BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON

In the Matter of the Request for Amendment #2 of the Site Certificate for the Biglow Canyon Wind Farm

FINAL ORDER ON AMENDMENT #2

May 10, 2007
# BIGLOW CANYON WIND FARM:
# FINAL ORDER ON AMENDMENT #2

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LIST OF ABBREVIATIONS

BCWF
BPA
Council
dBA
Department
Figure 1a
MW
O&M
Orion
PGE

Biglow Canyon Wind Farm
Bonneville Power Administration
Energy Facility Siting Council
The “A-weighted” sound pressure level. The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Oregon Department of Energy
Figure 1a of the amendment request as revised by e-mail from Rick Tetzloff, March 1, 2007, with attachment (“p1r2Figure1a_3-1-07.pdf”)
megawatt or megawatts
Operations and maintenance
Orion Sherman County Wind Farm LLC
Portland General Electric Company
BIGLOW CANYON WIND FARM:
FINAL ORDER ON AMENDMENT #2

I. INTRODUCTION

The Energy Facility Siting Council (Council) issues this final order in accordance with ORS 469.405 and OAR 345-027-0070. This order addresses a request by the certificate holder, Portland General Electric Company (PGE), for amendment of the site certificate for the Biglow Canyon Wind Farm (BCWF).

On June 30, 2006, the Council issued a site certificate to Orion Sherman County Wind Farm LLC (Orion) for the BCWF, a wind energy facility with a peak generating capacity of approximately 337.5 megawatts (MW) to be built in Sherman County, Oregon. On November 3, 2006, the Council approved a transfer of the site certificate from Orion to PGE as set forth in the Final Order on Amendment #1. The facility is under construction.

The definitions in ORS 469.300 and OAR 345-001-0010 apply to terms used in this order, except where otherwise stated or where the context indicates otherwise.

II. PROCEDURAL HISTORY AND AMENDMENT PROCESS

On December 22, 2006, PGE submitted to the Oregon Department of Energy (Department) a request for amendment of the site certificate (Amendment #2).\(^1\) On December 28, the Department instructed the certificate holder to send copies of the amendment request to the appropriate officers, agencies and tribes listed in OAR 345-020-0040. The Department requested agency comments by January 31, 2007. On January 2, the Department sent notice of the amendment request to all persons on the Council’s mailing list and to persons on a list of property owners supplied by the certificate holder. By letter dated January 8, 2007, the Department notified PGE that the proposed order would be issued no later than March 1, 2007.

The Department received responses from the Oregon Parks and Recreation Department, the State Historic Preservation Office, the Office of the State Fire Marshall, the Water Resources Department and the Gilliam County Planning Department. The Water Resources Department expressed its concern that an authorized source of water (or temporary authorization) be secured by PGE for water use during construction. No other concerns were expressed by the reviewing agencies. No comments were received from the public.

By letter dated February 28, the Department notified PGE that additional time would be needed and that the proposed order would be issued by March 9, 2007. The Department provided PGE with a draft of the proposed order on March 2. After review of PGE’s comments, the Department notified PGE, in a memorandum dated March 9, that additional time would be needed and that the proposed order would be issued by March 26.

The Department issued its proposed order on March 14, 2007. On March 15, the Department issued a public notice requesting comments on the proposed order and setting a deadline of April 16, 2007, for comments or request for contested case. On April 30, the Department issued a Supplemental Notice on changes to Condition 9.

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\(^1\) Certificate Holder’s Request for Amendment #2 to the Site Certificate for the Biglow Canyon Wind Farm.
Comment letters were received from Keith May (Oregon Trails Advisory Council) and David Welch (Oregon-California Trails Association). Both letters addressed concern about whether adequate on-site investigation had been done to assess whether the proposed amendment would have any impact on segments of the Oregon Trail. The letters did not request a contested case hearing. The Department asked PGE to respond to these concerns. PGE provided a letter outlining the findings contained in cultural resource surveys conducted on areas within the BCWF site boundary in the locations of the historic alignment of the Oregon Trail. The Department forwarded PGE’s response to Mr. May and Mr. Welch and provided copies of the comment letters and PGE’s response to the Council.

No physical traces of the Oregon Trail have been found in any of the areas affected by the BCWF (as currently approved under the First Amended Site Certificate or as proposed under the Request for Amendment #2). Even though no evidence of intact segments of the Oregon Trail exists in the areas surveyed, the site certificate requires further on-site survey for cultural resources if there will be any ground disturbance associated with wind facility construction in areas not previously surveyed. In addition, the site certificate requires a halt to ground disturbance and notification to SHPO if any cultural resources are discovered during construction. The site certificate requires avoiding disturbance to any intact segments of the Oregon Trail discovered during construction.

Following the Council’s discussion of the Department’s Proposed Order at a meeting on May 10, 2007, the Council issued this Final Order.

III. DESCRIPTION OF THE PROPOSED AMENDMENT

PGE requests amendments to the First Amended Site Certificate for the Biglow Canyon Wind Farm that, if approved by the Council, would:

1. Authorize new access road segments outside of the previously-approved turbine micrositing corridors.
2. Authorize new collector line segments outside of the previously-approved turbine micrositing corridors.
3. Increase the area of temporary construction disturbance to include crane paths and construction area around new access road and collector line segments.
4. Expand one turbine micrositing corridor.
5. Eliminate one alternative substation location.
6. Eliminate aboveground 230-kV or 500-kV transmission lines.
7. Increase the area of temporary and permanent impacts to Category 6 habitat by approximately 33 acres; increase the area of temporary and permanent impacts to higher-value habitat by approximately 1.4 acres.
8. Add a condition requiring the certificate holder to perform a spring rare plant survey in an area crossed by a proposed new collector line segment.

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2 Letter from Keith May, Oregon Historic Trails Advisory Council (March 20, 2007); letter from David Welch, Oregon-California Trails Association (March 21, 2007).
9. Add a condition requiring the certificate holder to avoid construction impact to a stream channel and a wetland.

10. Require the certificate holder to provide resource survey information (cultural resources, rare plants and wetlands) for an alternative turbine corridor near Klondike Road in the southern portion of the project site.

11. Revise the boundaries of the habitat mitigation site.

12. Allow the certificate holder the option to use its own qualified biologists to monitor nest sites for sensitive species during construction, to perform some of the wildlife and habitat monitoring and mitigation activities required under the site certificate, to conduct revegetation monitoring and to conduct monitoring of habitat enhancement in the habitat mitigation area.

13. Eliminate one property from the previously-identified list of noise sensitive properties.

14. Eliminate the certificate holder’s option to build the facility in a single phase of construction.

15. Revise the site restoration cost estimate to account for changes to the facility described in the amendment request.

16. Allow the limited use of PGE logos on wind turbine nacelles.

1. Amendment Procedure

Under OAR 345-027-0050(1), a certificate holder must request a site certificate amendment “to design, construct, operate or retire a facility in a manner different from the description in the site certificate” if the proposed change:

a) Could result in a significant adverse impact that the Council did not evaluate and address in the final order granting a site certificate affecting any resource protected by applicable standards in Divisions 22 and 24 of this chapter;

b) Could result in a significant adverse impact that the Council did not evaluate and address in the final order granting a site certificate affecting geographic areas or human, animal or plant populations;

c) Could impair the certificate holder’s ability to comply with a site certificate condition; or

d) Could require a new condition or a change to a condition in the site certificate.

Because the proposed amendment would authorize construction outside of the site boundary previously approved by the Council, construction could have adverse impacts that the Council did not evaluate and address in the Final Order on the Application or in the Final Order on Amendment #1. Such impacts could affect the resources protected by standards in Divisions 22 and 24 and could affect geographic areas or human, animal or plant populations. The proposed amendment would impair the certificate holder’s ability to comply with current site certificate conditions and would require new conditions and changes to current conditions. For these reasons, amendment of the site certificate is needed to allow construction and operation of the BCWP as proposed in the amendment request.
The proposed amendment would enlarge the site of the BCWF facility and would
make other changes to the construction and operation of the facility allowed under the site
certificate. For those areas of where the site boundary would be enlarged, the Council must
consider whether the facility complies with all Council standards (OAR 345-027-0070(9)(a)).
For the other changes, the Council must consider the effects of the amendment on any finding
required by Council standards (OAR 345-027-0070(9)(c)).

2. Amendments to the Site Certificate as Proposed by PGE

In Attachment 1 to its request for Amendment #2, PGE proposed the following
amendments to the site certificate. Proposed additions are double-underlined and proposed
deletions have a strikethrough. The Department recommended revisions to the site certificate
that incorporate the substance of these amendments but that include additional language
consistent with PGE’s amendment requests. The Department’s recommended revisions are
discussed in Section VII.1.

Page 1, lines 7-11:

The findings of fact, reasoning and conclusions of law underlying the terms and conditions of
this site certificate are set forth in the following documents related to the facility, which are
incorporated herein by this reference: (a) the Council’s Final Order in the Matter of the
Application for a Site Certificate for the Biglow Canyon Wind Farm (the “Final Order on the
Application”); and (b) the Council’s Final Order on Amendment #4-1, and (c) the Council’s
Final Order on Amendment #2 [Amendment #1]

Page 1, lines 12-15:

In interpreting this site certificate, any ambiguity shall be clarified by reference to the
following, in order of priority: (1) this First Second Amended Site Certificate; (2) the Final
Order on Amendment #2; (3) the Final Order on Amendment #1; (3) the Final Order on the
Application; and (4) the record of the proceedings that led to the Final Orders on the
Application, Amendment #1, and Amendment #1-2, [Amendment #1]

Page 2, lines 23-30:

In the site certificate application, the certificate holder requested the flexibility, within defined
500-foot-wide turbine corridors, to defer the final selection of turbine vendor, turbine size,
number of turbines to be installed, and precise turbine layout until after the issuance of a site
certificate and prior to commencement of construction. In the site certificate application, the
certificate holder defined the range of possible turbine vendors, sizes and numbers. In the site
certificate application, the certificate holder also defined two alternative transmission line
options, two alternative substation locations, and three alternative O&M facility locations.
Subject to specific conditions, this site certificate grants that flexibility.

Page 3, lines 3-13:

a. Power Collection System. Each wind turbine will generate power at about 600 volts.
The transformer sitting at the base of each wind turbine unit will increase the voltage
to 34.5 kilovolts (kV). From the transformer, power will be transmitted to a central
substation by means of electric cables. Most of the cables will be buried three feet or
more below the surface in trenches about 3 feet wide. In areas where collector cables
from several turbine strings follow the same alignment, e.g., on approach to the
substation, multiple sets of cables may be installed within a single trench. If the
facility is fully developed, there will be about 468,000 feet (88.622 miles) of 3-wire
collector cables. Generally, these cables will be above, below or adjacent to the fiber optic cables comprising the supervisory control and data acquisition system.

Page 3, lines 23-37:

b. Substations and Interconnection System. Under one of its transmission alternatives, the certificate holder would construct a new substation in the southern section of the facility site. The substation site would be a graveled, fenced area of up to 6 acres with transformers, switching equipment and a parking area. Transformers would be non-polychlorinated biphenyl (PCB) oil-filled types. The transmission line would be about 3 miles long and would interconnect with the substation would connect with a new Bonneville Power Administration (BPA) system at the existing Klondike Schoolhouse Substation transmission. Under one alternative, the certificate holder would construct a new substation in the southern section of the facility site. Under its second transmission alternative, the certificate holder would construct a new substation near the center of the facility site. The substation site would be a graveled, fenced area of up to 6 acres with transformers, switching equipment and a parking area. Transformers would be non-PCB oil-filled types. The transmission line would be about 7 miles long and would interconnect with an electric transformer or switching facility to be installed at BPA’s John Day Substation or Switchyard for delivery of electricity to BPA’s high-voltage transmission system.

Page 4, lines 20-25:

f. Access Roads. The certificate holder will construct about 40,541.5 miles of new roads to provide access to the wind turbine strings, together with turnaround areas at the end of each wind turbine string. The roads will be about 16 feet wide (possibly up to 28 feet wide in some locations) and will be composed of crushed gravel with shoulders (without gravel) about 3 feet wide. In addition, the certificate holder will improve about 0.7 mile of existing roads by providing an all-weather surface and, in some cases, widening the roads to accommodate construction vehicles.

Page 4, after line 34:

h. Temporary Crane Paths. The certificate holder will develop seven temporary crane paths, totaling approximately 5.1 miles, in order to move construction cranes between turbine corridors. The temporary crane paths will be returned to their pre-construction condition following completion of construction of the facility.

Page 5, lines 25-30:

(5) If the certificate holder elects to build the facility in a single phase using only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of these two GE turbines, before beginning construction of the facility and after considering all micrositing factors, the certificate holder shall provide to the Department a detailed map of the proposed facility showing the final locations where facility components are proposed to be built within the 500 foot-wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement [Deleted].

Page 5, lines 31-40, and page 6, lines 1-3:

(6) If the certificate holder proposes to build the facility in more than one phase using only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of these two GE turbines, before beginning construction of any phase of the facility and after considering all micrositing factors, the certificate holder shall provide to the Department a detailed map of that phase of the facility showing the final locations where facility components are
proposed to be built within the 500-foot-wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement, shall identify on this map the facilities that would constitute that phase of construction: GE 1.5-MW turbines, GE 3.0-MW turbines, pad transformers, meteorological towers, substation, O&M facility, miles of 230 kV or 500 kV transmission line, miles of aboveground 34.5-kV collector system, miles of access road, acres of turnarounds and access road intersections, and acres of temporary laydown area, and miles of temporary crane paths.

Page 6, lines 4-16:

(7) If the certificate holder elects to build the facility in a single phase using any turbines other than the GE 1.5 MW turbines or GE 3.0 MW turbines, before beginning construction of the facility and after considering all micrositing factors, the certificate holder shall provide to the Department a detailed map of the proposed facility showing the final locations where facility components are proposed to be built within the 500-foot-wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement. The certificate holder shall include with this map documentation defining quantities of each of the following components that would constitute the complete facility: turbines, pad transformers, meteorological towers, substation, O&M facility, miles of 230 kV or 500 kV transmission line, miles of aboveground 34.5-kV collector system, miles of access road, acres of turnarounds and access road intersections, and acres of temporary laydown area. For each turbine, the certificate shall define the turbine manufacturer, turbine capacity, weight of steel, height of tower, sweep of blade, and size of concrete foundation.

Page 6, lines 17-30:

(8) If the certificate holder elects to build the facility in more than one phase using any turbines other than the GE 1.5 MW turbines or GE 3.0 MW turbines, before beginning construction of any phase of the facility and after considering all micrositing factors, the certificate holder shall provide to the Department a detailed map of that phase of the facility showing the final locations where facility components are proposed to be built within the 500-foot-wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement, shall identify on this map the facilities that would constitute that phase of construction, and shall provide documentation defining the quantities of each of the following components that would constitute that phase of construction: turbines, pad transformers, meteorological towers, substation, O&M facility, miles of 230 kV or 500 kV transmission line, miles of aboveground 34.5-kV collector system, miles of access road, acres of turnarounds and access road intersections, and acres of temporary laydown area, and miles of temporary crane paths. For each turbine, the certificate shall define the turbine manufacturer, turbine capacity, weight of steel, height of tower, sweep of blade, and size of concrete foundation.

Page 6, lines 31-45, and page 7, lines 1-15:

(9) If the certificate holder elects to build the facility in a single phase using only GE 1.5 MW turbines, GE 3.0 MW turbines or a combination of these two GE turbines, before beginning construction of the facility the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit in the amount of $6,208 million (in 2005 dollars) naming the State of Oregon, acting by and through the Council as beneficiary or payee. If the certificate holder elects to build the facility in a single phase using any turbines other than the GE 1.5 MW or GE 3.0 MW turbines or if the
certificate holder elects to build the facility in more than one phase using any combination of turbines, before beginning construction of any phase of the facility, the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee in the amount (in 2005 dollars) determined by the Department as the gross cost of demolition and site restoration minus the carbon steel scrap value plus the one-percent performance bond amount, ten-percent administration and project management costs and twenty-percent future developments contingency applicable to the proposed phase of construction, together with any previous phases of construction. If the certificate holder elects to build the facility in more than one phase using only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of the two GE turbines, the Department will establish the amount of the bond or letter of credit by applying the unit costs described in Table 5 of the Council's final order on the site certificate application (incorporated herein by this reference) to the number of units identified by the certificate holder and verified by the Department as applicable to the proposed phase and any previous phases of construction and adding to that subtotal the one-percent performance bond amount, ten-percent administration and project management costs and twenty-percent future developments contingency. If the certificate holder elects to build the facility using any turbines other than the GE 1.5-MW turbines or GE 3.0-MW turbines, for each phase of construction the Department will establish the amount of the bond or letter of credit by using its Facility Retirement Cost Estimating Guide to estimate the gross cost of demolition and site restoration minus the carbon steel scrap value plus the one-percent performance bond amount, ten-percent administration and project management costs and twenty-percent future developments contingency.

Page 9, lines 13-18:

(21) The certificate holder shall locate access roads and temporary construction laydown and staging areas to minimize disturbance with farming practices and, wherever feasible, shall place turbines and transmission interconnection lines along the margins of cultivated areas to reduce the potential for conflict with farm operations. The certificate holder shall place aboveground transmission and collector lines and junction boxes along property lines and public road rights-of-way to the extent practicable.

Page 14, lines 13-29:

In addition, the certificate holder shall flag the boundaries of the 1300-foot buffer area, or such lesser distance as may be approved by the Department in the event there is an adequate physical barrier between the nest site and the construction impacts, and shall instruct construction personnel to avoid any unnecessary activity within the buffer area. The certificate holder shall direct a qualified independent third-party biological monitor, as approved by the Department, to observe the active nest sites during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with this condition. If the monitor observes nest site abandonment or other adverse impact to nesting activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of the Department, unless the adverse impact is clearly shown to have a cause other than construction activity. The certificate holder may begin or resume high impact construction activities before the ending day of the sensitive period if any known nest site is not occupied by the early release date. If a nest site is occupied, then the certificate holder may begin or resume high-impact construction before the ending day of the sensitive period with the approval of ODFW, after the young are fledged. The certificate holder shall use a protocol
approved by ODFW to determine when the young are fledged (the young are independent of the core nest site).

Page 15, lines 23-35:

(69) Before beginning construction of any phase of the facility, the certificate holder shall provide to the Department a map showing the final design locations of all components of that phase of the facility and areas that would be temporarily disturbed during construction and also showing the areas surveyed by CH2M Hill and Archaeological Investigations Northwest, Inc. (AINW) in preparing the Cultural Resources Survey for Biglow Canyon Wind Farm included in the site certificate application as Attachment S-1 and in Request for Amendment #2 as Attachment 15. The certificate holder shall hire qualified personnel to conduct field investigation of all areas of permanent or temporary disturbance that CH2M Hill and AINW did not previously survey and shall provide to the Department a written report of the field investigation. If any significant historic, cultural or archaeological resources are found during the field investigation, the certificate holder shall ensure that construction and operation of the facility will have no impact on the resources. The certificate holder shall instruct all construction personnel to avoid areas where the resources were found and shall implement other appropriate measures to protect the resources.

Page 18, lines 38-42, and page 19, lines 1-3:

(90) If the GE 1.5-MW turbines (for which the certificate holder states the maximum sound power level warranted by the manufacturer is 104 dBA) or the GE 3.0-MW turbines (provided the certificate holder is able to demonstrate, by means of the manufacturer’s warranty or other means acceptable to the Department, that the maximum sound power level of the GE 3.0-MW turbine is 106 dBA) will be used at the facility, before beginning construction, the certificate holder shall present information demonstrating to the satisfaction of the Department that each of the following requirements have been met at all 25 properties identified as noise sensitive properties in the site certificate application, with the exception of the property identified as R14:

Page 10, lines 6-15:

(91) If turbines other than the GE 1.5-MW turbines (for which the certificate holder states the maximum sound power level warranted by the manufacturer is 104 dBA) or the GE 3.0-MW turbines (for which the certificate holder has assumed a maximum sound power level of 106 dBA) will be used at the facility, before beginning construction of the facility the certificate holder shall identify the final design locations of all turbines to be built, perform a complete new noise analysis for all turbines, and generate a new table listing each noise sensitive property, as defined in OAR 340-035-0015(3), identified in the site certificate application, with the exception of the property identified as R14, and the predicted maximum hourly L_{eq} noise level at each noise sensitive property. The certificate holder shall perform the noise analysis using the CADNA/A by DataKustik GmbH of Munich, Germany, and shall assume the following input parameters:

Page 27, following line 14:

VI. CONDITIONS RELATING TO AMENDMENT #2

(126) Prior to any disturbance in the areas of the site added in the Final Order for Amendment #2, the certificate holder shall deliver to the Department the results of a spring survey of Crossing G, conducted during the appropriate bloom time for Northern wormwood and Henderson’s ricegrass.
The certificate holder shall avoid any disturbance, including the placement of poles for the collector line, within 25 feet of the stream channel in the area identified as Crossing G in the Request for Amendment #2.

The remaining sections of the site certificate would be renumbered, following the proposed new Section VI, shown above.

In addition to proposing changes to the language of the site certificate, PGE proposes changes to the Wildlife Monitoring and Mitigation Plan (incorporated in Condition 61), the Revegetation Plan (incorporated in Condition 62) and the Habitat Mitigation Plan (incorporated in Condition 63). The proposed changes to these plans would adjust the estimated amount of habitat acres that would be affected by the facility due to the changes requested in the amendment. In addition, proposed changes to these plans would give PGE the option to use qualified PGE staff biologists instead of qualified, independent, third-party biologists to perform certain monitoring functions, as discussed below in Section IV.4(b).

During the Department’s review of the amendment request, PGE asked the Department to consider a change to Condition 50 to allow the use its company logo on up to 20 percent of the turbine nacelles. Condition 50 was included in the site certificate in support of the findings of compliance with OAR 345-024-0015, the Council’s Siting Standards for Wind Energy Facilities. PGE asked that its request to modify Condition 50 be included in its amendment request. PGE proposed the language discussed at page 32.

3. Description of the Facility as Authorized by Amendment #2

If the Council approves Amendment #2, the certificate holder would be authorized to construct and operate the BCWF facility as described in the Final Order on the Application, except as modified by the changes described below.

Turbine Selection

The facility as approved by the Final Order on the Application authorizes the construction of a wind energy facility consisting of up to 225 turbines with a combined peak capacity of up to 450 MW. Before beginning construction of any phase of the project, the certificate holder must submit a detailed configuration plan to the Department, identifying the number, capacity and type of turbines to be built in that phase (Condition 8).

The site certificate allows the certificate holder to select the final turbine locations within approved turbine micrositing corridors, described as “the 500-foot-wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement.” During the review of this amendment request, the Department asked PGE to provide a written description of these corridors. The description would serve as a basis for formulating the legal description of the site that is required under Condition 102. PGE provided a table of coordinates describing the locations of the turbine micrositing corridors.

PGE’s amendment request includes the expansion of one of the previously-approved turbine micrositing corridors. The proposed expansion would restore the full corridor width that had originally been proposed in the site certificate application. The western half of the

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1 E-mail from Rick Tetzloff, February 1, 2006.
2 E-mail from Rick Tetzloff, March 2, 2007, with attachment (“Site Corridor_Description_3-2-07.xls”).
proposed corridor was removed from the project before site certificate approval, because the property owner had not granted the rights necessary for the certificate holder to use that area. PGE has since obtained the necessary rights and requests that the western half of the corridor be restored as part of the micrositing corridor. The location of this requested expansion is shown on Figure 1a of the amendment request (labeled as “Full Corridor Width and Facilities Restored”).

**Power Collection System**

The current site certificate describes a power collection system consisting of aboveground and underground 34.5-kV transmission lines. The site certificate authorized up to 88.6 miles of collector lines. The lines would be underground, except for aboveground segments necessary in areas of steep terrain or necessary to avoid impacts to high-value habitat or to avoid interference with farming practices. Location of the power collection system is subject to Condition 21, which requires that aboveground collector lines and junction boxes be located along property lines and public road rights-of-way to the extent practicable. The site certificate limits aboveground segments to a combined total of 15 miles. In the site certificate, the proposed locations of collection system components outside of the turbine micrositing corridors were identified by reference to the site certificate application. The Final Order on the Application incorporated by reference Revised Figures C-2 and C-2a of the application to establish the approved location of the facility and its related or supporting facilities.

Under the proposed amendment, PGE would be allowed to construct an additional 4.1 miles of collector line outside of the previously approved turbine micrositing corridors. The location of three new collector line segments are shown on Figure 1a (labeled “Electrical Route Added”). During the review of this amendment request, the Department asked PGE to provide a written description of the location of all project features that would be located outside the turbine micrositing corridors. PGE provided a table of coordinates describing the locations of these features, including micrositing corridors for collector lines.

If the Council approves Amendment #2, the certificate holder would be allowed to construct a power collection system that includes up to 99 miles of collector cables. This is an overall increase of 10.4 miles, most of which would be located within the previously-approved turbine corridors.

**Substations and Interconnection System**

The site certificate authorized the construction of a project substation. The site certificate authorized two “transmission alternatives,” allowing the certificate holder to choose between two possible locations for the substation.

In the amendment request, PGE stated its intention to develop the BCWF under the “second transmission alternative” and to locate the substation in the approved location on

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6 References to Figure 1a herein are to the figure as revised by e-mail from Rick Tetzloff, March 1, 2007, with attachment (“p1r2Figure1a_3-1-07.pdf”).
7 Final Order on the Application, p. 9, fn. 2, and p. 12, lines 1-2. Revised Figures C-2 and C-2a were included in the application supplement.
8 E-mail from Rick Tetzloff, March 2, 2007, with attachment (“Site Corridor_Description_3-2-07.xls”).
Herin Lane near the center of the site, as shown on Figure 1a. This intention was not
reflected in the proposed amended text of the site certificate, which appeared to preserve two
alternative locations for the substation. During the review of the amendment request, the
Department asked PGE to clarify the amendment request regarding the substation location.
PGE confirmed that it does not intend to use the “Secondary O&M Facility” location shown
on Figure 1a as an optional substation location. The Department recommended a revision of
the site certificate text to conform to this clarification, as discussed in Revision 5 below.

The site certificate authorized the construction of a transmission line to connect the
substation with the point of interconnection with the Bonneville Power Administration (BPA)
Federal Columbia River Transmission System. The site certificate authorized two
transmission line alternatives: a 3-mile transmission line to interconnect at the Klondike
Schoolhouse Substation or a 7-mile transmission line to interconnect with new BPA
equipment at the John Day Substation or Switchyard.

As described in the BPA “Record of Decision for the Klondike III/Biglow Canyon
Wind Integration Project,” dated October 25, 2006, and included as Attachment 7 of PGE’s
request for Amendment #2, BPA will construct, own and operate a 12-mile transmission line
from the Klondike Schoolhouse Substation to a new John Day Substation located next to its
existing 500-kV John Day Substation. The BPA transmission line route runs adjacent to the
BCWF substation site. BPA will provide interconnection services for the BCWF at the BCWF
substation.

