

**BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON**

In the Matter of the Application for a)
Site Certificate for the Biglow Canyon)
Wind Farm) FINAL ORDER
)
)

Oregon Energy Facility Siting Council

June 30, 2006

BIGLOW CANYON WIND FARM
FINAL ORDER

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LIST OF ABBREVIATIONS

1		
2		
3		
4	ASC	Application for a Site Certificate
5	ASC Supplement	Supplement to the Site Certificate Application
6	Biglow	Biglow Canyon Wind Farm
7	BLM	Bureau of Land Management
8	BPA	Bonneville Power Administration
9	Council	Energy Facility Siting Council
10	CRGNSA	Columbia River Gorge National Scenic Area
11	CRP	Conservation Reserve Program
12	Department	Oregon Department of Energy
13	dBA	The "A-weighted" sound pressure level. The sound pressure level in
14		decibels as measured on a sound level meter using the A-weighted filter
15		network. The A-weighted filter de-emphasizes the very low and very high
16		frequency components of the sound in a manner similar to the frequency
17		response of the human ear and correlates well with subjective reactions to
18		noise.
19	DEQ	Oregon Department of Environmental Quality
20	EFU	land zoned for "exclusive farm use"
21	F-1	Exclusive Farm Use zone under the Sherman County Zoning Ordinance
22	FAA	Federal Aviation Administration
23	kV	kilovolt or kilovolts
24	LCDC	Land Conservation and Development Commission
25	mph	miles per hour
26	MW	megawatt or megawatts
27	m/s	meters per second
28	O&M Facility	Operations and Maintenance Facility
29	ODFW	Oregon Department of Fish and Wildlife
30	Orion	Orion Sherman County Wind Farm LLC
31	RAI	Oregon Department of Energy request for additional information
32	SCCP	Sherman County Comprehensive Plan
33	SCADA System	Supervisory Control and Data Acquisition System
34	SCZO	Sherman County Zoning Ordinance
35	SHPO	State Historic Preservation Office
36	USFWS	U.S. Fish and Wildlife Service

1 BIGLOW CANYON WIND FARM
2 FINAL ORDER
3
4

5 **I. INTRODUCTION**
6

7 This order addresses the application for a site certificate for the construction and
8 operation of a proposed wind energy facility in Sherman County near Wasco, Oregon. The
9 applicant is Orion Sherman County Wind Farm LLC (Orion). The applicant has named the
10 proposed facility the Biglow Canyon Wind Farm (Biglow). The Energy Facility Siting
11 Council (Council) issues this order based on its review of the application and the comments
12 and recommendations on the application by state agencies, local governments, tribal
13 organizations and the public.
14

15 ORS 469.320 requires a site certificate from the Energy Facility Siting Council
16 (Council) before construction of a "facility." ORS 469.300 defines "facility" as "an energy
17 facility together with any related or supporting facilities." Biglow would be an "energy
18 facility" under the definition in ORS 469.300(11)(a). A "site certificate" is a binding
19 agreement between the State of Oregon and the applicant, authorizing the applicant to
20 construct and operate a facility on an approved site, incorporating all conditions imposed by
21 the Council on the applicant.
22

23 It is the public policy of the State of Oregon that "the siting, construction and
24 operation of energy facilities shall be accomplished in a manner consistent with protection of
25 the public health and safety and in compliance with the energy policy and air, water, solid
26 waste, land use and other environmental protection policies of this state." ORS 469.310. A
27 site certificate issued by the Council binds the state and all counties and cities and political
28 subdivisions of Oregon. Once the Council issues the site certificate, the responsible state
29 agency or local government must issue any necessary permits that are addressed in the site
30 certificate without further proceedings. ORS 469.401(3).
31

32 To issue a site certificate for a proposed facility, the Council must determine that "the
33 facility complies with the standards adopted by the Council pursuant to ORS 469.501 or the
34 overall public benefits of the facility outweigh the damage to the resources protected by the
35 standards that facility does not meet." ORS 469.503(1). The Council, further, must decide
36 whether the proposed facility complies with all other applicable Oregon statutes and
37 administrative rules identified in the project order, excluding requirements governing design
38 or operational issues that do not relate to siting and excluding compliance with requirements
39 of federally delegated programs. ORS 469.401(4) and 469.503(3). In addition, the Council
40 must include in the site certificate "conditions for the protection of the public health and
41 safety, for the time for completion of construction, and to ensure compliance with the
42 standards, statutes and rules described in ORS 469.501 and ORS 469.503." ORS 469.401(2).
43

44 In accordance with ORS 469.370(1), the Department issues a draft proposed order on
45 an application. Following the issuance of that draft, the Council must conduct at least one
46 public hearing in the affected area. At the hearing, the Council takes public comment on the

1 application and draft proposed order. ORS 469.370(2). Any issues that may be the basis for a
2 contested case hearing must be raised by the public hearing comment deadline or they are
3 waived and cannot be considered in a contested case. ORS 469.370(3).
4

5 After the public hearing and the Council's review of the draft proposed order, the
6 Department issues the proposed order recommending approval or rejection of the application.
7 The Department issues a public notice of the proposed order that includes notice that the
8 Council will conduct a contested case hearing on the application. The notice specifies a
9 deadline for requests to participate as a party in the contested case and the date for the initial
10 prehearing conference. ORS 469.370(4). Only those who appeared in person or in writing at
11 the public hearing on the application (described in the preceding paragraph) may request to
12 become parties to the contested case, and only those issues that were raised on the record of
13 the public hearing with sufficient specificity can be considered in the contested case. ORS
14 469.370(5).
15

16 After the conclusion of the contested case proceeding, the Council decides whether to
17 grant a site certificate and issues a final order that either approves or rejects the application
18 based on the standards adopted under ORS 469.501 and any additional state statutes, rules or
19 local government ordinances determined to be applicable to the proposed facility by the
20 project order. ORS 469.370(7).
21

22 The Council's final order is subject to judicial review by the Oregon Supreme Court.
23 Only a party to the contested case may request judicial review, and the only issues that may
24 be subject to judicial review are issues that parties to the contested case have raised. A
25 petition for judicial review must be filed with the Supreme Court within 60 days after the date
26 of service of the Council's final order. ORS 469.403.
27

28 The definitions in ORS 469.300 and OAR 345-001-0010 apply to terms used in this
29 order.
30

31 **II. PROCEDURAL HISTORY**

32 **1. Timeline**

33 Expedited review status for a wind energy facility allows a developer to skip the
34 Notice of Intent phase of the Council's site certificate application process. While Klondike III
35 requested expedited review for its proposed 91-MW Klondike III Wind Project, Orion's
36 proposed Biglow project was not eligible for the formal expedited review process because of
37 its size of up to 450 MW. However, Orion did ask the Department informally to expedite its
38 overall review to allow the company to participate in a competitive turbine market, meet
39 important project deadlines and coordinate with tight Council summer meeting schedules.
40 That request meant that the Department's review of Biglow nearly caught up with the
41 Department's review of the Klondike III Wind Project at the Draft Proposed Order stage,
42 despite Orion submitting its application for Biglow about five months after Klondike III
43 submitted its application for its project.
44
45
46

Company	Notice of Intent Submitted	Project Order Issued	Application Submitted	Filing Date (Application determined complete)	Draft Proposed Order Issued
Klondike III	None	July 8, 2005	May 13, 2005	Feb. 6, 2006	April 13, 2006
Orion	July 22, 2005	Oct. 10, 2005	Oct. 12, 2005	March 20, 2006	May 8, 2006

1
2 Crucial to the Department's ability to meet Orion's request to reach the Draft
3 Proposed Order stage quickly during a complex, non-expedited review process was the
4 Department's work just performed on the Klondike Wind Project application. The proposed
5 facilities sit adjacent to each other on similar sites that have some similar issues, and the
6 Department was able to model parts of its Biglow order on the Klondike order. In addition,
7 the timeline that the Draft Proposed Order met resulted in many overtime hours for the
8 Department's staff and consultants. The Department wishes to make clear the role the
9 overtime hours and the symbiotic relationship with Klondike played in its speedy review of
10 the Biglow application with the good-natured hope that such speed is not pointed to as a
11 precedent for Department action in the future on a large, non-expedited project.
12

13 2. Notice of Intent

14
15 On July 22, 2005, Orion submitted a Notice of Intent to apply to build Biglow with a
16 maximum average electric generating capacity of about 450 megawatts.
17

18 On August 19, 2005, the Council appointed the Sherman County Board of
19 Commissioners as the Special Advisory Group for the Orion application.
20

21 The Department held a public information meeting on the Notice of Intent on August
22 29, 2005, at the St. Mary's Parish Hall in Wasco. The only comments the Department
23 received at the meeting were comments favorable toward the project.
24

25 On October 10, 2005, the Department issued a project order for Biglow.
26

27 3. Site Certificate Application

28
29 Orion submitted an application for a site certificate on October 12, 2005. On
30 November 7, 2005, the Council appointed John W. Burgess as the Hearing Officer for the
31 public hearing and contested case proceedings for Biglow.
32

33 On March 20, 2006, the Department determined that the application was complete
34 based on additional information submitted by the applicant in the time since the application
35 was submitted. As required under OAR 345-021-0055, the applicant prepared a supplement to
36 the application and distributed copies of the supplement to the reviewing agencies who had
37 responded to the Notice of Intent request for comments and to others identified by the
38 Department, together with the notice described in OAR 345-015-0200. To conserve resources,
39 the department distributed the notice without supplement to those agencies that had not

1 responded to the Notice of Intent with a statement saying that a supplement would be sent
2 should the agency wish one.

