~(USFWS, 2012) and communication towers (USFWS, 2013), as well as by various publications~~
27 ~~in the peer reviewed literature (Gehring et al., 2009, 2011; Kerlinger et al., 2010).~~

28 ~~After consideration of potential risk factors, the collision risk to birds from the facility~~
29 ~~solar array infrastructure will likely be low. Most importantly, the PV array, as proposed, will be~~
30 ~~located in disturbed habitat, will have only down shielded lighting, will not have guy wires, and~~
31 ~~will not have any structures exceeding 15 feet (4.6 meters) in height (the greatest height of PV~~
32 ~~panels at full rotation). However, the certificate holder will consult with the Department and~~
33 ~~ODFW to confirm the extent of fatality monitoring that should be conducted for the solar~~
34 ~~facility.~~

35 **2. Raptor Nest Surveys**

36 The objectives of raptor nest surveys are: (1) count raptor nests on the ground or
37 aboveground in trees or other aboveground nest locations in the vicinity of the facility; and (2) to
38 determine whether operation of the facility results in a reduction of nesting activity or nesting
39 success in the local populations of the following raptor species: Swainson's hawk, golden eagle,
40 ferruginous hawk, and burrowing owl.

41 The certificate holder shall conduct short-term and long-term monitoring around Phase 2
42 wind turbines. ~~Raptor nest surveys would not occur if Phase 2 is only comprised of solar~~
43 ~~generation.~~—The investigators will use ground surveys to evaluate nest success by gathering data

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 on active nests, on nests with young and on young fledged. The investigators will analyze the
2 data as described in Section 3(c) and will share the data with state biologists.

3 (a) Short-Term Monitoring

4 Short-term monitoring will be done in two monitoring seasons. The first monitoring
5 season will be in the first raptor nesting season after completion of construction of the facility.
6 The second monitoring season will be in the fourth year after construction is completed. The
7 certificate holder shall provide a summary of the first-year results in the monitoring report
8 described in Section 5. After the second monitoring season, the investigators will analyze two
9 years of data compared to the baseline data.

10 For Raptor Species that Nest Aboveground

11 During each monitoring season, the investigators will conduct a minimum of one aerial
12 and one ground survey for raptor nests in late May or early June and additional surveys as
13 described in this section. The survey area is the area within the site boundary and a 2-mile buffer
14 zone around the site. For the ground surveys while checking for nesting *success* (conducted
15 within the facility site and up to a maximum of ½ mile from the facility site), nests outside the
16 leased project boundary will be checked from an appropriate distance where feasible, depending
17 on permission from the landowner for access.

18 All nests discovered during preconstruction surveys and any nests discovered during
19 post-construction surveys, whether active or inactive, will be given identification numbers. Nest
20 locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global
21 positioning system (GPS) coordinates will be recorded for each nest. Locations of inactive nests
22 will be recorded because they could become occupied during future years.

23 Determining nest *occupancy* may require one or two visits to each nest. Aerial surveys
24 for nest occupancy will be conducted within the facility site and a 2-mile buffer. For occupied
25 nests, the certificate holder will determine nesting *success* by a minimum of one ground visit to
26 determine the species, number of young and young fledged within the facility site and up to ½
27 mile from the facility site. “Nesting success” means that the young have successfully fledged
28 (the young are independent of the core nest site).

29 For Burrowing Owls

30 If burrowing owl nest sites are discovered during pre-construction, construction, or post-
31 construction, the investigators will monitor them according to the following protocol approved
32 by ODFW. This species is not easily detected during aerial raptor nest surveys.. Any nests
33 discovered during post-construction surveys, whether active or showing signs of intermittent use
34 by the species, will be given identification numbers. Nest locations will be recorded on U.S.
35 Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be
36 recorded for each nest site. Coordinates for ancillary burrows used by one nesting pair or a group
37 of nesting pairs will also be recorded. Locations of inactive nests will be recorded because they
38 could become occupied during future years.

39 The investigators shall conduct burrowing owl monitoring in the same years as the raptor
40 nest surveys described above. For occupied nests, the investigators shall determine nesting
41 *success* by a minimum of one ground visit to determine species, number of young and young
42 fledged. “Nesting success” means that the young have successfully fledged (the young may or

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 may not be independent of the core nest site). Three visits to the nest sites may be necessary to
2 determine outcome. Nests that cannot be monitored due to the landowner denying access will be
3 checked from a distance where feasible.

4 If burrowing owl nests are discovered during the first year of post-construction raptor
5 nest surveys (the first raptor nesting season after construction is completed), the investigators
6 shall monitor those nest locations during the second year of surveys in the fourth year after
7 construction is completed. Thereafter, the investigators shall monitor all known burrowing owl
8 nest locations as a part of the long-term raptor nest monitoring program described in Section 2(b)
9 below.

10 (b) Long-Term Monitoring

11 In addition to the two years of post-construction raptor nest surveys described in Section
12 2(a), the investigators shall conduct long-term raptor nest surveys at 5-year intervals for the life
13 of the facility.⁵ Investigators will conduct the first long-term raptor nest survey in the first raptor
14 nesting season that is at least 5 years after the completion of construction and is in a year that is
15 divisible by five (i.e., 2020, 2025, 2030); and will repeat the survey at 5-year intervals thereafter.
16 In conducting long-term surveys, the investigators will follow the same survey protocols as
17 described above in Section 2(a) unless the investigators propose alternative protocols that are
18 approved by the Department. In developing an alternative protocol, the investigators will consult
19 with ODFW and will take into consideration other monitoring conducted in adjacent areas. The
20 investigators will analyze the data and report after each year of long-term raptor nest surveys.

21 (c) Analysis

22 The investigators will analyze the raptor nesting data to determine whether a reduction in
23 either nesting success or nest use has occurred in the survey area. If the analysis indicates a
24 reduction in nesting success or nest use by Swainson's hawks, ferruginous hawks, or burrowing
25 owls, then the certificate holder will propose appropriate mitigation for the affected species as
26 described in Section 2(d) and will implement mitigation as approved by the Department, subject
27 to review by the Council.

28 Reductions in nesting success or nest use could be due to operation of the MWPF,
29 operation of another wind facility in the vicinity or some other cause. The investigators shall
30 attribute the reduction to operation of the MWPF if the wind turbine closest to the affected nest
31 site is an MWPF turbine, unless the certificate holder demonstrates, and the Department agrees,
32 that the reduction was due to a different cause. At a minimum, if the analysis shows that a
33 Swainson's hawk, ferruginous hawk or burrowing owl has abandoned a nest territory within the
34 facility site or within ½ mile of the facility site or has not fledged any young over two successive
35 surveys within that same area, the investigators will assume the abandonment or unsuccessful
36 fledging is due to operation of the facility unless another cause can be demonstrated
37 convincingly.

38 Given the low raptor nesting densities in the area and the presence of other wind energy
39 facilities nearby, statistical power to detect a relationship between distance from an MWPF wind

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.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 turbine and nesting parameters (e.g., number of fledglings per reproductive pair) will be very
2 low. Therefore, impacts may have to be judged based on trends in the data, results from other
3 wind energy facility monitoring studies and literature on what is known regarding the
4 populations in the region.

5 (d) Mitigation

6 If the analysis shows a reduction in nesting success or nest use, the certificate holder shall
7 implement mitigation if the Department determines that mitigation is appropriate. The certificate
8 holder shall propose mitigation for the affected species in consultation with the Department and
9 ODFW and shall implement mitigation as approved by the Council. In proposing appropriate
10 mitigation, the certificate holder shall advise the Department if any other wind project in the area
11 is obligated to provide mitigation for a reduction in raptor nesting success at the same nest site.
12 Mitigation should be designed to benefit the affected species or contribute to overall scientific
13 knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may
14 be designed to proceed in phases over several years. It may include, but is not limited to,
15 additional raptor nest monitoring, protection of natural nest sites from human disturbance or
16 cattle activity (preferably within the general area of the facility) or participation in research
17 projects designed to improve scientific understanding of the needs of the affected species.
18 Mitigation may take into consideration whether the mitigation required or provided in
19 conjunction with other components of the *Wildlife Monitoring and Mitigation Plan* or *Habitat*
20 *Mitigation Plan* would also benefit the raptor species whose nesting success was adversely
21 affected.

22 3. Washington ground squirrel surveys

23 The certificate holder shall conduct long-term post-construction surveys to collect data on
24 Washington ground squirrel (WGS) activity within the site boundary. Qualified professional
25 biologists will monitor the locations within the site boundary where WGS were detected in
26 preconstruction surveys (beginning in 2017). The survey area includes the identified burrow
27 areas and the buffer areas within 785 feet in suitable habitat. The investigators will walk standard
28 protocol-level transects twice between late March and late May and record level of use, notes on
29 natal sites, physical extent of the sites and any noticeable land use or habitat changes that may
30 have occurred since the preconstruction survey in 2017. The investigators shall report any new
31 WGS detections but the boundaries of Category 1 habitat will not be revised from pre-
32 construction boundaries.

33 The certificate holder shall conduct surveys during the year following construction and
34 every three years thereafter for the life of the facility in areas where WGS were detected within
35 the typical maximum dispersal distance of 3,281 feet (1,000 meters) of the facility. After each
36 survey, the certificate holder shall report the results to ODFW and to the Department and shall
37 include maps of the areas surveyed and detection locations. WGS surveys will not be conducted
38 if there are barriers to WGS dispersal (i.e., active agriculture fields, highways, perennial
39 waterbodies) or an absence of suitable habitat corridors that would prevent the dispersal of WGS
40 into areas where facility components are located.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

4. Wildlife Reporting and Handling System

The Wildlife Reporting and Handling System is a voluntary monitoring program for maintenance personnel to search for avian and bat casualties during operation of the facility. Maintenance personnel will be trained in the methods needed to carry out this program. This monitoring program includes the initial response, handling, and reporting of bird and bat carcasses discovered incidental to maintenance operations (“incidental finds”). This is a voluntary program and may be discounted by the certificate holder at any time.

During the years in which fatality monitoring occurs, if maintenance personnel discover incidental finds outside the search plots for the fatality monitoring searches, the data will be reported separately from fatality monitoring data. If maintenance personnel discover carcasses within search plots, the data will be included in the calculation of fatality rates. The maintenance personnel will notify a project biologist..

5. Data Reporting

The certificate holder will report wildlife monitoring data and analysis to the Department for each calendar year in which wildlife monitoring occurs. Monitoring data include fatality monitoring program data, raptor nest survey data, WGS survey data, WGS incidental observation and assessment reports and Wildlife Reporting and Handling System data. The certificate holder may include the reporting of wildlife monitoring data and analysis in the annual report required under OAR 345-026-0080 or submit this information as a separate document at the same time the annual report is submitted. In addition, the certificate holder shall provide to the Department any data or record generated in carrying out this monitoring plan upon request by the Department.

The certificate holder shall notify USFWS and ODFW if any federal or state endangered or threatened species are killed or injured on the facility site within 48 hours of species identification.

Within 30 days after receiving the final versions of reports that are required under this plan, the Department will make the reports available to the public on its website and will specify a time in which the public may submit comments to the Department.⁶

6. Amendment of the Plan

This *Wildlife Monitoring and Mitigation Plan* may be amended from time to time by agreement of the certificate holder and the Council. Such amendments may be made without amendment of the site certificate. The Council authorizes the Department to agree to amendments to this plan and to mitigation actions that may be required under this plan. The Department shall notify the Council of all amendments and mitigation actions, and the Council retains the authority to approve, reject or modify any amendment of this plan or mitigation action agreed to by the Department.

⁶ The certificate holder may establish a Technical Advisor Committee (TAC) but is not required to do so. If the certificate holder establishes a TAC, the TAC may offer comments to the Council about the results of the monitoring required under this plan.

Montague Wind Power Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 7. References

2 Gehring, J., P. Kerlinger, and A. M. Manville, II. 2009. "Communication Towers, Lights,
3 and Birds: Successful Methods of Reducing the Frequency of Avian Collisions." *Ecological*
4 *Applications* 19(2): 505-514.

5 Gehring, J., P. Kerlinger, and A. M. Manville, II. 2011. "The Role of Tower Height and
6 Guy Wires on Avian Collisions with Communication Towers." *The Journal of Wildlife*
7 *Management* 75(4): 848–855.

8 Johnson, G. and W. P. Erickson. 2011. *Avian, Bat and Habitat Cumulative Impacts*
9 *Associated with Wind Energy Development in the Columbia Plateau Ecoregion of Eastern*
10 *Washington and Oregon*. Prepared by Western EcoSystems Technology, Inc., for Klickitat
11 County Planning Department. May 18.
12 [https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson and Erickson](https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson_2011.pdf)
13 [_2011.pdf](https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson_2011.pdf).

14 Kerlinger, P., J. L. Gehring, W. P. Erickson, R. Curry, A. Jain, and J. Guarnaccia. 2010.
15 "Night Migrant Fatalities and Obstruction Lighting at Wind Turbines in North America." *Wilson*
16 *Journal of Ornithology* 122(4): 744-754.

17 Manly, B. F. J. 1997. *Randomization, Bootstrap, and Monte Carlo Methods in Biology*.
18 2nd edition. New York: Chapman and Hall.

19 U.S. Fish and Wildlife Service (USFWS). 2012. *U.S. Fish and Wildlife Service Land-*
20 *Based Wind Energy Guidelines*. UOMB Control No. 1018-0148.

21 U.S. Fish and Wildlife Service (USFWS). 2013. *Revised Guidelines for Communication*
22 *Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning --*
23 *Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No.*
24 *03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on*
25 *Migratory Birds," Docket No. 08-61, FCC's Antenna Structure Registration Program, and*
26 *Service 2012 Wind Energy Guidelines*.

27 Walston, L. J., Jr., K. E. Rollins, K. E. LaGory, K. P. Smith, and S. A. Meyers. 2016. "A
28 preliminary assessment of avian mortality at utility-scale solar energy facilities in the United
29 States." *Renewable Energy* 92: 405–414.

Draft Montague Solar Facility Wildlife Monitoring and Mitigation Plan

Montague ~~Wind PowerSolar~~ Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

1 This plan describes wildlife monitoring that the certificate holder shall conduct during
2 operation of ~~Phase 2 of~~ the Montague ~~Wind PowerSolar~~ Facility (~~MWPF~~).¹ This plan was
3 approved in September 2019 as part of the Energy Facility Siting Council’s (EFSC) Final Order
4 on Request for Amendment 4 of the Montague Wind Power Facility site certificate (Final Order
5 on RFA4). Final Order on RFA4 approved modifications to the previously approved layout and
6 specifications of wind facility components and the addition of approximately 1,189 acres of solar
7 photovoltaic energy generation equipment. Within the 1,189 acres approved for solar facility
8 components, the land was used for cultivation of dryland winter wheat and was designated
9 habitat Category 6. In XX, 2020, the Council approved Final Order on Request for Amendment 5
10 of the Montague Wind Power Facility site certificate (Final Order on RFA5), authorizing
11 previously approved facility components (Phase 2) to be allocated under original site certificates
12 for facilities named Montague Solar Facility and Oregon Trail Solar Facility. The site certificate
13 issued for the Montague Solar Facility was based entirely on the previously approved Montague
14 Wind Power Facility site certificate; mitigation plans were based entirely on those approved in
15 the Final Order on RFA4; modifications were incorporated into the site certificates and
16 mitigation plans based on the allocation of previously approved facility components, location
17 and type of equipment.

18 This Wildlife Monitoring and Mitigation Plan is based on the draft amended plan
19 provided as Attachment F of the Final Order on RFA4, revised accordingly to describe and apply
20 to the Montague Solar Facility. The Montague Solar Facility is a 162 megawatt (MW) solar
21 photovoltaic energy facility located within a 1,496 solar micro-siting area and 1,763 acre site
22 boundary, in northeastern Gilliam County.

23 The monitoring objectives are to determine whether the facility causes significant
24 fatalities of birds and bats and to determine whether the facility results in a loss of habitat
25 quality.

26 The certificate holder shall use experienced and properly trained personnel (the
27 “investigators”) to conduct the monitoring required under this plan. For all components of this
28 plan except the Wildlife Reporting and Handling System, the certificate holder shall hire
29 independent third-party investigators (not employees of the certificate holder) to perform
30 monitoring tasks.