Because of BPA’s decision to construct the transmission system upgrades described
above, it is no longer necessary for the BCWF site certificate to include the two previously-
approved alternative transmission lines as related or supporting facilities. The Department
recommended that the Council adopt a change to the site certificate to remove the
transmission lines as discussed in Revision 5.

Meteorological Towers

The site certificate authorized the certificate holder to construct up to 10
meteorological (met) towers throughout the facility site. Each tower would be up to 85 meters
(279 feet) tall. During the review of the amendment request, PGE requested the flexibility to
locate met towers within micrositing corridors. PGE explained that this flexibility is needed
because the met towers must be located within a specific rotor diameter distance from the
nearest wind turbine to comply with turbine testing standards. As the wind turbines for each
phase are microsited, the corresponding met towers can be located appropriately within an
approved micrositing area. The Department recommended changes to the site certificate to
allow this flexibility, as discussed in Revision 2.

Operations and Maintenance Building

The site certificate authorized three possible locations for the O&M facility. During
the review of the amendment request, PGE confirmed that it does not intend to use the
“Secondary O&M Facility” location shown on Figure 1a or the location at the site of an

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9 In the Proposed Order, the Department erroneously referred to “the intersection of Herin Lane and North
Klondike Road.” These roads do not intersect.
10 See page 5 above, PGE’s proposed changes to the site certificate at “Page 3, lines 23-37.”
11 E-mail from Rick Tetzloff, January 16, 2007. The met tower corridors are further described in “Site
Corridor_Description_3-2-07.xls” (attachment to e-mail from Rick Tetzloff, March 2, 2007)
existing house on Emigrant Lane. The Department recommended amendment of the site
certificate text to specify a single approved location for the O&M facility, as discussed in
Revision 6.

Access Roads

As described in the current site certificate, the certificate holder would be allowed to
construct approximately 40.5 miles of roads to provide access to the turbine strings. Under the
proposed amendment, the certificate holder would be allowed to construct 41.5 miles of
access roads. A new access road segment, approximately 0.68 miles in length, would be
allowed outside of the previously-approved turbine micrositing corridors. The location of this
new road is shown on Figure 1a (labeled “Road Added”). In addition, PGE proposes to add
access road segments within the approved turbine micrositing corridors. During the review of
the amendment request, the Department asked PGE to provide a written description of the
location of all project features that would be located outside the turbine micrositing corridors.
PGE provided a table of coordinates describing the locations of these features.\textsuperscript{12}

Construction Disturbance Areas

Under the proposed amendment, the total area of potential disturbance during
construction, outside of the area occupied by permanent facility components, would be
approximately 416 acres, compared to approximately 388 acres described in the Final Order
on the Application.\textsuperscript{13} The increased area of construction disturbance is due to the proposed
new access road segments, new collector line segments and crane paths. Allowing the
disturbance from crane paths would enable construction to proceed more efficiently by
reducing the distance that large construction cranes would have to travel between turbine
strings. The locations of proposed crane path disturbance and other construction areas are
shown on Figure 1a.

The Site and Site Boundary

For the purpose of analysis of the proposed amendment, the “site boundary” is the
perimeter of the site of the proposed energy facility, its related or supporting facilities, all
construction laydown and staging areas and all micrositing corridors for turbine strings, roads,
collector lines and crane paths, as shown on Figure 1a.

As required under Condition 102, before beginning construction of the facility, the
certificate holder must determine final locations of turbines, met towers, O&M and substation
structures, roads and collector lines and must submit a legal description of the facility site to
the Department. The facility “site,” as defined under ORS 469.300, includes all land upon
which the energy facility and its related or supporting facilities are located, including
permanent site corridors for turbine strings. If Amendment #2 were approved, the site would
include the area occupied by the following components:

- **Turbine corridors** – The site includes the area within the 500-foot-wide turbine
  micrositing corridors as modified by Amendment #2 and described by a table of
  “Wind Turbine Generator String Coordinates” submitted by PGE.\textsuperscript{14}

\textsuperscript{12} E-mail from Rick Tetzloff, March 2, 2007, with attachment (“Site Corridor_Description_3-2-07.xls”).
\textsuperscript{13} Table 10, Final Order on the Application, p. 99.
\textsuperscript{14} E-mail from Rick Tetzloff, March 2, 2007, with attachment (“Site Corridor_Description_3-2-07.xls”).
• **Underground data lines** – The site includes the area within 20 feet of the centerline of underground Supervisory Control and Data Acquisition System (SCADA) data lines.

• **Meteorological towers and data lines** – The site includes the ten proposed meteorological towers and foundations, each occupying an area of about 900 square feet (0.02 acre), and the 20-foot-wide route of the underground SCADA lines to the met towers.

• **Collector transmission lines** – The site includes the area within 20 feet of the centerline of all underground and aboveground collector lines.

• **Access roads** – The site includes the area within 34 feet of the centerline of all turbine string access roads.15

• **Substation** – The site includes a 6-acre substation area.

• **O&M Building** – The site includes a 5-acre site O&M building area.

**IV. THE COUNCIL’S SITING STANDARDS: FINDINGS AND CONCLUSIONS**

The Council must decide whether the amendment complies with the facility siting standards adopted by the Council. In addition, the Council must impose conditions for the protection of the public health and safety, for the time of commencement and completion of construction and for ensuring compliance with the standards, statutes and rules addressed in the project order. ORS 469.401(2).

The Council is not authorized to determine compliance with regulatory programs that have been delegated to another state agency by the federal government. ORS 469.503(3). Nevertheless, the Council may consider these programs in the context of its own standards to ensure public health and safety, resource efficiency and protection of the environment.

The Council has no jurisdiction over design or operational issues that do not relate to siting, such as matters relating to employee health and safety, building code compliance, wage and hour or other labor regulations, or local government fees and charges. ORS 469.401(4).

In making its decision on an amendment of a site certificate, the Council applies the applicable state statutes, administrative rules and local government ordinances that are in effect on the date the Council makes its decision, except when applying the Land Use Standard. In making findings on the Land Use Standard, the Council applies the applicable substantive criteria in effect on the date the certificate holder submitted the request for amendment. OAR 345-027-0070(9).

1. **General Standard of Review**

   **OAR 345-022-0000**

   (1) To issue a site certificate for a proposed facility or to amend a site certificate, the Council shall determine that the preponderance of evidence on the record supports the following conclusions:

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15 Although the width is not specifically stated in the Final Order on the Application, the roads are described as up to 28 feet wide, plus 3-foot shoulders, in the amended language proposed by PGE.
(a) The facility complies with the requirements of the Oregon Energy Facility Siting statutes, ORS 469.300 to ORS 469.570 and 469.590 to 469.619, and the standards adopted by the Council pursuant to ORS 469.501 or the overall public benefits of the facility outweigh the damage to the resources protected by the standards the facility does not meet as described in section (2);

(b) Except as provided in OAR 345-022-0030 for land use compliance and except for those statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council, the facility complies with all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility. If the Council finds that applicable Oregon statutes and rules, other than those involving federally delegated programs, would impose conflicting requirements, the Council shall resolve the conflict consistent with the public interest. In resolving the conflict, the council cannot waive any applicable state statute.

* * *

We address the requirements of OAR 345-022-0000 in the findings of fact, reasoning, conditions and conclusions of law discussed in the sections that follow. Upon consideration of all of the evidence in the record, we state our general conclusion regarding the amendment request in Section VII.

2. Standards about the Applicant

(a) Organizational Expertise

OAR 345-022-0010

(1) To issue a site certificate, the Council must find that the applicant has the organizational expertise to construct, operate and retire the proposed facility in compliance with Council standards and conditions of the site certificate. To conclude that the applicant has this expertise, the Council must find that the applicant has demonstrated the ability to design, construct and operate the proposed facility in compliance with site certificate conditions and in a manner that protects public health and safety and has demonstrated the ability to restore the site to a useful, non-hazardous condition. The Council may consider the applicant’s experience, the applicant’s access to technical expertise and the applicant’s past performance in constructing, operating and retiring other facilities, including, but not limited to, the number and severity of regulatory citations issued to the applicant.

(2) The Council may base its findings under section (1) on a rebuttable presumption that an applicant has organizational, managerial and technical expertise, if the applicant has an ISO 9000 or ISO 14000 certified program and proposes to design, construct and operate the facility according to that program.

(3) If the applicant does not itself obtain a state or local government permit or approval for which the Council would ordinarily determine compliance but instead relies on a permit or approval issued to a third party, the Council, to issue
a site certificate, must find that the third party has, or has a reasonable likelihood
of obtaining, the necessary permit or approval, and that the applicant has, or has
a reasonable likelihood of entering into, a contractual or other arrangement with
the third party for access to the resource or service secured by that permit or
approval.

(4) If the applicant relies on a permit or approval issued to a third party and the
third party does not have the necessary permit or approval at the time the Council
issues the site certificate, the Council may issue the site certificate subject to the
condition that the certificate holder shall not commence construction or operation
as appropriate until the third party has obtained the necessary permit or approval
and the applicant has a contract or other arrangement for access to the resource
or service secured by that permit or approval.

Findings of Fact

In the Final Order on Amendment #1, the Council found that PGE has adequate
organizational expertise to construct, operate and retire the proposed BCWF. None of the
changes proposed by PGE in the request for Amendment #2 affect the organizational
expertise available to PGE to design, construct, operate and retire the facility. The Council
finds that no changes to Conditions 1, 2, 3 and 4 of the site certificate are needed. The Council
finds that the proposed changes would not affect the Council’s previous finding and that there
have been no changes of circumstances or underlying facts that would affect that finding.

Conclusions of Law

Based on the findings stated above, the Council concludes that PGE would meet the
Council’s Organizational Expertise Standard if Amendment #2 were approved.

(b) Retirement and Financial Assurance

OAR 345-022-0050

To issue a site certificate, the Council must find that:

(1) The site, taking into account mitigation, can be restored adequately to a useful,
non-hazardous condition following permanent cessation of construction or
operation of the facility.

(2) The applicant has a reasonable likelihood of obtaining a bond or letter of
credit in a form and amount satisfactory to the Council to restore the site to a
useful, non-hazardous condition.

Findings of Fact

A. Site Restoration

The Department analyzed the effect of the proposed changes in the facility on the
estimated cost of site restoration. Under Amendment #2, the following proposed changes
could affect the cost of site restoration:

- Increased area occupied by access roads
- Elimination of aboveground 230-kV or 500kV transmission lines
Additional area of site restoration disturbance beyond the footprint

Site restoration would be done as described in the Final Order on the Application. Approval of Amendment #2 would not affect the Council's previous finding that the site can be adequately restored to a useful, non-hazardous condition.

B. Estimated Cost of Site Restoration

To provide a fund that is adequate for the State of Oregon to bear the cost of site restoration if the certificate holder fails to fulfill its obligations, the Council assumes circumstances under which the restoration cost would be greatest. In the Final Order on the Application, the Council found that the greatest site restoration cost would result from the "150-turbine John Day Alternative." Under this configuration, the certificate holder was authorized to construct 150 GE 3.0-MW turbines with a 7-mile transmission line interconnecting the facility with the BPA John Day Substation. The Council estimated the site restoration cost under that configuration would be $6.208 million (2005 dollars). Condition 9 of the site certificate requires the certificate holder to submit a bond or letter of credit in this amount (adjusted to present value) if the certificate holder chooses to build the facility in a single phase using only GE 1.5-MW turbines and GE 3.0-MW turbines.

After submitting the Request for Amendment #2, PGE notified the Department of its intention to begin a phased construction of the BCWF. In Phase 1, PGE proposed to build 76 wind turbines, two met towers, a substation, an O&M facility, approximately 14 miles of access road and related components of the power collection system. In Phase 1, PGE proposed to use Vestas V82 1.65-MW wind turbines. Under Condition 9, if the certificate holder chooses to use a turbine type other than the GE 1.5-MW or 3.0-MW turbines described in the site certificate, the Department is to establish the financial assurance amount for Phase 1 based on the same methodology the Department used to develop the unit costs for the GE 1.5-MW turbines and GE 3.0-MW turbines.¹⁶

¹⁶The "Facility Retirement Cost Estimating Guide" referenced in the site certificate is a cost-estimating method that the Department uses to estimate retirement costs. In agreeing to the terms and conditions of the site certificate, PGE has agreed to the use of the Guide as a method of estimating site restoration costs.
Table 1: Phase 1 Cost Estimate for Site Restoration

<table>
<thead>
<tr>
<th>Cost Estimate Component</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Turbines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disconnect electrical and ready for disassembly (per turbine)</td>
<td>76</td>
<td>$953</td>
<td>$72,428</td>
</tr>
<tr>
<td>Remove turbine blades, hubs and nacelles (per turbine)</td>
<td>76</td>
<td>$5,058</td>
<td>$384,408</td>
</tr>
<tr>
<td>Remove turbine towers (per net ton of steel)</td>
<td>16,720</td>
<td>$65</td>
<td>$1,086,800</td>
</tr>
<tr>
<td>Remove and load pad transformers (per turbine)</td>
<td>76</td>
<td>$2,186</td>
<td>$166,136</td>
</tr>
<tr>
<td>Foundation and transformer pad removal (per cubic yard of concrete)</td>
<td>13,528</td>
<td>$31</td>
<td>$419,368</td>
</tr>
<tr>
<td>Restore turbine turnouts (per turbine)</td>
<td>76</td>
<td>$1,186</td>
<td>$90,136</td>
</tr>
<tr>
<td><strong>Met Towers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dismantle and dispose of met towers (per tower)</td>
<td>2</td>
<td>$8,348</td>
<td>$16,696</td>
</tr>
<tr>
<td><strong>Substation and O&amp;M Building</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dismantle and dispose of substation</td>
<td>1</td>
<td>$215,244</td>
<td>$215,244</td>
</tr>
<tr>
<td>Dismantle and dispose of O&amp;M building</td>
<td>1</td>
<td>$103,608</td>
<td>$103,608</td>
</tr>
<tr>
<td><strong>Transmission Lines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of 34.5 kV aboveground transmission line (per mile)</td>
<td>0.1</td>
<td>$3,851</td>
<td>$385</td>
</tr>
<tr>
<td>Junction boxes - remove electrical to 4' below grade (each)</td>
<td>7</td>
<td>$1,284</td>
<td>$8,988</td>
</tr>
<tr>
<td><strong>Access Roads</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road removal, grading and seeding (per mile)</td>
<td>14.28</td>
<td>$47,450</td>
<td>$677,586</td>
</tr>
<tr>
<td>Access road intersection and turnaround removal (per acre)</td>
<td>2.13</td>
<td>$18,539</td>
<td>$39,488</td>
</tr>
<tr>
<td><strong>Temporary Areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restore area disturbed during restoration work (per acre)</td>
<td>72.93</td>
<td>$2,696</td>
<td>$196,619</td>
</tr>
<tr>
<td><strong>General Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permits, mobilization, engineering, overhead, utility disconnects</td>
<td></td>
<td></td>
<td>$431,183</td>
</tr>
<tr>
<td>Gross Cost (2005 Dollars)</td>
<td></td>
<td>$3,909,073</td>
<td></td>
</tr>
<tr>
<td>Less scrap value (per ton, 2005 dollars)</td>
<td>16,720</td>
<td>($149)</td>
<td>($2,491,280)</td>
</tr>
<tr>
<td>Adjusted Gross Cost (1st Quarter 2007 dollars)</td>
<td></td>
<td>$4,080,604</td>
<td></td>
</tr>
<tr>
<td>Less adjusted scrap value (Condition 9(a)(ii))</td>
<td></td>
<td>($2,853,468)</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>$1,227,136</td>
<td></td>
</tr>
<tr>
<td>Performance Bond</td>
<td>1%</td>
<td>$12,271</td>
<td></td>
</tr>
<tr>
<td>Administration and Project Management</td>
<td>10%</td>
<td>$122,714</td>
<td></td>
</tr>
<tr>
<td>Future Developments Contingency</td>
<td>20%</td>
<td>$245,427</td>
<td></td>
</tr>
<tr>
<td><strong>Total Site Restoration Cost (rounded to nearest $1,000)</strong></td>
<td></td>
<td></td>
<td>$1,608,000</td>
</tr>
</tbody>
</table>

1. Table 1 shows the financial assurance amount for Phase 1 as established by the Department. PGE submitted a letter of credit in the amount of $1.608 million before beginning construction of Phase 1.

As a result of concerns expressed by Council members regarding the adequacy of financial assurance, the Department conducted an internal review of the risks involved in allowing a deduction for scrap or salvage value in calculating the financial assurance amount. In recent site certificate proceedings (including the BCWF proceedings), the Department based its recommendations on the understanding that the State would have an enforceable claim to the scrap value unencumbered by the claims of creditors or other third parties. In a

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17 In accordance with Condition 9, the gross cost in 2005 dollars is adjusted to present value by application of the Gross Domestic Product (GDP) Implicit Price Deflator for the first quarter 2007 divided by the annual GDP Implicit Price Deflator for 2005 or 117.6907/112.7435.

18 In accordance with Condition 9, the estimated carbon steel scrap value is adjusted by application of the average monthly Producer Price Index (PPI) value for carbon steel scrap for the twelve months ending with December 2006 divided by the average monthly PPI value for carbon steel scrap for the twelve months ending with December 2005 or 317.5/277.2.
memo dated December 8, 2006, to site certificate holders and applicants, the Department
carried that there was a significant risk that the scrap or salvage value might be
inaccessible and unavailable to the State. After internal discussion and a presentation of the
issue to the Council, the Department recommended that in pending and future site certificate
proceedings, the Council should not include a deduction for scrap or salvage value in
calculating the appropriate financial assurance amount.

The facts and circumstances underlying the Council’s previous findings regarding
financial assurance have changed due to: (1) PGE’s decision to build the BCWF in phases
using turbines other than GE 1.5-MW or 3.0-MW turbines; and (2) the Department’s
reevaluation of the issue and recommendation that the scrap or salvage value of the turbines
should not be deducted because it may not be recoverable at the time of site restoration. The
Council, therefore, must re-evaluate the appropriate financial assurance amount based on the
estimated cost of site restoration if the certificate holder fails to fulfill its obligations,
assuming circumstances under which the restoration cost would be greatest.

With respect to Phase 1 and as detailed in Table 1, the Department’s gross cost
estimate of the amount necessary to restore the site is $3,909,060 (in 2005 dollars), not
including recommended adders for the performance bond, administration and project
management costs and future developments contingency. In commenting on a draft of the
Department’s proposed order on this amendment, PGE questioned whether a 20-percent
future developments contingency adder was appropriate, given the Department’s
recommendation to eliminate a deduction for scrap value. Without a deduction for scrap
value, the estimated gross cost of site restoration is substantially higher, and because the
contingency adder is based on a percentage of estimated gross costs, the dollar amount of a
20-percent contingency adder is substantially higher as well.

The Department reconsidered the contingency adder in light of PGE’s comments. A
future developments contingency adder is needed to account for uncertainty in estimating the
future costs of site restoration. If site restoration becomes necessary, it might be many years in
the future. Other factors contribute to uncertainty; for example, different environmental
standards or other legal requirements might be in place in the future, changes in the location
of available disposal sites or the cost of disposal of demolition debris could affect restoration
costs and the costs of labor and equipment might increase over time at a rate exceeding the
standard inflation adjustment.

Reducing the future developments contingency adder for the BCWF may be justified,
based on the following considerations:

- The risk that the facility might become uneconomical to operate, resulting in a
default by the certificate holder and the consequent necessity for the Council to
restore the site, is not as great for wind energy facilities compared to other types of
energy facilities because the “fuel” is both renewable and available at the location
of the generator. Wind facilities have no exposure to the cost and supply
uncertainties of a fuel market and are not dependent on a fuel delivery system. No
pipelines or other infrastructure are needed to bring the “fuel” to the location
where the power is generated. Instead, wind turbines are located where an
adequate wind energy resource can be found, and the “fuel” is available at no cost.

- There is little or no risk of an unanticipated hazardous material leak or spill that
could result in significant future clean-up costs. Unlike other energy facilities, a
wind facility has no on-site storage tanks containing hazardous materials. Only
small quantities of hazardous materials (lubricants, oils, greases, antifreeze,
cleaners, degreasers and hydraulic fluids) are used or stored on-site. Wind turbine
nacelles are designed to contain any spillage that might occur during servicing of
the wind turbines.

- Operators of wind facilities have the option to “re-power” the facility by replacing
individual turbines rather than shutting down the entire facility, unlike other types
of energy generation facilities that have a more limited useful life. The modular
nature of a wind energy facility makes it possible to replace individual turbines
when they become uneconomical to operate. This feature increases the long-term
economic viability of a wind facility and reduces the risk of facility closure and
default by the certificate holder.

For the reasons discussed above, there is a reduced risk of unanticipated site
restoration costs that would be borne by the State due to uncertain future developments. In
consideration of the reduced risk, the Council finds that the future developments contingency
adder for the BCWF can be reduced from 20-percent to 10-percent.

The Department recommended that the Council retain the 1-percent Performance
Bond and 10-percent Administration and Project Management adders. A demolition
contractor would include the cost of a performance bond in the amount of the bid for the job.
The bond cost is generally a percentage of the contract amount, based what is common in the
industry. The State does not set the percentage. The Department believes that 1-percent is a
conservative estimate for this bond, although it could be more. The Department believes that
administration and project management costs should be based on the true gross cost of site
restoration. Under the current site certificate, administrative and project management costs are
instead based on gross cost less scrap value. This gives an unintended additional “credit” for
scrap value by lowering the funds available for administration and project management.

Table 2 shows a revised estimate for site restoration, based on the facility components
being built by PGE in Phase 1. The estimate removes the scrap value deduction and applies
the performance bond adder, the administration and project management adder and a reduced
future developments contingency adder to the gross cost. The Council finds that the financial
assurance amount for Phase 1 is $4.73 million (in 2005 dollars), as shown in Table 2.
Table 2: Phase I Site Restoration Cost Estimate (no deduction for scrap value)

<table>
<thead>
<tr>
<th>Gross Cost (2005 Dollars)</th>
<th>$3,999,060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Bond</td>
<td>1%</td>
</tr>
<tr>
<td>Administration and Project</td>
<td>10%</td>
</tr>
<tr>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Future Developments Contingency</td>
<td>10%</td>
</tr>
<tr>
<td>Total Site Restoration Cost</td>
<td></td>
</tr>
<tr>
<td>(2005 dollars, rounded to nearest $1,000)</td>
<td></td>
</tr>
</tbody>
</table>

The site certificate authorizes the construction of up to 450 MW of wind generation (peak capacity) and up to 225 wind turbines. In Phase 1, PGE will build 76 turbines and 1.254 MW of generating capacity. PGE has not determined how much additional generating capacity could be built within the balance of the approved micrositing area, and PGE has not decided what turbine type it would use in future phases or the number of turbines it would build. PGE notes that the wind resource and available land impose natural restrictions on how many turbines and what size turbines can be installed economically at the BCWF. PGE has requested that the limit of 225 turbines or 450 MW be retained under the site certificate to provide a conservative envelope for estimating impacts and site restoration costs for the full build-out of the project.

Based on the range of generating capacity and total number of turbines as described in the Final Order on the Application, the Department re-analyzed site restoration costs for the full project build-out. The Department used the line items and unit costs shown above for Phase 1 but eliminated the interconnection transmission lines (that would be removed under Amendment #2). The Department did not include any deduction for scrap value, but the Department reduced the future developments contingency adder to 10-percent. The Department’s analysis demonstrated that a project consisting of 225 1.5-MW turbines would result in the highest estimated site restoration cost. This result differs from the Council’s finding in the Final Order on the Application that the 150-turbine “John Day Alternative” would produce the highest estimated site restoration cost. The estimated site restoration costs (in 2005 dollars), assuming a 225 turbine configuration, are detailed below in Table 3.

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19 As described in the Final Order on the Application, a maximum of 450 MW of generating capacity could be developed if each turbine had a 3.0-MW capacity and as many as 225 turbines could be built if each turbine had a generating capacity of 1.5-MW.

20 E-mail from Rick Tetzloff, February 6, 2007.

21 Final Order on the Application, p. 21. The earlier analysis used an overstated estimate of the amount of concrete that would have to be removed from turbine foundations for the 3.0-MW turbines, based on the information that was available to the Department at the time. This largely accounts for the different result.
Table 3: Cost Estimate for Site Restoration (Full Build-Out)

<table>
<thead>
<tr>
<th>Cost Estimate Component</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disconnect electrical and ready for disassembly (per turbine)</td>
<td>225</td>
<td>$953</td>
<td>$214,425</td>
</tr>
<tr>
<td>Remove turbine blades, hubs and nacelles (per turbine)</td>
<td>225</td>
<td>$5,058</td>
<td>$1,138,060</td>
</tr>
<tr>
<td>Remove turbine towers (per net ton of steel)</td>
<td>49,500</td>
<td>$65</td>
<td>$3,217,500</td>
</tr>
<tr>
<td>Remove and load pad transformers (per turbine)</td>
<td>225</td>
<td>$2,186</td>
<td>$491,850</td>
</tr>
<tr>
<td>Foundation and transformer pad removal (per cubic yard of concrete)</td>
<td>40,050</td>
<td>$31</td>
<td>$1,241,550</td>
</tr>
<tr>
<td>Restore turbine turnouts (per turbine)</td>
<td>225</td>
<td>$1,186</td>
<td>$266,850</td>
</tr>
<tr>
<td>Met Towers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dismantle and dispose of met towers (per tower)</td>
<td>10</td>
<td>$8,348</td>
<td>$83,480</td>
</tr>
<tr>
<td>Substation and O&amp;M Building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dismantle and dispose of substation</td>
<td>1</td>
<td>$215,244</td>
<td>$215,244</td>
</tr>
<tr>
<td>Dismantle and dispose of O&amp;M building</td>
<td>1</td>
<td>$103,608</td>
<td>$103,608</td>
</tr>
<tr>
<td>Transmission Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of 34.5 kV aboveground transmission line (per mile)</td>
<td>15</td>
<td>$3,851</td>
<td>$57,765</td>
</tr>
<tr>
<td>Junction boxes - remove electrical to 4' below grade (each)</td>
<td>25</td>
<td>$1,284</td>
<td>$32,100</td>
</tr>
<tr>
<td>Access Roads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road removal, grading and seeding (per mile)</td>
<td>41.54</td>
<td>$47,450</td>
<td>$1,971,073</td>
</tr>
<tr>
<td>Access road intersection and turnaround removal (per acre)</td>
<td>12.23</td>
<td>$18,539</td>
<td>$226,732</td>
</tr>
<tr>
<td>Off-Footprint Disturbance During Site Restoration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restore area disturbed during restoration work (per acre)</td>
<td>156</td>
<td>$2,696</td>
<td>$420,576</td>
</tr>
<tr>
<td>General Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permits, mobilization, engineering, overhead, utility disconnects</td>
<td></td>
<td>$431,183</td>
<td></td>
</tr>
<tr>
<td>Gross Cost (2005 Dollars)</td>
<td></td>
<td>$10,111,986</td>
<td></td>
</tr>
<tr>
<td>Performance Bond</td>
<td>1%</td>
<td>$101,120</td>
<td></td>
</tr>
<tr>
<td>Administration and Project Management</td>
<td>10%</td>
<td>$1,011,199</td>
<td></td>
</tr>
<tr>
<td>Future Developments Contingency</td>
<td>10%</td>
<td>$1,011,199</td>
<td></td>
</tr>
<tr>
<td>Total Site Restoration Cost (rounded to nearest $1,000)</td>
<td></td>
<td>$12,236,000</td>
<td></td>
</tr>
</tbody>
</table>

For the purpose of determining whether PGE has a reasonable likelihood of obtaining a bond or letter of credit in an amount satisfactory to the Council to restore the site, the Council finds that the estimated cost of site restoration is $12,236 million (in 2005 dollars). This is a conservative estimate of the cost of restoring the site if the BCWF were fully constructed as allowed under the site certificate.