3
4 The Department issued public notice of the filing of the application by publishing the
5 notice in *The Dalles Chronicle*, a newspaper of general circulation available in the vicinity of
6 the proposed facility. The Department mailed a notice of filing to the property owners listed
7 in Exhibit F of the application and to persons on the Council's general mailing list and the
8 special mailing list set up for the proposed facility, as described in OAR 345-015-0190.

9
10 In response to the notice of filing, the Department received written comments from the
11 following state agencies:

- 12
13 • Oregon Department of Geology & Mineral Industries (advising that the applicant
14 should acknowledge the geotechnical work that would be necessary prior to
15 construction).
- 16
17 • Oregon Department of Fish and Wildlife (raising multiple concerns about
18 protection of raptor nest locations, threatened and endangered species, wildlife
19 monitoring plan components, habitat mitigation and revegetation of temporarily
20 disturbed areas).
- 21
22 • Oregon Parks and Recreation Department, State Historic Preservation Office
23 (standard review of the project and citing no adverse impact to the Oregon Trail).
- 24
25 • Oregon Parks and Recreation Department (asking that turbines be sited such that
26 views from the John Day River are protected and that lighting on certain wind
27 turbines that might be visible from the John Day Scenic Waterway be avoided,
28 subject to FAA requirements).
- 29
30 • Oregon Department of State Lands (advising that no Removal-Fill Permit is
31 required).
- 32
33 • Oregon Water Resources Department (advising that the proposed source of water
34 for construction purposes may not be available).
- 35
36 • In addition, the Department met at his request with James Hamrick at the Oregon
37 Parks and Recreation Department (to raise the Department's awareness of the
38 state's Oregon Historic Trails Advisory Council and national and state historic
39 trails in Oregon).
- 40
41 • The Department also received comments from the Sherman County Planning
42 Director (recommending several site certificate conditions related to the county's
43 Conditional Use Permit).
- 44

- 1 • The Department received comments from the Confederated Tribes of the Warm
2 Springs Reservation of Oregon (advising of the tribes' concerns about wildlife,
3 habitat, weed, cultural, land use and other issues).
4
- 5 • The Department also received several letters or e-mails, as well as several
6 telephone calls, from a handful of Sherman County landowners concerned about
7 the potential interference of Biglow turbines with their own plans for turbines on
8 their properties. Some of the landowners also expressed interest in being able to
9 gain access to the Biglow substation should it be built. The Department's response
10 was to let landowners know that the Council's jurisdiction did not extend to "wind
11 setback" requirements or substation access and to encourage the landowners to
12 work out their issues directly with Orion.
13
- 14 • The Department received a letter from Mike Denny, representing the Blue
15 Mountain Audubon Society, in which he expressed concern about the proposed
16 facility's potential impacts on birds and bats.
17

18 4. Draft Proposed Order

19
20 On May 8, 2006, the Department issued a draft proposed order and a Notice of Public
21 Hearing and Request for Comments in accordance with OAR 345-015-0220. The Department
22 received comments from the applicant requesting specific changes to the draft proposed order
23 and from the Oregon Department of Fish and Wildlife responding to the applicant's request
24 for changes. A public hearing held in Wasco, Oregon, on May 31, 2006, resulted in one public
25 comment about wake effect concerns. The deadline for written comments was June 2, 2006.
26 The Department received written clarification comments from the Confederated Tribes of the
27 Warm Springs Reservation of Oregon and from Sherman County. The Council reviewed the
28 draft proposed order at a meeting on June 6, 2006, in accordance with OAR 345-015-0230. In
29 light of the comments received and the Council discussion, the Department prepared this
30 proposed order.
31

32 III. GENERAL FINDINGS OF FACT

34 1. Description of the Proposed Facility

36 (a) Project Overview.

37
38 Orion provided information about the components of the proposed facility in Exhibit
39 B of the application. Biglow would be an electric power generating plant that would produce
40 power from wind energy.
41

42 Biglow would consist of up to 225 wind turbines with an aggregate nominal nameplate
43 generating capacity of 337.5 megawatts (MW) of electricity or 150 wind turbines with an
44 aggregate nominal nameplate generating capacity of 450 MW. The average electric

1 generating capacity would be about 112.5 to 150 MW.¹ Turbines would be mounted on
2 tubular steel towers ranging in height from 265 to 280 feet at the hub with an overall height of
3 from 400 to 445 feet including the turbine blades. The turbines would be erected within up to
4 30 corridors and spaced to optimize the facility's output. The facility would be located on
5 private farmland that Orion has leased from the affected landowners.

6 7 **(b) The Energy Facility**

8
9 ORS 469.300(11)(a)(J) defines the "energy facility" in this case as "an electric power
10 generating plant with an average electric generating capacity of 35 megawatts or more if the
11 power is produced from ... wind energy at a single energy facility." The proposed electric
12 power generating plant would consist of up to 225 wind turbine locations, each consisting of a
13 turbine tower and foundation, turbine pad area, nacelle, rotor and blade assembly, and step-up
14 transformer. The turbines would be arranged in strings as shown in Revised Figures C-2 and
15 C-2A of the Supplement to the Site Certificate Application for the Biglow Canyon Wind
16 Farm ("ASC Supplement").²

17
18 Orion is requesting a site certificate that would allow the option of using either of two
19 possible wind turbine configurations: 225 GE 1.5-MW turbines or 150 GE 3.0-MW turbines.
20 In the case of the 1.5-MW turbines, the turbine towers would be about 265 feet high at the
21 rotor hub, and the blade sweep would be about 230 feet. In the case of the 3.0-MW turbines,
22 the turbine towers would be about 280 feet high at the rotor hub, and the blade sweep would
23 be about 265 feet. Orion is also requesting a site certificate that would enable it to make use of
24 other turbine types in the event the GE turbines proved to be unavailable in the marketplace at
25 the time of construction.

26
27 A wind turbine features a nacelle mounted on a tubular steel tower. The nacelle houses
28 the generator and gearbox and supports the rotor and blades at the hub. The turbine tower
29 supports and provides access to the nacelle. Each turbine unit sits on a pad measuring about
30 2,786 square feet. The pad accommodates the turbine pedestal, a step-up transformer, and a
31 turnout area for service vehicles. The purpose of the step-up transformer is to increase the
32 output voltage of the wind turbine to the voltage of the power collection system. Underlying
33 the pad would be a deep concrete turbine foundation with a surface area measuring about 40
34 feet by 40 feet for the 1.5-MW turbines and about 80 feet by 80 feet for the 3.0-MW turbines.

35 36 **(c) Related or Supporting Facilities**

37
38 Orion proposes to construct the following related or supporting facilities:

- 39 • Power collection system
- 40 • Substations and interconnection system
- 41 • Meteorological towers
- 42 • Operations and maintenance building

¹ ORS 469.300(4) defines the "average electric generating capacity" of a wind energy facility as the peak
generating capacity divided by 3.00.

² ASC Supplement Revised Figures C-2 and C-2A are incorporated in this order by this reference.

- 1 • Control system
- 2 • Access roads
- 3 • Temporary laydown and staging areas
- 4

5 Power Collection System. Each wind turbine would generate power at about 600 volts.
6 The transformer sitting at the base of each wind turbine unit would increase the voltage to
7 34.5 kilovolts (kV). From the transformer, power would be transmitted to a central substation
8 by means of electric cables. Most of the cables would be buried three feet or more below the
9 surface in trenches about 3 feet wide. In areas where collector cables from several turbine
10 strings follow the same alignment, *e.g.*, on approach to the substation, multiple sets of cables
11 may be installed within a single trench. If the facility is fully developed, there would be about
12 468,000 feet (88.6 miles) of 3-wire collector cables. Generally, these cables will be above,
13 below or adjacent to the fiber optic cables comprising the supervisory control and data
14 acquisition system.

15
16 In some locations, the collector cables may be constructed above ground on pole or
17 tower structures. Aboveground structures would allow the collector cables to span terrain,
18 such as canyons, native grasslands, wetlands, and intermittent streams, thereby reducing
19 adverse environmental impacts, or to span cultivated areas, thereby reducing adverse impacts
20 to farming operations. Poles or towers supporting aboveground segments of the power
21 collection system would be about 23 to 28 feet tall. Pending final site design, Orion states that
22 the length of the aboveground segments of the power collection system would be up to but not
23 exceeding 15 miles.

24
25 Substations and Interconnection System. Under one of its transmission alternatives,
26 Orion would construct a new substation in the southern section of the facility site. The
27 substation site would be a graveled, fenced area of up to 6 acres with transformers, switching
28 equipment and a parking area. Transformers would be non-polychlorinated biphenyl (PCB)
29 oil-filled types. The transmission line would be about 3 miles long and would interconnect
30 with the Bonneville Power Administration (BPA) system at the existing Klondike
31 Schoolhouse Substation.

32
33 Under its second transmission alternative, Orion would construct a new substation
34 near the center of the facility site. The substation site would be a graveled, fenced area of up
35 to 6 acres with transformers, switching equipment and a parking area. Transformers would be
36 non-PCB oil-filled types. The transmission would be about 7 miles long and would
37 interconnect with an electric transformer or switching facility to be installed at BPA's John
38 Day Substation or Switchyard for delivery of electricity to BPA's high-voltage transmission
39 system.

40
41 Meteorological Towers and SCADA. Orion would place up to 10 meteorological
42 towers throughout the facility site to collect wind resource data. The towers would be up to
43 279 feet tall.