31 The *Wildlife Monitoring and Mitigation Plan* for the ~~MWPF~~ Montague Solar Facility has
32 the following components:

- 33 1) Fatality monitoring ~~program including:~~ applicability review
34 a) ~~Definitions and methods~~
35 b) ~~Removal trials~~

¹ This plan is incorporated by reference in the site certificate for the ~~MWPF~~ Montague Solar 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~~Solar Facility: ~~Phase 2~~ Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

- 1 e) ~~Searcher efficiency trials~~
- 2 d) ~~Fatality monitoring search protocol~~
- 3 e) ~~Incidental finds and injured birds~~
- 4 f) ~~Statistical methods for fatality estimates~~
- 5 g) ~~Mitigation~~
- 6 2) ~~Raptor nesting surveys~~
- 7 3) ~~Washington ground squirrel surveys~~
- 8 4)2) ~~Wildlife Reporting and Handling System~~
- 9 5)3) ~~Data reporting~~

10 ~~Based on the results of the monitoring programs, mitigation of significant impacts may be~~
11 ~~required. The selection of the mitigation actions should allow for flexibility in creating~~
12 ~~appropriate responses to monitoring results that cannot be known in advance. If the Department~~
13 ~~determines that mitigation is needed, the certificate holder shall propose appropriate mitigation~~
14 ~~actions to the Department and shall carry out mitigation actions approved by the Department,~~
15 ~~subject to review by the Oregon Energy Facility Council (Council).~~

16 **1. — Fatality Monitoring**

17 ~~(a) Definitions and Methods~~

18 Seasons

19 This plan uses the following dates for defining seasons:

Season	Dates
Spring Migration	March 16 to May 15
Summer/Breeding	May 16 to August 15
Fall Migration	August 16 to October 31
Winter	November 1 to March 15

20 Search Plots

21 ~~The investigators shall conduct fatality monitoring within search plots. The certificate~~
22 ~~holder, in consultation with the Oregon Department of Fish and Wildlife (ODFW), shall select~~
23 ~~search plots based on a systematic sampling design with a random starting point that ensures that~~
24 ~~the selected search plots are representative of the habitat conditions in different parts of the site.~~
25 ~~Each search plot will contain one turbine. Search plots will be square or circular. Circular search~~
26 ~~plots will be centered on the turbine location and will have a radius equal to the maximum blade~~
27 ~~tip height of the turbine contained within the plot. “Maximum blade tip height” is the turbine~~
28 ~~hub height plus one half the rotor diameter. Square search plots will be of sufficient size to~~
29 ~~contain a circular search plot as described above. The certificate holder shall use the same search~~
30 ~~plots for each search conducted during a monitoring year.~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

~~[AS AMENDED JANUARY 2018XX 2020]~~

1 ~~*Scheduling*~~

2 ~~Fatality monitoring will begin one month after commencement of commercial operation~~
3 ~~of the facility. Subsequent monitoring years will follow the same schedule (beginning in the~~
4 ~~same calendar month in the subsequent monitoring year).~~

5 ~~In each monitoring year, the investigators shall conduct fatality monitoring searches at~~
6 ~~the rates of frequency shown below. Over the course of one monitoring year, the investigators~~
7 ~~will conduct 16 searches, as follows:~~

Season	Frequency
Spring Migration	2 searches per month (4 searches)
Summer/Breeding	1 search per month (3 searches)
Fall Migration	2 searches per month (5 searches)
Winter	1 search per month (4 searches)

8 ~~*Sample Size*~~

9 ~~The sample size for fatality monitoring is the number of turbines searched per monitoring~~
10 ~~year. The investigators shall conduct fatality monitoring during each monitoring year in search~~
11 ~~plots at one-third of the turbines that are built or 50 turbines, whichever is greater. If fewer than~~
12 ~~50 turbines are built, the certificate holder shall search all turbines. The facility is being~~
13 ~~constructed in two phases (Phases 1 and 2). Phase 1 will be completed in advance of Phase 2.~~
14 ~~The number of turbines constructed within both phases will be considered when determining the~~
15 ~~sample size for the facility, and the turbines searched will be distributed proportionally~~
16 ~~throughout the entire facility (comprising Phases 1 and 2).~~

17 ~~The certificate holder may choose to build the MWPF using turbine types in two size~~
18 ~~classes:~~

- 19 ~~● Small: turbines having a rotor diameter of 82 meters (269 feet) or less~~
- 20 ~~● Large: turbines having a rotor diameter greater than 82 meters~~

21 ~~If the final design of the MWPF includes both small and large turbines, the certificate~~
22 ~~holder shall consult with an independent expert with experience in statistical analysis of avian~~
23 ~~fatality data to determine whether it would be possible to design a turbine sample with a~~
24 ~~sufficient number of turbines in each size class to allow a statistical comparison of fatality rates~~
25 ~~for all birds as a group. The certificate holder shall submit the expert's written analysis to the~~
26 ~~Department. If the expert's analysis shows that a comparison study is possible and if the~~
27 ~~Department approves, the certificate holder shall sample the appropriate number of turbines in~~
28 ~~each class and conduct the comparison study. The certificate holder may choose to sample more~~
29 ~~than 50 turbines in each monitoring year, if a larger sample size would allow the comparison~~
30 ~~study to be done.~~

31 ~~*Duration of Fatality Monitoring*~~

32 ~~The investigators shall perform one complete monitoring cycle during the first full year~~
33 ~~of facility operation (Year 1). Although Phase 1 will be completed in advance of Phase 2, by the~~
34 ~~time Phase 1 has begun operating, Phase 2 will likely be under construction or about to begin~~
35 ~~construction. As such, the number and nature of turbines to be constructed in Phase 2 will be~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

1 known at that time. The certificate holder proposes to select the sample turbines from all turbines
2 throughout the facility (Phases 1 and 2) using a systematic sampling regime with a random start.

3 Monitoring of the selected turbines in Phase 1 will begin when Phase 1 commences
4 commercial operation and will continue for a full year (52 weeks). Monitoring of the selected
5 turbines in Phase 2 will begin when Phase 2 commences commercial operation and will also
6 continue for a full year. As a result of this sampling plan, Phase 1 will complete a full year of
7 monitoring in advance of Phase 2. Phase 2 will continue monitoring until it, too, has completed a
8 full year of monitoring. As a result of the construction schedule, monitoring of turbines at the
9 facility will continue without interruption for longer than one full year and possibly for as long as
10 two full years.

11 ——— When a full year of monitoring at Phase 1 has been completed, the raw data will be
12 compiled by the certificate holder in a memo style report, which will include any notable results
13 from the year of monitoring, and provided to the Department and ODFW. Then, when a full year
14 of monitoring at Phase 2 is complete, the data for both Phases 1 and 2 will be analyzed together
15 and a report prepared for the entire facility.

16 The certificate holder will report the results of monitoring to the Department and ODFW.
17 In the evaluation, the certificate holder shall compare the results for the MWPF with the
18 thresholds of concern described in Section 1(g) of this plan and with comparable data from other
19 wind power facilities in the Columbia Basin, as available. If the fatality rates for the first year of
20 monitoring at the MWPF do not exceed any of the thresholds of concern and are within the range
21 of the fatality rates found at other wind power facilities in the region, then the investigators will
22 perform a second year of monitoring in Year 5 of operations. This may occur under two
23 scenarios:

24 Monitoring at Phase 1 will begin 5 years after the first year of operation/monitoring at
25 Phase 1, and monitoring at Phase 2 will begin 5 years after the first year of operation/monitoring
26 at Phase 2.

27 ~~or~~

28 Monitoring at both Phases 1 and 2 will commence in Year 5 of operations at the facility
29 (Year 5 of operations at Phase 1 and Year 4 of operations at Phase 2).

30 If fatality rates for the first year of monitoring at the MWPF exceed any of the thresholds
31 of concern or exceed the range of fatality rates found at other wind power facilities in the region,
32 the certificate holder shall propose additional mitigation for Department and ODFW review
33 within 6 months after reporting the fatality rates to the Department. Alternatively, the certificate
34 holder may opt to conduct a second year of fatality monitoring immediately if the certificate
35 holder believes that the combined results of both phases for Year 1 monitoring were anomalous.
36 If the certificate holder takes this option, the investigators still must perform the monitoring in
37 Year 5 of operations as described above.

38 **(b) Removal Trials**

39 The objective of the removal trials is to estimate the length of time avian and bat
40 carcasses remain in the search area. Estimates of carcass removal rates will be used to adjust
41 carcass counts for removal bias. "Carcass removal" is the disappearance of a carcass from the
42 search area due to predation, scavenging or other means such as farming activity.

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 ~~The investigators shall conduct carcass removal trials within each of the seasons defined~~
2 ~~above during the first year of fatality monitoring. For each trial, the investigators shall use 10 to~~
3 ~~15 carcasses of small and large bodied species. After the first year of fatality monitoring, the~~
4 ~~investigators may reduce the number of removal trials and the number of removal trial carcasses~~
5 ~~during any subsequent year of fatality monitoring, subject to the approval of the Department. The~~
6 ~~investigators must show that the reduction is justified based on a comparison of the first year~~
7 ~~removal data with published removal data from nearby wind energy facilities.~~

8 ~~The investigators shall use game birds or other legal sources of avian species as test~~
9 ~~carcasses for the removal trials, and the investigators may use carcasses found in fatality~~
10 ~~monitoring searches. The investigators shall select species with approximately the same~~
11 ~~coloration and size attributes as species found within the site boundary. If suitable trial carcasses~~
12 ~~are available, trials during the fall season will include several small brown birds to simulate bat~~
13 ~~carcasses. Legally obtained bat carcasses will be used if available.~~

14 ~~Trial carcasses will be marked discreetly for recognition by searchers and other~~
15 ~~personnel. Carcasses will be placed in a variety of postures to simulate a range of conditions. For~~
16 ~~example, birds will be: (1) placed in an exposed posture (e.g., thrown over the shoulder), (2)~~
17 ~~hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) or (3) partially~~
18 ~~hidden. The trial carcasses will be placed randomly within the carcass removal trial plots. Trial~~
19 ~~carcasses will be left in place until the end of the carcass removal trial.~~

20 ~~An approximate schedule for assessing removal status is once daily for the first 4 days,~~
21 ~~and on days 7, 10, 14, 21, 28 and 35. This schedule may be adjusted depending on actual carcass~~
22 ~~removal rates, weather conditions and coordination with the other survey work. The condition of~~
23 ~~scavenged carcasses will be documented during each assessment, and at the end of the trial all~~
24 ~~traces of the carcasses will be removed from the site. Scavenger or other activity could result in~~
25 ~~complete removal of all traces of a carcass in a location or distribution of feathers and carcass~~
26 ~~parts to several locations. This distribution will not constitute removal if evidence of the carcass~~
27 ~~remains within an area similar in size to a search plot and if the evidence would be discernible to~~
28 ~~a searcher during a normal survey.~~

29 ~~Before beginning removal trials for any subsequent year of fatality monitoring, the~~
30 ~~certificate holder shall report the results of the first year removal trials to the Department and~~
31 ~~ODFW. In the report, the certificate holder shall analyze whether four removal trials per year, as~~
32 ~~described above, provide sufficient data to accurately estimate adjustment factors for carcass~~
33 ~~removal. The number of removal trials may be adjusted up or down, subject to the approval of~~
34 ~~the Department.~~

35 **(c) Searcher Efficiency Trials**

36 ~~The objective of searcher efficiency trials is to estimate the percentage of bird and bat~~
37 ~~fatalities that searchers are able to find. The investigators shall conduct searcher efficiency trials~~
38 ~~on the fatality monitoring search plots in both grassland/shrub steppe and cultivated agriculture~~
39 ~~habitat types. A pooled estimate of searcher efficiency will be used to adjust carcass counts for~~
40 ~~detection bias.~~

41 ~~The investigators shall conduct searcher efficiency trials within each of the seasons~~
42 ~~defined above during the years in which the fatality monitoring occurs. Each trial will involve~~
43 ~~approximately 4 to 15 carcasses. The searchers will not be notified of carcass placement or test~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 ~~dates. The investigators shall vary the number of trials per season and the number of carcasses~~
2 ~~per trial so that the searchers will not know the total number of trial carcasses being used in any~~
3 ~~trial. In total, approximately 80 carcasses will be used per year, or approximately 15 to 25 per~~
4 ~~season.~~

5 ~~For each trial, the investigators shall use small and large-bodied species. The~~
6 ~~investigators shall use game birds or other legal sources of avian species as test carcasses for the~~
7 ~~efficiency trials, and the investigators may use carcasses found in fatality monitoring searches.~~
8 ~~The investigators shall select species with approximately the same coloration and size attributes~~
9 ~~as species found within the site boundary. If suitable test carcasses are available, trials during the~~
10 ~~fall season will include several small brown birds to simulate bat carcasses. Legally obtained bat~~
11 ~~carcasses will be used if available. The investigators shall mark the test carcasses to differentiate~~
12 ~~them from other carcasses that might be found within the search plot and shall use methods~~
13 ~~similar to those used to mark removal test carcasses as long as the procedure is sufficiently~~
14 ~~discreet and does not increase carcass visibility.~~

15 ~~The certificate holder shall distribute trial carcasses in varied habitat in rough proportion~~
16 ~~to the habitat types within the facility site. On the day of a standardized fatality monitoring~~
17 ~~search (described below) but before the beginning of the search, investigators will place~~
18 ~~efficiency trial carcasses randomly within search plots (one to three trial carcasses per search~~
19 ~~plot) within areas to be searched. If scavengers appear attracted by placement of carcasses, the~~
20 ~~carcasses will be distributed before dawn.~~

21 ~~Efficiency trials will be spread over the entire season to incorporate effects of varying~~
22 ~~weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a~~
23 ~~range of conditions. For example, birds will be: (1) placed in an exposed posture (thrown over~~
24 ~~the shoulder), (2) hidden to simulate a crippled bird or (3) partially hidden.~~

25 ~~The number and location of the efficiency trial carcasses found during the carcass search~~
26 ~~will be recorded. The number of efficiency trial carcasses available for detection during each~~
27 ~~trial will be determined immediately after the trial by the person responsible for distributing the~~
28 ~~carcasses. Following plot searches, all traces of test carcasses will be removed from the site.~~

29 ~~If new searchers are brought into the search team, additional searcher efficiency trials~~
30 ~~will be conducted to ensure that detection rates incorporate searcher differences. The certificate~~
31 ~~holder shall include a discussion of any changes in search personnel and any additional detection~~
32 ~~trials in the reporting required under Section 5 of this plan.~~

33 ~~Before beginning searcher efficiency trials for any subsequent year of fatality monitoring,~~
34 ~~the certificate holder shall report the results of the first year efficiency trials to the Department~~
35 ~~and ODFW. In the report, the certificate holder shall analyze whether the efficiency trials as~~
36 ~~described above provide sufficient data to accurately estimate adjustment factors for searcher~~
37 ~~efficiency. The number of searcher efficiency trials for any subsequent year of fatality~~
38 ~~monitoring may be adjusted up or down, subject to the approval of the Department.~~

39 **(d) Fatality Monitoring Search Protocol**

40 ~~The objective of fatality monitoring is to estimate the number of bird and bat fatalities~~
41 ~~that are attributable to facility operation as an indicator of the impact of the facility on habitat~~
42 ~~quality. The goal of bird and bat fatality monitoring is to estimate fatality rates and associated~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

~~[AS AMENDED JANUARY 2018XX 2020]~~

1 ~~variances. The investigators shall perform fatality monitoring using standardized carcass~~
2 ~~searches according to the schedule described above.~~

3 ~~Personnel trained in proper search techniques (“the searchers”) will conduct the carcass~~
4 ~~searches by walking parallel transects approximately 6 meters apart within the search plots. A~~
5 ~~searcher will walk at a rate of approximately 45 to 60 meters per minute along each transect,~~
6 ~~searching both sides out to 3 meters for casualties. Search area and speed may be adjusted by~~
7 ~~habitat type after evaluation of the first searcher efficiency trial.~~

8 ~~Searchers shall flag all avian or bat carcasses discovered. Carcasses are defined as a~~
9 ~~complete carcass or body part, 10 or more feathers or three or more primary feathers in one~~
10 ~~location. When parts of carcasses and feathers from the same species are found within a search~~
11 ~~plot, searchers shall make note of the relative positions and assess whether or not these are from~~
12 ~~the same fatality.~~

13 ~~All carcasses (avian and bat) found during the standardized carcass searches will be~~
14 ~~photographed, recorded and labeled with a unique number. Searchers shall make note of the~~
15 ~~nearest two or three structures (turbine, power pole, fence, building or overhead line) and the~~
16 ~~approximate distance from the carcass to these structures. The species and age of the carcass will~~
17 ~~be determined when possible. Searchers shall note the extent to which the carcass is intact and~~
18 ~~estimate time since death. Searchers shall describe all evidence that might assist in determination~~
19 ~~of cause of death, such as evidence of electrocution, vehicular strike, wire strike, predation or~~
20 ~~disease.~~

21 ~~The investigators shall calculate fatality rates using the statistical methods described in~~
22 ~~Section (f), except that the investigators may use different notation or methods that are~~
23 ~~mathematically equivalent with prior approval of the Department. In making these calculations,~~
24 ~~the investigators may exclude carcass data from the first search of each turbine plot (to eliminate~~
25 ~~possible counting of carcasses that were present before the turbine was operating).~~

26 ~~The investigators shall estimate the number of avian and bat fatalities attributable to~~
27 ~~operation of the facility based on the number of avian and bat fatalities found at the facility site.~~
28 ~~All carcasses located within areas surveyed, regardless of species, will be recorded and, if~~
29 ~~possible, a cause of death determined based on blind necropsy results. If a different cause of~~
30 ~~death is not apparent, the fatality will be attributed to facility operation. The total number of~~
31 ~~avian and bat fatalities will be estimated by adjusting for removal and searcher efficiency bias.~~

32 ~~On an annual basis, the certificate holder shall report an estimate of fatalities in eight~~
33 ~~categories: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) grassland birds, (6)~~
34 ~~nocturnal migrants, (7) state and federally listed threatened and endangered species and State~~
35 ~~Sensitive Species listed under OAR 635-100-0040 and (8) bats. The certificate holder shall~~
36 ~~report annual fatality rates on both a per megawatt (MW) and per turbine basis.~~

37 ~~(e) Incidental Finds and Injured Birds~~

38 ~~The searchers might discover carcasses incidental to formal carcass searches (e.g., while~~
39 ~~driving within the project area). For each incidentally discovered carcass, the searcher shall~~
40 ~~identify, photograph, record data and collect the carcass as would be done for carcasses within~~
41 ~~the formal search sample during scheduled searches. If the incidentally discovered carcass is~~
42 ~~found within a formal search plot, the fatality data will be included in the calculation of fatality~~
43 ~~rates. If the incidentally discovered carcass is found outside a formal search plot, the data will be~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

1 reported separately. The certificate holder shall coordinate collection of incidentally discovered
2 state endangered, threatened, sensitive or other state protected species with ODFW. The
3 certificate holder shall coordinate incidentally discovered federally listed endangered or
4 threatened species and Migratory Bird Treaty Act protected avian species with USFWS.