C. Ability of PGE to Obtain a Bond or Letter of Credit

In the Final Order on Amendment #1, the Council found that it was reasonably likely that PGE could obtain a letter of credit in a satisfactory amount. The Council based its finding on a letter from JPMorgan Chase Bank, N.A., stating the bank’s willingness to “furnish or arrange a letter of credit in an amount up to $10 million for a period not to exceed four years, for the purpose of ensuring…Portland General Electric Co.’s obligations that the site of the proposed Biglow Canyon Wind Farm Project can be restored to a useful non-hazardous condition.” Based on the revised calculation of the cost of site restoration, the Council must decide whether PGE can obtain a bond or letter of credit in the amount of $12.236 million (in 2005 dollars). PGE has submitted a letter from JPMorgan Chase Bank, N.A., stating the
bank’s willingness to “furnish or arrange a letter of credit in an amount up to $20 million for a period not to exceed four years for the purpose of ensuring Portland General Electric Company’s obligations that the site of the proposed Biglow Canyon Wind Farm Project can be restored to a useful non-hazardous condition.”22 The Council finds that it is reasonably likely that PGE can obtain a bond or letter of credit in a form and amount satisfactory to the Council to restore the site.

The Council agrees that Conditions 5, 6 and 7 can be removed from the site certificate, as proposed by PGE, because those conditions would apply only if PGE elected to build the facility in a single phase or to use only GE 1.5-MW or 3.0-MW turbines. PGE has elected to build the facility in multiple phases using other turbines. The Council modifies Conditions 8 and 9 as discussed in Revisions 12 and 13.

Conclusions of Law

Based on proposed findings and recommendations stated above, the Council concludes that PGE would meet the Council’s Retirement and Financial Assurance Standard if Amendment #2 were approved.

3. Standards about the Impacts of Construction and Operation

(a) Land Use

OAR 345-022-0030

(1) To issue a site certificate, the Council must find that the proposed facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission.

(2) The Council shall find that a proposed facility complies with section (1) if:

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(b) The applicant elects to obtain a Council determination under ORS 469.504(1)(b) and the Council determines that:

(A) The proposed facility complies with applicable substantive criteria as described in section (3) and the facility complies with any Land Conservation and Development Commission administrative rules and goals and any land use statutes directly applicable to the facility under ORS 197.646(3);

(B) For a proposed facility that does not comply with one or more of the applicable substantive criteria as described in section (3), the facility otherwise complies with the statewide planning goals or an exception to any applicable statewide planning goal is justified under section (4); or

(C) For a proposed facility that the Council decides, under sections (3) or (6), to evaluate against the statewide planning goals, the proposed facility complies with the applicable statewide planning goals or that an exception to any applicable statewide planning goal is justified under section (4).

(3) As used in this rule, the “applicable substantive criteria” are criteria from the affected local government’s acknowledged comprehensive plan and land use

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ordinances that are required by the statewide planning goals and that are in effect on the date the applicant submits the application. If the special advisory group recommends applicable substantive criteria, as described under OAR 345-021-0050, the Council shall apply them. If the special advisory group does not recommend applicable substantive criteria, the Council shall decide either to make its own determination of the applicable substantive criteria and apply them or to evaluate the proposed facility against the statewide planning goals.

(4) The Council may find goal compliance for a proposed facility that does not otherwise comply with one or more statewide planning goals by taking an exception to the applicable goal. Notwithstanding the requirements of ORS 197.732, the statewide planning goal pertaining to the exception process or any rules of the Land Conservation and Development Commission pertaining to the exception process, the Council may take an exception to a goal if the Council finds:

(a) The land subject to the exception is physically developed to the extent that the land is no longer available for uses allowed by the applicable goal;

(b) The land subject to the exception is irrevocably committed as described by the rules of the Land Conservation and Development Commission to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or

(c) The following standards are met:

(A) Reasons justify why the state policy embodied in the applicable goal should not apply;

(B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the Council applicable to the siting of the proposed facility; and

(C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

* * *

Findings of Fact

In the Final Order on the Application, the Council found the proposed BCWF would comply with the statewide planning goals, based on a land use analysis under ORS 469.504(1)(b)(B). The Council found that Special Advisory Group appointed for the BCWF (the governing body of Sherman County) had not identified applicable substantive criteria. The Council, in accordance with ORS 469.504(5), determined that Article 5 of the Sherman County Zoning Ordinance (SCZO) contained the applicable substantive criteria and applied those criteria. The Council found that the BCWF did not comply with all of the criteria. Specifically, the facility did not comply with SCZO Sections 5.2.1, 3.1.4 and 5.8.16(d).

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23 SCZO Section 5.2.1 requires that the facility be compatible with the Sherman County Comprehensive Plan (SCCP) and applicable policies. The Council found that the BCWF did not comply with Policy III under SCCP Goal XVIII. Policy III requires "new high voltage electrical transmission lines with nominal voltage in excess of
In accordance with ORS 469.504(1)(b)(B), the Council then considered whether the facility complied with the applicable statewide planning goal (Goal 3). The Council found that the facility did not comply with Goal 3 because it would exceed the acreage limitations for a “power generation facility” located on farmland as set out in OAR 660-033-0130(17) for high-value farmland and in OAR 660-033-0130(22) for non-high-value farmland. The Council found that the “principal use” and the access roads were subject to the acreage restrictions and that these components would occupy approximately 170.7 acres of farmland. Nevertheless, the Council found that an exception to Goal 3 was justified under the standards required by ORS 469.504(2)(c).

Under the proposed amendment, the previously-approved 230-kV or 500-kV transmission line would be eliminated from the BCWF. The facility would, therefore, comply with SCZO Section 5.2.1. Analysis under ORS 469.504(1)(b)(B) is still necessary though, because the facility would not comply with SCZO Sections 3.1.4 and 5.8.16(d).

The proposed changes would increase the amount of farmland occupied by the principal use and access roads from approximately 170.7 acres to approximately 173.45 acres, as shown in Table 4.²⁷

### Table 4: Area Occupied by the Power Generation Facility

<table>
<thead>
<tr>
<th>Structure</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal use</td>
<td>14.13</td>
</tr>
<tr>
<td>Turbine towers, including pad areas and road turnouts</td>
<td>0.21</td>
</tr>
<tr>
<td>Meteorological towers</td>
<td>0.18</td>
</tr>
<tr>
<td>Aboveground 34.5 kV collector line²⁸</td>
<td>4.80</td>
</tr>
<tr>
<td>O&amp;M building site</td>
<td>19.32</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
</tr>
<tr>
<td>Access roads</td>
<td>154.13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>173.45</strong></td>
</tr>
</tbody>
</table>

²³ 230 kV” to be constructed within or adjacent to existing electrical transmission line right-of-way. Because the proposed facility included a 230-kV or 500-kV transmission line that would not be “within or adjacent to” an existing transmission line right-of-way, the Council found non-compliance with SCZO Section 5.2.1.

²⁴ The Council interpreted SCZO Section 3.1.4 to require a 30-foot setback for facility structures including transmission lines and junction boxes. The applicant requested an exception for transmission lines and junction boxes from the setback required under Condition 20. The Council allowed the exception but found as a consequence that the facility did not comply with SCZO Section 3.1.4.

²⁵ SCZO Section 5.8.16(d) requires that the facility be located on land “generally unsuitable” for crop production or livestock. The Council found that the BCWF would be located on land suitable for crop production because the site was located on approximately 157 acres of land that was being used for non-irrigated crop production. The Council found, therefore, that the facility did not comply with SCZO Section 5.8.16(d).

²⁶ The Council found that the other facility components (the substation and aboveground transmission line) would be “utility facilities necessary for public service” allowed on EFU land under ORS 215.283(1)(d), subject to the provisions of ORS 215.275. The Council found that the substation and transmission line satisfied the requirements.

²⁷ Table 4 is based on PGE’s revised calculation of the area occupied by the principal use and access roads (e-mail from Rick Tetzloff, March 1, 2007).

²⁸ Department estimate based on experience with similar facilities, assuming 15 miles of transmission line, 21 transmission poles per mile and 25 sq. ft. of farmland precluded per pole.

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The facility would exceed the acreage limitations of OAR 660-033-0130(17) and OAR 660-033-0130(22). The Council must find, therefore, that an exception to Goal 3 would be justified. The changes in the facility that would be authorized under the requested amendment would alter design and construction details but would not change the proposed land use. The facility access roads would occupy about 3 additional acres of agricultural land, but this incremental acreage would be contiguous with acreage used by the facility as previously approved.

The facts underlying the Council’s previous findings in support of a “reasons” exception under ORS 469.504(2)(c) would not be significantly different if the Council were to approve Amendment #2.29 In summary, with the proposed changes, the facility would still occupy less than one percent of the actively farmed land adjacent to the facility.30 The proposed changes would not alter the spacing of turbines and turbine strings. The changes would preserve most of the land upon which the facility lies for farm use, and the new access road segments would be available for use in farm operations. The proposed changes would allow accepted farm practices in the area (soil preparation in the spring and fall, sowing, fertilizing, pest and weed management and harvesting) to occur without serious interference. Approval of the facility, with the proposed amendments, furthers the state energy conservation policy embodied in Goal 13 by using renewable energy sources. As discussed in the Final Order on the Application and herein, the significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated. Conditions 18, 19, 21, 22 and 23, all of which help to ensure the compatibility of the facility with farming operations, would apply to the entire facility, including the additions that would be allowed under the amendment. For these reasons, the Council finds that the standards for an exception to Goal 3 under ORS 469.504(2)(c) would continue to be met if Amendment #2 were approved. The changes authorized under the amendment do not substantially alter the underlying facts upon which the Council based its previous findings and conclusions regarding land use.

PGE proposed a modification of Condition 21 to reflect the removal of the 115-kV or 230-kV transmission lines from the project. The Council modifies Condition 21 as requested by PGE and as discussed below in Revision 15. The Council finds that no other changes to the site certificate conditions related to land use (Conditions 17 through 25) are needed.

Conclusions of Law

Based on the findings stated above, the Council concludes that an exception to Goal 3 is justified and that the BCWF would comply with the Council’s Land Use Standard if Amendment #2 were approved.

(b) Soil Protection

OAR 345-022-0022

*To issue a site certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, are not*

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29. The “reasons” exception is discussed in the Final Order on the Application, pp. 61-63.
30. In the Final Order on the Application (p. 50), the Council assumed that 20,000 acres of land within the lease area was in use as farmland. The area occupied by the principal use and access roads (173.45 acres) represents 0.9 percent of the total farmland.

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likely to result in a significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.

Findings of Fact

In the Final Order on the Application, the Council found that the design, construction, operation and retirement of the proposed BCWF, taking into account mitigation and subject to the conditions stated in the order, would not likely cause a significant adverse impact to soils. The changes proposed in the request for Amendment #2 would increase the permanent footprint by about 5.6 acres and would increase the area of construction disturbance (outside the permanent footprint) by approximately 28.6 acres.

The addition of crane paths accounts a portion of the additional temporary disturbance during construction. Allowing for the movement of large turbine assembly cranes across farmland would reduce the distance that the cranes would have to travel from one turbine string to the next. The use of crane paths could result in area of soil compaction. The certificate holder would restore areas of soil compaction in accordance with the Revegetation Plan (Attachment B) when the route is no longer needed for facility construction.

Approval of Amendment #2 would not otherwise change the facts on which the Council relied in its previous findings regarding impact to soils. The Council finds that no changes to the site certificate conditions related to soil protection (Conditions 26 through 35) are needed. The Council finds that the design, construction, operation and retirement of the BCWF as modified by Amendment #2 would not likely result in significant adverse impact to soils, taking into account the mitigation required by the site certificate conditions.

Conclusions of Law

The Council concludes that the BCWF would comply with the Council’s Soil Protection Standard if Amendment #2 were approved.

(c) Protected Areas

OAR 345-022-0040

(1) Except as provided in sections (2) and (3), the Council shall not issue a site certificate for a proposed facility located in the areas listed below. To issue a site certificate for a proposed facility located outside the areas listed below, the Council must find that, taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed below. Cross-references in this rule to federal or state statutes or regulations are to the version of the statutes or regulations in effect as of August 28, 2003:

(a) National parks, including but not limited to Crater Lake National Park and Fort Clatsop National Memorial;

(b) National monuments, including but not limited to John Day Fossil Bed National Monument, Newberry National Volcanic Monument and Oregon Caves National Monument;
(c) Wilderness areas established pursuant to The Wilderness Act, 16 U.S.C. 1131 et seq. and areas recommended for designation as wilderness areas pursuant to 43 U.S.C. 1782;

(d) National and state wildlife refuges, including but not limited to Ankeny, Bandon Marsh, Basket Slough, Bear Valley, Cape Meares, Cold Springs, Deer Flat, Hart Mountain, Julia Butler Hansen, Klamath Forest, Lewis and Clark, Lower Klamath, Malheur, McKay Creek, Oregon Islands, Sheldon, Three Arch Rocks, Umatilla, Upper Klamath, and William L. Finley;

(e) National coordination areas, including but not limited to Government Island, Ochoco and Summer Lake;

(f) National and state fish hatcheries, including but not limited to Eagle Creek and Warm Springs;

(g) National recreation and scenic areas, including but not limited to Oregon Dunes National Recreation Area, Hell's Canyon National Recreation Area, and the Oregon Cascades Recreation Area, and Columbia River Gorge National Scenic Area;

(h) State parks and waysides as listed by the Oregon Department of Parks and Recreation and the Willamette River Greenway;

(i) State natural heritage areas listed in the Oregon Register of Natural Heritage Areas pursuant to ORS 273.581;

(j) State estuarine sanctuaries, including but not limited to South Slough Estuarine Sanctuary, OAR Chapter 142;

(k) Scenic waterways designated pursuant to ORS 390.826, wild or scenic rivers designated pursuant to 16 U.S.C. 1271 et seq., and those waterways and rivers listed as potentials for designation;

(L) Experimental areas established by the Rangeland Resources Program, College of Agriculture, Oregon State University: the Prineville site, the Burns (Squaw Butte) site, the Starkey site and the Union site;

(m) Agricultural experimental stations established by the College of Agriculture, Oregon State University, including but not limited to:

Coastal Oregon Marine Experiment Station, Astoria
Mid-Columbia Agriculture Research and Extension Center, Hood River
Agriculture Research and Extension Center, Hermiston
Columbia Basin Agriculture Research Center, Pendleton
Columbia Basin Agriculture Research Center, Moro
North Willamette Research and Extension Center, Aurora
East Oregon Agriculture Research Center, Union
Malheur Experiment Station, Ontario
Eastern Oregon Agriculture Research Center, Burns
Eastern Oregon Agriculture Research Center, Squaw Butte
Central Oregon Experiment Station, Madras
Central Oregon Experiment Station, Powell Butte
Central Oregon Experiment Station, Redmond
Central Station, Corvallis
Coastal Oregon Marine Experiment Station, Newport
Southern Oregon Experiment Station, Medford
Klamath Experiment Station, Klamath Falls;

(n) Research forests established by the College of Forestry, Oregon State University, including but not limited to McDonald Forest, Paul M. Dunn Forest, the Blodgett Tract in Columbia County, the Spaulding Tract in the Mary's Peak area and the Marchel Tract;

(o) Bureau of Land Management areas of critical environmental concern, outstanding natural areas and research natural areas;

(p) State wildlife areas and management areas identified in OAR chapter 635, Division 8.

***

Findings of Fact

In the Final Order on the Application, the Council found that the BCWF would not be located in any protected area as defined by OAR 345-022-0040(1) and that the design, construction and operation of the facility would not result in significant adverse impact to any protected area, taking into account mitigation and subject to the conditions included in the site certificate. The Council found that indirect effects of noise, traffic, water use and visual impact from the BCWF would not have any significant impact on protected areas.

Approval of Amendment #2 would allow construction and operation of road segments and collector lines outside of the previously permitted site boundary but within the certificate holder’s lease boundary. The proposed amendment would not increase the maximum length of aboveground collector line authorized for construction. The expansion of the site boundary does not significantly increase the analysis area and does not affect any protected areas not considered by the Council in the Final Order on the Application.

The changes to the facility that would be allowed if Amendment #2 were approved would not substantially change the facts on which the Council relied in its previous findings regarding potential noise, traffic, water and wastewater impacts and visual impacts. Although the amendment would allow alterations in the boundaries of one micrositing corridor, the certificate holder would not otherwise construct any turbines outside of the previously-approved corridors. The Council finds that no change to Condition 36 (regarding visual impact to protected areas along the John Day River) is needed.
Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Protected Areas Standard if Amendment #2 were approved.

(d) Scenic and Aesthetic Values

OAR 345-022-0080

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in local land use plans in the analysis area described in the project order.

* * *

Findings of Fact

In the Final Order on the Application, the Council described the visual features of the proposed BCWF. Approval of Amendment #2 would allow construction of access road segments outside the previously approved site boundary. The amendment would have no effect on the number of turbines or the size of turbines already authorized under the site certificate. Under the proposed amendment, there would be no significant change in circumstances or underlying facts that would affect the Council’s previous finding that the design, construction, operation and retirement of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in local land use plans in the analysis area.

Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Scenic and Aesthetic Values Standard if Amendment #2 were approved.

(e) Recreation

OAR 345-022-0100

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of a facility, taking into account mitigation, are not likely to result in a significant adverse impact to important recreational opportunities in the analysis area as described in the project order. The Council shall consider the following factors in judging the importance of a recreational opportunity:

(a) Any special designation or management of the location;

(b) The degree of demand;

(c) Outstanding or unusual qualities;

(d) Availability or rareness;
(e) Irreplaceability or irretrievability of the opportunity.

***

Findings of Fact

In the Final Order on the Application, the Council found that recreational opportunities associated with the John Day River, the Journey Through Time Scenic Byway and historic trail alignments are important recreational opportunities within the analysis area. The Council found that the design, construction, operation and retirement of the proposed BCWF facilities would not result in significant adverse impact to these recreational opportunities, taking into account the mitigation that is required under site certificate conditions. The changes that would be allowed under Amendment #2 would not affect the facts upon which the Council relied in making the findings. The Council finds that there has been no change of facts or circumstances that would affect the Council’s earlier findings regarding the impacts of the BCWF on recreational opportunities.

Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Recreation Standard if Amendment #2 were approved.

(f) Public Health and Safety Standards for Wind Energy Facilities

OAR 345-024-0010

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(2) To issue a site certificate for a proposed wind energy facility, the Council must find that the applicant:

(a) Can design, construct and operate the facility to exclude members of the public from close proximity to the turbine blades and electrical equipment;

(b) Can design, construct and operate the facility to preclude structural failure of the tower or blades that could endanger the public safety and to have adequate safety devices and testing procedures designed to warn of impending failure and to minimize the consequences of such failure.

Findings of Fact

In the Final Order on the Application, the Council found that the certificate holder could design, construct and operate the proposed BCWF facilities to exclude members of the public from close proximity to the turbine blades and electrical equipment, to preclude structural failure of the tower or blades that could endanger the public safety and to have adequate safety devices and testing procedures. To ensure public safety, the Council included conditions 37, 38, 39, 40, 41, 42, 43, 44, 45, 46 and 47 in the site certificate.

The changes that would be allowed under Amendment #2 would not involve any change in the design, size or location of facility components allowed under the site certificate or any change in the conditions relating to public safety. The Council finds that there has been no change of facts or circumstances that would affect the Council’s earlier findings regarding public health and safety at the BCWF site.
Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Public Health and Safety Standards for Wind Energy Facilities if Amendment #2 were approved.

(g) Siting Standards for Wind Energy Facilities

OAR 345-024-0015

To issue a site certificate for a proposed wind energy facility, the Council must find that the applicant:

(1) Can design and construct the facility to reduce visual impact by methods including, but not limited to:

(a) Not using the facility for placement of advertising, except that advertising does not include the manufacturer’s label or signs required by law;

(b) Using the minimum lighting necessary for safety and security purposes and using techniques to prevent casting glare from the site, except as otherwise required by the Federal Aviation Administration or the Oregon Department of Transportation, Transportation Development Branch, Aeronautics Section; and

(c) Using only those signs necessary for facility operation and safety and signs required by law;

(2) Can design and construct the facility to restrict public access by the following methods:

(a) For a horizontal-axis wind energy facility with tubular towers, using locked access sufficient to prevent unauthorized entry to the interior of the tower;

(b) For a horizontal-axis wind energy facility with lattice-type towers:

(A) Removal of wind facility tower climbing fixtures to 12 feet from the ground;

(B) Installation of a locking, anti-climb device on the wind facility tower; or

(C) Installation of a protective fence at least 6 feet high with a locking gate; or

(c) For a vertical-axis wind energy facility, installation of a protective fence at least 6 feet high with a locking gate;

(3) Can design and construct facility to reduce cumulative adverse environmental impacts in the vicinity to the extent practicable by measures including, but not limited to, the following, where applicable:

(a) Using existing roads to provide access to the facility site, or if new roads are needed, minimizing the amount of land used for new roads and locating them to reduce adverse environmental impacts;

(b) Combining transmission lines and points of connection to local distribution lines;
(c) Connecting the facility to existing substations, or if new substations are
needed, minimizing the number of new substations; and

(d) Avoiding, to the extent practicable, the creation of artificial habitat for raptors
or raptor prey. Artificial habitat may include, but is not limited to:

(A) Above-ground portions of foundations surrounded by soil where weeds can
accumulate;

(B) Electrical equipment boxes on or near the ground that can provide shelter
and warmth; and

(C) Horizontal perching opportunities on the towers or related structures.

Findings of Fact

In the Final Order on the Application, the Council found that the certificate holder
could design and construct the BCWF facilities to reduce visual impact, to restrict public
access and to reduce cumulative adverse environmental impacts in the vicinity to the extent
practicable in accordance with the requirements of OAR 345-024-0015.

PGE has requested approval to use its company logo on up to 20 percent of the turbine
nacelles.31 The logo would be large enough to be clearly visible from the ground. Approval of
this request would require a change to Condition 50 of the site certificate. PGE proposed the
following change:

(50) During construction of the facility, to reduce the visual impact of the facility, the
certificate holder shall:

(a) Paint turbine towers, nacelles, rotors, meteorological towers, and cabinets
containing pad-mounted equipment with a low-reflectivity, neutral gray, white, off-white
or earth tone finish to reduce contrast with the surrounding background.

(b) Apply a low-reflectivity finish to the exterior of the O&M building and substation
equipment to control their visual integration into the surrounding background.

(c) With the exception of the facility owner’s logo (on up to 20% of the units) and the
turbine manufacturer’s logo that may appear on turbine nacelles, not allow any
advertising to be used on any part of the facility or on any signs posted at the facility.

(d) Use only those signs required by law or for facility safety or security, except that
the certificate holder may erect a sign near the O&M facility or substation to identify the
wind energy facility.

Section (1) of the Council’s standard requires a finding by the Council that the
applicant “can design and construct the facility to reduce visual impact” by the methods listed
in the subsections. Subsection (a) requires that the facility not be used for the placement of
“advertising,” but the rule excludes “the manufacturer’s label” from the definition of
“advertising.” Subsection (c) limits the use of “signs” to those necessary for facility operation
and safety and signs required by law.32

The Department’s rationale for recommending the restriction on the use of wind
turbines for advertising has been that the use of advertising would have an adverse visual
effect that would be contrary to the objective of designing the facility to blend with the

31 E-mail from Rick Tetzloff, February 1, 2006.
32 Site certificate conditions similar to Condition 50, prohibiting the use of wind turbines for “advertising,” are
currently in effect in the site certificates for the Klondike III Wind Project and the Stateline Wind Project.
surrounding landscape as much as possible. Although the turbines themselves (with or without advertising) have a visual impact that cannot be avoided, some degree of mitigation might be provided by avoiding the use of unnecessary markings that would tend to attract visual attention. PGE is sensitive to this concern and has proposed to put the logo on the nacelles of no more than 20 percent of the turbines. PGE, further, has stated that its logo is “simple in form, consisting of the black capital letters ‘PGE’ surrounded by four colored fleches that create a square diamond enclosure for the letters” and has observed: “In addition, use of simple, understated logos on the nacelles is quite different from allowing advertising, which could entail installing large signs on the site at eye level, or as has been the case in some places, use of the turbine towers as supports for large billboards.”

The Council finds that the “understated” use of a simple logo, as proposed by PGE, would not significantly conflict with the objective of designing the facility to blend with the surroundings. Nevertheless, the current language of the standard makes no allowance for the use of the certificate holder’s logo. In a currently pending Council rulemaking proceeding, the Department has recommended amendments to OAR 345-024-0015 that would include removing the specific restriction in Section (1)(a). Without deciding whether the use of a logo constitutes “advertising” under the Council standard, the Council revises Condition 50 to allow PGE to use its logo, contingent of the Council adopting amendments to OAR 345-024-0015 that would allow the practice. The proposed change to Condition 50 is discussed below in Revision 16.

The Council finds that no changes to the other site certificate conditions related to compliance with OAR 345-024-0015 (Conditions 48, 49, 51 and 52) are needed. The Council finds that the changes requested by PGE in Amendment #2 would not affect the basis for the Council’s previous findings.

Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Siting Standards for Wind Energy Facilities if Amendment #2 were approved.

(h) Siting Standards for Transmission Lines

OAR 345-024-0090

To issue a site certificate for a facility that includes any high voltage transmission line under Council jurisdiction, the Council must find that the applicant:

(1) Can design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public;

(2) Can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.