44
45 Operations and Maintenance Building. The site of the operations and maintenance
46 facility would comprise about 5 acres. The O&M building would occupy about 5,000 square

1 feet and would include office and workshop areas, control room, kitchen, bathroom, shower,
2 utility sink, and other typical facilities. Water for the bathroom, shower and kitchen would be
3 obtained from an onsite well constructed by a licensed contractor in accordance with local and
4 state requirements. Water use would not be expected to exceed 1,000 gallons per day.
5 Domestic wastewater generated at the O&M facility would drain into an onsite septic system.
6 A graveled parking area for employees, visitors and equipment would be located adjacent to
7 the O&M facility.

8
9 Orion has proposed three alternative locations for the O&M facility: (1) adjacent to the
10 substation to be located in the southern section of the facility site in the event Biglow is
11 interconnected to the BPA transmission system by means of the Klondike Schoolhouse
12 Substation; (2) adjacent to the substation to be located near the center of the facility site in the
13 event Biglow is interconnected to the BPA transmission system by means of the John Day
14 Substation; or (3) at the site of an existing house located at 97327 Emigrant Lane, Wasco,
15 Oregon.

16
17 Control System. Orion would install a supervisory control and data acquisition
18 (SCADA) system to assist with the remote operation of the wind turbines, to collect data from
19 each wind turbine, and to archive wind and performance data from various sources. The
20 SCADA system would be linked by means of fiber optic cables or other means of
21 communication to a central computer in the O&M facility.

22
23 Access Roads. Orion would construct about 40.5 miles of new roads to provide access
24 to the wind turbine strings, together with turnaround areas at the end of each wind turbine
25 string. The roads would be about 28 feet wide and would be composed of crushed gravel. In
26 addition, Orion would improve about 0.7 mile of existing roads by providing an all-weather
27 surface and, in some cases, widening the roads to accommodate construction vehicles.

28
29 Temporary Laydown and Staging Areas. Depending on whether it proceeds with the
30 150-turbine or 225-turbine configuration, Orion would use a total of 186 or 261 laydown and
31 staging areas to stage construction and store supplies and equipment during construction of
32 the facility. It would develop one 18,500 square-foot laydown area at the site of each wind
33 turbine, a one-acre laydown area for each wind turbine string, and six additional 5-acre
34 laydown areas at various locations throughout the facility site. The laydown areas would have
35 a crushed gravel surface and would be returned to their pre-construction condition following
36 completion of construction of the facility.

37 38 **2. Location of the Proposed Facility**

39
40 Orion provided information about the location of the proposed facility in Exhibit C of
41 the site certificate application. The facility site would be about 2.5 miles northeast of Wasco
42 in Townships 1 and 2 North, Ranges 17 and 18 East, Willamette Meridian, Sherman County,
43 Oregon. Orion provided additional information about its "Turbine Corridor Concept" in the
44 Appendix, Turbine Corridor Request for Additional Information, included in the Supplement
45 to the Site Certificate Application for the Biglow Canyon Wind Farm.

1 Revised Figures C-2 and C-2A in the ASC Supplement show the proposed locations
2 of the facility and related or supporting facilities.

3 4 **3. The Site and Site Boundary**

5
6 For the purposes of analysis in the site certificate application, the “site boundary” is
7 defined under OAR 345-001-0010(53) as “the perimeter of the site of the proposed energy
8 facility, its related or supporting facilities, [and] all temporary laydown and staging areas.”
9 The locations of the temporary laydown and staging are shown on Revised Figure C-2 of the
10 ASC Supplement.

11
12 Orion has requested the flexibility, within defined 500-foot-wide turbine corridors, to
13 defer the final selection of turbine vendor, turbine size, number of turbines to be installed, and
14 precise turbine layout until after the issuance of a site certificate and prior to commencement
15 of construction. In the site certificate application, Orion has defined the range of possible
16 turbine vendors, sizes and numbers. Orion has also defined the boundaries of the 500-foot-
17 wide corridors within which the turbines would be located by means of GPS coordinates, each
18 coordinate representing a point in degrees west longitude and degrees north latitude.³

19
20 In demonstrating that it would satisfy the Council’s standards, Orion has used two
21 approaches. Under the first approach, it has simply defined the “worst case” by considering
22 the maximum possible impacts under any possible combination of turbine vendors, sizes,
23 numbers and locations within the defined limits. Under the second approach, Orion presented
24 formulas and methods for assessing the impacts and designating appropriate mitigation for
25 various combinations of turbine vendors, sizes, numbers and locations within the defined
26 limits. For those standards to which this approach would apply, Orion seeks inclusion in the
27 site certificate of applicable formulas and methods, together with a condition that would
28 require Orion, prior to the commencement of construction, to present to the Department a
29 “Final Layout” defining its selection of turbine vendor, size, number and location,
30 accompanied by Orion’s resource impact calculations and proposed mitigation measures. The
31 formulas and methods would be applied to the “Final Layout” to ensure that Orion would
32 satisfy each of the Council’s affected standards. Orion takes the position that these approaches
33 would grant it important flexibility in terms of turbine vendor and size selection and in terms
34 of turbine micro-siting within the defined turbine corridors while ensuring that compliance
35 with Council standards would be based on either a “worst case” methodology or an actual-
36 impacts methodology.

37
38 For the purpose of analysis of the site certificate application, the “site boundary”
39 would include the 500-foot-wide turbine corridors and the associated related or supporting
40 facilities. No permanent facilities or temporary construction would be permitted outside of the
41 500-foot-wide turbine corridors, with the exception of the related or supporting facilities
42 described below.

43

³ Attachment 1, Corridor Boundaries, Appendix, Turbine Corridor Request for Additional Information,
Supplement to the Site Certificate Application for the Biglow Canyon Wind Farm, incorporated in this order by
this reference.

1 Before beginning construction of the facility, Orion would determine the final turbine
2 layout and, as required by Condition (102), would submit to the Department a legal
3 description of the facility site. OAR 345-001-0010(49) defines the facility "site" as "all land
4 upon which a facility is located or proposed to be located." As defined under OAR 345-001-
5 0010(19), a "facility" includes the energy facility and its related or supporting facilities. The
6 Biglow site would include the following energy facility and related or supporting facilities:

- 7
8 • Turbine corridors. The site would include the area within each 500-foot-wide
9 turbine corridor as defined by the coordinates included in Attachment 1,
10 Corridor Boundaries, of the Appendix included in the ASC Supplement. The
11 total area occupied by the turbine corridors would be about 2,163 acres.
12
- 13 • Meteorological towers and underground SCADA cables. The site would
14 include the ten proposed meteorological towers and foundations, each
15 occupying an area of about 900 square feet (0.02 acre), and the 20-foot-wide
16 route of the underground SCADA data cables that would interconnect the
17 meteorological towers with a control computer in one of three optional O&M
18 facilities. These facilities are depicted on Revised Figures C-2 and C-2A of the
19 ASC Supplement.
20
- 21 • Power collection system. The site would include the 20-foot-wide route of the
22 underground and aboveground segments of the power collection system, as
23 shown on Revised Figures C-2 and C-2A of the ASC Supplement. The area
24 encompassed by the power collection system route would be about 190.20
25 acres. The power collection system would interconnect with one of two
26 optional substations.
27
- 28 • Access roads, access road intersections and turnaround areas. The site would
29 include all access roads, access road intersections and turnaround areas
30 improved or newly constructed to serve the facility. These new and improved
31 access roads, access road intersections and turnaround areas, encompassing an
32 area of about 151.15 acres, are depicted on Revised Figures C-2 and C-2A of
33 the ASC Supplement.
34
- 35 • Transmission line. The site would include one of two high-voltage
36 transmission line alternatives, each with two optional routings. Under
37 Alternative 1, Option A, the transmission line would occupy a 12-foot-wide
38 corridor about 3 miles long (a total area of about 4.36 acres) and would
39 interconnect a substation located in the south central site with the Klondike
40 Schoolhouse Substation located south of the site by crossing diagonally over
41 cultivated land. Under Alternative 1, Option B, the transmission line would
42 occupy a 12-foot-wide corridor about 3 miles long (a total area of about 4.36
43 acres) and would interconnect a substation located in the south central site with
44 the Klondike Schoolhouse Substation by following existing roads to avoid a
45 diagonal crossing of cultivated land. Under Alternative 2, Option A, the
46 transmission line would occupy a 12-foot-wide corridor about 7 miles long (a

1 total area of about 10.18 acres) and would interconnect a substation located
2 near the center of the site with the BPA John Day Substation located west of
3 the site by paralleling the Herin Lane right-of-way. Under Alternative 2,
4 Option B, the transmission line would occupy a 12-foot-wide corridor about 7
5 miles long (a total of about 10.18 acres) and would interconnect a substation
6 located near the center of the site with the BPA John Day Substation located
7 west of the site by following a series of straight lines rather than meandering
8 along the course of Herin Lane. The transmission line alternatives and options
9 are depicted on Revised Figures C-2 and C-2A of the ASC Supplement.
10