5 The certificate holder shall contact a qualified rehabilitation specialist approved by the
6 Department² to respond to injured wildlife. The certificate holder shall pay costs, if any, charged
7 for time and expenses related to care and rehabilitation of injured native birds found on the site,
8 unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

9 ~~(f) Statistical Methods for Fatality Estimates~~

10 The estimate of the total number of wind facility related fatalities is based on:

11 (2) The observed number of carcasses found during standardized searches during the
12 two monitoring years for which the cause of death is attributed to the facility.³

13 (3) Searcher efficiency expressed as the proportion of planted carcasses found by
14 searchers.

15 (4) Removal rates expressed as the estimated average probability a carcass is expected
16 to remain in the study area and be available for detection by the searchers during
17 the entire survey period.

18 Definition of Variables

19 The following variables are used in the equations below:

20 c_i — the number of carcasses detected at plot i for the study period of interest (e.g., one
21 year) for which the cause of death is either unknown or is attributed to the facility

22 n — the number of search plots

23 k — the number of turbines searched (includes the turbines centered within each
24 search plot and a proportion of the number of turbines adjacent to search plots to
25 account for the effect of adjacent turbines on the search plot buffer area)

26 \bar{c} — the average number of carcasses observed per turbine per year

27 s — the number of carcasses used in removal trials

28 s_e — the number of carcasses in removal trials that remain in the study area after 35
29 days

30 se — standard error (square of the sample variance of the mean)

31 t_i — the time (days) a carcass remains in the study area before it is removed

32 \bar{t} — the average time (days) a carcass remains in the study area before it is removed

33 d — the total number of carcasses placed in searcher efficiency trials

² Approved specialists include Blue Mountain Wildlife, a wildlife rehabilitation center in Pendleton, and the Audubon Bird Care Center in Portland. The certificate holder must obtain Department approval before using other specialists.

³ If a different cause of death is not apparent, the fatality will be attributed to facility operation.

- 1 p — the estimated proportion of detectable carcasses found by searchers
- 2 I — the average interval between searches in days
- 3 $\hat{\pi}$ — the estimated probability that a carcass is both available to be found during a
- 4 search and is found
- 5 m_i — the estimated annual average number of fatalities per turbine per year, adjusted
- 6 for removal and observer detection bias
- 7 C — nameplate energy output of turbine in MW

8 Observed Number of Carcasses

9 The estimated average number of carcasses (\bar{c}) observed per turbine per year is:

10
$$\bar{c} = \frac{\sum_{i=1}^n c_i}{k} \tag{1}$$

11 Estimation of Carcass Removal

12 Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean carcass
 13 removal time (\bar{t}) is the average length of time a carcass remains at the site before it is removed:

14
$$\bar{t} = \frac{\sum_{i=1}^s t_i}{s - s_c} \tag{2}$$

15 This estimator is the maximum likelihood estimator assuming the removal times follow an
 16 exponential distribution and there is right censoring of data. Any trial carcasses remaining at 35
 17 days are collected, yielding censored observations at 35 days. If all trial carcasses are removed
 18 before the end of the trial, then s_c is 0, and \bar{t} is just the arithmetic average of the removal times.
 19 Removal rates will be estimated by carcass size (small and large), habitat type and season.

20 Estimation of Observer Detection Rates

21 Observer detection rates (i.e., searcher efficiency rates) are expressed as p , the proportion
 22 of trial carcasses that are detected by searchers. Observer detection rates will be estimated by
 23 carcass size, habitat type and season.

24 Estimation of Facility-Related Fatality Rates

25 The estimated per turbine annual fatality rate (m_i) is calculated by:

26
$$m_i = \frac{\bar{c}}{\hat{\pi}} \tag{3}$$

27 where $\hat{\pi}$ includes adjustments for both carcass removal (from scavenging and other means) and
 28 observer detection bias assuming that the carcass removal times t_i follow an exponential
 29 distribution. Under these assumptions, this detection probability is estimated by:

$$\hat{\pi} = \frac{\bar{t} \cdot p}{I} \left[\frac{\exp\left(\frac{I}{\bar{t}}\right) - 1}{\exp\left(\frac{I}{\bar{t}}\right) - 1 + p} \right] \quad (4)$$

The estimated per MW annual fatality rate (m) is calculated by:

$$m = \frac{m_t}{C} \quad (5)$$

The final reported estimates of m , associated standard errors and 90% confidence intervals will be calculated using bootstrapping (Manly, 1997). Bootstrapping is a computer simulation technique that is useful for calculating point estimates, variances, and confidence intervals for complicated test statistics. For each iteration of the bootstrap, the plots will be sampled with replacement, trial carcasses will be sampled with replacement, and \bar{c} , \bar{t} , p , $\hat{\pi}$ and m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap estimates is the estimated standard error. The lower 5th and upper 95th percentiles of the 5000 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

Nocturnal Migrant and Bat Fatalities

Differences in observed nocturnal migrant and bat fatality rates for lit turbines, unlit turbines that are adjacent to lit turbines and unlit turbines that are not adjacent to lit turbines will be compared graphically and statistically.

(g) Mitigation

The certificate holder shall use best available science to resolve any uncertainty in the results and to determine whether the data indicate that additional mitigation should be considered. The Department may require additional, targeted monitoring if the data indicate the potential for significant impacts that cannot be addressed by worst case analysis and appropriate mitigation.

Mitigation may be appropriate if fatality rates exceed a “threshold of concern.”⁴ For the purpose of determining whether a threshold has been exceeded, the certificate holder shall calculate the average annual fatality rates for species groups after each year of monitoring. Based on current knowledge of the species that are likely to use the habitat in the area of the facility, the following thresholds apply to the MWPF:

⁴ If a different cause of death is not apparent, the fatality will be attributed to facility operation. n species in the Final Order on the Application for the Klondike III Wind Project (June 30, 2006) and for bats in the Final Order on the Application for the Biglow Canyon Wind Farm (June 30, 2006). As explained in the Klondike III order: “Although the threshold numbers provide a rough measure for deciding whether the Council should be concerned about observed fatality rates, the thresholds have a very limited scientific basis. The exceeding of a threshold, by itself, would not be a scientific indicator that operation of the facility would result in range wide population level declines of any of the species affected. The thresholds are provided in the Wildlife Monitoring and Mitigation Plan to guide consideration of additional mitigation based on two years of monitoring data.”

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018 ~~XX~~ 2020]

Species Group	Threshold of Concern (fatalities per MW)
Raptors (All eagles, hawks, falcons, and owls, including burrowing owls.)	0.09
Raptor species of special concern (Swainson’s hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl and any federal threatened or endangered raptor species.)	0.06
Grassland species (All native bird species that rely on grassland habitat and are either resident species occurring year round or species that nest in the area, excluding horned lark, burrowing owl and northern harrier.)	0.59
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.2
Bat species as a group	2.5

1 If the data show that a threshold of concern for a species group has been exceeded, the
2 certificate holder shall implement additional mitigation if the Department determines that
3 mitigation is appropriate based on analysis of the data, consultation with ODFW and
4 consideration of any other significant information available at the time. In addition, the
5 Department may determine that mitigation is appropriate if fatality rates for individual avian or
6 bat species (especially State Sensitive Species) are higher than expected and at a level of
7 biological concern. If the Department determines that mitigation is appropriate, the certificate
8 holder, in consultation with the Department and ODFW, shall propose mitigation measures
9 designed to benefit the affected species. Acceptable mitigation may include, but not limited to,
10 contributions to wildlife rehabilitators, funding of research by third parties on local raptor
11 populations, or habitat mitigation. This may take into consideration whether the mitigation
12 required or provided in conjunction with raptor nest monitoring, habitat mitigation, or other
13 components of the *Wildlife Monitoring and Mitigation Plan* or *Habitat Mitigation Plan*, would
14 also benefit the affected species.

15 The certificate holder shall implement mitigation as approved by the Department, subject
16 to review by the Council. The Department may recommend additional, targeted data collection if
17 the need for mitigation is unclear based on the information available at the time. The certificate
18 holder shall implement such data collection as approved by the Council.

19 The certificate holder shall design mitigation to benefit the affected species group.
20 Mitigation may include, but is not limited to, protection of nesting habitat for the affected group
21 of native species through a conservation easement or similar agreement. Tracts of land that are
22 intact and functional for wildlife are preferable to degraded habitat areas. Preference should be
23 given to protection of land that would otherwise be subject to development or use that would
24 diminish the wildlife value of the land. In addition, mitigation measures might include:
25 enhancement of the protected tract by weed removal and control; increasing the diversity of
26 native grasses and forbs; planting sagebrush or other shrubs; constructing and maintaining
27 artificial nest structures for raptors; improving wildfire response; and conducting or making a
28 contribution to research that will aid in understanding more about the affected species and its
29 conservation needs in the region.

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

~~If the data show that the threshold of concern for bat species as a group has been exceeded, the certificate holder shall implement additional mitigation if the Department determines that mitigation is appropriate based on analysis of the data, consultation with ODFW and consideration of any other significant information available at the time. For example, if the threshold for bat species as a group is exceeded, the certificate holder may contribute to Bat Conservation International or to a Pacific Northwest bat conservation group to fund new or ongoing research in the Pacific Northwest to better understand wind facility impacts to bat species and to develop possible ways to reduce impacts to the affected species.~~

Solar Array

~~In addition to wind turbines, Phase 2 may include a photovoltaic (PV) solar energy array on up to 1,189 acres in Category 6 habitat within the solar micrositing area.~~ Although publicly available fatality studies conducted at PV solar projects are rare in the literature, those that are available have documented fatalities of passerines but raptor and bat fatalities were generally absent. In the most recent study available, Walston et al. (2016) found the rate of bird mortality from known causes (i.e., collision with project infrastructure) at a large PV facility in central California was low (0.50 birds/MW/year). In comparison, Johnson and Erickson (2011) summarized fatality rates from 25 year-long fatality monitoring studies conducted at 23 wind-energy facilities in the Columbia Plateau Ecoregion and found the mean number of all bird (excluding raptors) mortality was 2.28 fatalities/MW/year.

Some risk of avian mortality occurs with most human development (ranging from single-family homes to large-scale industrial projects), but it is unlikely that the proposed PV solar array will result in significant impacts to birds. Known risk factors for avian collision fatalities include the height of structures, size of the facility, attributes of structures (e.g., guy wires, type of lighting), as well as the type of development, siting in high-risk areas, and species at potential risk. The role of these risk factors has been outlined in the USFWS guidelines for wind turbines (USFWS, 2012) and communication towers (USFWS, 2013), as well as by various publications in the peer reviewed literature (Gehring et al., 2009, 2011; Kerlinger et al., 2010).

After consideration of potential risk factors, the collision risk to birds from the facility solar array infrastructure will likely be low. Most importantly, the PV array, as proposed, will be located in disturbed habitat, will have only down-shielded lighting, will not have guy wires, and will not have any structures exceeding 15 feet (4.6 meters) in height (the greatest height of PV panels at full rotation). However, the certificate holder will consult with the Department and ODFW to confirm the extent of fatality monitoring that should be conducted for the solar ~~faicity~~facility.

2.—Raptor Nest Surveys

~~The objectives of raptor nest surveys are: (1) count raptor nests on the ground or aboveground in trees or other aboveground nest locations in the vicinity of the facility; and (2) to determine whether operation of the facility results in a reduction of nesting activity or nesting success in the local populations of the following raptor species: Swainson's hawk, golden eagle, ferruginous hawk, and burrowing owl.~~

~~The certificate holder shall conduct short term and long term monitoring around Phase 2 wind turbines. Raptor nest surveys would not occur if Phase 2 is only comprised of solar generation. The investigators will use ground surveys to evaluate nest success by gathering data~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018XX 2020]

1 ~~on active nests, on nests with young and on young fledged. The investigators will analyze the~~
2 ~~data as described in Section 3(e) and will share the data with state biologists.~~

3 ~~(a) Short-Term Monitoring~~

4 ~~Short term monitoring will be done in two monitoring seasons. The first monitoring~~
5 ~~season will be in the first raptor nesting season after completion of construction of the facility.~~
6 ~~The second monitoring season will be in the fourth year after construction is completed. The~~
7 ~~certificate holder shall provide a summary of the first year results in the monitoring report~~
8 ~~described in Section 5. After the second monitoring season, the investigators will analyze two~~
9 ~~years of data compared to the baseline data.~~

10 ~~For Raptor Species that Nest Aboveground~~

11 ~~During each monitoring season, the investigators will conduct a minimum of one aerial~~
12 ~~and one ground survey for raptor nests in late May or early June and additional surveys as~~
13 ~~described in this section. The survey area is the area within the site boundary and a 2-mile buffer~~
14 ~~zone around the site. For the ground surveys while checking for nesting *success* (conducted~~
15 ~~within the facility site and up to a maximum of ½ mile from the facility site), nests outside the~~
16 ~~leased project boundary will be checked from an appropriate distance where feasible, depending~~
17 ~~on permission from the landowner for access.~~

18 ~~All nests discovered during preconstruction surveys and any nests discovered during~~
19 ~~post-construction surveys, whether active or inactive, will be given identification numbers. Nest~~
20 ~~locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global~~
21 ~~positioning system (GPS) coordinates will be recorded for each nest. Locations of inactive nests~~
22 ~~will be recorded because they could become occupied during future years.~~

23 ~~Determining nest *occupancy* may require one or two visits to each nest. Aerial surveys~~
24 ~~for nest occupancy will be conducted within the facility site and a 2-mile buffer. For occupied~~
25 ~~nests, the certificate holder will determine nesting *success* by a minimum of one ground visit to~~
26 ~~determine the species, number of young and young fledged within the facility site and up to ½~~
27 ~~mile from the facility site. “Nesting *success*” means that the young have successfully fledged~~
28 ~~(the young are independent of the core nest site).~~

29 ~~For Burrowing Owls~~

30 ~~If burrowing owl nest sites are discovered during pre-construction, construction, or post-~~
31 ~~construction, the investigators will monitor them according to the following protocol approved~~
32 ~~by ODFW. This species is not easily detected during aerial raptor nest surveys. Any nests~~
33 ~~discovered during post-construction surveys, whether active or showing signs of intermittent use~~
34 ~~by the species, will be given identification numbers. Nest locations will be recorded on U.S.~~
35 ~~Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be~~
36 ~~recorded for each nest site. Coordinates for ancillary burrows used by one nesting pair or a group~~
37 ~~of nesting pairs will also be recorded. Locations of inactive nests will be recorded because they~~
38 ~~could become occupied during future years.~~

39 ~~The investigators shall conduct burrowing owl monitoring in the same years as the raptor~~
40 ~~nest surveys described above. For occupied nests, the investigators shall determine nesting~~
41 ~~*success* by a minimum of one ground visit to determine species, number of young and young~~
42 ~~fledged. “Nesting *success*” means that the young have successfully fledged (the young may or~~

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

1 may not be independent of the core nest site). Three visits to the nest sites may be necessary to
2 determine outcome. Nests that cannot be monitored due to the landowner denying access will be
3 checked from a distance where feasible.

4 If burrowing owl nests are discovered during the first year of post construction raptor
5 nest surveys (the first raptor nesting season after construction is completed), the investigators
6 shall monitor those nest locations during the second year of surveys in the fourth year after
7 construction is completed. Thereafter, the investigators shall monitor all known burrowing owl
8 nest locations as a part of the long term raptor nest monitoring program described in Section 2(b)
9 below.

10 **(b) Long-Term Monitoring**

11 In addition to the two years of post construction raptor nest surveys described in Section
12 2(a), the investigators shall conduct long term raptor nest surveys at 5 year intervals for the life
13 of the facility.⁵ Investigators will conduct the first long term raptor nest survey in the first raptor
14 nesting season that is at least 5 years after the completion of construction and is in a year that is
15 divisible by five (i.e., 2020, 2025, 2030); and will repeat the survey at 5 year intervals thereafter.
16 In conducting long term surveys, the investigators will follow the same survey protocols as
17 described above in Section 2(a) unless the investigators propose alternative protocols that are
18 approved by the Department. In developing an alternative protocol, the investigators will consult
19 with ODFW and will take into consideration other monitoring conducted in adjacent areas. The
20 investigators will analyze the data and report after each year of long term raptor nest surveys.

21 **(c) Analysis**

22 The investigators will analyze the raptor nesting data to determine whether a reduction in
23 either nesting success or nest use has occurred in the survey area. If the analysis indicates a
24 reduction in nesting success or nest use by Swainson's hawks, ferruginous hawks, or burrowing
25 owls, then the certificate holder will propose appropriate mitigation for the affected species as
26 described in Section 2(d) and will implement mitigation as approved by the Department, subject
27 to review by the Council.

28 Reductions in nesting success or nest use could be due to operation of the MWPF,
29 operation of another wind facility in the vicinity or some other cause. The investigators shall
30 attribute the reduction to operation of the MWPF if the wind turbine closest to the affected nest
31 site is an MWPF turbine, unless the certificate holder demonstrates, and the Department agrees,
32 that the reduction was due to a different cause. At a minimum, if the analysis shows that a
33 Swainson's hawk, ferruginous hawk or burrowing owl has abandoned a nest territory within the
34 facility site or within 1/2 mile of the facility site or has not fledged any young over two successive
35 surveys within that same area, the investigators will assume the abandonment or unsuccessful
36 fledging is due to operation of the facility unless another cause can be demonstrated
37 convincingly.

38 Given the low raptor nesting densities in the area and the presence of other wind energy
39 facilities nearby, statistical power to detect a relationship between distance from an MWPF wind

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.

Montague ~~Wind Power~~Solar Facility: Phase 2 Wildlife Monitoring and Mitigation Plan

[AS AMENDED JANUARY 2018~~XX~~ 2020]

1 turbine and nesting parameters (e.g., number of fledglings per reproductive pair) will be very
2 low. Therefore, impacts may have to be judged based on trends in the data, results from other
3 wind energy facility monitoring studies and literature on what is known regarding the
4 populations in the region.