Findings of Fact

In the Final Order on the Application, the Council found that the certificate holder could design, construct and operate the proposed transmission lines in accordance with the standards described in OAR 345-024-0090. Transmission line components of the BCWF included aboveground and underground 34.5-kV collector lines and two alternative 230-kV or 500-kV, 3-mile or 7-mile aboveground interconnection transmission lines. Under the proposed amendment, the interconnection lines would be eliminated. The changes that would be allowed if Amendment #2 were approved include an increase in the combined length of collector line segments of approximately 10 miles (from 88.6 miles to 99 miles), but the 15-mile limit on the combined length of aboveground segments would remain. The Council finds that there has been no change of facts or circumstances that would affect the Council’s earlier findings regarding compliance of the collector system with the standards in OAR 345-024-0090. The Council finds that no changes to the site certificate conditions related to the standards for transmission lines (Conditions 53 and 54) are needed.

Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Siting Standards for Transmission Lines if Amendment #2 were approved.

4. Standards to Protect Wildlife

(a) Threatened and Endangered Species

OAR 345-022-0070

To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:

(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction, operation and retirement of the proposed facility, taking into account mitigation:

(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or

(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and

(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction, operation and retirement of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

Findings of Fact

Approval of Amendment #2 would allow construction disturbance and placement of collector line segments and access road segments outside the previously-approved site boundary. PGE has conducted on-site surveys for jurisdictional waters, rare plants and “sensitive” wildlife species in those areas where the site boundary would be expanded under
the amendment. No threatened or endangered plant or wildlife species were found. The rare plant survey was conducted in late November 2006. The report indicates that small areas of suitable habitat for one State-listed endangered plant species (Northern wormwood) occur in the study area and recommends a follow-up survey of the area be conducted in the spring, during the appropriate bloom time for Northern wormwood and Henderson’s ricegrass (a federal species of concern and State candidate), to verify the November 2006 findings. PGE has proposed new condition 126, which would require an appropriate on-site rare plant survey before any construction disturbance in the locations where the site boundary would be enlarged by Amendment #2. The Council modifies the condition to require avoidance of impact if any State or federal special status species are found during the spring survey. The modification is discussed in Revision 23.

In the Final Order on the Application, the Council found that construction and operation of the BCWF would not likely have an adverse impact on any threatened or endangered plant or wildlife species. The Council finds that no changes to the site certificate conditions related to the protection of threatened or endangered species (Conditions 55 through 57) are needed as a result of the proposed amendment. The Council finds that there has been no change of facts or circumstances that would affect the Council’s earlier findings that the design, construction, operation and retirement of the proposed facility are not likely to adversely affect any endangered or threatened plant species.

Conclusions of Law

For the reasons discussed above, the Council concludes that the BCWF would comply with the Council’s Threatened and Endangered Species Standard if Amendment #2 were approved.

(b) Fish and Wildlife Habitat

OAR 345-022-0060

To issue a site certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, are consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025 in effect as of September 1, 2000.

Findings of Fact

In the Final Order on the Application, the Council made findings regarding the estimated potential impact of the BCWF on wildlife habitat resulting from a “worst-case” analysis of habitat within the micrositing corridors. Under this worst-case analysis, the Council found that the placement of turbines, access roads and other BCWF structures would have a permanent effect on approximately 173 acres of land. The Council found that an additional 388 acres would be affected during construction. Condition 63 requires the certificate holder to implement a Habitat Mitigation Plan to improve the wildlife habitat quality of other acreage near the facility as mitigation for the permanent impacts of the facility. Condition 62 requires the certificate holder to restore all areas of construction

34 Request for Amendment #2, Attachments 9 and 10.
35 The impact of these structures would be “permanent” for the life of the facility until completion of site restoration.
36 Table 10, Final Order on the Application, p. 99.
disturbance according to the methods, monitoring procedures and success criteria described in a Revegetation Plan. In addition to the direct “footprint” impacts, the Council recognizes that the wind facilities might have an indirect adverse impact on avian and bat species. To evaluate these indirect effects and provide for additional mitigation based on survey data, the Council included Condition 61, which requires implementation of a Wildlife Monitoring and Mitigation Plan for the BCWF. In the Final Order on the Application, the Council found that the BCWF would comply with the Habitat Standard, taking into consideration the mitigation required under the plans described above and under other conditions of the site certificate.

The Request for Amendment #2 describes changes to the facility that would increase the total area of permanent and construction impact on habitat. Table 5 shows the revised area of permanent and temporary impacts if Amendment #2 were approved. The areas shown in this table were estimated assuming a worst-case placement of turbines.\textsuperscript{37}

<table>
<thead>
<tr>
<th>Habitat type</th>
<th>Area of construction impact (acres)</th>
<th>Area of permanent impact (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRP</td>
<td>14.87</td>
<td>8.24</td>
</tr>
<tr>
<td>Shrub-steppe</td>
<td>0.69</td>
<td>0.17</td>
</tr>
<tr>
<td>Category 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRP</td>
<td>3.19</td>
<td>2.82</td>
</tr>
<tr>
<td>Shrub-steppe</td>
<td>0.32</td>
<td>0.10</td>
</tr>
<tr>
<td>Grassland</td>
<td>0.70</td>
<td>0.60</td>
</tr>
<tr>
<td>Category 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed</td>
<td>5.59</td>
<td>1.22</td>
</tr>
<tr>
<td>Agricultural</td>
<td>391.03</td>
<td>165.32</td>
</tr>
<tr>
<td>TOTAL</td>
<td>416.39</td>
<td>178.47</td>
</tr>
</tbody>
</table>

The changes that would be allowed under Amendment #2 would increase the facility’s permanent impact on higher-value habitat (Category 3 and 4) by less than one acre (0.7 acres) and would increase the facility’s permanent impact on Category 6 habitat by approximately 4.9 acres. The area of higher-value habitat affected during construction would increase by approximately 0.7 acres, and the area of Category 6 habitat affected during construction would increase by approximately 28 acres. The Council revises the Habitat Mitigation Plan, as requested by PGE, to reflect the change in the area of permanent impact that would occur if Amendment #2 were approved. The changes to the plan are incorporated in Revision 18.

In the request for Amendment #2, PGE requests the option to use its own qualified employees, rather than independent experts, to monitor nest sites for sensitive species during construction, to perform some of the wildlife and habitat monitoring and mitigation activities required under the site certificate, to conduct revegetation monitoring and to conduct monitoring of habitat enhancement in the habitat mitigation area. In particular, PGE requests changes to the following conditions in site certificate:

\textsuperscript{37} Table 5 is based on PGE’s revised calculation of habitat impacts (e-mail from Rick Tetzloff, March 1, 2007).
• Condition 60 requires the certificate holder to hire and direct a qualified independent third-party biological monitor, as approved by the Department, to monitor active nest sites for Swainson’s hawks, ferruginous hawks and burrowing owls during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with the requirements of Condition 60. PGE seeks Council approval to use its own qualified employees to perform the nest monitoring.

• Condition 61 requires the certificate holder to conduct wildlife monitoring and mitigation in accordance with the Wildlife Monitoring and Mitigation Plan (WMMP). Under the WMMP, the certificate holder must hire a qualified, independent, third-party biological monitor, as approved by the Department, to conduct all components of the plan except the Wildlife Incident Response and Handling System (WIRHS). The WMMP requires an independent, third-party biologist to collect “incidental finds” under the WIRHS. PGE seeks Council approval to use its own qualified employees to conduct the raptor nest survey component of the WMMP and to collect incidental finds under the WIRHS component. PGE does not request a change in the requirement to use qualified, independent third-party biologists to conduct the fatality monitoring program or the avian use and behavior survey components of the plan.

• Condition 62 requires the certificate holder to restore areas that are disturbed during construction in accordance with the methods, monitoring procedures and success criteria set forth in the Revegetation Plan. Under the plan, the certificate holder must hire and direct a qualified independent third-party botanist or revegetation specialist, as approved by the Department, to conduct monitoring of seeded grassland, shrub-steppe and CRP areas. PGE seeks Council approval to use its own qualified employees to perform the revegetation monitoring.

• Condition 63 requires the certificate holder to improve the habitat quality in the habitat mitigation area in accordance with the Habitat Mitigation Plan (HMP). The HMP requires the certificate holder to hire and direct a qualified independent third-party biological monitor, as approved by the Department, to perform monitoring of habitat mitigation progress. PGE seeks Council approval to use its own qualified employees to perform monitoring of the habitat mitigation area.

In the amendment request, PGE notes that PGE staff have conducted survey and monitoring efforts required by Council for both the Boardman Power Plant and the Port Westward Generating Project. Further, PGE currently employs four full-time wildlife biologists who are responsible for implementing other wildlife and terrestrial resource programs for the company. These biologists staff PGE’s Environmental Services Department, which is a department within the company’s organizational structure that is separate from management and staff responsible for siting and operating generating facilities. This structural separation helps to ensure the integrity of the work performed by the company’s in-house wildlife biologists. PGE’s biologists have extensive experience in new power plant and transmission line siting, hydroelectric project relicensing, ecological monitoring, wildlife research and monitoring, power plant decommissioning and invasive plant management. They have worked closely with ODFW and USFWS biologists.
In the amendment request, PGE provided the following summaries of the professional experience of the company’s current staff biologists (quoted verbatim):

- **Greg Concannon, Environmental Supervisor and Senior Wildlife Biologist.** Greg oversees wildlife and terrestrial resource programs throughout the Company and supervises a team of fish and wildlife biologists and technicians stationed at the Pelton Round Butte Hydroelectric Project. Prior to joining PGE’s Environmental Services in 1993, Greg was employed as a biologist for 20 years with the ODFW where he was involved in numerous fish and wildlife research and management programs. Greg has extensive experience in program planning, wildlife surveys and monitoring, including breeding bird/raptor/bat surveys, research, data analysis and reporting, plant and wildlife protection, and habitat mitigation.

- **Steven Bullock, Fish and Wildlife Biologist.** Steve has worked in the environmental field since 1970. Prior to joining PGE in 1977, Steve was in the Peace Corps, worked on fish and wildlife projects for various consultants and the Army Corps of Engineers. While at PGE, he has worked on wildlife and other environmental programs associated with the Trojan Nuclear, Boardman, Coyote Springs, Beaver, and Port Westward generating projects. Steve has extensive experience in wildlife surveys and monitoring, including breeding bird and raptor surveys and studies, data analysis, and reporting.

- **Robert Marheine, Wildlife Biologist/Team Leader.** Robert has 17 years experience in the field of natural resources. Prior to joining PGE in the late 1990s, Robert held various positions with ODFW, the Bureau of Land Management and Forest Service. He has worked primarily in the areas of range management, wildlife surveys and monitoring, including breeding bird/raptor/bat surveys, wildlife habitat improvement, ecosystem restoration, and exotic/invasive vegetation management. Robert is currently involved with long-term implementation of the Terrestrial Resources Management Plan for the Pelton Round Butte Hydroelectric Project, implementation of the Multi-species Candidate Conservation Agreement with Assurances on Boardman Power Plant Lands, and wildlife monitoring/revegetation/exotic-invasive plant management activities associated with decommissioning of the Bull Run Hydroelectric Project.

- **Andrew Bidwell, Wildlife Biologist.** Andrew joined PGE’s Environmental Services in 2001 and has experience in wildlife sciences and water quality, hazardous waste, and oil spill regulatory compliance. He is experienced in wildlife surveys and monitoring, habitat improvement, exotic/invasive plant management, and avian electrocution issues. Andrew has been the primary biologist responsible for conducting intensive bald eagle monitoring studies during construction of the Port Westward Generating Project, as required by the USFWS Biological Opinion for the Project. Besides providing assistance with wildlife programs throughout the Company, Andrew is also developing a company-wide avian protection plan for PGE’s electrical facilities.

The Department approves the qualifications of these four individuals. Based on the experience demonstrated by PGE, the Council approves PGE’s request to use its own qualified staff biologists. The Council adopts language to require that PGE first obtain
Department approval before using biologists other than the four individuals listed in this order

to perform the work described in the site certificate in Conditions 60, 61, 62 and 63. In

addition, the Council finds that the Council’s approval of the use of in-house biologists for

this work applies to PGE only and not to any transferee of the site certificate unless

specifically approved by the Council as to that transferee. The changes to the site certificate

and to the WMMP, Revegetation Plan and HMP are discussed in Revisions 17 and 18.

With the changes described above, the Council finds that the BCWF would be

consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-

0025 under the proposed amendment.

Conclusions of Law

The Council concludes, subject to the revisions of Conditions 60, 61, 62 and 63 and

related plans, that the BCWF would comply with the Council’s Fish and Wildlife Habitat

Standard if Amendment #2 were approved.

5. Standards Not Applicable to Site Certificate Eligibility

Under ORS 469.501(4), the Council may issue a site certificate without making the

findings required by the standards discussed in this section (Structural Standard, Historic,

Cultural and Archaeological Resources Standard, Public Services Standard and Waste

Minimization Standard). Nevertheless, the Council may impose site certificate conditions

based on the requirements of these standards.

(a) Structural Standard

OAR 345-022-0020

(1) Except for facilities described in sections (2) and (3), to issue a site certificate,

the Council must find that:

(a) The applicant, through appropriate site-specific study, has adequately

characterized the site as to seismic zone and expected ground motion and ground

failure, taking into account amplification, during the maximum credible and

maximum probable seismic events; and

(b) The applicant can design, engineer, and construct the facility to avoid dangers

to human safety presented by seismic hazards affecting the site that are expected to

result from all maximum probable seismic events. As used in this rule “seismic

hazard” includes ground shaking, landslide, liquefaction, lateral spreading,

tsunami inundation, fault displacement, and subsidence;

(c) The applicant, through appropriate site-specific study, has adequately

characterized the potential geological and soils hazards of the site and its vicinity

38 This statute provides that the Council may not impose certain standards “to approve or deny an application for

an energy facility producing power from wind.” ORS 469.300 defines an “application” as “a request for approval

of a particular site or sites for the construction and operation of an energy facility or the construction and

operation of an additional energy facility upon a site for which a certificate has already been issued, filed in

accordance with the procedures established pursuant to ORS 469.300 to 469.563, 469.590 to 469.619, 469.930

and 469.992.” Although ORS 469.501(4) does not explicitly refer to a request for a site certificate amendment,

we assume that the Legislature intended it to apply.
that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility; and

(d) The applicant can design, engineer and construct the facility to avoid dangers to human safety presented by the hazards identified in subsection (c).

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

***

Proposed Conditions

In the Final Order on the Application, the Council made findings regarding the site-specific characterization of seismic, geologic and soil hazards for the BCWF. Condition 66 requires the certificate holder to conduct appropriate site-specific geotechnical investigation before construction. The certificate holder must consult with, and report geotechnical investigation findings to, the Oregon Department of Geology & Mineral Industries. Condition 67 requires the certificate holder to design and construct the facility in accordance with requirements set forth by the State of Oregon’s Building Code Division and any other applicable codes and design procedures. In addition, Council rules include mandatory conditions regarding geotechnical investigation and protection of the public from seismic hazards (Conditions 112, 113 and 114). PGE does not propose changes to the conditions related to the structural standard. The Council finds that there has been no change of facts or circumstances that would affect the Council’s earlier findings. The Council finds that no new or amended site certificate conditions are needed under the proposed amendment.

(b) Historic, Cultural and Archaeological Resources

OAR 345-022-0090

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction, operation and retirement of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to:

(a) Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;

(b) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and

(c) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c).

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

***
Proposed Conditions

In the Final Order on the Application, the Council made findings regarding historic, cultural and archaeological resources in the area based on review of a Cultural Resources Survey Report prepared by CH2M HILL for the applicant, on comments from the Confederated Tribes of the Warm Springs Reservation and on public comments. The Council adopted Condition 69 (requires pre-construction map of disturbance areas, survey of any disturbance areas not previously studied and avoidance of any significant resources found), Condition 70 (requires construction personnel to be trained in the identification of archaeological or cultural materials), Condition 71 (requires construction monitoring by a qualified on-site archaeologist or alternate monitoring procedure), Condition 72 (requires that earth-disturbing activities be halted if archeological objects are discovered in the course of construction of the facility, in accordance with ORS 97.745 and 358.920) and Condition 73 (requires that construction of the BCWF proceed carefully in the vicinity of the mapped alignment of the Oregon Trail and that any intact physical evidence of the trail discovered during construction be protected from disturbance).

Archaeological Investigations Northwest, Inc (AINW) conducted a pre-construction on-site survey of areas not previously surveyed and prepared a supplemental report and technical memorandum. PGE, appropriately, has submitted the AINW report and memorandum to the Department as confidential because they may contain information entitled to protection under ORS 192.501 and ORS 192.502. The report identified one historic-period site. PGE will avoid the site by re-aligning proposed project features (Condition 69). The Council revises Condition 69 to include reference to the AINW supplemental report and technical memorandum, as requested by PGE and as discussed in Revision 19.

(c) Public Services

OAR 345-022-0110

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.

(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.

***

Proposed Conditions

In the Final Order on the Application, the Council discussed the public service impacts of construction and operation of the BCWF regarding sewage, storm water, solid waste, water supply, housing, police and fire protection, health care, schools and traffic safety. The Council adopted Conditions 74, 75 and 76 to address the source of water for the BCWF during
construction and operation and to ensure that water use would have no significant adverse
impact on municipal water systems or other wells that serve local landowners. The Council
adopted Conditions 77, 78 and 79 to ensure road and highway safety during construction.
PGE does not propose changes to the conditions related to the public services standard. The
Council finds that there has been no change of facts or circumstances that would affect the
Council’s earlier findings. The Council finds that no new or amended site certificate
conditions are needed under the proposed amendment.

(d) Waste Minimization

OAR 345-022-0120

(1) Except for facilities described in sections (2) and (3), to issue a site certificate,
the Council must find that, to the extent reasonably practicable:

(a) The applicant’s solid waste and wastewater plans are likely to minimize
generation of solid waste and wastewater in the construction, operation, and
retirement of the facility, and when solid waste or wastewater is generated, to
result in recycling and reuse of such wastes;

(b) The applicant’s plans to manage the accumulation, storage, disposal and
transportation of waste generated by the construction and operation of the facility
are likely to result in minimal adverse impact on surrounding and adjacent areas.

(2) The Council may issue a site certificate for a facility that would produce power
from wind, solar or geothermal energy without making the findings described in
section (1). However, the Council may apply the requirements of section (1) to
impose conditions on a site certificate issued for such a facility.

* * *

Proposed Conditions

In the Final Order on the Application, the Council discussed the applicant’s plans for
waste minimization. The Council adopted Conditions 80 and 81, which address proper
handling of hazardous materials and response to spills and accidental releases of hazardous
materials. The Council adopted Conditions 82, 83 and 86, which address the disposal of
industrial and sanitary wastewater during construction and operation. The Council adopted
Conditions 84, 85 and 87, which address solid waste management on the site during
construction and operation.

The Council adopted Condition 88, which requires a “Wastewater General Permit
#1700” for blade-washing activities. The Department recommended that Condition 88 be
revised. Information received from the Oregon Department of Environmental Quality (DEQ),
indicates that a #1700-B Wash Water Permit would not be needed for blade-washing,
provided there would be no runoff of washwater from the site or discharges to surface waters,
storm sewers or dry wells and provided that no acids, bases or metal brighteners would be
used with the wash water. DEQ recommends cleaning only with cold water. Biodegradable,
phosphate-free cleaners are allowed, but all chemicals, soaps or detergents should be used
sparingly. The Council adopts the Department’s proposed changes to Condition 88 as
discussed in Revision 20.

BIGLOW CANYON WIND FARM
FINAL ORDER ON AMENDMENT #2 – May 10, 2007 - 42 -
V. OTHER APPLICABLE REGULATORY REQUIREMENTS: FINDINGS AND CONCLUSIONS

1. Requirements under Council Jurisdiction

Under ORS 469.503(3) and under the Council’s General Standard of Review (OAR 345-022-0000), the Council must determine that a facility complies with “all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility.” Other Oregon statutes and administrative rules that are applicable to the changes requested in Amendment #2 include the DEQ noise control regulations, the regulations adopted by the Department of State Lands (DSL) for removal or fill of material affecting waters of the state, the Water Resources Department’s (WRD) regulations for appropriating ground water and the Council’s statutory authority to consider protection of public health and safety.

(a) Noise Control Regulations

The applicable noise control regulations are as follows:

OAR 340-035-0035
Noise Control Regulations for Industry and Commerce
(1) Standards and Regulations:

* * *

(b) New Noise Sources:

* * *

(B) New Sources Located on Previously Unused Site:

(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b) - (j), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

(iii) For noise levels generated or caused by a wind energy facility:

(1) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level.
(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with windspeed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels. L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

(IV) For purposes of determining whether a proposed wind energy facility would satisfy the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are predicted assuming that all of the proposed wind facility's turbines are operating between cut-in speed and the wind speed corresponding to the maximum sound power level established by IEC 61400-11 (version 2002-12). These predictions must be compared to the highest of either the assumed ambient noise level of 26 dBA or to the actual ambient background L10 and L50 noise level, if measured. The facility complies with the noise ambient background standard if this comparison shows that the increase in noise is not more than 10 dBA over this entire range of wind speeds.

(V) For purposes of determining whether an operating wind energy facility complies with the ambient noise standard where a landowner has not waived the standard, noise levels at the appropriate measurement point are measured when the facility's nearest wind turbine is operating over the entire range of wind speeds between cut-in speed and the windspeed corresponding to the maximum sound power level and no turbine that could contribute to the noise level is disabled. The facility complies with the noise ambient background standard if the increase in noise over either the assumed ambient noise level of 26 dBA or to the actual ambient background L10 and L50 noise level, if measured, is not more than 10 dBA over this entire range of wind speeds.

(VI) For purposes of determining whether a proposed wind energy facility would satisfy the Table 8 standards, noise levels at the appropriate measurement point are predicted by using the turbine's maximum sound power level following procedures established by IEC 61400-11 (version 2002-12), and assuming that all of the proposed wind facility's turbines are operating at the maximum sound power level.

(VII) For purposes of determining whether an operating wind energy facility satisfies the Table 8 standards, noise generated by the energy facility is measured at the appropriate measurement point when the facility's nearest wind turbine is
operating at the windspeed corresponding to the maximum sound power level and
no turbine that could contribute to the noise level is disabled.

* * *

Findings of Fact

In the Final Order on the Application, the Council found that the BCWF is subject to
the noise control requirements of OAR 340-035-0035(1)(b)(B). Because of uncertainty about
the type of turbine that would be used at the BCWF, the applicant based its noise analysis on
data for the GE 1.5-MW turbines. Because data was not yet available for the GE 3.0-MW
turbines, the applicant estimated the sound power level of those turbines by adding 2 dBA to
the levels associated with the GE 1.5-MW turbines, and then the applicant added 2 dBA to the
maximum sound power level for both turbines to provide a conservative estimate. The noise
analysis addressed 25 noise sensitive properties potentially affected by noise from the
facility.\textsuperscript{39} The results of the noise analysis showed that the 10-dBA ambient degradation limit
would be exceeded at 23 of the identified noise sensitive properties. At two of the identified
properties, the 50-dBA maximum allowable limit would be exceeded.\textsuperscript{40}

To ensure compliance with the noise control regulations, the Council adopted
Condition 90. Under the condition, the certificate holder, before beginning construction using
GE 1.5-MW or 3.0-MW turbines, must identify the final design locations of all turbines to be
built and perform a noise analysis demonstrating that the 50-dBA maximum allowable limit
would not be exceeded at any of the 25 identified noise sensitive properties. Further, the
condition requires that the certificate holder obtain a “legally effective easement or real
covenant” (waiver) from the owners of properties where the pre-construction noise analysis
showed the hourly L\textsubscript{50} noise levels caused by the facility would exceed 36 dBA (the ambient
degradation limit). In addition, Condition 90 requires the certificate holder to design the
facility to avoid exceeding the ambient degradation limit at any property for which a waiver is
not obtained.

Condition 90 applies if GE 1.5-MW or 3.0-MW turbines are used for any phase of the
BCWF. For other turbine types that the certificate holder selects for use in the BCWF, the
Council adopted Condition 91, which requires a pre-construction noise analysis based on the
maximum sound power output of those turbine types.

PGE requests a change to Condition 90 to exclude the property identified as “R14”
from the list of 25 identified noise sensitive properties. PGE has provided information
showing that R14 contains no permanent residential structures. There are two travel trailers
located on the property, as well as two outbuildings (barn and storage shed). PGE states that
the travel trailers are used periodically by the landowner and are moved occasionally. The
barn and storage shed are used for agricultural purposes and do not contain facilities for
sleeping. PGE, therefore, does not believe that the property should be considered a “noise
sensitive property.”

\textsuperscript{39} The 25 properties are listed in Table 12 of the Final Order on the Application. The properties are further
identified by Revised Figure X1 and by the document “Biglow Noise Sensitive Receptor List-sm.xls,” which
were submitted by PGE (e-mail from Rick Tetzloff, January 11, 2007).
\textsuperscript{40} Details of the modeling analysis methods and assumptions are discussed in the Final Order on the Application,
p. 131.
The DEQ rules define “noise sensitive property” as “real property normally used for
sleeping, or normally used as schools, churches, hospitals or public libraries.” OAR 340-035-
0015(38). The definition further states: “Property used in industrial or agricultural activities is
not Noise Sensitive Property unless it meets the above criteria in more than an incidental
manner.” The Department recommends that the Council use a two-pronged inquiry to
determine whether the property in question is “normally used for sleeping.” The first prong is
to determine whether the property is properly zoned for a use that normally and properly
includes sleeping, and the second prong is to determine whether sleeping normally takes place
on the property.

PGE analyzed the first prong of the analysis by citing Sherman County Zoning
Ordinance (SCZO) Section 4.5, which prohibits residential use of “recreational vehicles”
except under very limited circumstances:

\[ \text{Recreational vehicles may not be occupied for residential purposes or other purposes on any lot in the County except as follows:} \]
\[ \text{1. As permitted as a Temporary Residence by Section 4.4.} \]
\[ \text{2. In an approved Recreational Vehicle Park or in an approved Mobile or Manufactured Home Park on spaces specifically approved for RV Vehicle use.} \]
\[ \text{3. As a temporary residence by guests of the owner for a period not to exceed 7-days out of any 30-day period, particularly during major local events such as rodeos, fairs, races, school and community events, adult and youth athletic events, and similar events.} \]

SCZO Section 4.4 allows use of a recreational vehicle as a “temporary residence” in
conjunction with construction of an approved permanent home or placement of an approved
manufactured home. It requires electric, sewer and water connections be made to the
temporary residence. The two “travel trailers” on property R14 are not being used as
temporary residences as allowed under this ordinance. The property is not “an approved
Recreational Vehicle Park or a Mobile or Manufactured Home Park,” and the circumstances
described in paragraph 3 of the ordinance do not apply. For these reasons, the Council
concludes that the local zoning ordinance does not allow residential use of the travel trailers
on property R14.