- 11 • Substation. The site would include one of two substation alternatives,
12 depending on Orion's choice of transmission line alternatives. If Orion
13 proceeds with transmission line Alternative 1, the substation would be located
14 in the south central site. If Orion proceeds with transmission line Alternative 2,
15 the substation would be located near the center of the site. In either case, the
16 substation would occupy about 6 acres of land. The substation alternatives are
17 depicted on Revised Figures C-2 and C-2A of the ASC Supplement.
18
- 19 • O&M Facility. The site would include one of three O&M facility alternatives,
20 depending, in part, on Orion's choice of transmission line alternatives. If Orion
21 proceeds with transmission line Alternative 1, the O&M facility may be
22 located adjacent to the substation in the south central site. If Orion proceeds
23 with transmission line Alternative 2, the O&M facility may be located adjacent
24 to the substation near the center of the site. Or, without regard to Orion's
25 choice of transmission line alternatives, the O&M facility may be located at the
26 site of an existing residence in the south central site. In all cases, the O&M
27 building would measure about 5,000 square feet and would be situated on a 5-
28 acre, gravel-covered parcel to provide parking for employees, visitors and
29 equipment. The O&M facility alternatives are depicted on Revised Figures C-2
30 and C-2A of the ASC Supplement.
31

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

33

34 The Council must decide whether Biglow complies with the facility siting standards
35 adopted by the Council. ORS 469.503. In addition, the Council must impose conditions for
36 the protection of the public health and safety, for the time of commencement and completion
37 of construction, and to ensure compliance with the standards, statutes and rules addressed in
38 the project order. ORS 469.401(2).
39

40 The Council is not authorized to determine compliance with regulatory programs that
41 have been delegated to another state agency by the federal government. ORS 469.503(3).
42 Nevertheless, the Council may consider these programs in the context of its own standards to
43 ensure public health and safety, resource efficiency and protection of the environment.
44

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

5 **1. General Standard of Review**

6 **OAR 345-022-0000**

7
8 *(1) To issue a site certificate for a proposed facility or to amend a site certificate,*
9 *the Council shall determine that the preponderance of evidence on the record*
10 *supports the following conclusions:*

11
12 *(a) The facility complies with the requirements of the Oregon Energy Facility*
13 *Siting statutes, ORS 469.300 to ORS 469.570 and 469.590 to 469.619, and the*
14 *standards adopted by the Council pursuant to ORS 469.501 or the overall public*
15 *benefits of the facility outweigh the damage to the resources protected by the*
16 *standards the facility does not meet as described in section (2);*

17
18 *(b) Except as provided in OAR 345-022-0030 for land use compliance and*
19 *except for those statutes and rules for which the decision on compliance has been*
20 *delegated by the federal government to a state agency other than the Council, the*
21 *facility complies with all other Oregon statutes and administrative rules identified*
22 *in the project order, as amended, as applicable to the issuance of a site certificate*
23 *for the proposed facility. If the Council finds that applicable Oregon statutes and*
24 *rules, other than those involving federally delegated programs, would impose*
25 *conflicting requirements, the Council shall resolve the conflict consistent with the*
26 *public interest. In resolving the conflict, the council cannot waive any applicable*
27 *state statute.*

28 * * *

29
30 We address the requirements of OAR 345-022-0000 in the findings of fact, reasoning,
31 recommended conditions and conclusions of law discussed in the sections that follow. Upon
32 consideration of all of the evidence in the record, we state our recommended general
33 conclusion regarding the application in Section VII.
34

35 **2. Standards About the Applicant**

36 **(a) Organizational Expertise**

37 **OAR 345-022-0010**

38
39 *(1) To issue a site certificate, the Council must find that the applicant has the*
40 *organizational expertise to construct, operate and retire the proposed facility in*
41 *compliance with Council standards and conditions of the site certificate. To*
42 *conclude that the applicant has this expertise, the Council must find that the*
43 *applicant has demonstrated the ability to design, construct and operate the*
44 *proposed facility in compliance with site certificate conditions and in a manner*
45 *that protects public health and safety and has demonstrated the ability to restore*
46

1 *the site to a useful, non-hazardous condition. The Council may consider the*
2 *applicant's experience, the applicant's access to technical expertise and the*
3 *applicant's past performance in constructing, operating and retiring other*
4 *facilities, including, but not limited to, the number and severity of regulatory*
5 *citations issued to the applicant.*

6
7 *(2) The Council may base its findings under section (1) on a rebuttable*
8 *presumption that an applicant has organizational, managerial and technical*
9 *expertise, if the applicant has an ISO 9000 or ISO 14000 certified program and*
10 *proposes to design, construct and operate the facility according to that program.*

11
12 *(3) If the applicant does not itself obtain a state or local government permit or*
13 *approval for which the Council would ordinarily determine compliance but*
14 *instead relies on a permit or approval issued to a third party, the Council, to issue*
15 *a site certificate, must find that the third party has, or has a reasonable likelihood*
16 *of obtaining, the necessary permit or approval, and that the applicant has, or has*
17 *a reasonable likelihood of entering into, a contractual or other arrangement with*
18 *the third party for access to the resource or service secured by that permit or*
19 *approval.*

20
21 *(4) If the applicant relies on a permit or approval issued to a third party and the*
22 *third party does not have the necessary permit or approval at the time the Council*
23 *issues the site certificate, the Council may issue the site certificate subject to the*
24 *condition that the certificate holder shall not commence construction or operation*
25 *as appropriate until the third party has obtained the necessary permit or approval*
26 *and the applicant has a contract or other arrangement for access to the resource*
27 *or service secured by that permit or approval.*

28
29 Findings of Fact

30
31 The applicant provided evidence about its organizational expertise in Exhibit D and
32 about permits needed for construction and operation of the proposed facility in Exhibit E of
33 the application.

34
35 A. Applicant's Expertise

36
37 Portland General Electric has publicly announced its intention to buy Biglow should
38 the project receive a site certificate and other approvals. However, because that transaction
39 would not occur unless and until the Council approves a site certificate for Biglow, it is
40 Orion's qualifications that must meet the Council's standard on organizational expertise.

41
42 The applicant, Orion Sherman County Wind Farm LLC (Orion), is a limited liability
43 company organized in Delaware. Orion is a wholly owned subsidiary of Orion Energy LLC
44 ("Orion Energy"), a California limited liability company. Orion Energy is a privately owned
45 company based in Oakland whose sole business is the development, financing, construction,
46 and operation of large-scale wind power facilities.

1
2 Orion Energy would provide the organizational, managerial and technical expertise to
3 construct and operate Biglow. Orion Energy's wind resource team has led efforts to permit
4 more than 1,100 MW of installed wind energy projects worldwide. Orion Energy developed,
5 constructed and operated the 30-MW Delaware Mountains Wind Farm and the 83-MW Indian
6 Mesa Wind Farm, both in Texas, and the 10.4-MW Green Mountain Wind Farm in
7 Pennsylvania.

8
9 As described in Exhibit D of the ASC, Orion Energy's key personnel for the
10 development, construction and operation of the proposed energy facility have experience in
11 power project engineering, design, development, construction and operation. Orion Energy
12 would hire qualified contractors with substantial experience constructing similar facilities to
13 design and build the Biglow facility.

14
15 The applicant relies on mitigation to demonstrate compliance with Council standards.
16 The mitigation actions necessary to demonstrate compliance with these standards are
17 described in the site certificate conditions in Sections IV and V below. The Council finds that
18 the applicant could successfully complete the mitigation actions, based on evidence provided
19 by Orion, including past experience with other projects and the qualifications and experience
20 of personnel upon whom the applicant would rely.

21 22 B. Third-Party Permits

23
24 Orion does not rely on any state or local government permit issued to a third party.

25
26 To find that Orion can comply with OAR 345-022-0010, the Council adopts the
27 following conditions in the site certificate:

- 28
29 **(1) Before beginning construction of the facility, the certificate holder shall**
30 **notify the Department of the identity and qualifications of the engineering,**
31 **procurement and construction (EPC) contractor(s) for specific portions of**
32 **the work. The certificate holder shall select EPC contractors that have**
33 **substantial experience in the design and construction of similar facilities.**
34 **The certificate holder shall report to the Department any change of major**
35 **construction contractors.**
36
37 **(2) The certificate holder shall contractually require all construction**
38 **contractors and subcontractors involved in the construction of the facility**
39 **to comply with all applicable laws and regulations and with the terms and**
40 **conditions of the site certificate. Such contractual provisions shall not**
41 **operate to relieve the certificate holder of responsibility under the site**
42 **certificate.**
43
44 **(3) During construction of the facility, the certificate holder shall have an on-**
45 **site assistant construction manager who is qualified in environmental**
46 **compliance to ensure compliance with all construction-related site**

1 certificate conditions. During operation, the certificate holder shall have a
2 project manager who is qualified in environmental compliance to ensure
3 compliance with all ongoing site certificate conditions. The certificate
4 holder shall notify the Department of the name, telephone number, fax
5 number and e-mail address of these managers and shall keep the
6 Department informed of any change in this information.
7

- 8 (4) Within 72 hours after discovery of conditions or circumstances that may
9 violate the terms or conditions of the site certificate, the certificate holder
10 shall report the conditions or circumstances to the Department.
11

12 Conclusions of Law
13

14 The Council concludes that, subject to the conditions stated in this order, the applicant
15 has demonstrated that it has the organizational expertise to construct and operate the proposed
16 facility. The Council further concludes that no third-party permits would be required for
17 construction or operation of the proposed facility. The Council adopts Conditions (1), (2), (3)
18 and (4) in the site certificate. Based on these findings and recommended conditions, the
19 Council concludes that the applicant has met the Organizational Expertise Standard.
20

21 **(b) Retirement and Financial Assurance**
22

23 **OAR 345-022-0050**

24 *To issue a site certificate, the Council must find that:*
25

26 *(1) The site, taking into account mitigation, can be restored adequately to a useful,*
27 *non-hazardous condition following permanent cessation of construction or*
28 *operation of the facility.*
29