5 (d) Mitigation

6 If the analysis shows a reduction in nesting success or nest use, the certificate holder shall
7 implement mitigation if the Department determines that mitigation is appropriate. The certificate
8 holder shall propose mitigation for the affected species in consultation with the Department and
9 ODFW and shall implement mitigation as approved by the Council. In proposing appropriate
10 mitigation, the certificate holder shall advise the Department if any other wind project in the area
11 is obligated to provide mitigation for a reduction in raptor nesting success at the same nest site.
12 Mitigation should be designed to benefit the affected species or contribute to overall scientific
13 knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may
14 be designed to proceed in phases over several years. It may include, but is not limited to,
15 additional raptor nest monitoring, protection of natural nest sites from human disturbance or
16 cattle activity (preferably within the general area of the facility) or participation in research
17 projects designed to improve scientific understanding of the needs of the affected species.
18 Mitigation may take into consideration whether the mitigation required or provided in
19 conjunction with other components of the *Wildlife Monitoring and Mitigation Plan* or *Habitat*
20 *Mitigation Plan* would also benefit the raptor species whose nesting success was adversely
21 affected.

22 3.— Washington ground squirrel surveys

23 The certificate holder shall conduct long-term post-construction surveys to collect data on
24 Washington ground squirrel (WGS) activity within the site boundary. Qualified professional
25 biologists will monitor the locations within the site boundary where WGS were detected in
26 preconstruction surveys (beginning in 2017). The survey area includes the identified burrow
27 areas and the buffer areas within 785 feet in suitable habitat. The investigators will walk standard
28 protocol-level transects twice between late March and late May and record level of use, notes on
29 natal sites, physical extent of the sites and any noticeable land use or habitat changes that may
30 have occurred since the preconstruction survey in 2017. The investigators shall report any new
31 WGS detections but the boundaries of Category 1 habitat will not be revised from pre-
32 construction boundaries.

33 The certificate holder shall conduct surveys during the year following construction and
34 every three years thereafter for the life of the facility in areas where WGS were detected within
35 the typical maximum dispersal distance of 3,281 feet (1,000 meters) of the facility. After each
36 survey, the certificate holder shall report the results to ODFW and to the Department and shall
37 include maps of the areas surveyed and detection locations. WGS surveys will not be conducted
38 if there are barriers to WGS dispersal (i.e., active agriculture fields, highways, perennial
39 waterbodies) or an absence of suitable habitat corridors that would prevent the dispersal of WGS
40 into areas where facility components are located.

1 **4.1. Wildlife Reporting and Handling System**

2 The Wildlife Reporting and Handling System is a voluntary monitoring program for
3 maintenance personnel to search for avian and bat casualties during operation of the facility.
4 Maintenance personnel will be trained in the methods needed to carry out this program. This
5 monitoring program includes the initial response, handling, and reporting of bird and bat
6 carcasses discovered incidental to maintenance operations (“incidental finds”). This is a
7 voluntary program and may be discounted by the certificate holder at any time.

8 During the years in which fatality monitoring occurs, if maintenance personnel discover
9 incidental finds outside the search plots for the fatality monitoring searches, the data will be
10 reported separately from fatality monitoring data. If maintenance personnel discover carcasses
11 within search plots, the data will be included in the calculation of fatality rates. The maintenance
12 personnel will notify a project biologist..

13 **5.2. Data Reporting**

14 The certificate holder will report wildlife monitoring data and analysis to the Department
15 for each calendar year in which wildlife monitoring occurs. Monitoring data include fatality
16 monitoring program data, raptor nest survey data, WGS survey data, WGS incidental observation
17 and assessment reports and Wildlife Reporting and Handling System data. The certificate holder
18 may include the reporting of wildlife monitoring data and analysis in the annual report required
19 under OAR 345-026-0080 or submit this information as a separate document at the same time
20 the annual report is submitted. In addition, the certificate holder shall provide to the Department
21 any data or record generated in carrying out this monitoring plan upon request by the
22 Department.

23 The certificate holder shall notify USFWS and ODFW if any federal or state endangered
24 or threatened species are killed or injured on the facility site within 48 hours of species
25 identification.

26 Within 30 days after receiving the final versions of reports that are required under this
27 plan, the Department will make the reports available to the public on its website and will specify
28 a time in which the public may submit comments to the Department.⁶

29 **6.3. Amendment of the Plan**

30 This *Wildlife Monitoring and Mitigation Plan* may be amended from time to time by
31 agreement of the certificate holder and the Council. Such amendments may be made without
32 amendment of the site certificate. The Council authorizes the Department to agree to
33 amendments to this plan and to mitigation actions that may be required under this plan. The
34 Department shall notify the Council of all amendments and mitigation actions, and the Council
35 retains the authority to approve, reject or modify any amendment of this plan or mitigation action
36 agreed to by the Department.

⁶ The certificate holder may establish a Technical Advisor Committee (TAC) but is not required to do so. If the certificate holder establishes a TAC, the TAC may offer comments to the Council about the results of the monitoring required under this plan.

1 **7.4. References**

2 Gehring, J., P. Kerlinger, and A. M. Manville, II. 2009. "Communication Towers, Lights,
3 and Birds: Successful Methods of Reducing the Frequency of Avian Collisions." *Ecological*
4 *Applications* 19(2): 505-514.

5 Gehring, J., P. Kerlinger, and A. M. Manville, II. 2011. "The Role of Tower Height and
6 Guy Wires on Avian Collisions with Communication Towers." *The Journal of Wildlife*
7 *Management* 75(4): 848–855.

8 Johnson, G. and W. P. Erickson. 2011. *Avian, Bat and Habitat Cumulative Impacts*
9 *Associated with Wind Energy Development in the Columbia Plateau Ecoregion of Eastern*
10 *Washington and Oregon*. Prepared by Western EcoSystems Technology, Inc., for Klickitat
11 County Planning Department. May 18.
12 [https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson and Erickson](https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson_2011.pdf)
13 [2011.pdf](https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson_2011.pdf).

14 Kerlinger, P., J. L. Gehring, W. P. Erickson, R. Curry, A. Jain, and J. Guarnaccia. 2010.
15 "Night Migrant Fatalities and Obstruction Lighting at Wind Turbines in North America." *Wilson*
16 *Journal of Ornithology* 122(4): 744-754.

17 Manly, B. F. J. 1997. *Randomization, Bootstrap, and Monte Carlo Methods in Biology*.
18 2nd edition. New York: Chapman and Hall.

19 U.S. Fish and Wildlife Service (USFWS). 2012. *U.S. Fish and Wildlife Service Land-*
20 *Based Wind Energy Guidelines*. UOMB Control No. 1018-0148.

21 U.S. Fish and Wildlife Service (USFWS). 2013. *Revised Guidelines for Communication*
22 *Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning --*
23 *Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No.*
24 *03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on*
25 *Migratory Birds," Docket No. 08-61, FCC's Antenna Structure Registration Program, and*
26 *Service 2012 Wind Energy Guidelines*.

27 Walston, L. J., Jr., K. E. Rollins, K. E. LaGory, K. P. Smith, and S. A. Meyers. 2016. "A
28 preliminary assessment of avian mortality at utility-scale solar energy facilities in the United
29 States." *Renewable Energy* 92: 405–414.

Draft Oregon Trail Solar Facility Wildlife Monitoring and Mitigation Plan

**~~Montague Wind Power~~Oregon Trail Solar Facility: ~~Phase 2~~ Wildlife
Monitoring and Mitigation Plan
[AS AMENDED JANUARY 2018XX 2020]**

1 This plan describes wildlife monitoring that the certificate holder shall conduct during
2 operation of ~~Phase 2~~ of the ~~Montague Oregon Trail Wind Power~~Solar Facility (~~MWPF~~).¹ ~~This~~
3 ~~plan was approved in September 2019 as part of the Energy Facility Siting Council’s (EFSC)~~
4 ~~Final Order on Request for Amendment 4 of the Montague Wind Power Facility site certificate~~
5 ~~(Final Order on RFA4). Final Order on RFA4 approved modifications to the previously approved~~
6 ~~layout and specifications of wind facility components and the addition of approximately 1,189~~
7 ~~acres of solar photovoltaic energy generation equipment. In XX, 2020, the Council approved~~
8 ~~Final Order on Request for Amendment 5 of the Montague Wind Power Facility site certificate~~
9 ~~(Final Order on RFA5), authorizing amendment of the Montague Wind Power Facility site~~
10 ~~certificate to cover only Phase 1 facility components; and, previously approved facility~~
11 ~~components (Phase 2) to be allocated under original site certificates for facilities named~~
12 ~~Montague Solar Facility and Oregon Trail Solar Facility.~~

13 The Oregon Trail Solar Facility is a 41 megawatt (MW) wind and solar photovoltaic
14 energy facility. The facility could include use of up to 1,228 acres for solar photovoltaic energy
15 generation components or up to 16 wind turbines, or any combination of equipment not to
16 exceed 41 MW, within a 13,866 acre site boundary, in northeastern Gilliam County.

17 The monitoring objectives are to determine whether the facility causes significant
18 fatalities of birds and bats and to determine whether the facility results in a loss of habitat
19 quality.

20 The certificate holder shall use experienced and properly trained personnel (the
21 “investigators”) to conduct the monitoring required under this plan. For all components of this
22 plan except the Wildlife Reporting and Handling System, the certificate holder shall hire
23 independent third-party investigators (not employees of the certificate holder) to perform
24 monitoring tasks.

25 The *Wildlife Monitoring and Mitigation Plan* for the ~~MWPF~~Oregon Trail Solar Facility
26 has the following components:

- 27 1) Fatality monitoring program including:
- 28 a) Definitions and methods
 - 29 b) Removal trials
 - 30 c) Searcher efficiency trials
 - 31 d) Fatality monitoring search protocol
 - 32 e) Incidental finds and injured birds
 - 33 f) Statistical methods for fatality estimates

¹ This plan is incorporated by reference in the site certificate for the ~~MWPF~~Oregon Trail Solar 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~~**Oregon Trail Solar Facility: Phase 2**

Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

g) Mitigation

- 2) Raptor nesting surveys
- 3) Washington ground squirrel surveys
- 4) Wildlife Reporting and Handling System
- 5) Data reporting

Based on the results of the monitoring programs, mitigation of significant impacts may be required. The selection of the mitigation actions should allow for flexibility in creating appropriate responses to monitoring results that cannot be known in advance. If the Department determines that mitigation is needed, the certificate holder shall propose appropriate mitigation actions to the Department and shall carry out mitigation actions approved by the Department, subject to review by the Oregon Energy Facility Council (Council).

1. Fatality Monitoring

(a) Definitions and Methods

Seasons

This plan uses the following dates for defining seasons:

Season	Dates
Spring Migration	March 16 to May 15
Summer/Breeding	May 16 to August 15
Fall Migration	August 16 to October 31
Winter	November 1 to March 15

Search Plots

The investigators shall conduct fatality monitoring within search plots. The certificate holder, in consultation with the Oregon Department of Fish and Wildlife (ODFW), shall select search plots based on a systematic sampling design with a random starting point that ensures that the selected search plots are representative of the habitat conditions in different parts of the site. Each search plot will contain one turbine. Search plots will be square or circular. Circular search plots will be centered on the turbine location and will have a radius equal to the maximum blade tip height of the turbine contained within the plot. "Maximum blade tip height" is the turbine hub-height plus one-half the rotor diameter. Square search plots will be of sufficient size to contain a circular search plot as described above. The certificate holder shall use the same search plots for each search conducted during a monitoring year.

Scheduling

Fatality monitoring will begin one month after commencement of commercial operation of the facility. Subsequent monitoring years will follow the same schedule (beginning in the same calendar month in the subsequent monitoring year).

In each monitoring year, the investigators shall conduct fatality monitoring searches at the rates of frequency shown below. Over the course of one monitoring year, the investigators will conduct 16 searches, as follows:

**~~Montague Wind Power~~Oregon Trail Solar Facility: Phase 2
Wildlife Monitoring and Mitigation Plan**

[AS AMENDED ~~JANUARY 2018~~XX 2020]

Season	Frequency
Spring Migration	2 searches per month (4 searches)
Summer/Breeding	1 search per month (3 searches)
Fall Migration	2 searches per month (5 searches)
Winter	1 search per month (4 searches)

1 Sample Size

2 The sample size for fatality monitoring is the number of turbines searched per monitoring
3 year. The investigators shall conduct fatality monitoring during each monitoring year in search
4 plots at one-third of the turbines that are built or 50 turbines, whichever is greater. If fewer than
5 50 turbines are built, the certificate holder shall search all turbines. ~~The facility is being~~
6 ~~constructed in two phases (Phases 1 and 2). Phase 1 will be completed in advance of Phase 2.~~
7 The number of turbines constructed ~~within both phases~~ will be considered when determining the
8 sample size for the facility, and the turbines searched will be distributed proportionally
9 throughout the entire facility ~~(comprising Phases 1 and 2).~~

10 The certificate holder may choose to build the MWPF-Oregon Trail Solar Facility using
11 turbine types in two size classes:

- 12 • Small: turbines having a rotor diameter of 82 meters (269 feet) or less
- 13 • Large: turbines having a rotor diameter greater than 82 meters

14 If the final design of the MWPF-Oregon Trail Solar Facility includes both small and
15 large turbines, the certificate holder shall consult with an independent expert with experience in
16 statistical analysis of avian fatality data to determine whether it would be possible to design a
17 turbine sample with a sufficient number of turbines in each size class to allow a statistical
18 comparison of fatality rates for all birds as a group. The certificate holder shall submit the
19 expert's written analysis to the Department. If the expert's analysis shows that a comparison
20 study is possible and if the Department approves, the certificate holder shall sample the
21 appropriate number of turbines in each class and conduct the comparison study. The certificate
22 holder may choose to sample more than 50 turbines in each monitoring year, if a larger sample
23 size would allow the comparison study to be done.

24 Duration of Fatality Monitoring

25 The investigators shall perform one complete monitoring cycle during the first full year
26 of facility operation (Year 1). ~~Although Phase 1 will be completed in advance of Phase 2, by the~~
27 ~~time Phase 1 has begun operating, Phase 2 will likely be under construction or about to begin~~
28 ~~construction. As such, the number and nature of turbines to be constructed in Phase 2 will be~~
29 ~~known at that time.~~ The certificate holder proposes to select the sample turbines from all turbines
30 throughout the facility ~~(Phases 1 and 2)~~ using a systematic sampling regime with a random start.

31 Monitoring of the selected turbines ~~in Phase 1~~ will begin when ~~Phase 1~~the facility
32 commences commercial operation and will continue for a full year (52 weeks). ~~Monitoring of the~~
33 ~~selected turbines in Phase 2 will begin when Phase 2 commences commercial operation and will~~
34 ~~also continue for a full year. As a result of this sampling plan, Phase 1 will complete a full year~~
35 ~~of monitoring in advance of Phase 2. Phase 2 will continue monitoring until it, too, has~~
36 ~~completed a full year of monitoring.~~ As a result of the construction schedule, monitoring of

~~Montague Wind Power Oregon Trail Solar Facility: Phase 2~~
~~Wildlife Monitoring and Mitigation Plan~~

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 turbines at the facility will continue without interruption for longer than one full year and
2 possibly for as long as two full years.

3 When a full year of monitoring ~~at Phase 1~~ has been completed, the raw data will be
4 compiled by the certificate holder in a memo style report, which will include any notable results
5 from the year of monitoring, and provided to the Department and ODFW. ~~Then, when a full year~~
6 ~~of monitoring at Phase 2 is complete, the data for both Phases 1 and 2 will be analyzed together~~
7 ~~and a report prepared for the entire facility.~~

8 The certificate holder will report the results of monitoring to the Department and ODFW.
9 In the evaluation, the certificate holder shall compare the results for the MWPF Oregon Trail
10 Solar Facility with the thresholds of concern described in Section 1(g) of this plan and with
11 comparable data from other wind power facilities in the Columbia Basin, as available. If the
12 fatality rates for the first year of monitoring at the MWPF Oregon Trail Solar Facility do not
13 exceed any of the thresholds of concern and are within the range of the fatality rates found at
14 other wind power facilities in the region, then the investigators will perform a second year of
15 monitoring in Year 5 of operations. This may occur under two scenarios:

16 Monitoring ~~at Phase 1~~ will begin 5 years after the first year of operation/monitoring. ~~at~~
17 ~~Phase 1, and monitoring at Phase 2 will begin 5 years after the first year of operation/monitoring~~
18 ~~at Phase 2.~~

19 -or-

20 ~~Monitoring at both Phases 1 and 2 will commence in Year 5 of operations at the facility~~
21 ~~(Year 5 of operations at Phase 1 and Year 4 of operations at Phase 2).~~

22 If fatality rates for the first year of monitoring at the MWPF Oregon Trail Solar Facility
23 exceed any of the thresholds of concern or exceed the range of fatality rates found at other wind
24 power facilities in the region, the certificate holder shall propose additional mitigation for
25 Department and ODFW review within 6 months after reporting the fatality rates to the
26 Department. Alternatively, the certificate holder may opt to conduct a second year of fatality
27 monitoring immediately if the certificate holder believes that the ~~combined~~ results ~~of both phases~~
28 for Year 1 monitoring were anomalous. If the certificate holder takes this option, the
29 investigators still must perform the monitoring in Year 5 of operations as described above.

30 (b) Removal Trials

31 The objective of the removal trials is to estimate the length of time avian and bat
32 carcasses remain in the search area. Estimates of carcass removal rates will be used to adjust
33 carcass counts for removal bias. "Carcass removal" is the disappearance of a carcass from the
34 search area due to predation, scavenging or other means such as farming activity.