PGE states that the travel trailers are “used periodically by the landowners.” Such
periodic use might include sleeping. The outbuildings on the property, according to PGE, are
used for agricultural purposes and do not contain facilities for sleeping. The Council finds that
periodic use of the travel trailers on property R14 does not demonstrate that sleeping normally
takes place on the property.

Based on these findings under the two-pronged analysis described above, the Council
finds that R14 does not qualify as a “noise sensitive property” for purposes of compliance
with OAR 340-035-0035(1)(b)(B) because the property is not “normally used for sleeping.”
The Council approves a change to Condition 90 as requested by PGE and as discussed below
in Revision 21.

In addition to the proposed change to Condition 90, PGE asks for a change in
Condition 91. Condition 91 requires a pre-construction noise analysis for turbines proposed to

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41 The travel trailers fall within the definition of “recreational vehicle” in SCZO section 1.4(108).
be built as part of the BCWF other than GE 1.5-MW or GE 3.0-MW turbines. PGE proposes a
change the condition that would limit the analysis to the effects of the facility on the noise
sensitive properties that were identified during the review of the site certificate application
(except for property R14, for the reasons discussed above). Under OAR 345-027-007(9), the
Council applies state statutes and administrative rules in effect on the date the Council makes
its decision on an amendment. Compliance with the noise regulations, therefore, must be
determined by the Council at the time of decision on Amendment #2 and must consider all
existing noise sensitive properties at that time. Accordingly, the Council cannot approve
PGE’s request to limit Condition 91 to properties identified in the site certificate application.

Although the Department has no information about any new noise sensitive properties
at this time, it is possible for a new noise sensitive property to be developed and built after the
Council’s decision on Amendment #2. OAR 340-035-0035 (6)(b) provides for an exception
from the noise regulations for “industrial or commercial facilities previously established in
areas of new development of noise sensitive property.” Under OAR 345-035-0010, any such
exception may be authorized by DEQ upon written request by the owner of the noise source,
but under OAR 345-035-0110, DEQ has “suspended administration of the noise program,
including but not limited to processing requests for exceptions.”

During the review of the Request for Amendment #2, PGE submitted a letter to the
Department requesting that the Council “pursuant to its authority under OAR 345-022-
0000(1)(b), determine that the Biglow Canyon Wind Farm qualifies for an exception to the
standards of OAR 340-035-0035(1) as to any new development of noise-sensitive property,
including residences.” In the letter, PGE analyzed the standards for approval of an exception
as set forth in OAR 345-035-0010(2). Those standards require consideration of “the
protection of health, safety and welfare of Oregon citizens as well as the feasibility and cost of
noise abatement; the past, present and future patterns of land use; the relative timing of land
use changes; and other legal constraints.” Based on the analysis provided by PGE, the Council
makes the following findings in support of the request for an exception under OAR 340-035-
0035 (6)(b):

Public Health, Safety and Welfare

The Council’s siting and site certificate amendment processes include an analysis of
potential noise impacts to those noise sensitive properties in existence at the time of the
Council’s decision. The Council’s procedures for issuance of site certificates and
amendment of site certificates are public processes with many opportunities for public
notice and comment. Through these processes, the potential locations of wind turbines and
substations (which are potential noise sources) are made known to the public. The site
certificate restricts the certificate holder to construction of facility components within the
boundaries of the approved areas. The siting process involves notice to surrounding
landowners of the potential presence of new noise sources. If a facility is built in phases,
the actual presence of wind turbines is further notice to landowners and purchasers of the
potential noise impact. Any property owner who intends to develop a new noise sensitive
use, such as a personal residence, should consider the actual or potential presence of
facility components and any potential adverse health, safety or welfare impacts from the
noise they produce.


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Feasibility and Cost of Noise Abatement

Unlike the many new industrial or commercial noise sources that can be enclosed in a building, wind turbines cannot be enclosed or surrounded by walls, landscaping or other methods of noise abatement. The certificate holder can, to some extent, reduce the noise from substation transformers using such methods, but substation noise generally contributes very little to the overall noise impacts of the facility. For wind turbines, there are only two feasible means of noise abatement: (1) turbine design, and (2) turbine location. The Council’s siting process, by requiring a rigorous analysis of potential noise impacts, encourages certificate holders to select turbines that are designed to reduce the generation of noise and to locate turbines away from existing noise sensitive properties. There is no opportunity for the applicant or the Council to locate turbines to abate noise impacts at noise sensitive properties that do not yet exist. After a turbine has been built as part of a string of turbines and other facility components, it is not feasible to relocate the turbine to accommodate a newly developed noise sensitive property that was built in spite of notice of the presence of the wind facility. In addition, the best use of the wind resource for generation of electricity limits the feasible and cost-effective alternatives for location of the wind turbine generators.

Past, Present and Future Patterns of Land Use

The site of the BCWF is zoned for exclusive farm use. The EFU zoning significantly limits the potential for development of new noise sensitive uses on lands near the facility. The local zoning ordinance limits development of new dwellings (SCZO Sections 3.1.2 and 3.1.3) and requires an 80-acre minimum lot size for new farm parcels (Section 3.1.4(a)). These restrictions make the future development of new noise sensitive uses unlikely.

Relative Timing of Land Use Changes

The Council’s siting and site certificate amendment processes provide advance notice to landowners of the potential construction of wind turbines. The Department and PGE have no information that would indicate significant future changes in land use in the area, including any planned development of new noise sensitive properties.

Legal Constraints

PGE has contractual relationships with many property owners in the BCWF project area, including leaseholds or easements for development of the project, but PGE cannot forbid construction of new noise sensitive uses by other property owners with whom PGE has no contractual relationship. Further, the site certificate restricts the location of wind turbines and substations.

Based on these findings, the Council approves an exception under OAR 340-035-0035(6)(b) for the BCWF (as approved under Amendment #2) from compliance with the noise control regulations with respect to any development of noise sensitive property after the date of this site certificate amendment. The exception is addressed by the changes to Condition 91 as discussed in Revision 22.

The changes to facility components requested under Amendment #2 do not include the addition of any new noise sources. Noise from the turbines and substation transformers has been taken into account under the Council’s previous findings. The Council finds that

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operation of the facility would comply with OAR 340-035-0035(1)(b)(B), subject to the
Department’s recommended revisions to Conditions 90 and 91.

Conclusions of Law

Based on the findings above, the Council finds that, if Amendment #2 were approved, the BCWF would comply with the applicable noise control regulations in OAR 340-035-
0035, subject to amendment of Conditions 90 and 91 as discussed herein.

(b) Removal-Fill Law

The Oregon Removal-Fill Law (ORS 196.800 through .990) and DSL regulations (OAR 141-085-0005 through 141-085-0090) require a Removal/Fill Permit if 50 cubic yards or more of material is removed, filled or altered within any “waters of the state” at the proposed site. 43

Findings of Fact

In the Final Order on the Application, the Council concluded that a Removal/Fill Permit was not needed. One State-jurisdictional water (an intermittent stream) and one wetland were identified within the project area, but the applicant made a commitment to avoid impact to these resources. 44

Under the proposed amendment, PGE would avoid impact to the State-jurisdictional stream, because the interconnection transmission line (which was shown as crossing the stream in one location) would no longer be part of the BCWF facility. The identified wetland lies along Emigrant Springs Lane near a residence. PGE proposes to build a collector line across or near the wetland but would avoid impact to the wetland. 45 It is unclear from the record whether DSL assessed this wetland area to determine its jurisdictional status.

The changes requested by Amendment #2 include additions to the area included within the site boundary. PGE conducted a survey for potential federal or State-jurisdictional waters within the new areas. The survey identified an additional potential State-jurisdictional intermittent stream. 46 If Amendment #2 were approved, a new collector line segment would cross this stream.

PGE proposes new Condition 127 that would require the certificate holder to avoid any disturbance within the stream channel or within a 25-foot buffer on either side of the stream channel. The Council adopts the proposed new condition but modifies it to include avoidance of the wetland along Emigrant Springs Lane, as discussed in Revision 24.

Conclusions of Law

Based on the findings discussed above, the Council concludes that a Removal/Fill Permit would not be needed for the BCWF if Amendment #2 were approved, subject to adoption of proposed Condition 127.

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43 OAR 141-085-0010(225) defines “Waters of this State.” The term includes wetlands and certain other water bodies.

44 The intermittent stream is shown as crossing #7 and the wetland is identified as “POWHX” on Figure J-1 in the site certificate application.

45 E-mail from Mike Pappalardo, CH2M HILL, February 14, 2007.

46 The stream location is identified as “Crossing G” in Attachment 9 of the Request for Amendment #2.
(c) Ground Water Act

Through the provisions of the Ground Water Act of 1955, ORS 537.505 to ORS 537.796, and OAR Chapter 690, the Oregon Water Resources Commission administers the rights of appropriation and use of the ground water resources of the state. Under OAR 345-022-0000(1), the Council must determine whether the proposed BCWF complies with these statutes and administrative rules.

Findings of Fact

In the Final Order on the Application, the Council found that the certificate holder could obtain sufficient water during construction (approximately 12 million gallons) and that no new water right would be needed. The Council found that less than 5,000 gallons per day would be used during facility operation for domestic purposes and blade-washing. This water would come from a new on-site well. No new water right would be needed for this use. The Council adopted Conditions 74, 75 and 76, which address the sources of water during construction and operation, and Condition 88, which requires the certificate holder to demonstrate to the Department that blade-washing would be authorized under a DEQ general permit #1700.

The changes that would be allowed under Amendment #2 would not require any alteration in the proposed water uses or water sources. The amendment would not increase the quantity of water needed during construction or operation. We have discussed the use of water for blade-washing and the revision of Condition 88 above at page 42.

Conclusions of Law

Based on the findings discussed above, the Council concludes that the BCWF would comply with applicable regulations pertaining to water rights if Amendment #2 were approved, subject to revision of Condition 88.

(d) Public Health and Safety

Under ORS 469.310, the Council is charged with ensuring that the “siting, construction and operation of energy facilities shall be accomplished in a manner consistent with protection of the public health and safety…” State law further provides that “the site certificate shall contain conditions for the protection of the public health and safety…” ORS 469.401(2).

Findings of Fact

In the Final Order on the Application, the Council made findings and adopted conditions regarding public safety addressing fire protection (Conditions 92 through 98), magnetic field effects from transmission lines (Condition 99) and coordination with the Oregon Public Utility Commission (Condition 100). The changes that would be allowed if Amendment #2 were approved would not change any of the Council’s previous findings, except that the facility would not include a 230-kV or 500-kV transmission line. The proposed amendment would not affect the certificate holder’s ability to comply with the public safety conditions in the site certificate. The Department did not recommend any changes to the public safety conditions.
Conclusions of Law

Based on the findings discussed above, the Council concludes that the BCWF would comply with requirements to protect public health and safety if Amendment #2 were approved and that no amendment of the conditions related to public safety are needed.

2. Requirements That Are Not Under Council Jurisdiction

(a) Federally-Delegated Programs

Under ORS 469.503(3), the Council does not have jurisdiction for determining compliance with statutes and rules for which the federal government has delegated the decision on compliance to a state agency other than the Council. Nevertheless, the Council may rely on the determinations of compliance and the conditions in the federally-delegated permits issued by these state agencies in deciding whether the proposed facility meets other standards and requirements under its jurisdiction. As required under Condition 26, the certificate holder would conduct all construction work in compliance with an Erosion and Sediment Control Plan satisfactory to the Oregon Department of Environmental Quality and as required under the federally-delegated National Pollutant Discharge Elimination System Storm Water Discharge General Permit #1200-C. The requirements of the 1200-C permit would apply to the entire facility as described under the amended site certificate.

(b) Requirements That Do Not Relate to Siting

Under ORS 469.401(4), the Council does not have authority to preempt the jurisdiction of any state agency or local government over matters that are not included in and governed by the site certificate or amended site certificate. Such matters include design-specific construction or operating standards and practices that do not relate to siting. Nevertheless, the Council may rely on the determinations of compliance and the conditions in the permits issued by these state agencies and local governments in deciding whether the facility meets other standards and requirements under its jurisdiction.

VI. GENERAL APPLICATION OF CONDITIONS

The conditions referenced in this order include conditions that are specifically required by OAR 345-027-0020 (Mandatory Conditions in Site Certificates), OAR 345-027-0023 (Site Specific Conditions), OAR 345-027-0028 (Monitoring Conditions) or OAR Chapter 345, Division 26 (Construction and Operation Rules for Facilities). The conditions referenced in this order include conditions based on representations in the request for amendment and the supporting record. The Council deems these representations to be binding commitments made by the certificate holder. This order also includes conditions that the Council finds necessary to ensure compliance with the siting standards of OAR Chapter 345, Divisions 22 and 24, or to protect public health and safety.

In addition to all other conditions referenced or included in this order, the site certificate holder is subject to all conditions and requirements contained in the rules of the Council and in local ordinances and state law in effect on the date the amended site certificate is executed.47 Under ORS 469.401(2), upon a clear showing of a significant threat to the

47 With regard to land use, the applicable local criteria are those in effect on the date the certificate holder submitted the request for amendment.
public health, safety or the environment that requires application of later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules.

The Council recognizes that many specific tasks related to the design, construction, operation and retirement of the facility will be undertaken by the certificate holder’s agents or contractors. Nevertheless, the certificate holder is responsible for ensuring that all agents and contractors comply with all provisions of the site certificate.

VII. GENERAL CONCLUSION

The proposed amendment would allow the changes to the design and construction of the BCWF as described herein. The Council finds that revisions to Conditions 8, 9, 11, 12, 21, 50, 60, 61, 62, 63, 69, 88, 90 and 91 and revisions to the Wildlife Monitoring and Mitigation Plan (Attachment A), the Revegetation Plan (Attachment B) and the Habitat Mitigation Plan (Attachment C) are needed for approval of the proposed amendment. The Council finds that Conditions 5, 6 and 7 should be removed and new Conditions 126 and 127 should be added for approval of the proposed amendment.

Based on the findings and conclusions discussed above regarding the proposed amendment, the Council makes the following findings:

1. The proposed Amendment #2 complies with the requirements of the Oregon Energy Facility Siting statutes, ORS 469.300 to ORS 469.570 and 469.590 to 469.619.

2. The proposed Amendment #2 complies with the standards adopted by the Council pursuant to ORS 469.501.

3. The proposed Amendment #2 complies with all other Oregon statutes and administrative rules applicable to the amendment of the site certificate for the BCWF and within the Council’s jurisdiction.

Accordingly, the Council finds that the facility complies with the General Standard of Review (OAR 345-022-0000). The Council concludes, based on a preponderance of the evidence on the record, that the site certificate may be amended as requested by the certificate holder, subject to the revisions recommended by the Department and set forth below. The Council adopts the recommended revisions.

1. The Department’s Recommended Revisions

New text proposed by the Department shown with single underline. New text proposed by PGE with concurrence by the Department is shown with double underline. Deletions are shown with a strikethrough.

Revision 1

Page 1, lines 7-11:

The findings of fact, reasoning and conclusions of law underlying the terms and conditions of this site certificate are set forth in the following documents related to the facility, which are incorporated herein by this reference: (a) the Council’s Final Order in the Matter of the Application for a Site Certificate for the Biglow Canyon Wind Farm (the “Final Order on the Application”); and (b) the Council’s Final Order on Amendment #1, and (c) the Council’s Final Order on Amendment #2. [Amendments #1 and #2]
In interpreting this site certificate, any ambiguity shall be clarified by reference to the following, in order of priority: (1) this First Amended Site Certificate; (2) the Final Order on Amendment #2; (3) the Final Order on Amendment #1; (4) the Final Order on the Application; and (5) the record of the proceedings that led to the Final Orders on the Application, Amendment #1, and Amendment #4-12 [Amendments #1 and #2].

C. This site certificate does not address, and is not binding with respect to, matters that were not addressed in the Council’s Final Orders on the Application, Amendment #1 and Amendment #12. These matters include, but are not limited to: building code compliance, wage, hour and other labor regulations, local government fees and charges, and other design or operational issues that do not relate to siting the facility (ORS 469.401(4)) and permits issued under statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council. ORS 469.503(3). [Amendments #1 and #2]

Explanation
This revision includes a reference in the site certificate to the findings of fact, reasoning and conclusions in support of the present amendment. The revision establishes the order of priority in which the underlying documents should be considered in resolving any ambiguity. The revision includes the Final Order on Amendment #2 in the scope of matters addressed in the site certificate. The parenthetical references at the end of the paragraphs follow standard practice and provide a historical reference of when these changes were made to the site certificate.

Revision 2

In the site certificate application, the certificate holder requested the flexibility, within defined 500-foot wide turbine corridors, to defer the final selection of turbine vendor, turbine size, number of turbines to be installed, and precise turbine layout until after the issuance of a site certificate and prior to commencement of construction. In the site certificate application, the certificate holder also defined two alternative transmission line options, two alternative substation locations, and three alternative O&M facility locations. Subject to specific conditions, this site certificate grants that flexibility. The certificate holder to construct wind turbines within defined 500-foot wide turbine corridors and to select turbine vendor, turbine size, number of turbines to be installed and precise turbine layout before beginning construction. This site certificate allows the certificate holder to construct other facility components (collector lines, access roads, meteorological towers) within micrositing areas. The facility is described further in the Final Order on Amendment #2. [Amendment #2]

Explanation
The deleted text describes what the applicant requested in the site certificate application. The proposed revision focuses on what is allowed under the site certificate. In addition, the proposed revision allows the certificate holder to construct other facility components within micrositing areas, as discussed in Section III.3.

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Revision 3

1. **Major Structures.** The Biglow Canyon Wind Farm will consist of up to 225 wind turbines with an aggregate nominal nameplate generating capacity of up to 237.5450 megawatts (MW) of electricity or 450 wind turbines with an aggregate nominal nameplate generating capacity of 450 MW. The overall average electric generating capacity will be about 112.5 MW at up to 150 MW. Turbines will be mounted on tubular steel towers ranging in height from 265 to 280 feet at the hub with an overall height of from 400 to 445 feet including the turbine blades. The turbines will be erected within up to 30 corridors and spaced to optimize the facility’s output. The facility will be located on private farmland that the certificate holder has leased from the affected landowners. [Amendments #1 and #2]

Explanation

The revision clarifies the intended flexibility in turbine selection. If the deleted text were retained, the description might be interpreted as allowing only two possible configurations: either 225 turbines each having a peak capacity of 1.5 MW or 150 turbines each having a peak capacity of 3.0 MW. In contrast, specific conditions previously approved by the Council (for example, Conditions 7, 8, 9 and 91) allow the use of turbines “other than GE 1.5-MW or GE 3.0-MW turbines.” The revision sets upper limits on both the number of turbines (225) and the combined peak generating capacity (450 MW) allowed under the site certificate. The Department believes that the Council intended the specific conditions to be controlling.

Revision 4

Page 3, lines 3-13:

2. **Power Collection System.** Each wind turbine will generate power at about 600 volts. The transformer sitting at the base of each wind turbine unit will increase the voltage to 34.5 kilovolts (kV). From the transformer, power will be transmitted to a central substation by means of electric cables. Most of the cables will be buried three feet or more below the surface in trenches about 3 feet wide. In areas where collector cables from several turbine strings follow the same alignment, e.g., on approach to the substation, multiple sets of cables may be installed within a single trench. If the facility is fully developed, there will be about 408,000 feet (88.609 miles) of 3-wire collector cables. Generally, these cables will be above, below or adjacent to the fiber optic cables comprising the supervisory control and data acquisition system. [Amendment #2]

Explanation

The Department concurs with PGE’s proposed change but recommends adding the historical reference.

Revision 5

Page 3, lines 23-37:

b. **Substations and Interconnection System.** Under one of its transmission alternatives, the certificate holder would construct a new substation in the southern section of the facility site. The substation site would be a graveled, fenced area of up to 6 acres with transformers, switching equipment and a parking area. Transformers would be non-polychlorinated biphenyl (PCB) oil-filled types. The facility will transmit line would be about 3 miles long and would interconnect with the new Bonneville
Power Administration (BPA) system transmission line adjacent to the facility substation at the existing Klondike Schoolhouse Substation. Under its second transmission alternative, the certificate holder would construct a new substation near the center of the facility site. The substation site would be a graded, fenced area of up to 6 acres with transformers, switching equipment and a parking area. Transformers would be non-PCB oil-filled types. The transmission line would be about 7 miles long and would interconnect with an electric transformer or switching facility to be installed at BPA’s John Day Substation or Switchyard for delivery of electricity to BPA’s high-voltage transmission system. [Amendment #2]

**Explanation**

The revision describes a single substation with an adjacent interconnection with the BPA system. During the review of the amendment request, PGE confirmed its final selection of the substation site. The Department recommends that the Council revise the text proposed by PGE in the amendment request to describe a single substation location and the removal of the transmission lines.

**Revision 6**

Page 3, lines 41-44, and page 4, lines 1-13:

d. **Operations and Maintenance Building.** The site of the operations and maintenance building will comprise about 5 acres adjacent to the substation on Herin Lane. The O&M building will occupy about 5,000 square feet and will include office and workshop areas, control room, kitchen, bathroom, shower, utility sink, and other typical facilities. Water for the bathroom, shower and kitchen will be obtained from an onsite well constructed by a licensed contractor in accordance with local and state requirements. Water use will not be expected to exceed 1,000 gallons per day. Domestic wastewater generated at the O&M facility will drain into an onsite septic system. A graveled parking area for employees, visitors and equipment will be located adjacent to the O&M facility.

The certificate holder proposed three alternative locations for the O&M facility: (1) adjacent to the substation to the located in the southern section of the facility site in the event Biglow is interconnected to the BPA transmission system by means of the Klondike Schoolhouse Substation; (2) adjacent to the substation to be located near the center of the facility site in the event Biglow is interconnected to the BPA transmission system by means of the John Day Substation; or (3) at the site of an existing house located at 97327 Emigrant Lane, Wasco, Oregon. [Amendment #2]

**Explanation**

The Department recommends that the Council revise the text proposed by PGE in the amendment request to describe a single O&M building location. During the review of the amendment request, PGE confirmed its final selection of the O&M building site.

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48 E-mail from Rick Tetzloff, December 29, 2006.
49 In the Proposed Order, the Department erroneously referred to “the intersection of Herin Lane and North Klondike Road.” These roads do not intersect.
50 E-mail from Rick Tetzloff, December 29, 2006.
Revision 7

Page 4, lines 20-25:

f. Access Roads. The certificate holder will construct about 40.541.5 miles of new roads
to provide access to the wind turbine strings, together with turnaround areas at the end
of each wind turbine string. The roads will be about 16 feet wide (possibly up to 28
feet wide in some locations) and will be composed of crushed gravel with shoulders
(without gravel) about 3 feet wide. In addition, the certificate holder will improve
about 0.7 mile of existing roads by providing an all-weather surface and, in some
cases, widening the roads to accommodate construction vehicles. [Amendment #2]

Explanation

The Department concurs with PGE’s proposed change but recommends adding the
historical reference.

Revision 8

Page 4, after line 34:

h. Temporary Crane Paths. The certificate holder will develop seven temporary crane
paths, totaling approximately 5.1 miles, in order to move construction cranes between
turbine corridors. The temporary crane paths will be returned to their pre-construction
condition following completion of construction of the facility. [Amendment #2]

Explanation

The Department concurs with PGE’s proposed change but recommends adding the
historical reference.

Revision 9

Page 5, lines 25-30:

(5) If the certificate holder elects to build the facility in a single phase using only GE 1.5-
MW turbines, GE 3.0 MW turbines or a combination of these two GE turbines, before
beginning construction of the facility and after considering all micrositing factors, the
certificate holder shall provide to the Department a detailed map of the proposed facility
showing the final locations where facility components are proposed to be built within the
500-foot wide corridors shown on Revised Figures C-2 and C-2A of the ASC
Supplement. [Condition removed by Amendment #2]

Explanation

The Department concurs with PGE’s proposed change but recommends adding the
historical reference.

Revision 10

Page 5, lines 31-40, and page 6, lines 1-3:

(6) If the certificate holder proposes to build the facility in more than one phase using only
GE 1.5 MW turbines, GE 3.0 MW turbines or a combination of these two GE turbines,
before beginning construction of any phase of the facility and after considering all
micrositing factors, the certificate holder shall provide to the Department a detailed map
of that phase of the facility showing the final locations where facility components are
proposed to be built within the 500-foot wide corridors shown on Revised Figures C-2
and C-2A of the ASC Supplement, shall identify on this map the facilities that would
constitute that phase of construction, and shall provide documentation defining the quantities of each of the following components that would constitute that phase of construction: GE 1.5-MW turbines, GE 3.0-MW turbines, pad transformers, meteorological towers, substation, O&M facility, miles of 230 kV or 500 kV transmission line, miles of aboveground 34.5-kV collector system, miles of access road, acres of turnaround and access road intersections, and acres of temporary laydown area. [Condition removed by Amendment #2]

Explanation

Condition 6 would apply "if the certificate holder proposes to build the facility in more than one phase using only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of these two GE turbines." PGE is not using either GE 1.5-MW or GE 3.0-MW turbines in the first phase of construction of the BCWF. Accordingly, this condition does not apply and can be removed from the site certificate.

Revision 11

Page 6, lines 4-16:

(7) If the certificate holder elects to build the facility in a single phase using any turbines other than the GE 1.5-MW turbines or GE 3.0-MW turbines, before beginning construction of the facility and after considering all micrositing factors, the certificate holder shall provide to the Department a detailed map of the proposed facility showing the final locations where facility components are proposed to be built within the 500-foot wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement. The certificate holder shall include with this map documentation defining quantities of each of the following components that would constitute the complete facility: turbines, pad transformers, meteorological towers, substation, O&M facility, miles of 230 kV or 500 kV transmission line, miles of aboveground 34.5-kV collector system, miles of access road, acres of turnaround and access road intersections, and acres of temporary laydown area. For each turbine, the certificate shall define the turbine manufacturer, turbine capacity, weight of steel, height of tower, sweep of blade, and size of concrete foundation. [Condition removed by Amendment #2]

Explanation

The Department concurs with PGE's proposed change but recommends adding the historical reference.