30 *(2) The applicant has a reasonable likelihood of obtaining a bond or letter of*
31 *credit in a form and amount satisfactory to the Council to restore the site to a*
32 *useful, non-hazardous condition.*
33

34 Findings of Fact
35

36 A. Retirement
37

38 Orion has assumed that Biglow would have a useful life of 20 to 30 years. However,
39 the facility could be re-powered by replacing existing wind turbines, towers, or other
40 infrastructure with new, more efficient turbines or related equipment. If Biglow were to be re-
41 powered, its useful life could be greater than 30 years.
42

43 Under OAR 345-022-0050(1), the Council must find that the site can be restored
44 adequately to a useful, non-hazardous condition following permanent cessation of
45 construction or operation of the facility. For the purpose of the standard, a “useful, non-
46 hazardous condition” is a condition consistent with the applicable local comprehensive land

1 use plan and land use regulations. Biglow, as proposed, would be located on land zoned
2 Exclusive Farm Use. To satisfy the standard, Orion must show that the site can be restored to
3 a useful, non-hazardous condition suitable for agricultural use.
4

5 The certificate holder is obligated to retire the facility upon permanent cessation of
6 construction or operation of the facility. Before restoring the site, the certificate holder must
7 submit a final retirement plan for approval by the Council. The retirement plan must describe
8 the activities necessary to restore the site to a useful, non-hazardous condition. After Council
9 approval of the plan, the certificate holder would obtain the necessary authorization from the
10 appropriate regulatory authorities before proceeding with site restoration. In addition, before
11 beginning construction and throughout the life of the facility, the certificate holder is
12 obligated to obtain and maintain a bond or letter of credit in an amount sufficient to ensure
13 that funds would be available to the Council to restore the site to a useful, non-hazardous
14 condition if the certificate holder does not retire the facility as required by Condition (109).
15

16 Restoring the site to a useful, non-hazardous condition upon retirement of the facility
17 would include dismantling and removing the wind turbines, pad-mounted transformers,
18 meteorological towers, transmission lines, O&M building, substation, and other aboveground
19 equipment. After removal of the equipment, concrete turbine and meteorological tower
20 foundations would be removed to a depth of at least 3 feet below the ground surface, and
21 surface gravel would be removed. These areas would be backfilled and graded to restore soil
22 and original contours, topsoil would be applied, and the disturbed areas would be planted with
23 native plant seed mixes or agricultural crops, as appropriate, based on the use of adjacent
24 lands.
25

26 Facility access roads would be removed in a four-step process: (1) gravel removal; (2)
27 grading; (3) topsoil application; and (4) seeding. The restored areas would be reclaimed to
28 restore surface grade, soil and vegetation to a condition supportive of either agriculture or
29 wildlife habitat, as appropriate, based on the use of adjacent lands. Some roads on private
30 property could be left in place, depending on the landowner's preference.
31

32 Demolition waste material would be transported for disposal at authorized sites.
33 Turbines, turbine towers, and nacelles are expected to have carbon steel scrap value that
34 would offset the estimated cost of demolition and site restoration.
35

36 Biglow would not have underground storage tanks or other on-site bulk storage of
37 hazardous materials. Small quantities of lubricants, vehicle fuel and herbicides could be
38 transported over the site during operation, and leaks, spills or improper handling of these
39 materials could occur. Given the small amounts of such materials used on the site, soil
40 contamination is unlikely.
41

42 The Council finds that the actions necessary to demolish the facility are feasible and
43 that restoration of the site to a useful, non-hazardous condition is achievable.
44

45 B. Estimated Cost of Site Restoration 46

1 OAR 345-022-0050(2) addresses the possibility that the certificate holder may be
 2 unable or unwilling to restore the site to a useful, non-hazardous condition upon permanent
 3 cessation of construction or operation of the facility at any time during the life of the facility.
 4 The requirement that the certificate holder post a bond or letter of credit in an amount
 5 sufficient to cover the cost of restoring the site to a useful, non-hazardous condition, naming
 6 the State of Oregon as beneficiary, provides a financial assurance to protect the State of
 7 Oregon and its citizens if the certificate holder fails to fulfill its site restoration obligation
 8 under any circumstances.

9
 10 Orion seeks a site certificate that would allow for the construction and operation of a
 11 facility that, at full build-out, could assume one of four possible configurations: (1) 225 GE
 12 1.5-MW turbines with a 7-mile transmission line interconnecting the facility with the BPA
 13 John Day Substation (the "225-turbine John Day Alternative"); (2) 225 GE 1.5-MW turbines
 14 with a 3-mile transmission line interconnecting the facility with the Klondike Schoolhouse
 15 Substation (the "225-turbine Klondike Schoolhouse Alternative"); (3) 150 GE 3.0-MW
 16 turbines with a 7-mile transmission line interconnecting the facility with the BPA John Day
 17 Substation (the "150-turbine John Day Alternative"); and (4) 150 GE 3.0-MW turbines with a
 18 3-mile transmission line interconnecting the facility with the Klondike Schoolhouse
 19 Substation (the "150-turbine Klondike Schoolhouse Alternative"). In addition, Orion seeks a
 20 site certificate that would allow for substitution of other turbine types and sizes in the event
 21 the GE turbines proved to be unavailable at the time of construction. Regardless of the
 22 facility's final configuration, Orion also seeks a site certificate that would allow for
 23 construction of the facility in one or more phases, backed by a reduced financial assurance
 24 requirement adequate to cover only the phase or phases then in operation or under
 25 construction. To provide a fund that is adequate for the State of Oregon to bear the cost of site
 26 restoration if the certificate holder fails to fulfill its obligations, the Council assumes
 27 circumstances under which the restoration cost would be greatest.

28
 29 Orion estimated the net cost of site restoration at full build-out under each of the four
 30 possible configurations, as depicted in Table 1.
 31

Table 1
Orion's Facility Retirement Cost Estimates

Proposed Facility Configuration	Gross Retirement Cost Estimate	Carbon Steel Scrap Value	Net Retirement Cost Estimate
225-turbine John Day Alternative	\$11,748,453	\$7,170,000	\$4,578,453
225-turbine Klondike Schoolhouse Alternative	\$11,524,453	\$7,170,000	\$4,354,453
150-turbine John Day Alternative	\$11,018,899	\$9,210,150	\$1,808,749
150-turbine Klondike Schoolhouse Alternative	\$10,794,899	\$9,210,150	\$1,584,749

32
 33 The Department obtained independent cost estimates, based on the estimating
 34 procedure outlined in the "Facility Retirement Cost Estimating Guide." The Department also

1 obtained an independent estimate of the current value of carbon steel scrap.⁴ By application of
 2 the Facility Retirement Cost Estimating Guide and the independent estimate of carbon steel
 3 scrap value, the Department estimated the net cost of site restoration at full build-out under
 4 each of the four possible configurations, as depicted in Table 2.
 5

Table 2
Independent Facility Retirement Cost Estimates

Proposed Facility Configuration	Gross Retirement Cost Estimate	Carbon Steel Scrap Value	Net Retirement Cost Estimate
225-turbine John Day Alternative	\$11,051,830	\$6,503,850	\$4,547,980
225-turbine Klondike Schoolhouse Alternative	\$10,995,346	\$6,503,850	\$4,491,496
150-turbine John Day Alternative	\$13,254,259	\$8,515,350	\$4,738,909
150-turbine Klondike Schoolhouse Alternative	\$13,197,775	\$8,515,350	\$4,682,425

6
 7 In order to allow Orion some flexibility in determining the final configuration of the
 8 proposed facility, the Council finds that the net cost of site restoration for the fully
 9 constructed facility would be the amount applicable to the 150-turbine John Day Alternative,
 10 or \$4,738,909 (in 2005 dollars), including an offset for the value of carbon steel scrap. The
 11 Council adds to the net cost of site restoration a one-percent performance bond, representing a
 12 cost to be borne by the demolition contractor, and the customary ten-percent administration
 13 and project management assessment to cover the Department's costs if it must oversee the
 14 demolition and site restoration effort and the customary twenty-percent future developments
 15 contingency to address unforeseen developments over the course of 30 years. The Council
 16 finds that the financial assurance amount applicable to the 150-turbine John Day Alternative
 17 would be \$6,208,000. Details in support of the independent facility retirement cost estimates
 18 are included in Tables 3 and 4.
 19

Table 3
Cost Estimates for Site Restoration – BPA John Day Substation Alternatives*

	Unit Cost	225-Turbine John Day Alternative		150-Turbine John Day Alternative	
		Quantity	Extension	Quantity	Extension
Turbines					
Disconnect electrical, remove turbines, towers and nacelles (per tower)	1.5-MW 3.0-MW	\$18,101 \$29,920	225	\$4,072,725	150 \$4,488,000
Foundation removal, restoration and reseeded (per turbine)	1.5-MW 3.0-MW	\$7,211 \$25,419	225	\$1,622,475	150 \$3,813,000
Remove and load pad transformers (per transformer)		\$2,119	225	\$476,775	150 \$317,850
Met Towers					
Dismantle and dispose of met towers per tower)		\$8,113	10	\$81,130	10 \$81,130
Substation					
Dismantle and dispose of substation		\$208,972	1	\$208,972	1 \$208,972
O&M Facility					
		\$100,580	1	\$100,580	1 \$100,580

⁴ The Department's estimates were developed by Pacific Energy Systems, Inc., which engaged Pinnell-Busch, Inc., in the preparation of the Facility Retirement Cost Estimating Guide and in the investigation of current local carbon steel scrap values.