35 The investigators shall conduct carcass removal trials within each of the seasons defined
36 above during the first year of fatality monitoring. For each trial, the investigators shall use 10 to
37 15 carcasses of small- and large-bodied species. After the first year of fatality monitoring, the
38 investigators may reduce the number of removal trials and the number of removal trial carcasses
39 during any subsequent year of fatality monitoring, subject to the approval of the Department. The
40 investigators must show that the reduction is justified based on a comparison of the first-year
41 removal data with published removal data from nearby wind energy facilities.

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 The investigators shall use game birds or other legal sources of avian species as test
2 carcasses for the removal trials, and the investigators may use carcasses found in fatality
3 monitoring searches. The investigators shall select species with approximately the same
4 coloration and size attributes as species found within the site boundary. If suitable trial carcasses
5 are available, trials during the fall season will include several small brown birds to simulate bat
6 carcasses. Legally obtained bat carcasses will be used if available.

7 Trial carcasses will be marked discreetly for recognition by searchers and other
8 personnel. Carcasses will be placed in a variety of postures to simulate a range of conditions. For
9 example, birds will be: (1) placed in an exposed posture (e.g., thrown over the shoulder), (2)
10 hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) or (3) partially
11 hidden. The trial carcasses will be placed randomly within the carcass removal trial plots. Trial
12 carcasses will be left in place until the end of the carcass removal trial.

13 An approximate schedule for assessing removal status is once daily for the first 4 days,
14 and on days 7, 10, 14, 21, 28 and 35. This schedule may be adjusted depending on actual carcass
15 removal rates, weather conditions and coordination with the other survey work. The condition of
16 scavenged carcasses will be documented during each assessment, and at the end of the trial all
17 traces of the carcasses will be removed from the site. Scavenger or other activity could result in
18 complete removal of all traces of a carcass in a location or distribution of feathers and carcass
19 parts to several locations. This distribution will not constitute removal if evidence of the carcass
20 remains within an area similar in size to a search plot and if the evidence would be discernible to
21 a searcher during a normal survey.

22 Before beginning removal trials for any subsequent year of fatality monitoring, the
23 certificate holder shall report the results of the first-year removal trials to the Department and
24 ODFW. In the report, the certificate holder shall analyze whether four removal trials per year, as
25 described above, provide sufficient data to accurately estimate adjustment factors for carcass
26 removal. The number of removal trials may be adjusted up or down, subject to the approval of
27 the Department.

28 (c) Searcher Efficiency Trials

29 The objective of searcher efficiency trials is to estimate the percentage of bird and bat
30 fatalities that searchers are able to find. The investigators shall conduct searcher efficiency trials
31 on the fatality monitoring search plots in both grassland/shrub-steppe and cultivated agriculture
32 habitat types. A pooled estimate of searcher efficiency will be used to adjust carcass counts for
33 detection bias.

34 The investigators shall conduct searcher efficiency trials within each of the seasons
35 defined above during the years in which the fatality monitoring occurs. Each trial will involve
36 approximately 4 to 15 carcasses. The searchers will not be notified of carcass placement or test
37 dates. The investigators shall vary the number of trials per season and the number of carcasses
38 per trial so that the searchers will not know the total number of trial carcasses being used in any
39 trial. In total, approximately 80 carcasses will be used per year, or approximately 15 to 25 per
40 season.

41 For each trial, the investigators shall use small- and large-bodied species. The
42 investigators shall use game birds or other legal sources of avian species as test carcasses for the
43 efficiency trials, and the investigators may use carcasses found in fatality monitoring searches.

~~Montague Wind Power~~ Oregon Trail Solar Facility: Phase 2

Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 The investigators shall select species with approximately the same coloration and size attributes
2 as species found within the site boundary. If suitable test carcasses are available, trials during the
3 fall season will include several small brown birds to simulate bat carcasses. Legally obtained bat
4 carcasses will be used if available. The investigators shall mark the test carcasses to differentiate
5 them from other carcasses that might be found within the search plot and shall use methods
6 similar to those used to mark removal test carcasses as long as the procedure is sufficiently
7 discreet and does not increase carcass visibility.

8 The certificate holder shall distribute trial carcasses in varied habitat in rough proportion
9 to the habitat types within the facility site. On the day of a standardized fatality monitoring
10 search (described below) but before the beginning of the search, investigators will place
11 efficiency trial carcasses randomly within search plots (one to three trial carcasses per search
12 plot) within areas to be searched. If scavengers appear attracted by placement of carcasses, the
13 carcasses will be distributed before dawn.

14 Efficiency trials will be spread over the entire season to incorporate effects of varying
15 weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a
16 range of conditions. For example, birds will be: (1) placed in an exposed posture (thrown over
17 the shoulder), (2) hidden to simulate a crippled bird or (3) partially hidden.

18 The number and location of the efficiency trial carcasses found during the carcass search
19 will be recorded. The number of efficiency trial carcasses available for detection during each
20 trial will be determined immediately after the trial by the person responsible for distributing the
21 carcasses. Following plot searches, all traces of test carcasses will be removed from the site.

22 If new searchers are brought into the search team, additional searcher efficiency trials
23 will be conducted to ensure that detection rates incorporate searcher differences. The certificate
24 holder shall include a discussion of any changes in search personnel and any additional detection
25 trials in the reporting required under Section 5 of this plan.

26 Before beginning searcher efficiency trials for any subsequent year of fatality monitoring,
27 the certificate holder shall report the results of the first-year efficiency trials to the Department
28 and ODFW. In the report, the certificate holder shall analyze whether the efficiency trials as
29 described above provide sufficient data to accurately estimate adjustment factors for searcher
30 efficiency. The number of searcher efficiency trials for any subsequent year of fatality
31 monitoring may be adjusted up or down, subject to the approval of the Department.

32 (d) Fatality Monitoring Search Protocol

33 The objective of fatality monitoring is to estimate the number of bird and bat fatalities
34 that are attributable to facility operation as an indicator of the impact of the facility on habitat
35 quality. The goal of bird and bat fatality monitoring is to estimate fatality rates and associated
36 variances. The investigators shall perform fatality monitoring using standardized carcass
37 searches according to the schedule described above.

38 Personnel trained in proper search techniques (“the searchers”) will conduct the carcass
39 searches by walking parallel transects approximately 6 meters apart within the search plots. A
40 searcher will walk at a rate of approximately 45 to 60 meters per minute along each transect,
41 searching both sides out to 3 meters for casualties. Search area and speed may be adjusted by
42 habitat type after evaluation of the first searcher efficiency trial.

~~Montague Wind Power Oregon Trail Solar Facility: Phase 2~~
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ **XX 2020**]

1 Searchers shall flag all avian or bat carcasses discovered. Carcasses are defined as a
2 complete carcass or body part, 10 or more feathers or three or more primary feathers in one
3 location. When parts of carcasses and feathers from the same species are found within a search
4 plot, searchers shall make note of the relative positions and assess whether or not these are from
5 the same fatality.

6 All carcasses (avian and bat) found during the standardized carcass searches will be
7 photographed, recorded and labeled with a unique number. Searchers shall make note of the
8 nearest two or three structures (turbine, power pole, fence, building or overhead line) and the
9 approximate distance from the carcass to these structures. The species and age of the carcass will
10 be determined when possible. Searchers shall note the extent to which the carcass is intact and
11 estimate time since death. Searchers shall describe all evidence that might assist in determination
12 of cause of death, such as evidence of electrocution, vehicular strike, wire strike, predation or
13 disease.

14 The investigators shall calculate fatality rates using the statistical methods described in
15 Section (f), except that the investigators may use different notation or methods that are
16 mathematically equivalent with prior approval of the Department. In making these calculations,
17 the investigators may exclude carcass data from the first search of each turbine plot (to eliminate
18 possible counting of carcasses that were present before the turbine was operating).

19 The investigators shall estimate the number of avian and bat fatalities attributable to
20 operation of the facility based on the number of avian and bat fatalities found at the facility site.
21 All carcasses located within areas surveyed, regardless of species, will be recorded and, if
22 possible, a cause of death determined based on blind necropsy results. If a different cause of
23 death is not apparent, the fatality will be attributed to facility operation. The total number of
24 avian and bat fatalities will be estimated by adjusting for removal and searcher efficiency bias.

25 On an annual basis, the certificate holder shall report an estimate of fatalities in eight
26 categories: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) grassland birds, (6)
27 nocturnal migrants, (7) state and federally listed threatened and endangered species and State
28 Sensitive Species listed under OAR 635-100-0040 and (8) bats. The certificate holder shall
29 report annual fatality rates on both a per-megawatt (MW) and per-turbine basis.

30 (e) Incidental Finds and Injured Birds

31 The searchers might discover carcasses incidental to formal carcass searches (e.g., while
32 driving within the project area). For each incidentally discovered carcass, the searcher shall
33 identify, photograph, record data and collect the carcass as would be done for carcasses within
34 the formal search sample during scheduled searches. If the incidentally discovered carcass is
35 found within a formal search plot, the fatality data will be included in the calculation of fatality
36 rates. If the incidentally discovered carcass is found outside a formal search plot, the data will be
37 reported separately. The certificate holder shall coordinate collection of incidentally discovered
38 state endangered, threatened, sensitive or other state protected species with ODFW. The
39 certificate holder shall coordinate incidentally discovered federally-listed endangered or
40 threatened species and Migratory Bird Treaty Act protected avian species with USFWS.

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 The certificate holder shall contact a qualified rehabilitation specialist approved by the
2 Department² to respond to injured wildlife. The certificate holder shall pay costs, if any, charged
3 for time and expenses related to care and rehabilitation of injured native birds found on the site,
4 unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

5 (f) Statistical Methods for Fatality Estimates

6 The estimate of the total number of wind facility-related fatalities is based on:

- 7 (2) The observed number of carcasses found during standardized searches during the
8 two monitoring years for which the cause of death is attributed to the facility.³
9 (3) Searcher efficiency expressed as the proportion of planted carcasses found by
10 searchers.
11 (4) Removal rates expressed as the estimated average probability a carcass is expected
12 to remain in the study area and be available for detection by the searchers during
13 the entire survey period.

14 Definition of Variables

15 The following variables are used in the equations below:

16	c_i	the number of carcasses detected at plot i for the study period of interest (e.g., one
17		year) for which the cause of death is either unknown or is attributed to the facility
18	n	the number of search plots
19	k	the number of turbines searched (includes the turbines centered within each
20		search plot and a proportion of the number of turbines adjacent to search plots to
21		account for the effect of adjacent turbines on the search plot buffer area)
22	\bar{c}	the average number of carcasses observed per turbine per year
23	s	the number of carcasses used in removal trials
24	s_c	the number of carcasses in removal trials that remain in the study area after 35
25		days
26	se	standard error (square of the sample variance of the mean)
27	t_i	the time (days) a carcass remains in the study area before it is removed
28	\bar{t}	the average time (days) a carcass remains in the study area before it is removed
29	d	the total number of carcasses placed in searcher efficiency trials
30	p	the estimated proportion of detectable carcasses found by searchers
31	I	the average interval between searches in days
32	$\hat{\pi}$	the estimated probability that a carcass is both available to be found during a
33		search and is found

² Approved specialists include Blue Mountain Wildlife, a wildlife rehabilitation center in Pendleton, and the Audubon Bird Care Center in Portland. The certificate holder must obtain Department approval before using other specialists.

³ If a different cause of death is not apparent, the fatality will be attributed to facility operation.

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 The estimated per MW annual fatality rate (m) is calculated by:

$$2 \quad m = \frac{m_t}{C}. \quad (5)$$

3 The final reported estimates of m , associated standard errors and 90% confidence
4 intervals will be calculated using bootstrapping (Manly, 1997). Bootstrapping is a computer
5 simulation technique that is useful for calculating point estimates, variances, and confidence
6 intervals for complicated test statistics. For each iteration of the bootstrap, the plots will be
7 sampled with replacement, trial carcasses will be sampled with replacement, and \bar{c} , \bar{t} , p , $\hat{\pi}$ and
8 m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates
9 will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap
10 estimates is the estimated standard error. The lower 5th and upper 95th percentiles of the 5000
11 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

12 Nocturnal Migrant and Bat Fatalities

13 Differences in observed nocturnal migrant and bat fatality rates for lit turbines, unlit
14 turbines that are adjacent to lit turbines and unlit turbines that are not adjacent to lit turbines will
15 be compared graphically and statistically.

16 (g) Mitigation

17 The certificate holder shall use best-available science to resolve any uncertainty in the
18 results and to determine whether the data indicate that additional mitigation should be
19 considered. The Department may require additional, targeted monitoring if the data indicate the
20 potential for significant impacts that cannot be addressed by worst-case analysis and appropriate
21 mitigation.

22 Mitigation may be appropriate if fatality rates exceed a “threshold of concern.”⁴ For the
23 purpose of determining whether a threshold has been exceeded, the certificate holder shall
24 calculate the average annual fatality rates for species groups after each year of monitoring. Based
25 on current knowledge of the species that are likely to use the habitat in the area of the facility, the
26 following thresholds apply to the ~~MWPF~~**Oregon Trail Solar Facility**:

⁴ If a different cause of death is not apparent, the fatality will be attributed to facility operation.
n species in the Final Order on the Application for the Klondike III Wind Project (June 30, 2006) and for bats in the
Final Order on the Application for the Biglow Canyon Wind Farm (June 30, 2006). As explained in the Klondike III
order: “Although the threshold numbers provide a rough measure for deciding whether the Council should be
concerned about observed fatality rates, the thresholds have a very limited scientific basis. The exceeding of a
threshold, by itself, would not be a scientific indicator that operation of the facility would result in range-wide
population level declines of any of the species affected. The thresholds are provided in the Wildlife Monitoring and
Mitigation Plan to guide consideration of additional mitigation based on two years of monitoring data.”

~~Montague Wind Power~~ Oregon Trail Solar Facility: Phase 2

Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ 2020]

Species Group	Threshold of Concern (fatalities per MW)
Raptors (All eagles, hawks, falcons, and owls, including burrowing owls.)	0.09
Raptor species of special concern (Swainson's hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl and any federal threatened or endangered raptor species.)	0.06
Grassland species (All native bird species that rely on grassland habitat and are either resident species occurring year-round or species that nest in the area, excluding horned lark, burrowing owl and northern harrier.)	0.59
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.2
Bat species as a group	2.5

1 If the data show that a threshold of concern for a species group has been exceeded, the
2 certificate holder shall implement additional mitigation if the Department determines that
3 mitigation is appropriate based on analysis of the data, consultation with ODFW and
4 consideration of any other significant information available at the time. In addition, the
5 Department may determine that mitigation is appropriate if fatality rates for individual avian or
6 bat species (especially State Sensitive Species) are higher than expected and at a level of
7 biological concern. If the Department determines that mitigation is appropriate, the certificate
8 holder, in consultation with the Department and ODFW, shall propose mitigation measures
9 designed to benefit the affected species. Acceptable mitigation may include, but not limited to,
10 contributions to wildlife rehabilitators, funding of research by third parties on local raptor
11 populations, or habitat mitigation. This may take into consideration whether the mitigation
12 required or provided in conjunction with raptor nest monitoring, habitat mitigation, or other
13 components of the *Wildlife Monitoring and Mitigation Plan* or *Habitat Mitigation Plan*, would
14 also benefit the affected species.

15 The certificate holder shall implement mitigation as approved by the Department, subject
16 to review by the Council. The Department may recommend additional, targeted data collection if
17 the need for mitigation is unclear based on the information available at the time. The certificate
18 holder shall implement such data collection as approved by the Council.

19 The certificate holder shall design mitigation to benefit the affected species group.
20 Mitigation may include, but is not limited to, protection of nesting habitat for the affected group
21 of native species through a conservation easement or similar agreement. Tracts of land that are
22 intact and functional for wildlife are preferable to degraded habitat areas. Preference should be
23 given to protection of land that would otherwise be subject to development or use that would
24 diminish the wildlife value of the land. In addition, mitigation measures might include:
25 enhancement of the protected tract by weed removal and control; increasing the diversity of
26 native grasses and forbs; planting sagebrush or other shrubs; constructing and maintaining
27 artificial nest structures for raptors; improving wildfire response; and conducting or making a
28 contribution to research that will aid in understanding more about the affected species and its
29 conservation needs in the region.

Montague Wind Power Oregon Trail Solar Facility: Phase 2
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~ XX 2020]

1 If the data show that the threshold of concern for bat species as a group has been
2 exceeded, the certificate holder shall implement additional mitigation if the Department
3 determines that mitigation is appropriate based on analysis of the data, consultation with ODFW
4 and consideration of any other significant information available at the time. For example, if the
5 threshold for bat species as a group is exceeded, the certificate holder may contribute to Bat
6 Conservation International or to a Pacific Northwest bat conservation group to fund new or
7 ongoing research in the Pacific Northwest to better understand wind facility impacts to bat
8 species and to develop possible ways to reduce impacts to the affected species.