Revision 12

Page 6, lines 17-30:

(8) If the certificate holder elects to build the facility in more than one phase using any turbines other than the GE 1.5-MW turbines or GE 3.0-MW turbines, before beginning construction of any phase of the facility and after considering all micrositing factors, the certificate holder shall provide to the Department a detailed map of that phase of the facility showing the final locations where facility components are proposed to be built within the 500-foot wide corridors shown on Revised Figures C-2 and C-2A of the ASC Supplement in relation to the features and micrositing corridors shown on Figure 1a as identified in the Final Order on Amendment #2, shall identify on this map the facilities that would constitute that phase of construction, and shall provide documentation defining the quantities of each of the following components that would constitute that phase of construction: turbines, pad transformers, meteorological towers, substation,
O&M facility, miles of 230-kV or 500-kV transmission line, miles of aboveground 34.5-
KV collector system, miles of access road, acres of turnarounds and access road
intersections, and acres of temporary laydown area and miles of temporary crane paths.
For each turbine, the certificate shall define the turbine manufacturer, turbine capacity,
weight of steel, height of tower, sweep of blade, and size of concrete foundation.
[Amendment #2]

Explanation

The Department recommends updating the reference to the figure that identifies the
approved micrositing corridors and other facility features. As described herein, “Figure 1a” is
Figure 1a of the amendment request as revised by e-mail from Rick Tetzloff, March 1, 2007,
with attachment (“p1r2Figure1a_3-1-07.pdf”). The Department concurs with the other
changes requested by PGE but recommends adding the historical reference.

Revision 13

Page 6, lines 31, through page 8, line 4:

(9) If the certificate holder elects to build the facility in a single phase using only GE 1.5-
MW turbines, GE 3.0 MW turbines or a combination of these two GE turbines, before
beginning construction of the facility the certificate holder shall submit to the State of
Oregon through the Council a bond or letter of credit in the amount of $6.208 million (in
2005 dollars) naming the State of Oregon, acting by and through the Council as
beneficiary or payee. If the certificate holder elects to build the facility in a single phase
using any turbines other than the GE 1.5 MW or GE 3.0 MW turbines or if the
certificate holder elects to build the facility in more than one phase using any
combination of turbines, before beginning construction of any phase of the facility, the
certificate holder shall submit to the State of Oregon through the Council a bond or letter
of credit naming the State of Oregon, acting by and through the Council, as beneficiary
or payee in the amount (in 2005 dollars) determined by the Department as the gross cost
of demolition and site restoration minus the carbon steel scrap value plus the one percent
performance bond amount, ten percent administration and project management costs and
twenty percent future developments contingency applicable to the proposed phase of
construction, together with any previous phases of construction. If the certificate holder
elects to build the facility in more than one phase using only GE 1.5 MW turbines, GE
3.0 MW turbines or a combination of the two GE turbines, the Department will establish
the amount of the bond or letter of credit by applying the unit costs described in Table 5
of the Council’s final order on the site certificate application (incorporated herein by this
reference) to the number of units identified by the certificate holder and verified by the
Department as applicable to the proposed phase and any previous phases of construction
and adding to that subtotal the one percent performance bond amount, ten percent
administration and project management costs and twenty percent future developments
contingency. If the certificate holder elects to build the facility using any turbines other
than the GE 1.5 MW turbines or GE 3.0 MW turbines, for each phase of construction
the Department will establish the amount of the bond or letter of credit by using its
Facility Retirement Cost Estimating Guide to estimate the gross cost of demolition and
site restoration minus the carbon steel scrap value plus the one percent performance
bond amount, ten percent administration and project management costs and twenty-
percent future developments contingency. In February 2007, in accordance with the
terms and conditions of the First Amended Site Certificate, the certificate holder
submitted to the State of Oregon through the Council a letter of credit in the amount of
$1.608 million before beginning construction of Phase 1 of the facility. The calculation
of the amount of the letter of credit included a deduction from the estimated cost of site
restoration for Phase 1 for the estimated value of scrap steel. In the Final Order on
Amendment #2, the Council found that there should be no deduction of scrap or salvage
value in calculating the amount of financial assurance required for site restoration.

Within 60 days following the effective date of the Second Amended Site Certificate, the
certificate holder shall submit an amended or replacement letter of credit for Phase 1 in
the amount of $4.73 million (in 2005 dollars), adjusted to present value as of the date of
issuance as described in (a).

Before beginning construction of any future phase of the facility, the certificate holder
shall submit a bond or letter of credit for that phase in an amount approved by the
Department and based on the costs shown in Table 3 of the Final Order on Amendment
#2.

(a) The certificate holder shall adjust the amounts of the bond or letter of credit
annually, all bonds or letters of credit submitted in compliance with this condition to
present value as of the date of issuance, using the following calculation and subject to
approval by the Department:

   (i) Adjust the gross cost (in 2005 dollars) to present value, using the U.S. Gross
   Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon
   Department of Administrative Services’ Oregon Economic and Revenue Forecast or by
   any successor agency (the “Index”). If at any time the Index is no longer published, the
   Council shall select a comparable calculation to adjust 2005 dollars to present value.

   (ii) Adjust the estimated carbon steel scrap value by an index factor derived from
   the Producer Price Index values, not seasonally adjusted, reported by the U.S.
   Department of Labor, Bureau of Labor Statistics, “Commodities: Metals and Metal
   Products: Carbon Steel Scrap” (Series ID: WPU1012111). Using the average monthly
   index value for the 12 months ending with December of the year preceding the year in
   which the adjustment is made as the numerator and the average monthly index value for
   the 12 months ending with December 2005 (277.2) as the denominator, multiply the
   estimated scrap value of $149 per net ton (in 2005 dollars) by the resulting factor. If at
   any time the Producer Price Index Values are no longer published, the Council shall
   select a comparable calculation to adjust the estimated scrap value.

   (iii) Multiply the adjusted carbon steelp scrap value (ii) per net ton by the number
   of tons of carbon steel scrap applicable to the phase or phases of construction to which
   the letter of credit applies and subtract the resulting value from the adjusted gross cost
   (i).

   (iv) Add 1 percent of the subtotal (iii) adjusted gross cost for the adjusted
   performance bond amount, 10 percent of the subtotal (iii) adjusted gross cost for the
   adjusted administration and project management costs, and 2010 percent of the subtotal
   (iii) adjusted gross cost for the adjusted future developments contingency.

   (viii) Add the subtotal adjusted gross cost (iii) to the sum of the percentages (iv)
   and round the resulting total to the nearest $1,000 to determine the adjusted financial
   assurance amount for the reporting year.
(b) The certificate holder shall annually adjust all bonds or letters of credit submitted in compliance with this condition to present value as of the date of issuance as described in (a).

(b) The certificate holder shall use a form of bond or letter of credit approved by the Council.

(ed) The certificate holder shall use an issuer of the bond or letter of credit approved by the Council.

(de) The certificate holder shall describe the status of all bonds or letters of credit for the facility in the annual report submitted to the Council under Condition (122).

(ef) The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility.

[Amendment #2]

Explanation

As discussed above (pages 16 through 21), the Council considered whether to continue to allow a deduction for scrap or salvage value when estimating the appropriate amount of financial assurance required under site certificates. Based on Council discussion at the February 2007 meeting, the Department recommended that the Council require the certificate holder to increase the financial assurance amount for Phase 1. The Department further recommended that the Council find that there should be no deduction of scrap or salvage value in calculating the amount of financial assurance required for site restoration for future phases of the BCWF but that the future developments contingency adder be calculated as 10-percent of the gross cost estimate.

Revision 14

Page 8, lines 13-26:

(11) The certificate holder shall begin construction of the facility within three years after the effective date of the site certificate by June 30, 2009. Under OAR 345-015-0085(9), a site certificate is effective upon execution by the Council Chair and the applicant. The Council may grant an extension of the deadline to begin construction in accordance with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted. [Amendment #2]

(12) The certificate holder shall complete construction of the facility within five years after the effective date of the site certificate by June 30, 2011. Construction is complete when: (1) the facility is substantially complete as defined by the certificate holder’s construction contract documents; (2) acceptance testing has been satisfactorily completed; and (3) the energy facility is ready to begin continuous operation consistent with the site certificate. The certificate holder shall promptly notify the Department of the date of completion of construction. The Council may grant an extension of the deadline for completing construction in accordance with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted. [Amendment #2]
Explanation

The site certificate became effective June 30, 2006. The Council intended the construction beginning and completion deadlines to run from that date. To avoid possible confusion with the effective dates of subsequent amended site certificates, the Department recommends revisions to Conditions 11 and 12 to specify the deadline dates.

Revision 15

Page 9, lines 13-18:

(21) The certificate holder shall locate access roads and temporary construction laydown and staging areas to minimize disturbance with farming practices and, wherever feasible, shall place turbines and transmission interconnection lines along the margins of cultivated areas to reduce the potential for conflict with farm operations. The certificate holder shall place aboveground transmission and collector lines and junction boxes along property lines and public road rights-of-way to the extent practicable. [Amendment #2]

Explanation

Because the 230-kV or 500-kV transmission lines originally included in the facility description would be eliminated under Amendment #2, PGE requested a change to Condition 21. Although the Department treats collector lines as a type of transmission line, the Department concurs with PGE’s request but recommends adding the historical reference.

Revision 16

Page 12, lines 11-23:

(50) During construction of the facility, to reduce the visual impact of the facility, the certificate holder shall:

(a) Paint turbine towers, nacelles, rotors, meteorological towers, and cabinets containing pad-mounted equipment with a low-reflectivity, neutral gray, white, off-white or earth tone finish to reduce contrast with the surrounding background.

(b) Apply a low-reflectivity finish to the exterior of the O&M building and substation equipment to control their visual integration into the surrounding background.

(c) With the exception of the turbine manufacturer’s logo that may appear on turbine nacelles, not allow any advertising to be used on any part of the facility or on any signs posted at the facility. In addition, if the Council amends OAR 345-024-0015 by eliminating the restriction in Section (1)(a) of that rule and not otherwise prohibiting the use of a logo, the certificate holder may place its logo on the nacelles of not more than 20 percent of the wind turbines.

(d) Use only those signs required by law or for facility safety or security, except that the certificate holder may erect a sign near the O&M facility or substation to identify the wind energy facility.

[Amendment #2]

Explanation

PGE has proposed the use of a simple, understated logo on not more than 20 percent of the turbine nacelles, as discussed above at page 32. Because this request might conflict with the current Council standard in OAR 345-025-0015, the Department recommends a
change to Condition 50 to allow PGE to use its logo in the manner requested, contingent on
amendment of the standard.

Revision 17

Page 14, lines 13-29:

In addition, the certificate holder shall flag the boundaries of the 1300-foot buffer area,
or such lesser distance as may be approved by the Department in the event there is an
adequate physical barrier between the nest site and the construction impacts, and shall
instruct construction personnel to avoid any unnecessary activity within the buffer area.
The certificate holder shall direct a qualified biologist, independent third-party biological
monitor, as approved by the Department, to observe the active nest sites during the
sensitive period for signs of disturbance and to notify the Department of any non-
compliance with this condition. The Department has approved the qualifications of the
four biologists identified in the Final Order on Amendment #2. The certificate holder
may select other qualified biologists to observe the nest sites, subject to Department
approval. If the monitor biologist observes nest site abandonment or other adverse impact
to nesting activity, the certificate holder shall implement appropriate mitigation, in
consultation with ODFW and subject to the approval of the Department, unless the
adverse impact is clearly shown to have a cause other than construction activity. The
certificate holder may begin or resume high-impact construction activities before the
ending day of the sensitive period if any known nest site is not occupied by the early
release date. If a nest site is occupied, then the certificate holder may begin or resume
high-impact construction before the ending day of the sensitive period with the approval
of ODFW, after the young are fledged. The certificate holder shall use a protocol
approved by ODFW to determine when the young are fledged (the young are
independent of the core nest site). [Amendment #2]

Explanation

PGE proposed a modification to this paragraph in Condition 60 to allow “a qualified
biological monitor” to observe nest sites as required under the condition. The Department
recommends that the Council approve PGE’s request to use its own qualified staff biologists
or, subject to Department approval, third-party biologists. The Department further
recommends that the Council require that PGE first obtain Department approval before using
staff biologists other than the four individuals identified herein.

Revision 18

Page 14, line 30, through page 15, line 2:

(61) The certificate holder shall conduct wildlife monitoring and mitigation in accordance
with the Wildlife Monitoring and Mitigation Plan that is incorporated in the Final Order
on Amendment #2 as Attachment A and as may be amended from time to time. [Amendment
#2]

(62) The certificate holder shall restore areas that are temporarily disturbed during
construction in accordance with the methods, monitoring procedures and success criteria
set forth in the Revegetation Plan that is incorporated in the Final Order on
Amendment #2 as Attachment B and as may be amended from time to time. [Amendment
#2]

(63) Before beginning construction of the facility, the certificate holder shall acquire the legal
right to create, maintain and protect a 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. Within the habitat mitigation
area, the certificate holder shall improve the habitat quality in accordance with the
Habitat Mitigation Plan that is incorporated in the order Final Order on Amendment #2
as Attachment C and as may be amended from time to time. [Amendment #2]

Explanation

The Department recommends that the Council modify Conditions 61, 62 and 63 to
specifically identify the order that these conditions reference. It is appropriate to reference the
Final Order on Amendment #2 in these conditions, because the Department is also
recommending that the Council revise the Wildlife Monitoring and Mitigation Plan, the
Revegetation Plan and the Habitat Mitigation Plan as part of Amendment #2. The
Department’s proposed revisions to the three plans are shown in “mark-up” versions of
Attachments A, B and C, which are incorporated in this revision by reference.

Revision 19

Page 15, lines 23-35:

(69) Before beginning construction of any phase of the facility, the certificate holder shall
provide to the Department a map showing the final design locations of all components of
that phase of the facility and areas that would be temporarily disturbed during
construction and also showing the areas surveyed by CH2M Hill and Archaeological
Investigations Northwest, Inc. (AINW) in preparing the Cultural Resources Surveys for
Biglow Canyon Wind Farm included in the site certificate application as Attachment S-
4-1 and in Request for Amendment #2 as Attachment 15. The certificate holder shall hire
qualified personnel to conduct field investigation of all areas of permanent or temporary
disturbance that CH2M Hill and AINW did not previously survey and shall provide to
the Department a written report of the field investigation. If any significant historic,
cultural or archaeological resources are found during the field investigation, the
certificate holder shall ensure that construction and operation of the facility will have no
impact on the resources. The certificate holder shall instruct all construction personnel to
avoid areas where the resources were found and shall implement other appropriate
measures to protect the resources. [Amendment #2]

Explanation

The Department concurs with PGE’s proposed change but recommends adding the
historical reference.

Revision 20

Page 18, lines 29-31:

(88) During operation of the facility, the certificate holder shall may engage in blade-washing
activities but shall ensure that these activities do not cause runoff of washwater from the
site or discharges to surface waters, storm sewers or dry wells. The certificate holder
shall not use acids, bases or metal brighteners with the wash water. The certificate may
use biodegradable, phosphate-free cleaners sparingly, only in accordance with the
appropriate Wastewater General Permit #1700 issued by the Oregon Department of
Environmental Quality and all applicable regulations. [Amendment #2]
Explanation

Based on information received from DEQ, a Wastewater General Permit #1700 would not be needed if the certificate holder complies with the restrictions described in the proposed revision of Condition 88.

Revision 21

Page 18, line 38, through page 20, line 5:

(90) If the GE 1.5-MW turbines (for which the certificate holder states the maximum sound power level warranted by the manufacturer is 104 dBA) or the GE 3.0-MW turbines (provided the certificate holder is able to demonstrate, by means of the manufacturer’s warranty or other means acceptable to the Department, that the maximum sound power level of the GE 3.0-MW turbine is 106 dBA) will be used at the facility, before beginning construction, the certificate holder shall present information demonstrating to the satisfaction of the Department that each of the following requirements have been met at the 24 identified noise sensitive properties. The identified noise sensitive properties are the properties listed in Table 12 of the Final Order on the Application and further identified in the Final Order on Amendment #2, except for property R14-all-25 properties identified as noise sensitive properties in the site certificate application:

(a) For any identified noise sensitive property listed in Table 12 where the previously-predicted maximum hourly $L_{50}$ noise level caused by the facility would equal or exceed 50 dBA, the certificate holder shall identify the final design locations of all turbines to be built and perform a noise analysis demonstrating, in accordance with OAR 340-035-0035(1)(b)(B)(iii)(IV), that the total hourly $L_{50}$ noise level generated by the facility would not exceed 50 dBA at the appropriate measurement point. The certificate holder shall perform the noise analysis using the noise model, CADNA/A by DataKustik GmbH of Munich, Germany, and shall assume the following input parameters:

- The maximum sound power level of turbines and substation transformers based on the manufacturers’ warranty warranted by the manufacturer or confirmed by other means acceptable to the Department
- The exact locations of the proposed turbines
- The environmental factors included in the original noise analysis, i.e., the temperature, relative humidity, barrier effects and ground effects used in the original analysis. If the certificate holder has cause to believe the environmental factors included in the original noise analysis are no longer valid for a particular receiver, the certificate holder shall perform the noise analysis for that receiver using both the environmental factors included in the original noise analysis and the environmental factors the certificate holder now believes to be applicable to that receiver.

(b) Where the previously-predicted hourly $L_{50}$ noise levels caused by the facility would exceed 36 dBA but not exceed 50 dBA at any identified noise sensitive property listed in Table 12, the certificate holder has obtained a legally effective easement or real covenant pursuant to which the owner of the property authorizes the certificate holder’s operation of the facility to increase ambient statistical noise levels $L_{10}$ and $L_{50}$ by more than 10 dBA at the appropriate measurement point. A legally effective easement or real covenant shall: (i) include a legal description of the burdened property (the noise sensitive property); (ii) be recorded in the real property records of the county; (iii) expressly benefit the certificate holder; (iv) expressly run with the land and bind all

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future owners, lessees or holders of any interest in the burdened property; and (v) not be subject to revocation without the certificate holder’s written approval.

(c) If, for any identified noise sensitive property listed in Table 12 where the previously-predicted hourly $L_{eq}$ noise levels caused by the facility would exceed 36 dBA but not exceed 50 dBA, the certificate holder has not obtained a legally effective easement or real covenant as described in (b) above, the certificate holder shall identify the final design locations of all turbines to be built and perform a noise analysis demonstrating, in accordance with OAR 340-035-0035(1)(b)(B)(iii)(IV), that the total noise generated by the facility (including the noise from turbines and substation transformers) would meet the ambient noise degradation test at the appropriate measurement point on those noise sensitive properties. The certificate holder shall perform the noise analysis using the noise model, CADNA/A by DataKustik GmbH of Munich, Germany, and shall assume the following input parameters:

- The maximum sound power level of turbines and substation transformers based on the manufacturers’ warranty, warrantied by the manufacturer or confirmed by other means acceptable to the Department
- The exact locations of the proposed turbines
- The environmental factors included in the original noise analysis, i.e., the temperature, relative humidity, barrier effects and ground effects used in the original analysis. If the certificate holder has cause to believe the environmental factors included in the original noise analysis are no longer valid for a particular receiver, the certificate holder shall perform the noise analysis for that receiver using both the environmental factors included in the original noise analysis and the environmental factors the certificate holder now believes to be applicable to that receiver.

[Amendment #2]

Explanation

The Department concurs with the substance of the change PGE has requested, but the Department recommends that the Council adopt the changes shown above to more clearly identify the noise sensitive properties to which the condition applies. In addition, the Department recommends that the condition more clearly state that “total noise generated by the facility” includes noise generated by substation transformers.

Revision 22

Page 20, lines 6-29:

(91) **Before beginning construction using turbines other than the GE 1.5-MW turbines (for which the certificate holder states the maximum sound power level warrantied by the manufacturer is 104 dBA) or the GE 3.0-MW turbines (for which the certificate holder has assumed a maximum sound power level of 106 dBA) will be used at the facility, before beginning construction of the facility, the certificate holder shall:**

(a) **Identify the final design locations of all turbines to be built, perform a complete new noise analysis for all turbines and substation transformers, and generate a new table listing each noise sensitive property, as defined in OAR 340-035-0015(38), and the predicted maximum hourly $L_{eq}$ noise level at each noise sensitive property. The certificate holder shall perform the noise analysis using the noise model, CADNA/A by**
DataKustik GmbH of Munich, Germany, and shall assume the following input parameters:

- The maximum sound power level of turbines and substation transformers based on the manufacturers' warranty, warrantied by the manufacturer or confirmed by other means acceptable to the Department.
- The exact locations of the proposed turbines.
- The environmental factors included in the original noise analysis, i.e., the temperature, relative humidity, barrier effects and ground effects used in the original analysis. If the certificate holder has cause to believe the environmental factors included in the original noise analysis are no longer valid for a particular receiver, the certificate holder shall perform the noise analysis for that receiver using both the environmental factors included in the original noise analysis and the environmental factors the certificate holder now believes to be applicable to that receiver.

(b) After generating the new table identifying noise sensitive properties and the predicted maximum hourly $L_{eq}$ noise level at each noise sensitive property, the certificate holder shall demonstrate to the satisfaction of the Department that the requirements of paragraphs (a), (b) and (c) of Conditions (90)(a), (90)(b) and (90)(c) have been met for each noise sensitive property listed on the new table generated under paragraph (a) of this condition, properties identified in that table except for any new development of noise sensitive property that occurs after the effective date of the Second Amended Site Certificate.

[Amendment #2]

Explanation

The changes to Condition 91 recommended by the Department clarify the intent of the condition by eliminating unnecessary words and by changing the format of the condition. The Department recommends that the condition specify that substation transformer noise be included in the noise analysis in (a). The Department recommends that the condition acknowledge the Council’s finding regarding an exception for new development of noise sensitive property, as discussed herein.

Revision 23

Page 27, following line 14:

VI. CONDITIONS RELATING TO AMENDMENT #2

(126) Prior to any disturbance in the areas of the site added in the Final Order for Amendment #2, the certificate holder shall deliver to the Department the results of a spring survey of Crossing G, conducted during the appropriate bloom time for Northern wormwood and Henderson’s ricegrass. If Northern wormwood or any other protected rare plant species are observed during the spring survey, the certificate holder shall ensure that construction and operation of the facility will have no impact on the rare plant habitat. [Amendment #2]

Explanation

PGE proposes adding new Section VI, “Conditions Relating to Amendment #2,” to the site certificate and adding new Condition (126). The proposed new condition reflects the
recommendations of a rare plant survey conducted by CH2M HILL and included in the
Request for Amendment #2. As discussed at page 34 above, the report recommended a spring
survey be conducted in small areas of habitat suitable for Northern wormwood before any
ground disturbance in the area. The Department concurs with PGE’s request but recommends
that the Council include a requirement to avoid impact if any rare plants are found.

Revision 24

Page 27, following proposed Condition 126:

(127) The certificate holder shall avoid any disturbance, including the placement of poles
for the collector line, within 25 feet of the stream channel in the area identified as
Crossing G in the Request for Amendment #2 and within a wetland area identified as
"POWHX" on Figure J-1 of the site certificate application. [Amendment #2]

Explanation
The Department concurs with PGE’s request but recommends that the Council include
a requirement to avoid impact to an additional wetland area that was identified in the site
certificate application.

VIII. ORDER
The Council approves Amendment #2 and issues an amended site certificate for the
Biglow Canyon Wind Farm, subject to the terms and conditions set forth above.

Issued this 10th day of May, 2007.

THE OREGON ENERGY FACILITY SITING COUNCIL

By:  
David Ripma
Chair, Oregon Energy Facility Siting Council

Attachments
Attachment A: Wildlife Monitoring and Mitigation Plan
Attachment B: Revegetation Plan
Attachment C: Habitat Enhancement Plan

Notice of the Right to Appeal
You have the right to appeal this order to the Oregon Supreme Court pursuant to
ORS 469.403. To appeal you must file a petition for judicial review with the Supreme Court
within 60 days from the day this order was served on you. If this order was personally
delivered to you, the date of service is the date you received this order. If this order was
mailed to you, the date of service is the date it was mailed, not the day you received it. If you
do not file a petition for judicial review within the 60-day time period, you lose your right to
appeal.
This plan describes wildlife monitoring that the certificate holder shall conduct during operation of the Biglow Canyon Wind Farm (BCWF). The monitoring objectives are to determine whether operation of the facility causes significant fatalities of birds and bats and to determine whether the facility results in a loss of habitat quality. The BCWF facility consists of up to 225 wind turbines with a maximum generating capacity of 450 MW, up to 10 permanent meteorological towers and other related or supporting facilities as described in the site certificate. The BCWF will be built in phases.

The certificate holder shall use experienced personnel to manage the monitoring required under this plan and properly trained personnel to conduct the monitoring, subject to approval by the Oregon Department of Energy (Department) as to professional qualifications. For all components of this plan except the Raptor Nesting Surveys and the Wildlife Incident Response and Handling System, the certificate holder shall direct a qualified independent third-party biological monitor, as approved by the Department, to perform monitoring tasks.

The Wildlife Monitoring and Mitigation Plan for the BCWF has the following components:

1) Fatality Monitoring Program including:
   a) Removal Trials
   b) Searcher Efficiency Trials
   c) Fatality Monitoring Search Protocol
   d) Statistical Analysis
2) Raptor Nesting Surveys
3) Avian Use and Behavior Surveys
4) Wildlife Incident Response and Handling System

Following is a discussion of the components of the monitoring plan, statistical analysis methods for fatality data, data reporting and potential mitigation.

The selection of the mitigation actions that the certificate holder may be required to implement under this plan 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).

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1 This plan is incorporated by reference in the site certificate for the BCWF 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.
1. Fatality Monitoring

(a) Definitions and Methods

Seasons

This plan uses the following dates for defining seasons:

<table>
<thead>
<tr>
<th>Season</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Migration</td>
<td>March 16 to May 15</td>
</tr>
<tr>
<td>Summer/Breeding</td>
<td>May 16 to August 15</td>
</tr>
<tr>
<td>Fall Migration</td>
<td>August 16 to October 31</td>
</tr>
<tr>
<td>Winter</td>
<td>November 1 to March 15</td>
</tr>
</tbody>
</table>

Search Plots

The certificate holder 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 the following sampling scheme, consistent with the sample size requirements for that phase of the facility, as outlined below: On each of the nine turbine strings that extend toward the John Day River, the certificate holder shall include in search plots the two turbines closest to the river for each phase in which these turbines are built. In addition, the certificate holder shall include, for each phase, representative turbines distributed throughout the site, consistent with the sample size described below. 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 provide maps of the search plots to the Department and ODFW before beginning fatality monitoring at the facility. The certificate holder will use the same search plots for each search conducted during each monitoring year. During the second monitoring year, the same end-of-row turbines nearest the John Day River will be sampled, but the other search plots will be selected from the turbines not sampled during the first monitoring year.

Sample Size

The sample size for fatality monitoring is the number of turbines searched per monitoring year. The facility will be built in phases. For the first phase of development (in which 76 turbines will be built), the certificate holder shall conduct fatality monitoring during the first two monitoring years in search plots that include 50 turbines.

The sample size for future phases of the facility, if they are built, will include search plots for a minimum of 40 percent of the wind turbines in that phase but not fewer than 50 turbines, unless the entire phase is fewer than 50 turbines, in which event all turbines will be sampled. The sample size might be larger if, under Section 1(g) of this plan, mitigation is required based on the results of fatality monitoring of the first phase.
If no mitigation is required under Section 1(g) of this plan based on the results of fatality monitoring of the first phase, then the sample size for monitoring future phases of the facility may be reduced appropriately if the Department concurs.