Dismantle and dispose of O&M Facility					
Transmission Lines					
Remove aboveground 34.5-kV collector system (per mile)	\$3,739	15	\$56,085	15	\$56,085
Remove 230-kV transmission line (per mile)	\$14,121	7	\$98,847	7	\$98,847
Remove junction boxes to 3' below grade (per junction box)	\$1,246	25	\$31,150	25	\$31,150
Access Roads					
Roadway Obliteration (per mile)	\$9,008	40.5	\$364,824	40.5	\$364,824
Roadway Regrading (per acre)	\$12,728	137.45	\$1,749,464	137.45	\$1,749,464
Roadway Reseeding (per acre)	\$2,617	137.45	\$359,707	137.45	\$359,707
Turnarounds and Access Road Intersections					
Obliteration, regrading and reseeding (per acre)	\$18,003	12.23	\$220,177	12.23	\$220,177
Temporary Laydown Areas					
Regrading and reseeding areas disturbed during restoration work (per acre)	\$15,345	77.78	\$1,193,534	61.85	\$949,088
General Costs	\$415,377	1	\$415,377	1	\$415,377
Gross Cost			\$11,051,830		\$13,254,259
Less Carbon Steel Scrap Value (per net ton)	-\$149	43650	-\$6,503,850	57150	-\$8,515,350
Subtotal			\$4,547,980		\$4,738,909
Performance Bond		1%	\$45,480	1%	\$47,389
Administration and Project Management		10%	\$454,798	10%	\$473,891
Future Developments Contingency		20%	\$909,596	20%	\$947,782
Total Site Restoration Cost (rounded to nearest \$1,000)			\$5,958,000		\$6,208,000

* Assumes full build-out with 225 GE 1.5-MW GE Turbines or 150 GE 3.0-MW GE Turbines and 7-mile transmission line interconnecting with BPA John Day Substation

1

Table 4
Cost Estimates for Site Restoration – Klondike Schoolhouse Alternatives*

	Unit Cost	225-Turbine Klondike Schoolhouse Alternative		150-Turbine Klondike Schoolhouse Alternative	
		Quantity	Extension	Quantity	Extension
Turbines					
Disconnect electrical, remove turbines, towers and nacelles (per tower)	1.5-MW 3.0-MW	\$18,101 \$29,920	225	\$4,072,725	150 \$4,488,000
Foundation removal, restoration and reseeding (per turbine)	1.5-MW 3.0-MW	\$7,211 \$25,420	225	\$1,622,475	150 \$3,813,000
Remove and load pad transformers (per transformer)		\$2,119	225	\$476,775	150 \$317,850
Met Towers					
Dismantle and dispose of met towers per tower)		\$8,113	10	\$81,130	10 \$81,130
Substation					
Dismantle and dispose of substation		\$208,972	1	\$208,972	1 \$208,972
O&M Facility					
Dismantle and dispose of O&M Facility		\$100,589	1	\$100,589	1 \$100,589
Transmission Lines					
Remove aboveground 34.5-kV collector system (per mile)		\$3,739	15	\$56,085	15 \$56,085
Remove 230-kV transmission line (per mile)		\$14,121	3	\$42,363	3 \$42,363
Remove junction boxes to 3' below grade (per junction box)		\$1,246	25	\$31,150	25 \$31,150
Access Roads					
Roadway Obliteration (per mile)		\$9,008	40.5	\$364,824	40.5 \$364,824
Roadway Regrading (per acre)		\$12,728	137.45	\$1,749,464	137.45 \$1,749,464
Roadway Reseeding (per acre)		\$2,617	137.45	\$359,707	137.45 \$359,707
Turnarounds and Access Road Intersections					
Obliteration, regrading and reseeding (per acre)		\$18,003	12.23	\$220,177	12.23 \$220,177

Temporary Laydown Areas					
Regrading and reseeding areas disturbed during restoration work (per acre)	\$15,345	77.78	\$1,193,534	61.85	\$949,088
General Costs	\$415,377	1	\$415,377	1	\$415,377
Gross Cost			\$10,995,346		\$13,197,775
Less Carbon Steel Scrap Value (per net ton)	-\$149	43650	-\$6,503,850	57150	-\$8,515,350
Subtotal			\$4,491,496		\$4,682,425
Performance Bond		1%	\$44,915	1%	\$46,824
Administration and Project Management		10%	\$449,150	10%	\$468,243
Future Developments Contingency		20%	\$898,299	20%	\$936,485
Total Site Restoration Cost (rounded to nearest \$1,000)			\$5,884,000		\$6,134,000

* Assumes full build-out with 225 GE 1.5-MW Turbines or 150 GE 3.0-MW Turbines and 3-mile transmission line interconnecting with Klondike Schoolhouse Substation

1
2 Because Orion seeks flexibility that would allow for development of the facility in one
3 or more phases to address market demand and equipment availability, the Department has
4 designed a procedure that would allow for assignment of the financial assurance requirement
5 applicable to a given phase of facility development. That procedure assigns unit costs to the
6 retirement tasks. It then calls for extending those unit costs based on the quantity of units
7 applicable to the proposed phase and any previous phases of development. Unit costs are
8 defined in Table 5.
9

Table 5
Unit Costs Applicable to Phased Development of Biglow Canyon Wind Farm as Derived by
Application of the Facility Retirement Cost Estimating Guide

Facility Component and Retirement Tasks	Unit	Unit Cost
GE 3.0-MW Turbines		
Disconnect electrical, remove turbines, turbine towers and nacelles	Turbine Tower	\$29,920
Foundation removal, restoration and reseeding	Turbine Tower	\$25,420
Carbon Steel Scrap Value (381 net tons per turbine tower)	Turbine Tower	(\$56,769)
GE 1.5-MW Turbines		
Disconnect electrical, remove turbines, turbine towers and nacelles	Turbine Tower	\$18,101
Foundation removal, restoration and reseeding	Turbine Tower	\$7,211
Carbon Steel Scrap Value (194 net tons per turbine tower)	Turbine Tower	(\$28,906)
Facility Components for GE 3.0-MW or GE 1.5-MW Turbines		
Transformers – Remove, load and haul	Transformer	\$2,119
Meteorological Towers – Dismantle, load and haul	Met Tower	\$8,113
Substation – Dismantle, load and haul	Substation	\$208,972
O&M Facility – Dismantle, load and haul	O&M Facility	\$100,589
230-kV or 500-kV Transmission Line – Dismantle, load and haul	Mile	\$14,121
34.5-kV Aboveground Collector System – Dismantle, load and haul	Mile	\$3,739
Junction Boxes – Remove to 3' below grade	Junction Box	\$1,246
Access Roads – Obliterate	Mile	\$9,008
Access Roads – Apply topsoil and grade	Acre	\$12,728
Access Roads – Reseed	Acre	\$2,617
Turnarounds and Access Road Intersections – Obliterate, apply topsoil, grade and reseed	Acre	\$18,003
Temporary Laydown Areas – Apply topsoil, grade and reseed*	Acre	\$15,345
General Costs – Permits, mobilization, engineering, overhead, utility disconnects, etc.	First Phase	\$415,377

* Site restoration temporary laydown areas are presumed to measure one-half the size of temporary laydown areas required during construction of the facility.

10
11 In the event Orion elected to develop the facility in one or more phases using either
12 the GE 1.5-MW turbines or the GE 3.0-MW turbines or a combination of these two GE
13 turbines, as proposed in the site certificate application, before beginning construction of the
14 facility, Orion would be required to submit to the Department its final site design, including
15 documentation in support of the quantity of the units that would apply to retirement of each

1 phase of the facility. The Department would apply the appropriate unit costs from Table 5 to
2 each of those quantities and add to the resulting subtotal the one-percent performance bond
3 amount, the ten-percent administration and project management assessment and the twenty-
4 percent future developments contingency to arrive at the financial assurance amount
5 applicable to each phase of development. The General Costs, i.e., permits, mobilization,
6 engineering overhead, and utility disconnects, would apply only to the first phase of
7 development. Before beginning construction of the first phase of development, Orion would
8 be required to submit to the State of Oregon through the Council a letter of credit in the
9 designated amount. Before beginning construction of any subsequent phase of development,
10 Orion would be required to increase the amount of the letter of credit by the amount
11 applicable to that phase of development.