9 Solar Array

10 ~~In addition to wind turbines, Phase 2 may include a photovoltaic (PV) solar energy array~~
11 ~~on up to 1,189 acres in Category 6 habitat within the solar micrositing area. Although publicly~~
12 ~~available fatality studies conducted at PV solar projects are rare in the literature, those that are~~
13 ~~available have documented fatalities of passerines but raptor and bat fatalities were generally~~
14 ~~absent. In the most recent study available, Walston et al. (2016) found the rate of bird mortality~~
15 ~~from known causes (i.e., collision with project infrastructure) at a large PV facility in central~~
16 ~~California was low (0.50 birds/MW/year). In comparison, Johnson and Erickson (2011)~~
17 ~~summarized fatality rates from 25 year-long fatality monitoring studies conducted at 23 wind-~~
18 ~~energy facilities in the Columbia Plateau Ecoregion and found the mean number of all bird~~
19 ~~(excluding raptors) mortality was 2.28 fatalities/MW/year.~~

20 ~~Some risk of avian mortality occurs with most human development (ranging from single-~~
21 ~~family homes to large scale industrial projects), but it is unlikely that the proposed PV solar~~
22 ~~array will result in significant impacts to birds. Known risk factors for avian collision fatalities~~
23 ~~include the height of structures, size of the facility, attributes of structures (e.g., guy wires, type~~
24 ~~of lighting), as well as the type of development, siting in high-risk areas, and species at potential~~
25 ~~risk. The role of these risk factors has been outlined in the USFWS guidelines for wind turbines~~
26 ~~(USFWS, 2012) and communication towers (USFWS, 2013), as well as by various publications~~
27 ~~in the peer reviewed literature (Gehring et al., 2009, 2011; Kerlinger et al., 2010).~~

28 ~~After consideration of potential risk factors, the collision risk to birds from the facility~~
29 ~~solar array infrastructure will likely be low. Most importantly, the PV array, as proposed, will be~~
30 ~~located in disturbed habitat, will have only down shielded lighting, will not have guy wires, and~~
31 ~~will not have any structures exceeding 15 feet (4.6 meters) in height (the greatest height of PV~~
32 ~~panels at full rotation). However, the certificate holder will consult with the Department and~~
33 ~~ODFW to confirm the extent of fatality monitoring that should be conducted for the solar~~
34 ~~facility.~~

35 **2. Raptor Nest Surveys**

36 The objectives of raptor nest surveys are: (1) count raptor nests on the ground or
37 aboveground in trees or other aboveground nest locations in the vicinity of the facility; and (2) to
38 determine whether operation of the facility results in a reduction of nesting activity or nesting
39 success in the local populations of the following raptor species: Swainson's hawk, golden eagle,
40 ferruginous hawk, and burrowing owl.

41 The certificate holder shall conduct short-term and long-term monitoring around Phase 2
42 wind turbines. ~~Raptor nest surveys would not occur if Phase 2 is only comprised of solar~~
43 ~~generation.~~—The investigators will use ground surveys to evaluate nest success by gathering data

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 on active nests, on nests with young and on young fledged. The investigators will analyze the
2 data as described in Section 3(c) and will share the data with state biologists.

3 (a) Short-Term Monitoring

4 Short-term monitoring will be done in two monitoring seasons. The first monitoring
5 season will be in the first raptor nesting season after completion of construction of the facility.
6 The second monitoring season will be in the fourth year after construction is completed. The
7 certificate holder shall provide a summary of the first-year results in the monitoring report
8 described in Section 5. After the second monitoring season, the investigators will analyze two
9 years of data compared to the baseline data.

10 For Raptor Species that Nest Aboveground

11 During each monitoring season, the investigators will conduct a minimum of one aerial
12 and one ground survey for raptor nests in late May or early June and additional surveys as
13 described in this section. The survey area is the area within the site boundary and a 2-mile buffer
14 zone around the site. For the ground surveys while checking for nesting *success* (conducted
15 within the facility site and up to a maximum of ½ mile from the facility site), nests outside the
16 leased project boundary will be checked from an appropriate distance where feasible, depending
17 on permission from the landowner for access.

18 All nests discovered during preconstruction surveys and any nests discovered during
19 post-construction surveys, whether active or inactive, will be given identification numbers. Nest
20 locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global
21 positioning system (GPS) coordinates will be recorded for each nest. Locations of inactive nests
22 will be recorded because they could become occupied during future years.

23 Determining nest *occupancy* may require one or two visits to each nest. Aerial surveys
24 for nest occupancy will be conducted within the facility site and a 2-mile buffer. For occupied
25 nests, the certificate holder will determine nesting *success* by a minimum of one ground visit to
26 determine the species, number of young and young fledged within the facility site and up to ½
27 mile from the facility site. “Nesting success” means that the young have successfully fledged
28 (the young are independent of the core nest site).

29 For Burrowing Owls

30 If burrowing owl nest sites are discovered during pre-construction, construction, or post-
31 construction, the investigators will monitor them according to the following protocol approved
32 by ODFW. This species is not easily detected during aerial raptor nest surveys.. Any nests
33 discovered during post-construction surveys, whether active or showing signs of intermittent use
34 by the species, will be given identification numbers. Nest locations will be recorded on U.S.
35 Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be
36 recorded for each nest site. Coordinates for ancillary burrows used by one nesting pair or a group
37 of nesting pairs will also be recorded. Locations of inactive nests will be recorded because they
38 could become occupied during future years.

39 The investigators shall conduct burrowing owl monitoring in the same years as the raptor
40 nest surveys described above. For occupied nests, the investigators shall determine nesting
41 *success* by a minimum of one ground visit to determine species, number of young and young
42 fledged. “Nesting success” means that the young have successfully fledged (the young may or

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 may not be independent of the core nest site). Three visits to the nest sites may be necessary to
2 determine outcome. Nests that cannot be monitored due to the landowner denying access will be
3 checked from a distance where feasible.

4 If burrowing owl nests are discovered during the first year of post-construction raptor
5 nest surveys (the first raptor nesting season after construction is completed), the investigators
6 shall monitor those nest locations during the second year of surveys in the fourth year after
7 construction is completed. Thereafter, the investigators shall monitor all known burrowing owl
8 nest locations as a part of the long-term raptor nest monitoring program described in Section 2(b)
9 below.

10 (b) Long-Term Monitoring

11 In addition to the two years of post-construction raptor nest surveys described in Section
12 2(a), the investigators shall conduct long-term raptor nest surveys at 5-year intervals for the life
13 of the facility.⁵ Investigators will conduct the first long-term raptor nest survey in the first raptor
14 nesting season that is at least 5 years after the completion of construction and is in a year that is
15 divisible by five (i.e., 2020, 2025, 2030); and will repeat the survey at 5-year intervals thereafter.
16 In conducting long-term surveys, the investigators will follow the same survey protocols as
17 described above in Section 2(a) unless the investigators propose alternative protocols that are
18 approved by the Department. In developing an alternative protocol, the investigators will consult
19 with ODFW and will take into consideration other monitoring conducted in adjacent areas. The
20 investigators will analyze the data and report after each year of long-term raptor nest surveys.

21 (c) Analysis

22 The investigators will analyze the raptor nesting data to determine whether a reduction in
23 either nesting success or nest use has occurred in the survey area. If the analysis indicates a
24 reduction in nesting success or nest use by Swainson’s hawks, ferruginous hawks, or burrowing
25 owls, then the certificate holder will propose appropriate mitigation for the affected species as
26 described in Section 2(d) and will implement mitigation as approved by the Department, subject
27 to review by the Council.

28 Reductions in nesting success or nest use could be due to operation of the ~~MWPF~~**Oregon**
29 **Trail Solar Facility**, operation of another wind facility in the vicinity or some other cause. The
30 investigators shall attribute the reduction to operation of the ~~MWPF~~**Oregon Trail Solar Facility**
31 if the wind turbine closest to the affected nest site is an ~~MWPF~~**Oregon Trail Solar Facility**
32 turbine, unless the certificate holder demonstrates, and the Department agrees, that the reduction
33 was due to a different cause. At a minimum, if the analysis shows that a Swainson’s hawk,
34 ferruginous hawk or burrowing owl has abandoned a nest territory within the facility site or
35 within ½ mile of the facility site or has not fledged any young over two successive surveys
36 within that same area, the investigators will assume the abandonment or unsuccessful fledging is
37 due to operation of the facility unless another cause can be demonstrated convincingly.

38 Given the low raptor nesting densities in the area and the presence of other wind energy
39 facilities nearby, statistical power to detect a relationship between distance from an ~~MWPF~~
40 **Oregon Trail Solar Facility** wind turbine and nesting parameters (e.g., number of fledglings per

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.

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**

Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 reproductive pair) will be very low. Therefore, impacts may have to be judged based on trends in
2 the data, results from other wind energy facility monitoring studies and literature on what is
3 known regarding the populations in the region.

4 (d) Mitigation

5 If the analysis shows a reduction in nesting success or nest use, the certificate holder shall
6 implement mitigation if the Department determines that mitigation is appropriate. The certificate
7 holder shall propose mitigation for the affected species in consultation with the Department and
8 ODFW and shall implement mitigation as approved by the Council. In proposing appropriate
9 mitigation, the certificate holder shall advise the Department if any other wind project in the area
10 is obligated to provide mitigation for a reduction in raptor nesting success at the same nest site.
11 Mitigation should be designed to benefit the affected species or contribute to overall scientific
12 knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may
13 be designed to proceed in phases over several years. It may include, but is not limited to,
14 additional raptor nest monitoring, protection of natural nest sites from human disturbance or
15 cattle activity (preferably within the general area of the facility) or participation in research
16 projects designed to improve scientific understanding of the needs of the affected species.
17 Mitigation may take into consideration whether the mitigation required or provided in
18 conjunction with other components of the *Wildlife Monitoring and Mitigation Plan* or *Habitat*
19 *Mitigation Plan* would also benefit the raptor species whose nesting success was adversely
20 affected.

21 **3. Washington ground squirrel surveys**

22 The certificate holder shall conduct long-term post-construction surveys to collect data on
23 Washington ground squirrel (WGS) activity within the site boundary. Qualified professional
24 biologists will monitor the locations within the site boundary where WGS were detected in
25 preconstruction surveys (beginning in 2017). The survey area includes the identified burrow
26 areas and the buffer areas within 785 feet in suitable habitat. The investigators will walk standard
27 protocol-level transects twice between late March and late May and record level of use, notes on
28 natal sites, physical extent of the sites and any noticeable land use or habitat changes that may
29 have occurred since the preconstruction survey in 2017. The investigators shall report any new
30 WGS detections but the boundaries of Category 1 habitat will not be revised from pre-
31 construction boundaries.

32 The certificate holder shall conduct surveys during the year following construction and
33 every three years thereafter for the life of the facility in areas where WGS were detected within
34 the typical maximum dispersal distance of 3,281 feet (1,000 meters) of the facility. After each
35 survey, the certificate holder shall report the results to ODFW and to the Department and shall
36 include maps of the areas surveyed and detection locations. WGS surveys will not be conducted
37 if there are barriers to WGS dispersal (i.e., active agriculture fields, highways, perennial
38 waterbodies) or an absence of suitable habitat corridors that would prevent the dispersal of WGS
39 into areas where facility components are located.

40 **4. Wildlife Reporting and Handling System**

41 The Wildlife Reporting and Handling System is a voluntary monitoring program for
42 maintenance personnel to search for avian and bat casualties during operation of the facility.

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**
Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 Maintenance personnel will be trained in the methods needed to carry out this program. This
2 monitoring program includes the initial response, handling, and reporting of bird and bat
3 carcasses discovered incidental to maintenance operations (“incidental finds”). This is a
4 voluntary program and may be discounted by the certificate holder at any time.

5 During the years in which fatality monitoring occurs, if maintenance personnel discover
6 incidental finds outside the search plots for the fatality monitoring searches, the data will be
7 reported separately from fatality monitoring data. If maintenance personnel discover carcasses
8 within search plots, the data will be included in the calculation of fatality rates. The maintenance
9 personnel will notify a project biologist..

10 **5. Data Reporting**

11 The certificate holder will report wildlife monitoring data and analysis to the Department
12 for each calendar year in which wildlife monitoring occurs. Monitoring data include fatality
13 monitoring program data, raptor nest survey data, WGS survey data, WGS incidental observation
14 and assessment reports and Wildlife Reporting and Handling System data. The certificate holder
15 may include the reporting of wildlife monitoring data and analysis in the annual report required
16 under OAR 345-026-0080 or submit this information as a separate document at the same time
17 the annual report is submitted. In addition, the certificate holder shall provide to the Department
18 any data or record generated in carrying out this monitoring plan upon request by the
19 Department.

20 The certificate holder shall notify USFWS and ODFW if any federal or state endangered
21 or threatened species are killed or injured on the facility site within 48 hours of species
22 identification.

23 Within 30 days after receiving the final versions of reports that are required under this
24 plan, the Department will make the reports available to the public on its website and will specify
25 a time in which the public may submit comments to the Department.⁶

26 **6. Amendment of the Plan**

27 This *Wildlife Monitoring and Mitigation Plan* may be amended from time to time by
28 agreement of the certificate holder and the Council. Such amendments may be made without
29 amendment of the site certificate. The Council authorizes the Department to agree to
30 amendments to this plan and to mitigation actions that may be required under this plan. The
31 Department shall notify the Council of all amendments and mitigation actions, and the Council
32 retains the authority to approve, reject or modify any amendment of this plan or mitigation action
33 agreed to by the Department.

34 **7. References**

35 Gehring, J., P. Kerlinger, and A. M. Manville, II. 2009. “Communication Towers, Lights,
36 and Birds: Successful Methods of Reducing the Frequency of Avian Collisions.” *Ecological*
37 *Applications* 19(2): 505-514.

⁶ The certificate holder may establish a Technical Advisor Committee (TAC) but is not required to do so. If the certificate holder establishes a TAC, the TAC may offer comments to the Council about the results of the monitoring required under this plan.

~~Montague Wind Power~~**Oregon Trail Solar Facility: Phase 2**

Wildlife Monitoring and Mitigation Plan

[AS AMENDED ~~JANUARY 2018~~**XX 2020**]

1 Gehring, J., P. Kerlinger, and A. M. Manville, II. 2011. “The Role of Tower Height and
2 Guy Wires on Avian Collisions with Communication Towers.” *The Journal of Wildlife*
3 *Management* 75(4): 848–855.

4 Johnson, G. and W. P. Erickson. 2011. *Avian, Bat and Habitat Cumulative Impacts*
5 *Associated with Wind Energy Development in the Columbia Plateau Ecoregion of Eastern*
6 *Washington and Oregon*. Prepared by Western EcoSystems Technology, Inc., for Klickitat
7 County Planning Department. May 18.
8 [https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson](https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson_2011.pdf)
9 [_2011.pdf](https://www.fws.gov/southwest/es/documents/R2ES/LitCited/LPC_2012/Johnson_and_Erickson_2011.pdf).

10 Kerlinger, P., J. L. Gehring, W. P. Erickson, R. Curry, A. Jain, and J. Guarnaccia. 2010.
11 “Night Migrant Fatalities and Obstruction Lighting at Wind Turbines in North America.” *Wilson*
12 *Journal of Ornithology* 122(4): 744-754.

13 Manly, B. F. J. 1997. *Randomization, Bootstrap, and Monte Carlo Methods in Biology*.
14 2nd edition. New York: Chapman and Hall.

15 U.S. Fish and Wildlife Service (USFWS). 2012. *U.S. Fish and Wildlife Service Land-*
16 *Based Wind Energy Guidelines*. UOMB Control No. 1018-0148.

17 U.S. Fish and Wildlife Service (USFWS). 2013. *Revised Guidelines for Communication*
18 *Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning --*
19 *Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No.*
20 *03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on*
21 *Migratory Birds," Docket No. 08-61, FCC's Antenna Structure Registration Program, and*
22 *Service 2012 Wind Energy Guidelines*.

23 Walston, L. J., Jr., K. E. Rollins, K. E. LaGory, K. P. Smith, and S. A. Meyers. 2016. “A
24 preliminary assessment of avian mortality at utility-scale solar energy facilities in the United
25 States.” *Renewable Energy* 92: 405–414.

Attachment H Cultural, Historic and Archeological Resource Mitigation Plans

Inadvertent Discovery Plan (Montague Wind, Montague Solar and Oregon Trail Solar)

Draft Amended Montague Solar Facility Historic Properties Management Plan

**Inadvertent Discovery Plan
(Montague Wind, Montague Solar and Oregon Trail Solar)**

Inadvertent Discovery Plan

PLAN AND PROCEDURES FOR THE INADVERTENT DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS FOR THE MONTAGUE WIND POWER FACILITY, GILLIAM COUNTY, OREGON

1.0 Introduction

Montague Wind Power Facility, LLC (Montague) proposes to construct the Montague Wind Power Facility (Montague Facility) in Gilliam County, Oregon. This Inadvertent Discovery Plan outlines procedures to follow, in accordance with state and federal laws, if cultural resources or human remains are discovered during construction.

2.0 Recognizing Cultural Resources

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic. Examples are as follows:

- A multispecies accumulation of shell (shell-midden) with associated bone, stone, antler, or wood artifacts, burned rocks, or charcoal
- Bones that appear to be human or animal bones associated with a shell-midden (i.e., with associated artifacts or cooking features)
- An area of charcoal or very dark, stained soil with associated artifacts
- Artifacts made of chipped or ground stone (i.e., an arrowhead, adze, or metate) or an accumulation (more than one) of cryptocrystalline stone flakes (lithic debitage)
- Items made of botanical materials
- Clusters of tin cans or bottles, agricultural, or military equipment that appears to be older than 50 years

3.0 Onsite Responsibilities

STEP 1: STOP WORK IMMEDIATELY. If the contractor or subcontractor believes that he or she has uncovered any cultural resource during construction of the project, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time.

STEP 2: NOTIFY CONSTRUCTION PROJECT MANAGEMENT IMMEDIATELY. Contact the construction project manager or cultural resources specialist for the Montague Facility, as listed below.

Construction Project Manager

To be determined.

Cultural Resources Specialist

If the construction project manager cannot be reached, contact one of the designated Cultural Resources Specialists:

David Sheldon
CH2M
Cell: (360) 219-6953
david.sheldon@Jacobs.com

Matt Steinkamp
CH2M
Cell: (503) 358-9499
matt.steinkamp@jacobs.com

STEP 3: NOTIFY THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY. The Montague Facility construction project manager or cultural resources specialist will contact the Oregon State Historic Preservation Office (SHPO) immediately.

Note: If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media.

STEP 4: PARTICIPATE IN CONSULTATION AND DOCUMENTATION. The Montague Facility construction project manager will participate in consultations with Oregon SHPO and affiliated Tribes. After consultation, the construction project manager will complete a written plan of action describing the disposition of cultural resources pursuant to 43 *Code of Federal Regulations* (CFR) Part 10 and will execute his or her prescribed duties within that plan of action.