If mitigation is required under Section 1(g) of this plan based on the results of fatality monitoring of the first phase, then the certificate holder shall propose an appropriate sample size for monitoring the next phase of the facility. The need for, and scope of, fatality monitoring for subsequent phases are subject to the approval of the Department.

**Scheduling and Sampling Frequency**

Fatality monitoring will begin upon the commencement of commercial operation of the facility. Fatality monitoring for each subsequent phase will begin upon commercial operation of that phase.

For each phase, the first fatality monitoring year will commence on the first day of the month following the commercial operation date of that phase of the facility and will conclude twelve months later (for example, if commercial operation begins in October of 2007, the monitoring year will commence on November 1, 2007, and conclude on October 31, 2008). Subsequent monitoring years of that phase will follow the same schedule (for example, the second monitoring year would begin November 1, 2008) unless the second fatality-monitoring year is postponed with the concurrence of the Department.

In each monitoring year, the certificate holder shall conduct fatality-monitoring searches at the rates of frequency shown below. Over the course of one monitoring year, the certificate holder would conduct 16 searches\(^2\), as follows:

<table>
<thead>
<tr>
<th>Season</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Migration</td>
<td>2 searches per month (4 searches)</td>
</tr>
<tr>
<td>Summer/Breeding</td>
<td>1 search per month (3 searches)</td>
</tr>
<tr>
<td>Fall Migration</td>
<td>2 searches per month (5 searches)</td>
</tr>
<tr>
<td>Winter</td>
<td>1 search per month (4 searches)</td>
</tr>
</tbody>
</table>

**Duration of Fatality Monitoring**

Fatality monitoring of the first phase of the facility will be complete after two monitoring years, except as follows: A worst-case analysis will be used to resolve any uncertainty in the results of the two years of monitoring data for purposes of determining the mitigation requirements for the facility. If the first two years of monitoring data indicate the potential for unexpected impacts of a type that cannot be resolved appropriately by worst-case analysis and appropriate mitigation, additional, targeted monitoring may be conducted for the first phase of the facility for up to an additional two years before determining the mitigation requirements for the facility, or, alternatively, sample sizes larger than those outlined above will be used in monitoring of subsequent phases of development of the facility.

**Meteorological Towers**

The facility will most likely use non-guyed meteorological towers. Non-guyed towers are known to cause little if any bird and bat mortality. Therefore, monitoring will not occur at non-
guyed meteorological towers. If the meteorological towers are guyed, the certificate holder shall
search all towers on the same monitoring schedule as fatality monitoring. The certificate holder
will use circular search plots. The radius of the circular search plots will extend a minimum of 5
meters beyond the most distant guy wire anchor point.

(b) Removal Trials

The objective of the removal trials is to estimate the length of time avian and bat
carcasses remain in the search area. Carcass removal studies will be conducted during each
season in the vicinity of the search plots. Estimates of carcass removal rates will be used to
adjust carcass counts for removal bias. “Carcass removal” is the disappearance of a carcass from
the search area due to predation, scavenging or other means such as farming activity. Removal
rates will be estimated by size class, habitat and season.

During the first phase, the certificate holder shall conduct carcass removal trials within
each of the seasons defined above during the years in which fatality monitoring occurs. During
the first year in which fatality monitoring occurs, trials will occur in at least eight different
calendar weeks in a year, with at least one calendar week between starting dates. Trials will be
spread throughout the year to incorporate the effects of varying weather, farming practices and
scavenger densities. At least two trials will be started in each season. Each trial will use at least
20 carcasses. For each trial, at least 5 small bird carcasses and at least 5 large bird carcasses will
be distributed in cultivated agriculture habitat and at least 3 small bird carcasses and at least 3
large bird carcasses will be distributed in non-cultivated habitat (grassland/shrub-steppe and
CRP). In a year, about 100 carcasses will be placed in cultivated agriculture and about 60 in non-
cultivated grassland/shrub-steppe and CRP for a total of about 160 trial carcasses. The number of
removal trials may be reduced to one per season (80 trial carcasses) during the second year of
fatality monitoring, subject to approval by the Department, if the certificate holder can
demonstrate that the calculation of fatality rates will continue to have statistical validity with the
reduced sample size.

The need for, and scope of, removal trials for subsequent phases may be modified based
on the variability of results of removal trials for the first phase, subject to the approval of the
Department.

The “small bird” size class will use carcasses of house sparrows, starlings, commercially
available game bird chicks or legally obtained native birds to simulate passerines. The “large
bird” size class will use carcasses of raptors provided by agencies, commercially available adult
game birds or cryptically colored chickens to simulate raptors, game birds and waterfowl. If
fresh bat carcasses are available, they may also be used.

To avoid confusion with turbine-related fatalities, planted carcasses will not be placed in
fatality monitoring search plots. Planted carcasses will be placed in the vicinity of search plots
but not so near as to attract scavengers to the search plots. The planted carcasses will be located
randomly within the carcass removal trial plots.

Carcasses will be placed in a variety of postures to simulate a range of conditions. For
example, birds will be: 1) placed in an exposed posture (e.g., thrown over the shoulder), 2)
hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) and, 3) partially
hidden. Trial carcasses will be marked discreetly for recognition by searchers and other
personnel. Trial carcasses will be left at the location until the end of the carcass removal trial.
It is expected that carcasses will be checked as follows, although actual intervals may vary. Carcasses will be checked for a period of 40 days to determine removal rates. They will be checked about every day for the first 4 days, and then on day 7, day 10, day 14, day 20, day 30 and day 40. This schedule may vary depending on weather and coordination with the other survey work. At the end of the 40-day period, the trial carcasses and scattered feathers will be removed.

(c) Searcher Efficiency Trials

The objective of searcher efficiency trials is to estimate the percentage of bird and bat fatalities that searchers are able to find. The certificate holder shall conduct searcher efficiency trials on the fatality monitoring search plots in both grassland/shrub-steppe and cultivated agriculture habitat types. Searcher efficiency will be estimated by size class, habitat type and season. Estimates of searcher efficiency will be used to adjust carcass counts for detection bias.

During the first phase, searcher efficiency trials will be conducted in each season as defined above, during the years in which the fatality monitoring occurs. Trials will be spread throughout the year to incorporate the effects of varying weather, farming practices and scavenger densities. At least two trials will be conducted in each season. Each trial will use about 20 carcasses, although the number will be variable so that the searcher will not know the total number of trial carcasses being used in any trial. For each trial, both small bird and large bird carcasses will be used in about equal numbers. “Small bird” and “large bird” size classes and carcass selection are as described above for the removal trials. A greater proportion of the trial carcasses will be distributed in cultivated agriculture habitat than in non-cultivated habitat (grassland/shrub steppe and CRP). In a year, about 100 carcasses will be placed in cultivated agriculture and about 60 in non-cultivated grassland/shrub steppe and CRP for a total of about 160 trial carcasses. The number of searcher efficiency trials may be reduced to one per season (80 trial carcasses) during the second year of fatality monitoring, subject to approval by the Department, if the certificate holder can demonstrate that the calculation of fatality rates will continue to have statistical validity with the reduced sample size.

The need for, and scope of, searcher efficiency trials for subsequent phases may be modified based on the variability of results of searcher efficiency trials for the first phase, subject to the approval of the Department.

Personnel conducting searches will not know in advance when trials are conducted; nor will they know the location of the trial carcasses. If suitable trial carcasses are available, trials during the fall season will include several small brown birds to simulate bat carcasses. Legally obtained bat carcasses will be used if available.

On the day of a standardized fatality monitoring search (described below) but before the beginning of the search, efficiency trial carcasses will be placed at random locations within areas to be searched. If scavengers appear attracted by placement of carcasses, the carcasses will be distributed before dawn.

Searcher efficiency trials will be spread over the entire season to incorporate effects of varying weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a range of conditions. For example, birds will be: 1) placed in an exposed posture (thrown over the shoulder), 2) hidden to simulate a crippled bird and 3) partially hidden.
Each non-domestic carcass will be discreetly marked so that it can be identified as an efficiency trial carcass after it is found. The number and location of the efficiency trial carcasses found during the carcass search will be recorded. The number of efficiency trial carcasses available for detection during each trial will be determined immediately after the trial by the person responsible for distributing the carcasses.

If new searchers are brought into the search team, additional detection trials will be conducted to ensure that detection rates incorporate searcher differences.

d) Coordination with the Klondike III Wind Project

The proposed Klondike III Wind Project lies to the south of the BCWF on similar terrain and habitat. The Council has approved site certificates for both facilities and requires similar wildlife monitoring. Subject to the approval of both certificate holders and the Department, the number of trials at each site and the number of trial carcasses used at each site can be reduced by combining the removal data and efficiency data from both facilities, if the certificate holder can demonstrate that the calculation of fatality rates will continue to have statistical validity for both facilities and that combining the data will not affect any other requirements of the monitoring plans for either facility.

(e) Fatality Monitoring Search Protocol

The objective of fatality monitoring is to estimate the number of bird and bat fatalities that are attributable to facility operation and associated variances. The certificate holder shall conduct fatality monitoring using standardized carcass searches.

The certificate holder shall use a worst-case analysis 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.

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

Personnel trained in proper search techniques ("the searchers") will conduct the carcass searches by walking parallel transects within the search plots. Transects will be initially set at 6 meters apart in the area to be searched. A searcher will walk at a rate of about 45 to 60 meters per minute along each transect searching both sides out to three meters for casualties. Search area and speed may be adjusted by habitat type after evaluation of the first searcher efficiency trial. The searchers will record the condition of each carcass found, using the following condition categories:

- Intact - a carcass that is completely intact, is not badly decomposed and shows no sign of being fed upon by a predator or scavenger

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3 Where search plots are adjacent, the search area may be rectangular.
- Scavenged – an entire carcass that shows signs of being fed upon by a predator or scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs, pieces of skin, etc.)

- Feather Spot – 10 or more feathers at one location indicating predation or scavenging or 2 or more primary feathers

All carcasses (avian and bat) found during the standardized carcass searches will be photographed as found, recorded and labeled with a unique number. Distance from observer to the carcass will be measured (to the nearest 0.25 meters), as will the perpendicular distance from the transect line to the carcass. Each carcass will be bagged and frozen for future reference and possible necropsy. A copy of the data sheet for each carcass will be kept with the carcass at all times. For each carcass found, searchers will record species, sex and age when possible, date and time collected, location, condition (e.g., intact, scavenged, feather spot) and any comments that may indicate cause of death. Searchers will map the find on a detailed map of the search area showing the location of the wind turbines and associated facilities such as power lines. The certificate holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the U.S. Fish and Wildlife Service (USFWS). The certificate holder shall obtain appropriate collection permits from ODFW and USFWS.

The searchers might discover carcasses incidental to formal carcass searches (e.g., while driving within the project area). For each incidentally discovered carcass, the searcher shall identify, photograph, record data and collect the carcass as would be done for carcasses within the formal search sample during scheduled searches.

If the incidentally discovered carcass is found within a formal search plot, the fatality data will be included in the calculation of fatality rates. If the incidentally discovered carcass is found outside a formal search plot, the data will be reported separately.

The certificate holder shall coordinate collection of incidentally discovered state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of incidentally discovered federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

The certificate holder shall develop and follow a protocol for handling injured birds. Any injured native birds found on the facility site will be carefully captured by a trained project biologist or technician and transported to Jean Cypher (wildlife rehabilitator) in The Dalles, the Blue Mountain Wildlife Rehabilitation Center in Pendleton or the Audubon Bird Care Center in Portland in a timely fashion. The certificate holder shall pay costs, if any are charged, for time and expenses related to care and rehabilitation of injured native birds found on the site, unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

(f) Statistical Methods for Fatality Estimates

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

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4 The people and centers listed here may be changed with Department approval.
BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
[MAY 10, 2007]

(1) The observed number of carcasses found during standardized searches during the two
monitoring years for which the cause of death is attributed to the facility.\(^5\)

(2) Searcher efficiency expressed as the proportion of planted carcasses found by
searchers.

(3) Non-removal rates expressed as the estimated average probability a carcass is
expected to remain in the study area and be available for detection by the searchers
during the entire survey period.

Definition of Variables

The following variables are used in the equations below:

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

\(n\) the number of search plots

\(k\) the number of turbines searched (includes the turbines centered within each
search plot and a proportion of the number of turbines adjacent to search plots to
account for the effect of adjacent turbines on the 90-meter search plot buffer area)

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

\(s\) the number of carcasses used in removal trials

\(s_v\) the number of carcasses in removal trials that remain in the study area after 40
days

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

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

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

\(d\) the total number of carcasses placed in searcher efficiency trials

\(p\) the estimated proportion of detectable carcasses found by searchers

\(l\) the average interval between searches in days

\(\hat{p}\) the estimated probability that a carcass is both available to be found during a
search and is found

\(m_t\) the estimated annual average number of fatalities per turbine per year, adjusted
for removal and observer detection bias

\(C\) nameplate energy output of turbine in megawatts (MW)

Observed Number of Carcasses

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

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\(^5\) If a different cause of death is not apparent, the fatality will be attributed to facility operation.
\[ c = \frac{\sum_{i=1}^{n} c_i}{k}. \]  

(1)

Estimation of Carcass Removal

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

\[ \bar{t} = \frac{\sum_{i=1}^{s} t_i}{s-s_c}. \]  

(2)

This estimator is the maximum likelihood estimator assuming the removal times follow an exponential distribution and there is right-censoring of data. Any trial carcasses still remaining at 40 days are collected, yielding censored observations at 40 days. If all trial carcasses are removed before the end of the trial, then \( s_c \) is 0, and \( \bar{t} \) is just the arithmetic average of the removal times. Removal rates will be estimated by carcass size (small and large) and season.

Estimation of Observer Detection Rates

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

Estimation of Facility-Related Fatality Rates

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

\[ m_i = \frac{\bar{c}}{\bar{t}}. \]  

(3)

where \( \bar{t} \) includes adjustments for both carcass removal (from scavenging and other means) and observer detection bias assuming that the carcass removal times \( t_i \) follow an exponential distribution unless a different assumption about carcass removal is made with the approval of the Department. Under these assumptions, this detection probability is estimated by:

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

(4)

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

\[ m = \frac{m_i}{C}. \]  

(5)

The certificate holder shall calculate fatality estimates for: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) target grassland birds, (6) nocturnal avian migrants, (7) avian State Sensitive Species listed under OAR 635-100-0040, and (8) bats. 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 $\bar{c}$, $\bar{r}$, $p$, $\bar{r}$ 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 avian 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

Mitigation may be appropriate if analysis of the fatality data collected after two
monitoring years shows fatality rates for avian species that exceed a threshold of concern. For
the purpose of determining whether a threshold has been exceeded, the certificate holder shall
calculate the average annual fatality rates for the species groups after the initial two years 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 BCWF:

<table>
<thead>
<tr>
<th>Species Group</th>
<th>Threshold of Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raptors (All eagles, hawks, falcons and owls, including burrowing owls.)</td>
<td>0.09</td>
</tr>
<tr>
<td>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.)</td>
<td>0.06</td>
</tr>
<tr>
<td>Target grassland birds (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.)</td>
<td>0.59</td>
</tr>
<tr>
<td>State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)</td>
<td>0.20</td>
</tr>
<tr>
<td>Bat species as a group</td>
<td>2.50</td>
</tr>
<tr>
<td>Guyed Meteorological Tower Mortality</td>
<td></td>
</tr>
<tr>
<td>Raptor T&amp;E species and raptor species of special concern, as a group (Swainson’s hawk, ferruginous hawk, golden eagle and burrowing owl; bald eagle, peregrine falcon, and any other federal threatened or endangered raptor species)</td>
<td>0.20/ guyed tower</td>
</tr>
<tr>
<td>Avian State Sensitive Species listed under OAR 635-100-0040 (Excluding raptors)</td>
<td>0.20/ guyed tower</td>
</tr>
</tbody>
</table>

In addition, mitigation may be appropriate if fatality rates for individual species
(especially State Sensitive Species) are higher than expected and at a level of biological concern.
If the data show that a threshold of concern for a species group has been exceeded or that the
fatality rate for any individual species is at a level of biological concern, mitigation shall be
required if the Department determines that mitigation is appropriate based on analysis of the data
and any other significant information available at the time. If mitigation is appropriate, the
certificate holder, in consultation with ODFW, shall propose mitigation measures designed to
benefit the affected species. This may take into consideration whether mitigation required or
provided for other impacts, such as raptor nesting or grassland bird displacement, would also
benefit the affected species.

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

Mitigation shall be designed to benefit the affected species group. Mitigation may
include, but is not limited to, protection of nesting habitat for the affected group of native species
through a conservation easement or similar agreement. Tracts of land that are intact and
functional for wildlife are preferable to degraded habitat areas. Preference should be given to
protection of land that would otherwise be subject to development or use that would diminish the
wildlife value of the land. In addition, mitigation measures might include: enhancement of the
protected tract by weed removal and control; increasing the diversity of native grasses and forbs;
planting sagebrush or other shrubs; constructing and maintaining artificial nest structures for
raptors; reducing cattle grazing; improving wildfire response; and local research that would aid
in understanding more about the species and conservation needs.

If the threshold for bats species as a group is exceeded, the certificate holder shall
contribute to Bat Conservation International or to a Pacific Northwest bat conservation group
($10,000 per year for three years) to fund new or ongoing research in the Pacific Northwest to
better understand impacts to the bat species impacted by the facility and to develop possible
ways to reduce impacts to the affected species.

In addition, mitigation may be appropriate if fatality rates for a State Sensitive bat species
listed under OAR 635-100-0040 are higher than expected and at a level of concern. If the data
show that a threshold for a species group has been exceeded or that the fatality rate
for any individual species is at a level of concern, mitigation shall be required if the Department
determines that mitigation is appropriate based on analysis of the data and any other significant
information available at the time. If mitigation is appropriate, the certificate holder, in
consultation with ODFW, shall propose mitigation measures designed to benefit the affected
species. The certificate holder shall implement mitigation as approved by the Council.

2. Raptor Nest Surveys

The objectives of raptor nest surveys are to estimate the size of the local breeding
populations of tree or other above-ground-nesting raptor species in the vicinity of the facility and
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, ferruginous
hawk and golden eagle. The certificate holder shall direct a qualified biologist, approved by the
Department, to conduct the raptor nest surveys. The Department has approved the qualifications
of the four biologists identified in the Final Order on Amendment #2. The certificate holder may
select other qualified biologists to conduct the raptor nest surveys, subject to Department
approval.

(a) Survey Protocol

For the species listed above, aerial and ground surveys will be used to gather nest success
data on active nests, nests with young and young fledged. The certificate holder will share the
data with state and federal biologists. The certificate holder shall conduct two years of post-
construction raptor nest surveys for each phase of construction and long-term raptor nest surveys
for the completed facility during the sensitive nesting and breeding season. One year of post-
construction surveys will be done in the first nesting season after construction of the phase is
completed. The second year of post-construction surveys will be done after construction of the
phase is completed at a time recommended by the certificate holder and approved by the
Department. Long-term surveys will be conducted starting in the fifth year following completion
of the last post-construction survey and each five years thereafter for the life of the facility. The
certificate holder may collaborate with other certificate holders in the vicinity of the facility in
the development of useful information about future impacts on raptor nesting activity and nesting
success.

Prior to the raptor nesting surveys, the certificate holder shall review the locations of
known raptor nests based on the BCWF and Klondike Wind Project pre-construction surveys as
well as any nest survey data collected after construction. All known nest sites and any new nests
observed within the BCWF site and within two miles of the BCWF site will be given
identification numbers. Nest locations will be recorded on U.S. Geological Survey 7.5-minute
quadrangle maps. Global positioning system coordinates will be recorded for each nest and
integrated with the baseline database. Locations of inactive nests will also be recorded as they
may become occupied during future years.

During each raptor nesting monitoring year, the certificate holder shall conduct a
minimum of one helicopter survey in late May or early June within the BCWF site and a 2-mile
zone around the turbines to determine nest occupancy. Determining nest occupancy will likely
require two visits to each nest: The second visit may be done by air or by ground as appropriate.
For occupied nests of the species identified above, the certificate holder shall determine nesting
success by a minimum of one ground visit to determine species, number of young and nesting
success. “Nesting success” means that the young have successfully fledged (the young are
independent of the core nest site). Nests that cannot be monitored due to the landowner denying
access will be checked from a distance where feasible.

(b) Mitigation

The certificate holder shall analyze the raptor nesting data collected after two monitoring
years to determine whether a reduction in either nesting success or nest use has occurred in the
vicinity of the BCWF. If the analysis indicates a reduction in nesting success by Swainson’s
hawk, ferruginous hawk or golden eagle within two miles of the facility (including the area
within the BCWF site), then the certificate holder shall propose appropriate mitigation and shall
implement mitigation as approved by the Council. At a minimum, if the analysis shows that any
of these species has abandoned a nest territory within the facility site or within ½ mile of the
facility site, or has not fledged any young over the two-year period within the facility site or
within ½ mile of the facility site, the certificate holder shall assume the abandonment or
unsuccessful fledging is the result of the facility unless another cause can be demonstrated
convincingly. If the BCWF facility and the Klondike III facility are both required to provide
mitigation for the same nest, the two certificate holders shall coordinate the required mitigation
with the approval of the Department.

Given the very low buteo nesting densities in the area, statistical power to detect a
relationship between distance from a wind turbine and nesting parameters (e.g., number of
fledglings per reproductive pair) will be very low. Therefore, impacts may have to be judged based on trends in the data, results from other wind energy facility monitoring studies and literature on what is known regarding the populations in the region.

If the analysis shows that mitigation is appropriate, the certificate holder shall propose implementation of the affected species in consultation with the Department and ODFW, and shall implement mitigation as approved by the Council. Mitigation should be designed to benefit the affected species or contribute to overall scientific knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may be designed to proceed in phases over several years. It may include, but is not limited to, additional raptor nest monitoring, protection of natural nest sites from human disturbance or cattle activity (preferably within the general area of the facility), or participation in research projects designed to improve scientific understanding of the needs of the affected species. Mitigation may take into consideration whether mitigation required or provided for other impacts, such as fatality impacts or grassland bird displacement, would also benefit the raptor species whose nesting success was adversely affected.

3. Avian Use and Behavior Surveys

The certificate holder shall conduct a before/after avian behavior and monitoring study to determine whether operation of the BCWF reduces bird use and abundance in the area (often referred to as displacement). The results of this study will aid in estimating indirect avian impacts of the BCWF and guide potential mitigation.

The before/after study will use two of the observation stations that were used during the baseline study (H and I) and two new survey stations (A5 and A6).\(^6\) Avian use and behavior will be monitored at these four stations 6 times each month from November 2005 – August 15, 2006 (pre-construction period) and 6 times each month during two post-construction monitoring years (after construction of wind turbines located near these survey stations).\(^7\)

These four stations are located in the northeastern portion of the BCWF area near the John Day River canyon. The areas surrounding these survey stations were subject to numerous micrositing decisions during facility layout. Primary micrositing decisions included shortening and re-orientating turbine corridors to avoid native habitat, maintaining a minimum one-mile distance from the centerline of the John Day River, and avoiding locating turbines on steep slopes.

Each survey will consist of one 30-minute observation period at each of these four stations using the same protocol that was used for baseline data collection. In particular, raptor and waterfowl use estimates and behavior relative to turbine locations and flight path maps will be compared between the pre- and post-construction periods to provide information on raptor and waterfowl displacement and to estimate indirect impacts on raptors and waterfowl. The phrase "behavior relative to turbine locations" is intended to address observations of behavior that is different near turbines compared to behavior away from turbines.

In addition to surveys at these four stations, searchers will also record bird species observed and their behavior relative to turbine locations before or after each standardized carcass

\(^6\) The observation stations are identified in a report by Western EcoSystems Technology, Inc., “John Day Avian Studies for the Biglow Canyon Wind Farm Project, February 2007.”

\(^7\) Fewer than 6 monitoring sessions may be conducted if necessary due to safety reasons or severe weather.
search (as described in Section 1(e) above). Observations will be recorded during 5-minute surveys at each turbine sampled during the fatality monitoring program, using standard variable circular plot point count survey methods. Collection and recording of these additional observations of live birds will be carried out in a manner that does not distract searchers from carrying out the standardized carcass searches.

All of these avian use and behavior data, as well as raptor and waterfowl mortality observed at the turbines near these stations, will be used to understand direct and indirect impacts of the BCWF facility on raptors, waterfowl and other avian species. The certificate holder shall include an analysis of this data in the reports described in Section 5.

4. Biglow Wildlife Incident Response and Handling System

The Wildlife Incident Response and Handling System is a monitoring program set up for responding to and handling avian and bat casualties found by construction and maintenance personnel during construction and operation of the facility. This monitoring program includes the initial response, the handling and the reporting of bird and bat carcasses discovered incidental to construction and maintenance operations ("incidental finds"). Construction and maintenance personnel will be trained in the methods needed to carry out this program.

All carcasses discovered by construction or maintenance personnel will be photographed, recorded and collected.

If construction or maintenance personnel find carcasses within the plots for protocol searches, they will notify a qualified biologist, as approved by the Department, who will collect the carcasses. The fatality data will be included in the calculation of fatality rates.

If construction or maintenance personnel discover incidental finds that are not within plots for fatality monitoring protocol searches, they will notify a qualified biologist, as approved by the Department, and the carcass will be collected by a carcass-handling permittee (a person who is listed on state and federal scientific or salvage collection permits). Data for these incidental finds will be reported separately from standardized fatality monitoring data.

The certificate holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

5. Data Reporting

The certificate holder will report the monitoring data and analysis to the Department. Monitoring data include fatality monitoring program data, raptor nest survey data, avian use and behavior survey data and data on incidental finds by fatality searchers and BCWF personnel. The report may be included in the annual report required under OAR 345-026-0080 or may be submitted 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 immediately notify USFWS and ODFW, respectively, in the event that any federal or state endangered or threatened species are killed or injured on the facility site.
The public will have an opportunity to receive information about monitoring results and to offer comment. Within 30 days after receiving the annual report of monitoring results, the Department will make the report available to the public on its website and will specify a time in which the public may submit comments to the Department.\textsuperscript{8}

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.

\textsuperscript{8} 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.
BACKGROUND

This plan describes methods and standards for revegetating areas temporarily disturbed during the construction of the proposed Biglow Canyon Wind Farm (BCWF), sited about 2.5 miles northeast of Wasco, Oregon. The objective of this plan is to restore temporarily disturbed areas to pre-construction condition or better. The site certificate for the facility requires restoration of these areas.

The BCWF is located on privately owned agricultural land used primarily for dry wheat production and, to a lesser extent, cattle grazing. The grazed land is grassland, shrub-steppe rangeland and/or fallow wheat stubble fields. A few large tracts of land have been enrolled in the Conservation Reserve Program (CRP).