12
13 To find that Orion can comply with OAR 345-022-0050(2), the Council adopts the
14 following conditions in the site certificate:

- 15
16 **(5) If the certificate holder elects to build the facility in a single phase using**
17 **only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of these**
18 **two GE turbines, before beginning construction of the facility and after**
19 **considering all micrositing factors, the certificate holder shall provide to**
20 **the Department a detailed map of the proposed facility showing the final**
21 **locations where facility components are proposed to be built within the**
22 **500-foot-wide corridors shown on Revised Figures C-2 and C-2A of the**
23 **ASC Supplement.**
- 24
25 **(6) If the certificate holder proposes to build the facility in more than one**
26 **phase using only GE 1.5-MW turbines, GE 3.0-MW turbines or a**
27 **combination of these two GE turbines, before beginning construction of**
28 **any phase of the facility and after considering all micrositing factors, the**
29 **certificate holder shall provide to the Department a detailed map of that**
30 **phase of the facility showing the final locations where facility components**
31 **are proposed to be built within the 500-foot-wide corridors shown on**
32 **Revised Figures C-2 and C-2A of the ASC Supplement, shall identify on**
33 **this map the facilities that would constitute that phase of construction, and**
34 **shall provide documentation defining the quantities of each of the**
35 **following components that would constitute that phase of construction:**
36 **GE 1.5-MW turbines, GE 3.0-MW turbines, pad transformers,**
37 **meteorological towers, substation, O&M facility, miles of 230-kV or 500-**
38 **kV transmission line, miles of aboveground 34.5-kV collector system,**
39 **miles of access road, acres of turnarounds and access road intersections,**
40 **and acres of temporary laydown area.**
- 41
42 **(7) If the certificate holder elects to build the facility in a single phase using**
43 **any turbines other than the GE 1.5-MW turbines or GE 3.0-MW turbines,**
44 **before beginning construction of the facility and after considering all**
45 **micrositing factors, the certificate holder shall provide to the Department**
46 **a detailed map of the proposed facility showing the final locations where**

1 facility components are proposed to be built within the 500-foot-wide
2 corridors shown on Revised Figures C-2 and C-2A of the ASC
3 Supplement. The certificate holder shall include with this map
4 documentation defining quantities of each of the following components
5 that would constitute the complete facility: turbines, pad transformers,
6 meteorological towers, substation, O&M facility, miles of 230-kV or 500-
7 kV transmission line, miles of aboveground 34.5-kV collector system,
8 miles of access road, acres of turnarounds and access road intersections,
9 and acres of temporary laydown area. For each turbine, the certificate
10 shall define the turbine manufacturer, turbine capacity, weight of steel,
11 height of tower, sweep of blade, and size of concrete foundation.
12

13 (8) If the certificate holder elects to build the facility in more than one phase
14 using any turbines other than the GE 1.5-MW turbines or GE 3.0-MW
15 turbines, before beginning construction of any phase of the facility and
16 after considering all micrositing factors, the certificate holder shall
17 provide to the Department a detailed map of that phase of the facility
18 showing the final locations where facility components are proposed to be
19 built within the 500-foot-wide corridors shown on Revised Figures C-2
20 and C-2A of the ASC Supplement, shall identify on this map the facilities
21 that would constitute that phase of construction, and shall provide
22 documentation defining the quantities of each of the following components
23 that would constitute that phase of construction: turbines, pad
24 transformers, meteorological towers, substation, O&M facility, miles of
25 230-kV or 500-kV transmission line, miles of aboveground 34.5-kV
26 collector system, miles of access road, acres of turnarounds and access
27 road intersections, and acres of temporary laydown area. For each
28 turbine, the certificate shall define the turbine manufacturer, turbine
29 capacity, weight of steel, height of tower, sweep of blade, and size of
30 concrete foundation.
31

32 (9) If the certificate holder elects to build the facility in a single phase using
33 only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of these
34 two GE turbines, before beginning construction of the facility the
35 certificate holder shall submit to the State of Oregon through the Council
36 a bond or letter of credit in the amount of \$6.208 million (in 2005 dollars)
37 naming the State of Oregon, acting by and through the Council as
38 beneficiary or payee. If the certificate holder elects to build the facility in a
39 single phase using any turbines other than the GE 1.5-MW or GE 3.0-MW
40 turbines or if the certificate holder elects to build the facility in more than
41 one phase using any combination of turbines, before beginning
42 construction of any phase of the facility, the certificate holder shall submit
43 to the State of Oregon through the Council a bond or letter of credit
44 naming the State of Oregon, acting by and through the Council, as
45 beneficiary or payee in the amount (in 2005 dollars) determined by the
46 Department as the gross cost of demolition and site restoration minus the

1 carbon steel scrap value plus the one-percent performance bond amount,
2 ten-percent administration and project management costs and twenty-
3 percent future developments contingency applicable to the proposed phase
4 of construction, together with any previous phases of construction. If the
5 certificate holder elects to build the facility in more than one phase using
6 only GE 1.5-MW turbines, GE 3.0-MW turbines or a combination of the
7 two GE turbines, the Department will establish the amount of the bond or
8 letter of credit by applying the unit costs described in Table 5 of the
9 Council's final order on the site certificate application (incorporated
10 herein by this reference) to the number of units identified by the
11 certificate holder and verified by the Department as applicable to the
12 proposed phase and any previous phases of construction and adding to
13 that subtotal the one-percent performance bond amount, ten-percent
14 administration and project management costs and twenty-percent future
15 developments contingency. If the certificate holder elects to build the
16 facility using any turbines other than the GE 1.5-MW turbines or GE 3.0-
17 MW turbines, for each phase of construction the Department will
18 establish the amount of the bond or letter of credit by using its Facility
19 Retirement Cost Estimating Guide to estimate the gross cost of demolition
20 and site restoration minus the carbon steel scrap value plus the one-
21 percent performance bond amount, ten-percent administration and
22 project management costs and twenty-percent future developments
23 contingency.

24
25 (a) The certificate holder shall adjust the amount of the bond or letter
26 of credit annually, using the following calculation:

27
28 (i) Adjust the gross cost (in 2005 dollars) to present value,
29 using the U.S. Gross Domestic Product Implicit Price
30 Deflator, Chain-Weight, as published in the Oregon
31 Department of Administrative Services' *Oregon Economic*
32 *and Revenue Forecast* or by any successor agency (the
33 "Index"). If at any time the Index is no longer published, the
34 Council shall select a comparable calculation to adjust 2005
35 dollars to present value.

36
37 (ii) Adjust the estimated carbon steel scrap value by an index
38 factor derived from the Producer Price Index values, not
39 seasonally adjusted, reported by the U.S. Department of
40 Labor, Bureau of Labor Statistics, "Commodities: Metals
41 and Metal Products: Carbon Steel Scrap" (Series ID:
42 WPU101211). Using the average monthly index value for
43 the 12 months ending with December of the year preceding
44 the year in which the adjustment is made as the numerator
45 and the average monthly index value for the 12 months
46 ending with December 2005 (277.2) as the demoninator,

1 multiply the estimated scrap value of \$149 per net ton (in
2 2005 dollars) by the resulting factor. If at any time the
3 Producer Price Index Values are no longer published, the
4 Council shall select a comparable calculation to adjust the
5 estimated scrap value.
6

7 (iii) Multiply the adjusted carbon steel scrap value (ii) per net
8 ton by the number of tons of carbon steel scrap applicable
9 to the phase or phases of construction to which the letter of
10 credit applies and subtract the resulting value from the
11 adjusted gross cost (i).
12

13 (iv) Add 1 percent of the subtotal (iii) for the adjusted
14 performance bond amount, 10 percent of the subtotal (iii)
15 for the adjusted administration and project management
16 costs, and 20 percent of the subtotal (iii) for the adjusted
17 future developments contingency.
18

19 (v) Add the subtotal (iii) to the sum of the percentages (iv) and
20 round the resulting total to the nearest \$1,000 to determine
21 the adjusted financial assurance amount for the reporting
22 year.
23

24 (b) The certificate holder shall use a form of bond or letter of credit
25 approved by the Council.
26

27 (c) The certificate holder shall use an issuer of the bond or letter of
28 credit approved by the Council.
29

30 (d) The certificate holder shall describe the status of the bond or letter
31 of credit in the annual report submitted to the Council under
32 Condition (122).
33

34 (e) The bond or letter of credit shall not be subject to revocation or
35 reduction before retirement of the facility.
36

37 (10) If the certificate holder elects to use a bond to meet the requirements of
38 Condition (9), the certificate holder shall ensure that the surety is
39 obligated to comply with the requirements of applicable statutes, Council
40 rules and this site certificate when the surety exercises any legal or
41 contractual right it may have to assume construction, operation or
42 retirement of the facility. The certificate holder shall also ensure that the
43 surety is obligated to notify the Council that it is exercising such rights
44 and to obtain any Council approvals required by applicable statutes,
45 Council rules and this site certificate before the surety commences any
46 activity to complete construction, operate or retire the facility.

1
2 C. Ability of the Applicant to Obtain a Bond or Letter of Credit
3

4 The Council finds that the value of the financial assurance bond or letter of credit for
5 restoring the site of the proposed Biglow facility could be in the amount of up to \$6.208
6 million (in 2005 dollars) adjusted annually as described in Condition (9)(a). Condition (108)
7 requires that the certificate holder provide the applicable bond or letter of credit before
8 beginning construction, in accordance with OAR 345-027-0020(8). The bond or letter of
9 credit would remain in force until the certificate holder has fully restored the site. In its ASC
10 Supplement, Orion requested that construction be allowed to begin at any time within three
11 years after issuance of the site certificate, with construction of all phases to be complete
12 within seven years after issuance of the site certificate. The Council requires construction to
13 begin within three years after the effective date of the site certificate and to be completed
14 within five years after the effective date of the site certificate.
15

16 OAR 345-022-0050(2) requires the Council to decide whether the applicant has a
17 reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory
18 to the Council to restore the site to a useful, non-hazardous condition. Orion provided
19 information about its financial capability in Exhibits D and M of the ASC. Orion proposes to
20 provide a financial assurance letter of credit in a form approved by the Council before
21 beginning construction of the facility and to maintain that performance letter of credit in
22 effect until the facility is retired and the site has been restored.
23