4.0 Further Contacts and Consultations

Construction Project Manager

The Montague Facility construction project manager's responsibilities as follows:

- Secure the Site: The construction project manager is responsible for taking appropriate steps to protect and secure the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material in consultation with the affiliated Tribe(s).
- Direct Construction Elsewhere Onsite: The construction project manager will direct construction to resume away from cultural resources where appropriate and in communication with the affiliated Tribe(s).
- Contact Project Cultural Resources Specialist: If the cultural resources specialist has not yet been reached in earlier attempts, the construction project manager will do so.

Cultural Resources Specialist

The cultural resources specialist's responsibilities are as follows:

- Notify Tribes: If not already notified, the cultural resources specialist will notify the Tribe(s) of the discovery.
- Identify Find: The construction project manager will consult with the Tribes and will ensure that a qualified individual examines the find to determine if it is a cultural resource, as follows:
 - If it is determined to not be a cultural resource, work may proceed with no further delay.
 - If it is determined to be a cultural resource, the cultural resources specialist will send a certified letter to the Tribal Historic Preservation Offices, notifying them that a cultural resource has been discovered and requesting further consultation.
 - If the find may be human remains or funerary objects, the cultural resources specialist will follow the procedures described in Section 5.0.

- Notify State Agencies: The construction project manager will contact Oregon SHPO.
- Formulate Plan: The construction project manager, affiliated Tribes, and Oregon SHPO will consult to determine a plan for disposition of the cultural resources.

Any required excavation or removal of cultural resources will be carried out under the requirements of 43 CFR Part 10.3 and 16 *United States Code* 470 aa, and will require a permit from the Oregon SHPO. The activity that resulted in the inadvertent discovery may resume thirty (30) days after certification of receipt of notification.

Oregon Historic Preservation Office

State Archaeologist
Dennis Griffin, Ph.D.
e-mail: Dennis.Griffin@oregon.gov
(503) 986-0674

-or-

Assistant State Archaeologist
John Pouley
E-mail: john.pouley@oregon.gov
(503) 986-0675

Tribes

Confederated Tribes of the Warm Springs Reservation of Oregon
Robert Brunoe, Tribal Historic Preservation Officer
THPO@ctwsbnr.org
PO Box 460
Warm Springs, Oregon 97761
(541) 553-3555

Confederated Tribes of the Umatilla Indian Reservation
Teara Farrow Ferman, Cultural Resources
tearafarrowferman@ctuir.com
46411 Timine Way
Pendleton, OR 97801
(541) 429-7230

5.0 Special Procedures for the Discovery of Human Skeletal Material

Any human skeletal remains will at all times be treated with the utmost dignity and respect. The attached document titled *Tribal Position Paper on the Treatment of Human Remains* (Government to Government Cultural Resources Cluster Group, September 2006) describes the appropriate protocol on the treatment of Native American human remains.

STEP 1: STOP WORK. In the event that human remains are discovered, stop all work in the area and secure the site.

STEP 2: NOTIFY APPROPRIATE PARTIES. Notify the construction project manager, law enforcement, and the coroner, immediately. The coroner (with the assistance of law enforcement personnel) will determine if the remains are human and whether the discovery site constitutes a crime scene, and will notify Oregon SHPO and the Tribes.

- Medical Examiner, Gilliam County
To be determined
- Gilliam County Sheriff's Department
221 S. Oregon Street
Condon, Oregon 97823
(541) 384-2851

STEP 3: PROTECT THE REMAINS. There shall be no photography or drawings and sketches made of the human remains or funerary objects found with the human remains without written permission signed by the affiliated Tribes. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Remains should not be removed from the site prior to identifying the remains as Native American or not. If the remains are determined to be Native American, final disposition will be decided through consultation with the affiliated Tribes, Oregon SHPO, and Montague.

STEP 4: CONSULTATION. If the coroner determines the remains are nonforensic, and if it is determined that the remains constitute a cultural resource, the construction project manager or appointed representative will participate in consultation with the affiliated Tribes and Oregon SHPO. The construction project manager or appointed representative will complete a written plan of action describing the disposition of cultural resources pursuant to 43 CFR Part 10 and will execute its prescribed duties within that plan of action. If the remains are determined to be Native American, final disposition will be decided through consultation with the affiliated Tribes, Oregon SHPO, and Montague. If the medical examiner is not able to make a determination of Native American, a qualified forensic anthropologist from the State, Tribe, or contracted archaeological firm will need to be consulted for final determination.

6.0 Proceeding with Construction

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. The construction project manager and a qualified archaeologist or Tribal representative must determine the boundaries of the discovery location. Construction may continue at the discovery location only after the process outlined in this plan is followed and the Oregon SHPO (and the federal agencies, if any) determines that compliance with state and federal laws is complete.

Inadvertent Discovery Plan

PLAN AND PROCEDURES FOR THE INADVERTENT DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS FOR THE MONTAGUE ~~WIND-POWER~~SOLAR FACILITY, GILLIAM COUNTY, OREGON

1.0 Introduction

Montague ~~Wind Power Facility~~Solar, LLC (Montague) proposes to construct the Montague ~~Wind Power~~Solar Facility (~~Montague Facility~~) in Gilliam County, Oregon. This Inadvertent Discovery Plan outlines procedures to follow, in accordance with state and federal laws, if cultural resources or human remains are discovered during construction.

2.0 Recognizing Cultural Resources

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic. Examples are as follows:

- A multispecies accumulation of shell (shell-midden) with associated bone, stone, antler, or wood artifacts, burned rocks, or charcoal
- Bones that appear to be human or animal bones associated with a shell-midden (i.e., with associated artifacts or cooking features)
- An area of charcoal or very dark, stained soil with associated artifacts
- Artifacts made of chipped or ground stone (i.e., an arrowhead, adze, or metate) or an accumulation (more than one) of cryptocrystalline stone flakes (lithic debitage)
- Items made of botanical materials
- Clusters of tin cans or bottles, agricultural, or military equipment that appears to be older than 50 years

3.0 Onsite Responsibilities

STEP 1: STOP WORK IMMEDIATELY. If the contractor or subcontractor believes that he or she has uncovered any cultural resource during construction of the project, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time.

STEP 2: NOTIFY CONSTRUCTION PROJECT MANAGEMENT IMMEDIATELY. Contact the construction project manager or cultural resources specialist for the Montague Facility, as listed below.

Construction Project Manager

To be determined.

Cultural Resources Specialist

If the construction project manager cannot be reached, contact one of the designated Cultural Resources Specialists:

David Sheldon
CH2M
Cell: (360) 219-6953
david.sheldon@Jacobs.com

Matt Steinkamp
CH2M
Cell: (503) 358-9499
matt.steinkamp@jacobs.com

STEP 3: NOTIFY THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY. The Montague Solar Facility construction project manager or cultural resources specialist will contact the Oregon State Historic Preservation Office (SHPO) immediately.

Note: If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media.

STEP 4: PARTICIPATE IN CONSULTATION AND DOCUMENTATION. The Montague Solar Facility construction project manager will participate in consultations with Oregon SHPO and affiliated Tribes. After consultation, the construction project manager will complete a written plan of action describing the disposition of cultural resources pursuant to 43 *Code of Federal Regulations* (CFR) Part 10 and will execute his or her prescribed duties within that plan of action.

4.0 Further Contacts and Consultations

Construction Project Manager

The Montague Facility construction project manager's responsibilities as follows:

- **Secure the Site:** The construction project manager is responsible for taking appropriate steps to protect and secure the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material in consultation with the affiliated Tribe(s).
- **Direct Construction Elsewhere Onsite:** The construction project manager will direct construction to resume away from cultural resources where appropriate and in communication with the affiliated Tribe(s).
- **Contact Project Cultural Resources Specialist:** If the cultural resources specialist has not yet been reached in earlier attempts, the construction project manager will do so.

Cultural Resources Specialist

The cultural resources specialist's responsibilities are as follows:

- **Notify Tribes:** If not already notified, the cultural resources specialist will notify the Tribe(s) of the discovery.
- **Identify Find:** The construction project manager will consult with the Tribes and will ensure that a qualified individual examines the find to determine if it is a cultural resource, as follows:
 - If it is determined to not be a cultural resource, work may proceed with no further delay.
 - If it is determined to be a cultural resource, the cultural resources specialist will send a certified letter to the Tribal Historic Preservation Offices, notifying them that a cultural resource has been discovered and requesting further consultation.
 - If the find may be human remains or funerary objects, the cultural resources specialist will follow the procedures described in Section 5.0.

- Notify State Agencies: The construction project manager will contact Oregon SHPO.
- Formulate Plan: The construction project manager, affiliated Tribes, and Oregon SHPO will consult to determine a plan for disposition of the cultural resources.

Any required excavation or removal of cultural resources will be carried out under the requirements of 43 CFR Part 10.3 and 16 *United States Code* 470 aa, and will require a permit from the Oregon SHPO. The activity that resulted in the inadvertent discovery may resume thirty (30) days after certification of receipt of notification.

Oregon Historic Preservation Office

State Archaeologist
Dennis Griffin, Ph.D.
e-mail: Dennis.Griffin@oregon.gov
(503) 986-0674

-or-

Assistant State Archaeologist
John Pouley
E-mail: john.pouley@oregon.gov
(503) 986-0675

Tribes

Confederated Tribes of the Warm Springs Reservation of Oregon
Robert Brunoe, Tribal Historic Preservation Officer
THPO@ctwsbnr.org
PO Box 460
Warm Springs, Oregon 97761
(541) 553-3555

Confederated Tribes of the Umatilla Indian Reservation
Teara Farrow Ferman, Cultural Resources
tearafarrowferman@ctuir.com
46411 Timine Way
Pendleton, OR 97801
(541) 429-7230

5.0 Special Procedures for the Discovery of Human Skeletal Material

Any human skeletal remains will at all times be treated with the utmost dignity and respect. The attached document titled *Tribal Position Paper on the Treatment of Human Remains* (Government to Government Cultural Resources Cluster Group, September 2006) describes the appropriate protocol on the treatment of Native American human remains.

STEP 1: STOP WORK. In the event that human remains are discovered, stop all work in the area and secure the site.

STEP 2: NOTIFY APPROPRIATE PARTIES. Notify the construction project manager, law enforcement, and the coroner, immediately. The coroner (with the assistance of law enforcement personnel) will determine if the remains are human and whether the discovery site constitutes a crime scene, and will notify Oregon SHPO and the Tribes.

- Medical Examiner, Gilliam County
To be determined
- Gilliam County Sheriff's Department
221 S. Oregon Street
Condon, Oregon 97823
(541) 384-2851

STEP 3: PROTECT THE REMAINS. There shall be no photography or drawings and sketches made of the human remains or funerary objects found with the human remains without written permission signed by the affiliated Tribes. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Remains should not be removed from the site prior to identifying the remains as Native American or not. If the remains are determined to be Native American, final disposition will be decided through consultation with the affiliated Tribes, Oregon SHPO, and Montague.

STEP 4: CONSULTATION. If the coroner determines the remains are nonforensic, and if it is determined that the remains constitute a cultural resource, the construction project manager or appointed representative will participate in consultation with the affiliated Tribes and Oregon SHPO. The construction project manager or appointed representative will complete a written plan of action describing the disposition of cultural resources pursuant to 43 CFR Part 10 and will execute its prescribed duties within that plan of action. If the remains are determined to be Native American, final disposition will be decided through consultation with the affiliated Tribes, Oregon SHPO, and Montague. If the medical examiner is not able to make a determination of Native American, a qualified forensic anthropologist from the State, Tribe, or contracted archaeological firm will need to be consulted for final determination.

6.0 Proceeding with Construction

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. The construction project manager and a qualified archaeologist or Tribal representative must determine the boundaries of the discovery location. Construction may continue at the discovery location only after the process outlined in this plan is followed and the Oregon SHPO (and the federal agencies, if any) determines that compliance with state and federal laws is complete.

Inadvertent Discovery Plan

PLAN AND PROCEDURES FOR THE INADVERTENT DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS FOR THE ~~MONTAGUE WIND POWER~~OREGON TRAIL SOLAR FACILITY, GILLIAM COUNTY, OREGON

1.0 Introduction

~~Montague Wind Power Facility~~Oregon Trail Solar, LLC (~~Montague~~certificate holder) proposes to construct the ~~Montague Wind Power~~Oregon Trail Solar Facility (~~Montague Facility~~) in Gilliam County, Oregon. This Inadvertent Discovery Plan outlines procedures to follow, in accordance with state and federal laws, if cultural resources or human remains are discovered during construction.

2.0 Recognizing Cultural Resources

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic. Examples are as follows:

- A multispecies accumulation of shell (shell-midden) with associated bone, stone, antler, or wood artifacts, burned rocks, or charcoal
- Bones that appear to be human or animal bones associated with a shell-midden (i.e., with associated artifacts or cooking features)
- An area of charcoal or very dark, stained soil with associated artifacts
- Artifacts made of chipped or ground stone (i.e., an arrowhead, adze, or metate) or an accumulation (more than one) of cryptocrystalline stone flakes (lithic debitage)
- Items made of botanical materials
- Clusters of tin cans or bottles, agricultural, or military equipment that appears to be older than 50 years

3.0 Onsite Responsibilities

STEP 1: STOP WORK IMMEDIATELY. If the contractor or subcontractor believes that he or she has uncovered any cultural resource during construction of the project, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time.

STEP 2: NOTIFY CONSTRUCTION PROJECT MANAGEMENT IMMEDIATELY. Contact the construction project manager or cultural resources specialist for the ~~Montague Facility~~Oregon Trail Solar Facility, as listed below.

Construction Project Manager

To be determined.

Cultural Resources Specialist

If the construction project manager cannot be reached, contact one of the designated Cultural Resources Specialists:

David Sheldon
CH2M
Cell: (360) 219-6953
david.sheldon@Jacobs.com

Matt Steinkamp
CH2M
Cell: (503) 358-9499
matt.steinkamp@jacobs.com

STEP 3: NOTIFY THE STATE HISTORIC PRESERVATION OFFICE IMMEDIATELY. The ~~Montague Facility~~Oregon Trail Solar Facility construction project manager or cultural resources specialist will contact the Oregon State Historic Preservation Office (SHPO) immediately.

Note: If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media.

STEP 4: PARTICIPATE IN CONSULTATION AND DOCUMENTATION. The ~~Montague Oregon Trail Solar Facility~~ construction project manager will participate in consultations with Oregon SHPO and affiliated Tribes. After consultation, the construction project manager will complete a written plan of action describing the disposition of cultural resources pursuant to 43 *Code of Federal Regulations* (CFR) Part 10 and will execute his or her prescribed duties within that plan of action.

4.0 Further Contacts and Consultations

Construction Project Manager

The ~~Montague Oregon Trail Solar~~ Facility construction project manager's responsibilities as follows:

- Secure the Site: The construction project manager is responsible for taking appropriate steps to protect and secure the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material in consultation with the affiliated Tribe(s).
- Direct Construction Elsewhere Onsite: The construction project manager will direct construction to resume away from cultural resources where appropriate and in communication with the affiliated Tribe(s).
- Contact Project Cultural Resources Specialist: If the cultural resources specialist has not yet been reached in earlier attempts, the construction project manager will do so.

Cultural Resources Specialist

The cultural resources specialist's responsibilities are as follows:

- Notify Tribes: If not already notified, the cultural resources specialist will notify the Tribe(s) of the discovery.
- Identify Find: The construction project manager will consult with the Tribes and will ensure that a qualified individual examines the find to determine if it is a cultural resource, as follows:
 - If it is determined to not be a cultural resource, work may proceed with no further delay.
 - If it is determined to be a cultural resource, the cultural resources specialist will send a certified letter to the Tribal Historic Preservation Offices, notifying them that a cultural resource has been discovered and requesting further consultation.
 - If the find may be human remains or funerary objects, the cultural resources specialist will follow the procedures described in Section 5.0.

- Notify State Agencies: The construction project manager will contact Oregon SHPO.
- Formulate Plan: The construction project manager, affiliated Tribes, and Oregon SHPO will consult to determine a plan for disposition of the cultural resources.

Any required excavation or removal of cultural resources will be carried out under the requirements of 43 CFR Part 10.3 and 16 *United States Code* 470 aa, and will require a permit from the Oregon SHPO. The activity that resulted in the inadvertent discovery may resume thirty (30) days after certification of receipt of notification.

Oregon Historic Preservation Office

State Archaeologist
Dennis Griffin, Ph.D.
e-mail: Dennis.Griffin@oregon.gov
(503) 986-0674

-or-

Assistant State Archaeologist
John Pouley
E-mail: john.pouley@oregon.gov
(503) 986-0675

Tribes

Confederated Tribes of the Warm Springs Reservation of Oregon
Robert Brunoe, Tribal Historic Preservation Officer
THPO@ctwsbnr.org
PO Box 460
Warm Springs, Oregon 97761
(541) 553-3555

Confederated Tribes of the Umatilla Indian Reservation
Teara Farrow Ferman, Cultural Resources
tearafarrowferman@ctuir.com
46411 Timine Way
Pendleton, OR 97801
(541) 429-7230

5.0 Special Procedures for the Discovery of Human Skeletal Material

Any human skeletal remains will at all times be treated with the utmost dignity and respect. The attached document titled *Tribal Position Paper on the Treatment of Human Remains* (Government to Government Cultural Resources Cluster Group, September 2006) describes the appropriate protocol on the treatment of Native American human remains.

STEP 1: STOP WORK. In the event that human remains are discovered, stop all work in the area and secure the site.

STEP 2: NOTIFY APPROPRIATE PARTIES. Notify the construction project manager, law enforcement, and the coroner, immediately. The coroner (with the assistance of law enforcement personnel) will determine if the remains are human and whether the discovery site constitutes a crime scene, and will notify Oregon SHPO and the Tribes.