This plan specifies seed mixes, planting methods, and weed control techniques developed specifically for the BCWF through consultations with the affected agencies (e.g., the Oregon Department of Fish and Wildlife and the Natural Resources Conservation Service), reviews of current literature, and site visits by revegetation specialists. This plan also specifies monitoring procedures to evaluate the success of revegetation efforts, including recommended remedial action should initial revegetation efforts prove unsuccessful.

REVEGETATION PROCEDURES

The following methods are to be used in areas of temporary ground and/or vegetation disturbance in cultivated areas and in the Conservation Reserve Program (CRP) grasslands and native grassland and shrub-steppe upland habitats throughout the BCWF site. Because no disturbance to wetland habitats is expected, this plan does not specify wetland revegetation methods.

Cultivated Areas

The site certificate holder shall reseed cultivated agricultural areas. The species composition, seed and fertilizer application rates, and application method shall be coordinated with the appropriate landowner and/or farmer.

Seed Mixture

Temporarily disturbed areas in non-cultivated areas are primarily CRP lands, with some additional grassland and shrub-steppe areas. A seed mixture was developed in consultation with Mary Beth Smith at the local Natural Resources Conservation Service office based upon anticipated high value to both big game and non-game wildlife, and the historic vegetative climax community for the area (Table 1).

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1 This plan is incorporated by reference in the site certificate for the BCWF 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.
Seed Planting Methods

Planting shall occur in February through early April (after the last chance of frost because forbs are being used in the seed mixture) for disturbance that occurs during the winter and spring. Planting shall occur in October through November for disturbance that occurs after the spring seeding window. Disturbed, unseeded ground may require chemical or mechanical weed control in May or June before weeds have a chance to go to seed. In general, a weed-free seedbed shall be prepared using conventional tillage equipment, herbicide treatment, or both. Herbicide shall be sprayed to control weedy and/or noxious species, following the Oregon Department of Agriculture’s Guidelines. Summer fallowing may be required.

Areas to be seeded shall be disked, as needed, in early spring and spot-sprayed on the ground with an herbicide. In some instances,disking the site may not be needed prior to seeding. Simply preparing a weed-free site using herbicide treatments may be all that is necessary. These areas shall then be harrowed prior to seeding. A conventional seed drill shall be used, except in areas where a rangeland drill is deemed more applicable, with a spacing less than 12 inches and at a depth of 1/8 to 1/4 inch. A packing type roller shall be used to properly compact the soil over the planted seed. The prescribed seed mixture (Table 1) shall be drilled at a rate of 12 pounds pure live seed per acre. If fallowing the area is to be used to increase soil moisture content, then the same procedure shall be followed, but without seeding. Seeding would then occur the following spring.

MONITORING

The site certificate holder shall direct a qualified botanist or revegetation specialist, approved by the Oregon Department of Energy (Department), to conduct monitoring of seeded grassland, shrub-steppe and CRP areas.

In the fall of the year following each seeding, and continuing annually thereafter until the vegetation success criteria have been met, the qualified investigator shall examine a representative cross-section of the revegetated sites. At each site, the investigator shall evaluate the percent cover for the following classes:

- native forbs and grasses;
- non-native forbs and grasses;
- shrubs; and
- bare ground and rock.

After the success criteria have been met, the qualified investigator shall revisit the sites at least every five years for the life of the facility to ensure that the habitat has not degraded. The site certificate holder shall report the investigator’s findings and recommendations regarding revegetation progress and success to the Department on an annual basis as part of the annual report on BCWF.

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2 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.
SUCCESS CRITERIA

Non-cultivated areas will be deemed successfully revegetated when total canopy cover of all vegetation exceeds 30 percent, and at least 25 percent of the ground surface is covered by native species and species in the seed mixture.

In each monitoring report to the Department, the certificate holder shall provide an assessment of revegetation success in grassland, shrub-steppe and CRP restoration areas. The Department may require reseeding or other corrective measures in those areas that do not meet the success criteria. The Department may exclude small areas from the reseeding requirement, if erosion from construction activities is low, if total vegetative cover (of native and non-native species together) exceeds 30 percent and if weed encroachment has made native seed establishment impossible. Cultivated agricultural areas are successfully revegetated if the replanted areas achieve crop production comparable to adjacent non-disturbed cultivated areas. The certificate holder shall consult with the landowner or farmer to determine whether these areas have been successfully revegetated and shall report to the Department on the success of revegetation in these areas.

AMENDMENT OF PLAN

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

Table 1. Seed mixture to be used for revegetation of temporarily disturbed areas.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Pounds of pure live seed/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luna pubescent wheatgrass</td>
<td>Thinopyrum intermedium</td>
<td>1</td>
</tr>
<tr>
<td>Sherman big bluegrass</td>
<td>Poa ampla</td>
<td>1</td>
</tr>
<tr>
<td>Magnar basin wildrye</td>
<td>Leymus cinereus</td>
<td>1</td>
</tr>
<tr>
<td>Whitmar beardless wheatgrass</td>
<td>Pseudoroegneria spicata ssp. Inermis</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Basin big sagebrush</td>
<td>Artemisia tridentata ssp. Tridentate</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

3 NRCS Draft Guidelines for CRP Stand Certification
I. Introduction

This Habitat Mitigation Plan (plan) describes methods and standards for enhancement of an area of land near the Biglow Canyon Wind Farm (BCWF) to mitigate for certain impacts of the facility on wildlife habitat.¹ The applicant has proposed a habitat mitigation area of approximately 117 acres as described below. The certificate holder shall enhance the mitigation area as described in this plan and shall place the area into a conservation easement for the life of the facility.²

The objective of the enhancement methods is to improve the habitat value of the mitigation area and to protect the area for wildlife use for the life of the facility. This plan has been prepared to guide the habitat enhancement efforts within the mitigation area. The plan specifies the primary actions the certificate holder must undertake and the goals, monitoring procedures, and success criteria to evaluate enhancement success.

Prior to any construction of the BCWF, the site 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 Oregon Department of Energy (Department). Prior to any construction of the BCWF, the site certificate holder shall complete an “Implementation Plan” approved by the Department that describes in detail how the Habitat Mitigation Plan will be carried out. During the first phase of construction of the BCWF, the site certificate holder shall begin to implement this plan so that all of the specific enhancement methods described in Section VII are in place by the end of construction of that first phase.

II. Description of the Permanent Impacts

The BCWF would permanently affect a maximum of about 178 acres. Most of the area of permanent impact (about 167 acres) would be within currently cultivated agricultural fields or other developed land. This area is lower-value habitat (Category 6). The BCWF would occupy – or have a permanent impact on – a maximum of about 11.93 acres of higher-value Category 3 or Category 4 habitat. The actual area of each habitat category that the BCWF will permanently occupy will depend on the final design layout of the facility after consideration of micrositing factors.

Data collected at other wind energy facilities indicate that the operation of wind turbines may adversely affect the quality of nearby habitat that is important or essential for grassland avian species. This is often referred to as a “displacement” impact. Conducting a study at the BCWF site to determine whether operation of the facility had a displacement effect on grassland birds would take several years. If the study concluded that an adverse impact had occurred, additional mitigation would be needed. In lieu of conducting a multi-year study, the certificate holder.

¹ This plan is incorporated by reference in the site certificate for the BCWF and must be understood in that context. It is not a “stand-alone” document. This plan does not contain all mitigation required of the certificate holder.
² 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.
holder has proposed to provide additional mitigation, based on the assumed likelihood that
operation of the facility would reduce the quality of nearby habitat that is important or essential
for grassland bird species. The affected habitat near the BCWF wind turbines includes grassland,
Conservation Reserve Program (CRP) and shrub-steppe habitat in Categories 3 and 4.
As defined by the fish and wildlife habitat mitigation goals and standards of the Oregon
Department of Fish and Wildlife (ODFW), the affected habitat and corresponding mitigation
goals are as follows:

- **Category 3:** Essential habitat for fish and wildlife, or important habitat for fish
  and wildlife that is limited either on a physiographic province or site-specific
  basis, depending on the individual species or population.

  **Mitigation Goal:** No net loss of either habitat quantity or quality. Mitigation
  must be in-kind.

- **Category 4:** Important habitat for fish and wildlife species.

  **Mitigation Goal:** No net loss in either existing habitat quantity or quality.
  Mitigation may be either in-kind or out-of-kind.

III. Calculation of Impacts and Size of Mitigation Area

The area needed to mitigate for the amount of higher-value habitat occupied by the
BCWF turbines and related facilities is determined by the facility’s permanent impact within
each habitat category. The amount of additional area needed to mitigate for a displacement effect
that is uncertain cannot be precisely calculated. To determine a reasonable area for displacement
mitigation, the applicant has performed a rough calculation of potential displacement impact by
assuming a 50-percent reduction in use by grassland birds within 50 meters of wind turbines in
native grassland/shrub steppe habitat and a 25 percent reduction in use by grassland birds within
50 meters of wind turbines in CRP habitat. The applicant further assumed that the final design
locations of wind turbines within the micrositing corridors would be such that the maximum area
of native grassland would be affected (the “worst case”). The area of impact within each affected
habitat category and the corresponding mitigation area for each category are as follows:

- The permanent impact is about 11.93 acres, of which about 8.41 acres are
  Category 3 habitat (grassland, CRP and shrub-steppe combined) and about 3.52
  acres are Category 4 habitat (grassland, CRP and shrub-steppe combined).

- The calculated potential displacement impact is estimated to be about 33 acres, of
  which about 67 percent is Category 3 CRP habitat, 2 percent is Category 3
  grassland/shrub steppe habitat, 26 percent is Category 4 CRP habitat, and 4
  percent is Category 4 grassland/shrub steppe habitat.

- The combined impacts equal about 45 acres. Mitigation must be sufficient to
  replace the quantity and quality of this combined impact in order to achieve “no
  net loss” in habitat quantity or quality. The mitigation area must be large enough

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3 The method of determining a reasonable mitigation area as described in this plan is not intended to be a precise
formula or a precedent for determining appropriate mitigation for any other facility.
4 Percentages based on information from Wally Erickson, WEST, Inc., in a personal communication with Tom
Meehan, consultant for the Department, during the review of the site certificate application.
to be capable of achieving this goal. The certificate holder has secured a 117-acre mitigation area, based on the understanding that mitigation acreage that exceeds the actual acreage of permanent and indirect impacts may be applied to any future mitigation requirements (this “mitigation banking” is discussed in Section IX).

If the data from transect surveys at the Stateline Wind Project demonstrates a statistically significant displacement effect on grassland bird species that is greater than the displacement effect described in the Stateline Wind Project Wildlife Monitoring Final Report, July 2001-December 2003, then the certificate holder shall assume that the BCWF is having a greater displacement effect on grassland species than was assumed when the site certificate was issued and shall propose additional mitigation. The Department shall recommend appropriate mitigation to the Council, and the certificate holder shall implement mitigation as approved by the Council.

IV. Description of the Mitigation Site

The mitigation site is located to the northeast of the BCWF, less than 0.5 miles from the John Day River and just more than 0.5 miles from the nearest wind turbine. The site contains an intermittent spring that forms a small tributary drainage immediately west of the Emigrant Springs tributary and watershed.

Thus, the mitigation site sits immediately adjacent to both the John Day River riparian corridor and the large Emigrant Springs watershed, which provides additional forage, thermal and security cover, and water. No road access exists to the site, which is relatively remote and infrequently disturbed by humans.

The site is predominantly steep-sloped with shallow rocky soils and has been both recently and historically grazed. Areas most degraded from livestock grazing include the deeper soiled areas and the spring and associated riparian draw in the southern end of the mitigation site. Horizontal and vertical vegetative structure is largely depleted because of exposed slopes and livestock grazing impacts, and large patches of cereal rye have out-competed native species in some areas. However, the higher elevation western border consists of deeper silt loam soils, with the potential to provide a more diverse vegetative community.

Adjacent property to the west is cultivated and managed for wheat production. Adjacent property to the north and east is rangeland managed for livestock production. A four-strand barbed wire fence exists along the east boundary of the mitigation site. No fence exists along the crop field boundary to the east or along the north boundary; this area is grazed when fallow or electric fence is used during the planting and harvest period to exclude livestock. The area around the spring source and downstream lacks a vegetative buffer or a diverse vegetative community because of intensive grazing. Some tall sagebrush cover exists near the stream area while cattails and aquatic succulents occur in the spring source area.

Given the current condition of the site and livestock practices, the entire mitigation site is generally characterized as Category 4 habitat, according to ODFW’s Habitat Mitigation Standards.

V. Site Potential for Wildlife Habitat Enhancement

For mitigation, the applicant has proposed entering into a conservation easement or similar agreement with two landowners to enhance the mitigation site’s existing grassland,
shrub-steppe and riparian habitat for the life of the BCWF facility. The mitigation site presents
the opportunity to enhance grassland and shrub-steppe habitat quality and quantity that is limited
in the area for wildlife. Properly managed, the mitigation site has the potential to provide more
diverse grassland in greater quantity with greater horizontal and vertical structure. If enhanced
with reseeding, deeper soiled areas would provide better nesting habitat for grassland bird
species and provide higher quality forage for big game. Excluding livestock with fencing would
provide better fall, winter and early spring rangeland for big game by allowing Sandberg
bluegrass, bluebunch wheatgrass, and various forbs to grow undisturbed in shallow-soiled slopes.
Removal of cattle grazing should improve the habitat quality of the entire site and especially the
deeper-soiled, spring and riparian areas. The site’s steeper areas also will see some benefit from
reduced grazing, especially during early spring green-up. As well, livestock exclusion would
enhance summer habitat for ground-nesting birds.

The mitigation site also has the potential to provide several different quality ecotones.\textsuperscript{5}
Grassland patches in the lower-elevation eastern portion of the site may be of greater suitability
to long-billed curlews because of closer proximity to the John Day River, where observations of
this species breeding have been documented.

VI. Proposed Enhancement

To mitigate for the permanent loss of 11.93 acres of Category 3 and Category 4 habitat as
a result of BCWF turbines, roads and other facilities, the site certificate holder will reseed 11.93
acres of deep-soiled Category 4 habitat within the mitigation site along the upper, more level
slopes adjacent to cultivated areas. Reseeding is expected to improve about 11.93 acres of deep-
soiled Category 4 habitat to a quality of Category 2 or Category 3 grassland habitats.

To mitigate for the displacement effect, the site certificate holder will install fences to
remove livestock grazing from the 117-acre mitigation site. In combination with other actions
described below, fencing is expected to improve most of the portion of the mitigation site that is
not reseeded (about 105 acres) from Category 4 to at least Category 3 habitat.

The acreages stated above for maximum permanent and indirect displacement habitat
impacts (\textit{i.e.}, 11.93 acres and 33 acres, respectively, or a total of about 45 acres) are based on
construction of the entire BCWF facility as approved under the site certificate. If only a portion
of the BCWF facility is constructed, the maximum permanent and indirect displacement habitat
impacts are expected to be less than 45 acres. Nevertheless, as part of the first phase of
construction, the certificate holder has proposed to secure the entire 117-acre mitigation site,
install the guzzler, enhance the spring area, and have the fencing installed to exclude livestock on
the entire mitigation site. If only a portion of the BCWF facility is constructed and full build-out
does not occur, then any enhanced mitigation acreage that exceeds the actual acreage of
permanent and indirect habitat impacts may be applied to any future mitigation requirements, as
outlined in the Wildlife Mitigation and Monitoring Plan and subject to approval by the
Department.

\textsuperscript{5} An “ecotone” is a transitional zone between ecological communities.
VII. Habitat Enhancement Methods

The goal of habitat enhancement is to improve the habitat quality of the mitigation site to achieve, over time, a Category 3 quality over most of the site and a mix of Category 2 and Category 3 on 11.93 reseeded acres. The site certificate holder will use the following five methods to enhance habitat quality and quantity on the site:

1. Reseeding

The site certificate holder shall prepare and seed about 11.93 acres within two defined areas located along the western edge of the mitigation site.6

A. Seed Mixture: The site certificate holder developed a seed mixture in consultation with Mary Beth Smith at the local United States Department of Agriculture Natural Resources Conservation Service office based on anticipated high value to both big game and non-game wildlife and the historic vegetative climax community for the area (Table 1). Prior to seeding, the site certificate holder shall consult with the Department to determine if any mixture adjustments, either in species composition or ratio of seed quantity among species, would further benefit wildlife.

B. Seed Planting Methods: If enhancement efforts occur in the winter or spring, seeding should occur sometime in February through early April, after the average last frost date. If enhancement efforts occur after the spring seeding window, seeding should occur sometime in October through November. Disturbed, unseeded ground may require chemical or mechanical weed control in May or June before weeds go to seed. In general, a weed-free seedbed should be prepared using conventional tillage equipment. Herbicide should be sprayed to control weedy and/or noxious species, following Oregon Department of Agriculture’s (ODOA) guidelines. Summer fallowing may be required. Areas to be seeded shall be disked as needed in early spring and spot-sprayed on the ground each time with an herbicide. In some instances, disk the site may not be needed prior to seeding. Simply preparing a weed-free site using herbicide treatments may be all that is necessary. The disked and sprayed areas must then be harrowed prior to seeding. A conventional seed drill must be used, except in areas where a rangeland drill is deemed more applicable, with a spacing less than 12 inches and at a depth of 1/8-1/4 inch. A packing type roller must be used to properly compact the soil over the planted seed. The prescribed seed mixture (Table 1) must be drilled at a rate of 12 pounds pure live seed per acre. If an area is to be fallowed to increase soil moisture content, then the same procedure must be followed, but without seeding. Seeding would then occur the following spring.

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6 These two areas are identified in PGE’s Habitat Mitigation Implementation Plan, February 2007, Appendix A.
Table 1. Seed mixture to be used for reseeding deeper soiled areas of the mitigation site.

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<th>Common Name</th>
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<td>Sandberg bluegrass</td>
<td>Poa secunda</td>
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</tr>
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</table>

2. Weed Control

Large patches of nuisance weed species have out-competed native species in some areas of the mitigation site. The site certificate holder shall conduct eradication or control of nuisance weed species with measures approved by the Department.

3. Livestock Control

The site certificate holder shall fence the entire unfenced portion of the mitigation site to control and remove cattle grazing on the mitigation site. Over 9,200 feet of new fence will be installed following ODFW livestock fence specifications. The existing fence (4-strand barbed wire) located on the eastern edge of the project area and along a small 600 feet section running east/west along a portion of the northern border of the agricultural field will continue in use to the extent it remains effective in keeping cattle out of the mitigation site.

4. Creation of a Water Source

The site certificate holder shall create a water source for wildlife use in the northern end of the project area where no water source now exists. The site certificate holder will build and install a 500-gallon capacity cistern or “guzzler” using a design approved by ODFW and the Department. The new source of water should increase wildlife density in the mitigation site.

5. Spring Enhancement

The site certificate holder shall plant appropriate native species of woody shrubs near the source of the intermittent spring in the southern part of the site. Browse protection shall be provided as long as necessary. Over time, the shrubs will provide cover for wildlife as well as protect soils around the spring source.

VIII. Habitat Mitigation Implementation

Prior to the commencement of construction of the BCWF facility, the site certificate holder shall complete a Department-approved detailed implementation plan to guide implementation of the enhancement methods. The implementation plan shall include maps and

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7 Pure live seed.
photographs at appropriate scale and detail that show the topography, vegetation, habitat and
other site conditions of the mitigation site; the proposed locations of the primary actions required
by the mitigation plan; a schedule showing when the primary actions required in the mitigation
plan will occur; and a proposed monitoring plan including monitoring protocols, locations of
monitoring stations, and a schedule of monitoring actions. The implementation plan will take
into consideration the physical and biological features of the mitigation site such as slope, soil
depth, and existing habitat conditions, the appropriate time of year to conduct actions, and the
appropriate sequence of actions. The purpose of the implementation plan is to describe details of
applying the enhancement methods. The implementation plan is subject to the conditions of the
site certificate and the requirements contained in this Habitat Mitigation Plan as amended from
time to time.

The certificate holder shall not begin enhancement efforts until the Department has
reviewed and approved the implementation plan. Enhancement methods must be carried out
according to the schedule included in the implementation plan. The certificate holder shall take
all actions necessary to implement the Habitat Mitigation Plan, including ongoing maintenance
of the guzzler and fencing.

IX. Monitoring

1. Qualifications

For all components of this plan, the site certificate holder shall direct a qualified
biologist, approved by the Department, to perform monitoring tasks (the “investigator”). The
Department has approved the qualifications of the four biologists identified in the Final Order on
Amendment #2. The certificate holder may select other qualified biologists to perform the
monitoring tasks, subject to Department approval.

2. Reporting Schedule and Duration/Type of Monitoring

The site certificate holder shall provide an annual report discussing the investigator’s
findings and recommendations regarding habitat mitigation progress and success to the
Department and ODFW. The site certificate holder shall include this report as part of the annual
report on the BCWF or as otherwise agreed between the site certificate holder and the
Department. The site certificate holder shall monitor the mitigation site for the life of the Biglow
facility.

For the reseeded areas, the investigator will monitor every year for the first five years
after the first seeding or until the area is determined by the Department to be trending toward
successful habitat enhancement. Thereafter, the investigator shall revisit the reseeded areas every
five years for the life of the BCWF facility. The certificate holder shall report the investigator’s
findings to the Department.

The investigator also shall monitor as necessary:

- Once a year for the life of the project: The effectiveness of weed eradication and
  control efforts throughout the mitigation site;

- Minimum of once a year for the life of the project and within one week of livestock
  turn-out on adjacent property: The effectiveness of fencing in excluding livestock
  from and allowing big game access to the mitigation site;
Minimum of annual monitoring for the life of the project: The effectiveness of the new water source in providing water;

Once a year for the life of the project: The effectiveness of enhancement actions for the spring area in providing improved cover for wildlife and reducing erosion near the spring source;

Once a year for the life of the project: The overall condition of the mitigation site (including, for example, the degree of erosion, the occurrence of weed concentrations and changes in habitat quality); and

Once a year for the life of the project: The general level of wildlife use, especially grassland birds, within the mitigation site.

In addition, the inspector shall periodically categorize the entire mitigation site in terms of ODFW habitat categories. The certificate holder shall propose a schedule for monitoring to the Department and shall conduct monitoring as approved by the Department.

3. Success Criteria

Permanent Impacts

The enhancement goal for the permanent impact of the BCWF facility is met when 70 percent of the 11.93-acre reseeded area (about 8.4 acres) is Category 2 habitat, the remaining 30 percent is Category 3 habitat and undesirable plant species (weeds) and erosion are under control and do not pose concern. If more than 8.4 acres of the reseeded area has been improved to Category 2 quality, those additional acres may be “credited” toward mitigation for other impacts upon Department approval.

Displacement Effects

Within the remainder of the mitigation area, consisting of 105.07 acres (117 acres less the 11.93 acres needed to mitigate for permanent impacts), the certificate holder shall provide mitigation for displacement effects. The enhancement goal for the displacement effects is met when:

- The habitat quality within at least 33 acres has been improved from Category 4 to Category 3 habitat or better and at least 23 acres (70 percent) of this improved area has the characteristics of established grassland and shrub-steppe plant communities.

- The condition of the rest of the land within the mitigation area does not pose a threat to maintaining habitat quality of the improved area.

Mitigation Banking

Within the remainder of the mitigation area, consisting of 72.07 acres (117 acres less 44.93 acres needed to mitigate for permanent impacts and displacement effects), the acres that the certificate holder improves from Category 4 to Category 3 habitat or better may be “credited” toward mitigation for other impacts, as outlined in the Wildlife Monitoring and Mitigation Plan, upon Department approval. To use any of the improved acres for mitigation, at least 70 percent of the area used must have the characteristics of established grassland and shrub-steppe plant communities.
Specific Success Criteria

Specific success criteria are as follows:

A. Reseeded Areas: A reseeded area is successfully enhanced when total canopy cover of all vegetation exceeds 30 percent and at least 25 percent of the ground surface is covered by desirable plant species. Desirable plant species are native species or desirable non-native species in the approved mitigation seed mix. After the above success criteria have been met (predominantly desirable vegetation has been established), the investigator shall verify, during subsequent visits, that the site continues to meet the success criteria for habitat enhancement. In addition, the investigator, in consultation with ODFW, shall evaluate the percentage of the reseeded site that has been enhanced to Category 2 and Category 3 quality.

If all or part of the habitat within the reseeded area falls below the enhancement success criteria levels, the investigator shall recommend corrective measures. The Department may require reseeding or other corrective measures in those areas that do not meet the success criteria.

B. Weed control: Weed control is successful when weed species are eliminated or reduced to a level (based on considerations such as number, size and health of plants, and percent ground cover) that does not interfere with the goals of the mitigation plan. To meet success criteria, reseeding with seed approved by the Department may be necessary.

C. Fencing: Fencing is successful when the Department deems that fencing has been properly constructed according to ODFW specifications and continues to be effective at excluding livestock from entering the mitigation site. This criterion includes existing fencing.

D. New Water Source: The new water source is successful when the Department deems that the water source has been properly constructed according to ODFW specifications and continues to provide a reasonably reliable source of water for wildlife.

E. Spring Area Enhancement: Enhancement of the spring area is successful when appropriate native species of woody shrubs are planted, continue to grow, and provide cover for wildlife.

4. Corrective Measures

If mitigation and enhancement actions fail to meet the success criteria, the investigator shall recommend corrective measures for Department approval. The Department may require reseeding or other corrective measures for those areas and for those actions that do not meet the success criteria.

5. Success Criteria Rationale

The direct ("footprint") habitat impact of the BCWF is about 12 acres (11.93 acres). The proportion of the impact is about 70 percent Category 3 habitat and about 30 percent Category 4 habitat. To mitigate for this habitat loss requires the improvement of about 12 acres of Category 4 grassland within the mitigation area so that 70 percent becomes Category 2 grassland and 30
percent becomes Category 3 grassland. In addition, successful mitigation requires the protection of the improved habitat for the life of the facility.

The calculated potential grassland bird displacement impact is estimated to be about 33 acres. The proportion of the impact is about 70 percent Category 3 habitat (about 23 acres) and about 30 percent Category 4 habitat (about 10 acres). To mitigate for the Category 3 component of this habitat impact requires enhancing about 23 acres of current Category 4 habitat to Category 3 grassland habitat. To mitigate for the Category 4 component requires enhancing about 10 acres from Category 4 to Category 3 (this area need not be grassland habitat).

The total size of the mitigation area is 117 acres. Mitigation for the footprint impact requires about 12 acres, which leaves about 105 acres in the habitat mitigation site. Mitigation for the displacement impact requires about 33 acres, which leaves about 72 acres beyond the minimum land area needed to achieve successful mitigation for the impacts described in this plan. This 72 acres may be used for additional mitigation in the future, if the success criteria described above in Section 3 are met.

X. Amendment of the Plan

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