- Medical Examiner, Gilliam County
To be determined
- Gilliam County Sheriff's Department
221 S. Oregon Street
Condon, Oregon 97823
(541) 384-2851

STEP 3: PROTECT THE REMAINS. There shall be no photography or drawings and sketches made of the human remains or funerary objects found with the human remains without written permission signed by the affiliated Tribes. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Remains should not be removed from the site prior to identifying the remains as Native American or not. If the remains are determined to be Native American, final disposition will be decided through consultation with the affiliated Tribes, Oregon SHPO, and Montague certificate holder.

STEP 4: CONSULTATION. If the coroner determines the remains are nonforensic, and if it is determined that the remains constitute a cultural resource, the construction project manager or appointed representative will participate in consultation with the affiliated Tribes and Oregon SHPO. The construction project manager or appointed representative will complete a written plan of action describing the disposition of cultural resources pursuant to 43 CFR Part 10 and will execute its prescribed duties within that plan of action. If the remains are determined to be Native American, final disposition will be decided through consultation with the affiliated Tribes, Oregon SHPO, and Montague certificate holder. If the medical examiner is not able to make a determination of Native American, a qualified forensic anthropologist from the State, Tribe, or contracted archaeological firm will need to be consulted for final determination.

6.0 Proceeding with Construction

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. The construction project manager and a qualified archaeologist or Tribal representative must determine the boundaries of the discovery location. Construction may continue at the discovery location only after the process outlined in this plan is followed and the Oregon SHPO (and the federal agencies, if any) determines that compliance with state and federal laws is complete.

Draft Amended Montague Solar Facility Historic Properties Management Plan

Montague ~~Wind Power~~Solar Facility
Draft ~~Phase 2~~ Historical Resource Mitigation Plan
[~~APRIL 2019~~AMENDED XX 2020]

1 I. Introduction

2 This draft plan describes approaches to mitigating the significant adverse impact to the
3 Weatherford Barn resulting from construction and operation of the ~~Montague Wind Power~~
~~Facility (MWPF)~~Montague Solar Facility).¹ ~~The certificate holder will construct the facility in~~
~~phases. This plan addresses mitigation associated with the second phase (Phase 2) of facility~~
~~construction and operation.~~The Oregon State Historic Preservation Office (SHPO) has determined
that components of ~~Phase 2 of the MWPF~~the Montague Solar Facility will have a significant
adverse impact on the Weatherford Barn, an aboveground historic property eligible for inclusion in
the National Register of Historic Places (NRHP). The Weatherford Barn is located on Bottemiller
Lane, west of Oregon Route (OR) 19 in Gilliam County, Oregon, at approximately latitude
45.547156; longitude 120.170658 within the Shutler Flat U.S. Geographical Survey 7.5-minute
quadrangle.

43 II. Regulatory Context for Mitigation

54 Pursuant to Oregon Administrative Rule (OAR) 345-022-0090 and SHPO guidance, the
6 certificate holder conducted a historic and cultural resources inventory within 1 mile of ~~the~~
75 ~~proposed expanded site boundary for Phase 2 of the MWPF~~the site boundary. The Weatherford
Barn is located within this analysis area and research determined it is eligible for listing in the
NRHP. The certificate holder then identified potential impacts to the resource under OAR 345-
021-0010(1)(s)(D) and provides this mitigation plan to prevent destruction of the resource in
86 accordance with OAR 345-021-0010(1)(s)(D)(iii).

97 III. Description of the Aboveground Historic Property

408 This section provides a description of the Weatherford Barn, the determination of
449 eligibility for inclusion in the NRHP, ownership associated with the Weatherford Barn, and the
4210 setting within the vicinity of the Weatherford Barn.

4311 1. Weatherford Barn

4412 The Weatherford Barn is a one-story, rectangular plan, wood-frame building with a front
4513 gable roof constructed in 1880. The building is surrounded by agricultural fields. Overall, the
4614 building is in poor condition and is no longer in regular use. Two large open bays are located on
4715 the north elevation – a double-height central bay and a side-aisle bay on the west side of the
4816 north elevation. A large, open bay is centered on the south elevation.

4917 The west side of the roof is clad in nonoriginal corrugated metal, while the east side is
2018 covered in shingles, large sections of which are missing or badly deteriorated. The barn's
2419 exterior walls are covered in vertical wood boards. Many of these boards are rotten or missing,
2220 particularly on the west and south elevations. In addition, the original barn doors are missing.
2321 The building's interior floors are formed by wood planks on a slightly raised pier foundation.

¹ This plan is incorporated by reference in the site certificate for the Montague ~~Wind Power~~Solar 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~~Solar Facility: Draft ~~Phase 2~~ Historical Resource Mitigation Plan

1 As a result of the deteriorated roof and walls, and the missing doors, the building is
2 exposed to the elements. The building leans to the east, and four wood planks have been secured
3 to buttress the side elevation. A wood post and wire fence have been added around the wood
4 buttresses.

5 **2. Determination of Eligibility**

6 An Oregon Inventory of Historic Properties Historic Resource Survey Form was
7 completed for the Weatherford Barn in 1987. The form labels the property as the Weatherford
8 Barn, and lists the owner as Marion T. Weatherford. The Weatherford family was, and remains,
9 an important farming family in the area. However, it is not certain that the barn was originally
10 constructed by the Weatherford family. A 1934 Metsker Map of the area shows that the parcel
11 containing the barn was at that time part of Cannon Ranch, owned by A. M. Cannon. According
12 to the 1934 map, the Weatherford Ranch was located approximately 3 miles southwest, near
13 Olex (Metsker Maps, 1934). However, the parcels surrounding the barn appear to have been
14 owned by members of the Weatherford family, including Herbert R. Weatherford (to the west),
15 Cavy E. Childs (daughter of William W. Weatherford) to the north, and M. F. Weatherford to the
16 southwest. A brief history of the county and the Weatherford family is included below for
17 context.

18 Gilliam County encompasses 1,223 square miles and is bordered by the Columbia River
19 to the north, Wasco and Sherman counties to the west, Morro and Grant counties to the east, and
20 Wheeler County to the south. Originally located within the eastern region of Wasco County, the
21 Legislative Assembly established Gilliam County on February 25, 1885. After the county was
22 established, the town of Arlington, formerly known as Alkali, which had been platted in 1882,
23 was named the county seat (Portland State University and the Oregon Historical Society, 2017).
24 However, the county seat was moved to Condon, Oregon (formerly known as Summit Springs)
25 in 1890.

26 **3. Ownership**

27 Marion T. Weatherford was born on October 9, 1906, near Arlington, Oregon “on his
28 family’s wheat and cattle farm” (Burson, 2015). The farm became known for the Weatherford
29 Mule Team, which hauled wagons 26 miles to and from the railroad in Arlington. Between 1922
30 and 1942, Marion T. did not live at the family farm, although he visited regularly and “always
31 kept in touch with current events in this community” (Burson, 2015). In 1942, after the death of
32 his parents, Marion T. “returned to take over the farm with his wife Leona” (Burson, 2015). It
33 was apparently at this time that Marion T. acquired the property on OR 19, known currently as
34 the Marion T. Weatherford Ranch; it is also likely that at this time he acquired the barn, referred
35 to as Weatherford Barn. After Marion T. returned to the community, he became involved in a
36 number of local organizations during the 1940s and 1950s and established himself as an
37 important figure within the community (Burson, 2015; Oregon State University, 2017).

38 Marion T. Weatherford owned the barn on Bottemiller Lane when it was inventoried in
39 1987. It is currently owned by the Robert Athearn Living Trust. The 1987 Historic Resource
40 Survey form identifies the vernacular style barn as in “good” condition and states: “This is the
41 oldest known barn in the county, and has been in continual use as a barn since its construction in
42 1880. It has been excellently maintained” (Startz, 1987). The barn is identified in the Oregon
43 Historic Sites Database as eligible for the NRHP (2017). While the barn is no longer in good
44 condition and does not appear to be regularly used, it still retains important elements of its

Montague ~~Wind Power~~Solar Facility: Draft ~~Phase 2~~ Historical Resource Mitigation Plan

1 integrity, including design, setting, location, feeling, and association. It remains significant as the
2 oldest known barn in Gilliam County. As such, the property remains eligible for listing in the
3 NRHP under Criterion A, for its association with the early agricultural history of the area.

4 **4. Setting**

5 The Weatherford Barn is located in an agricultural field north of Bottemiller Lane and
6 west of OR 19 in Gilliam County, Oregon. OR 19, also known as the John Day Highway,
7 connects Arlington in northern Gilliam County to Condon near the Gilliam County/Wheeler
8 County line to the south. An approximately 3.9-mile segment of the highway crosses the
9 ~~proposed expanded~~ site boundary ~~for Phase 2 of the MWPF~~ and is adjacent to the proposed solar
10 area, battery storage system, and ~~Phase 2~~Montague Solar collector substation.

11 This segment of OR 19 is an important vantage point because the highway is an artery for
12 both in-county and inter-county travel. The ~~Phase 2~~solar facilities would be the first features that
13 drivers see at the crest of the hill driving north on OR 19 headed out of Rock Creek Canyon. The
14 landscape in the area consists of a flat plane that slopes up gradually from north to south, gaining
15 approximately 215 feet in elevation over the 3.9 miles from the northern to the southern facility
16 site boundary. The landscape is open, and agricultural in nature, with views extending across flat
17 fields devoted to field crops toward distant low hills. The only developed features consist of the
18 Weatherford Barn and two small clusters of farm residences and farm operation support
19 structures (barns, sheds, and grain storage facilities).

20 The landscape in this area looks like other agricultural areas in Gilliam County and
21 surrounding counties where wind generation installations have already been developed. Existing
22 turbines are located approximately 1.8 miles northwest of the Weatherford Barn.

23 **IV. Description of the Impacts Addressed by the Plan**

24 In a letter dated March 1, 2019, regarding SHPO Case No. 10-0378, SHPO concluded
25 that components of the certificate holder's ~~proposed Phase 2~~solar facilities near the Weatherford
Barn would diminish the setting, feeling, and association of Weatherford Barn. In response to
SHPO's finding, the certificate holder demonstrates that they will reduce impacts to Weatherford
Barn to less than significant by either implementing setbacks described in Section V or by
implementing one of the mitigation options described in Section VI.

26 **V. Implementation of Setbacks**

27 The ~~proposed Phase 2~~solar facilities near the Weatherford Barn include the solar array area,
28 facility substation, battery storage system, and transmission lines. The solar array is
29 approximately 1 mile wide and will extend along the west side of OR 19 for 2 miles between
Bottemiller Lane and the southern boundary of the facility near Baseline Road. As
30 ~~proposed~~approved, the solar array is set back 100 to 150 feet from the highway and will be
arranged in orderly rows.

31 The solar collector panels will be relatively low to the ground, with a maximum height of 15
feet. The nearest fenced boundary of the solar array is approximately 35 feet west of the shoulder
32 of OR 19 and 300 feet south of the Weatherford Barn. The nearest fenced boundary of the ~~Phase~~
1 ~~2~~Montague Solar collector substation, battery storage system, and operations and maintenance
building is approximately 550 feet east of the Weatherford Barn. SHPO determined the ~~proposed~~
~~Phase 2~~solar facilities arrangement would have a significant adverse impact on the Weatherford
Barn.

Montague ~~Wind Power~~Solar Facility: Draft ~~Phase 2~~ Historical Resource Mitigation Plan

2 To avoid a significant adverse impact, the certificate holder will continue to consult with
3 the Oregon Department of Energy (Department) and SHPO on the relocation of ~~proposed Phase~~
43 ~~2 facilities~~solar facility components to determine if a location exists that will result in no
significant impact to the setting, feeling, and association of the Weatherford Barn. If no feasible
facility location exists that avoids these impacts, the certificate holder will implement one of the
mitigation actions provided in Section VI.

54 VI. Mitigation Measures

65 1. Mitigation Option 1: Historic Barn Survey

76 The certificate holder would conduct a reconnaissance-level survey of up to 25 barns in
87 Gilliam County built prior to 1950. This date is selected to focus the study on barns associated
98 with the earlier period of the agricultural industry in the county. This project would include the
409 following tasks.

4410 *Research* – Prior to conducting the fieldwork, an architectural historian would review the
4211 Oregon Historic Sites Database to obtain background information about barns previously
4312 inventoried in Gilliam County. In addition to the review of historical literature, maps, and
4413 photos, this research would include communicating with the Gilliam County Historical Museum
4514 staff to determine if the museum had recommendations about noteworthy barns in the area. The
4615 architectural historian would communicate with SHPO to determine the type of forms on which
4716 properties would be recorded.

4817 *Fieldwork* – A field investigation would be conducted and would include
4918 (1) photographing barns identified from research and (2) photographing noteworthy barns
2019 identified in the field. Photographs would be taken from the public right-of-way, unless property
2420 owner allowed architectural historian on the property. Though some properties may be located
2221 within a complex of historic buildings associated with a farmstead, the inventory would only
2322 include the barn. Overview photographs showing the associated buildings as they relate to the
2423 setting of the barn would be included.

2524 *Reporting* – Architectural historians would prepare a draft and final report including an
2625 overview of the agricultural history of Gilliam County, a summary of common barn types and
2726 forms found in the county, a description of the study area, methods used, summaries of
2827 inventoried properties, and a map showing their locations. The draft report would be reviewed by
2928 the Oregon SHPO. Comments would be addressed in a final report. Copies of inventory forms
3029 would be submitted to SHPO.

3430 2. Mitigation Option 2: Local Historical Society Exhibit

3231 The certificate holder would partner with a local historical society or other organization
3332 to display an exhibit on Gilliam County historic barns. The certificate holder would hire a
3433 consultant or museum to prepare a portable exhibit documenting the agricultural history of
3534 Gilliam County as it relates to the development of historic barns. The exhibit would provide
3635 architectural information about the different types, forms, materials and methods of construction
3736 of barns in the county. This project would involve research in local repositories including the
3837 Gilliam County Historical Museum and libraries to obtain historical photographs, maps, and
3938 other research materials. The exhibit would consist of text, photos, and graphical information
4039 mounted on portable display panels allowing it to be moved to different locations for display.
4440 The exhibit would initially be installed at the Gilliam County Historical Museum, which is

Montague ~~Wind Power~~Solar Facility: Draft ~~Phase 2~~ Historical Resource Mitigation Plan

1 dedicated to interpreting the agricultural history of the county. SHPO would be afforded the
2 opportunity to review and comment on the display panels and content prior to fabrication.

3 **3. Mitigation Option 3: Contribution to Historical Organization Dedicated to Preserving**
4 **the Agricultural History of Gilliam County**

5 The certificate holder would make a \$25,000 contribution to the Gilliam County
6 Historical Museum to support the construction of a new building being erected to house
7 agricultural artifacts such as tractors and other equipment donated to the museum, which focuses
8 on interpreting the agricultural history of Gilliam County, Oregon. The certificate holder
9 developed this option in consultation with the Gilliam County Historical Museum. SHPO would
10 receive annual reports on the status of mitigation within the duration provided in Section VII.

11 **VII. Duration**

12 Mitigation will be implemented within three (3) years from the start of ~~Phase 2~~
13 construction. Prior to such time, the certificate holder shall consult with the Department or SHPO
14 to confirm the mitigation option selected.

15 **VIII. Amendment of the Plan**

16 This ~~Phase 2~~ Historical Resource Mitigation Plan may be amended from time to time by
17 agreement of the certificate holder and the Energy Facility Siting Council (Council). SHPO will
18 have the opportunity to review and participate in proposed amendments. Such amendments may
19 be made without amendment of the site certificate. The Council authorizes the Department to
20 agree to amendments to this plan. The Department shall notify the Council of all amendments,
21 and the Council retains the authority to approve, reject, or modify any amendment of this plan
22 agreed to by the Department.

23 **IX. References**

- 24 Burson, Heather. 2015. *An Original Pioneer: Founder Marion T. Weatherford*. Oregon Aglink.
25 October 2. Accessed June 6, 2017. [http://www.aglink.org/an-original-pioneer-abc-founder-](http://www.aglink.org/an-original-pioneer-abc-founder-marion-t-weatherford/)
26 [marion-t-weatherford/](http://www.aglink.org/an-original-pioneer-abc-founder-marion-t-weatherford/).
- 27 Metsker Maps. 1934. *Gilliam County*. Page 026 – Township 1 N, Ranch 21 E, Rock Cr. Historic
28 Map Works. Accessed June 7, 2017. <http://www.historicmapworks.com>.
- 29 Oregon Historic Sites Database. 2017. *Weatherford Barn. Site Information*. Accessed July 18,
30 2017.
31 [http://heritagedata.prd.state.or.us/historic/index.cfm?do=v.dsp_siteSummary&resultDisplay=](http://heritagedata.prd.state.or.us/historic/index.cfm?do=v.dsp_siteSummary&resultDisplay=37317)
32 [37317](http://heritagedata.prd.state.or.us/historic/index.cfm?do=v.dsp_siteSummary&resultDisplay=37317).
- 33 Oregon State University. 2017. *Marion Weatherford: Engineering Hall of Fame – 1998*. College
34 of Engineering. Accessed June 6, 2017. [http://engineering.oregonstate.edu/marion-](http://engineering.oregonstate.edu/marion-weatherford-1998-engineering-hall-fame)
35 [weatherford-1998-engineering-hall-fame](http://engineering.oregonstate.edu/marion-weatherford-1998-engineering-hall-fame).
- 36 Portland State University and the Oregon Historical Society. 2017. “Arlington.” *The Oregon*
37 *Encyclopedia*. Accessed June 7, 2017.
38 <https://oregonencyclopedia.org/articles/arlington/#WTgw32wkt3g>.
- 39 Startz, Kathleen. 1987. “Weatherford Barn.” *Oregon Inventory of Historic Properties*. Historic
40 Resource Survey Form.