24 Orion has provided a letter from Wells Fargo Bank stating that it has "a long standing
25 Business Banking Relationship with Orion Energy. They have been, and continue to be, in
26 good standing at Wells Fargo Bank." The letter goes on to state: "Based upon the current
27 dollars on deposit at Wells Fargo Bank and subject to acceptable pricing, terms and requisite
28 approvals, Wells Fargo would be willing to arrange a standby letter of credit in an amount up
29 to \$6.5 million for the purpose of ensuring that the site of the proposed Biglow Canyon Wind
30 Farm can be restored to a useful non-hazardous condition." Though this letter does not
31 constitute a firm commitment from Wells Fargo Bank to issue the letter of credit for \$6.208
32 million, the Council accepts the letter as credible evidence that Orion could obtain the
33 necessary letter of credit.
34

35 To find that Orion can comply with OAR 345-022-0050(2), the Council adopts the
36 following conditions in the site certificate:
37

- 38 **(11) The certificate holder shall begin construction of the facility within three**
39 **years after the effective date of the site certificate. Under OAR 345-015-**
40 **0085(9), a site certificate is effective upon execution by the Council Chair**
41 **and the applicant. The Council may grant an extension of the deadline to**
42 **begin construction in accordance with OAR 345-027-0030 or any**
43 **successor rule in effect at the time the request for extension is submitted.**
44
45 **(12) The certificate holder shall complete construction of the facility within five**
46 **years after the effective date of the site certificate. Construction is**

1 complete when: (1) the facility is substantially complete as defined by the
2 certificate holder's construction contract documents; (2) acceptance
3 testing has been satisfactorily completed; and (3) the energy facility is
4 ready to begin continuous operation consistent with the site certificate.
5 The certificate holder shall promptly notify the Department of the date of
6 completion of construction. The Council may grant an extension of the
7 deadline for completing construction in accordance with OAR 345-027-
8 0030 or any successor rule in effect at the time the request for extension is
9 submitted.

- 10
- 11 (13) The certificate holder shall construct a facility substantially as described
12 in the site certificate.
- 13
- 14 (14) Notwithstanding OAR 345-027-0050(2), an amendment of the site
15 certificate is required if the proposed change would increase the electrical
16 generation capacity of the facility and would increase the number of wind
17 turbines or the dimensions of existing wind turbines.
- 18
- 19 (15) The certificate holder shall obtain all necessary state and local permits or
20 approvals required for construction, operation and retirement of the
21 facility or ensure that its contractors obtain necessary state and local
22 permits or approvals.
- 23
- 24 (16) Before beginning construction, the certificate holder shall notify the
25 Department in advance of any work on the site that does not meet the
26 definition of "construction" in OAR 345-001-0010 or ORS 469.300 and
27 shall provide to the Department a description of the work and evidence
28 that its value is less than \$250,000.

29

30 Conclusions of Law

31

32 The Council concludes that the proposed facility site, taking into account mitigation,
33 can be restored adequately to a useful, non-hazardous condition following permanent
34 cessation of construction or operation of the facility. The Council further concludes that
35 \$6.208 million (in 2005 dollars) adjusted annually, as described in Condition (9), is a
36 reasonable estimate of the cost to restore the site to a useful, non-hazardous condition in the
37 event the certificate holder completes the facility as proposed and that the Department has
38 proposed a suitable procedure for estimating the cost to restore the site to a useful, non-
39 hazardous condition in the event the certificate holder elects to develop the facility in phases.
40 The Council concludes that the applicant, subject to the conditions stated in this order, has
41 demonstrated a reasonable likelihood of obtaining a letter of credit, satisfactory to the
42 Council, in an amount adequate to restore the site to a useful, non-hazardous condition. The
43 Council adopts Conditions (5), (6), (7), (8), (9), (10), (11), (12), (13), (14), (15) and (16) in
44 the site certificate. Based on these findings and conditions, the Council concludes that the
45 applicant has met the Retirement and Financial Assurance Standard for the proposed facility.
46

1 **3. Standards About the Impacts of Construction and Operation**

2
3 **(a) Land Use**

4
5 **OAR 345-022-0030**

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

9
10 *(2) The Council shall find that a proposed facility complies with section (1) if:*

11 ***

12
13 *(b) The applicant elects to obtain a Council determination under ORS*
14 *469.504(1)(b) and the Council determines that:*

15
16 *(A) The proposed facility complies with applicable substantive criteria as*
17 *described in section (3) and the facility complies with any Land Conservation and*
18 *Development Commission administrative rules and goals and any land use statutes*
19 *directly applicable to the facility under ORS 197.646(3);*

20
21 *(B) For a proposed facility that does not comply with one or more of the*
22 *applicable substantive criteria as described in section (3), the facility otherwise*
23 *complies with the statewide planning goals or an exception to any applicable*
24 *statewide planning goal is justified under section (4); or*

25
26 *(C) For a proposed facility that the Council decides, under sections (3) or*
27 *(6), to evaluate against the statewide planning goals, the proposed facility*
28 *complies with the applicable statewide planning goals or that an exception to any*
29 *applicable statewide planning goal is justified under section (4).*

30
31 *(3) As used in this rule, the "applicable substantive criteria" are criteria from the*
32 *affected local government's acknowledged comprehensive plan and land use*
33 *ordinances that are required by the statewide planning goals and that are in effect*
34 *on the date the applicant submits the application. If the special advisory group*
35 *recommends applicable substantive criteria, as described under OAR 345-021-*
36 *0050, the Council shall apply them. If the special advisory group does not*
37 *recommend applicable substantive criteria, the Council shall decide either to make*
38 *its own determination of the applicable substantive criteria and apply them or to*
39 *evaluate the proposed facility against the statewide planning goals.*

40
41 *(4) The Council may find goal compliance for a proposed facility that does not*
42 *otherwise comply with one or more statewide planning goals by taking an*
43 *exception to the applicable goal. Notwithstanding the requirements of ORS*
44 *197.732, the statewide planning goal pertaining to the exception process or any*
45 *rules of the Land Conservation and Development Commission pertaining to the*

1 *exception process, the Council may take an exception to a goal if the Council*
2 *finds:*

3
4 *(a) The land subject to the exception is physically developed to the extent that*
5 *the land is no longer available for uses allowed by the applicable goal;*

6
7 *(b) The land subject to the exception is irrevocably committed as described by*
8 *the rules of the Land Conservation and Development Commission to uses not*
9 *allowed by the applicable goal because existing adjacent uses and other relevant*
10 *factors make uses allowed by the applicable goal impracticable; or*

11
12 *(c) The following standards are met:*

13
14 *(A) Reasons justify why the state policy embodied in the applicable goal*
15 *should not apply;*

16
17 *(B) The significant environmental, economic, social and energy*
18 *consequences anticipated as a result of the proposed facility have been identified*
19 *and adverse impacts will be mitigated in accordance with rules of the Council*
20 *applicable to the siting of the proposed facility; and*

21
22 *(C) The proposed facility is compatible with other adjacent uses or will be*
23 *made compatible through measures designed to reduce adverse impacts.*

24 * * *

25
26 Findings of Fact

27
28 Orion provided information about compliance with the Council's Land Use Standard
29 in Exhibit K of the application and elected to have the Council make the land use
30 determination under OAR 345-022-0030(2)(b)(quoted above). The analysis area for the Land
31 Use Standard is the area within the site boundary and one-half mile from the site boundary.

32
33 The land use analysis begins with identification of the "applicable substantive criteria"
34 to be recommended by the Special Advisory Group. On August 19, 2005, the Council
35 appointed the Sherman County Board of Commissioners the Special Advisory Group for this
36 application. The Department requested that the Sherman County Commissioners identify the
37 applicable substantive criteria in effect on the date Orion submitted the application (October
38 12, 2005).⁵ The Sherman County Commissioners did not identify any applicable substantive
39 criteria. OAR 345-022-0030(3) provides that if the Special Advisory Group does not
40 recommend applicable substantive criteria, "the Council shall decide either to make its own
41 determination of the applicable substantive criteria and apply them or to evaluate the proposed
42 facility against the statewide standards."
43

⁵ Request for Comments on Completeness of the Application, dated October 13, 2005.

1 The Council finds that Article 5 of the Sherman County Zoning Ordinance (SCZO)
2 contains the applicable substantive criteria for the proposed project.⁶ The Sherman County
3 Commissioners recommended SCZO Article 5 as the applicable substantive criteria for a
4 wind facility site certificate application filed a few months prior to the Biglow application.⁷ In
5 addition, Article 5 satisfies the other requirements of “applicable substantive criteria”
6 provided in OAR 345-022-0030(3): Article 5 provides criteria from Sherman County’s
7 acknowledged comprehensive plan and land use ordinances that are required by the statewide
8 planning goals and in effect on the date the applicant submitted the application.

9
10 The Council’s Land Use Standard (OAR 345-022-0030) must be applied in
11 conformance with the requirements of ORS 469.504. The Oregon Supreme Court recently
12 held that “under ORS 469.504(1)(b) and (5), the council may choose to determine compliance
13 with statewide planning goals by evaluating a facility under paragraph (A) or (B) or (C), but
14 ... it may not combine elements or methods from more than one paragraph, except to the
15 extent that the chosen paragraph itself permits.” *Save Our Rural Oregon et al. v. Energy*
16 *Facility Siting Council*, 339 Or 353, 367 (2005).

17
18 The Council may find compliance with statewide planning goals under ORS
19 469.504(1)(b)(A) if the Council finds that the proposed facility “complies with applicable
20 substantive criteria from the affected local government’s acknowledged comprehensive plan
21 and land use regulations that are required by the statewide planning goals and in effect on the
22 date the application is submitted.” For the reasons discussed below, the Council finds that the
23 proposed facility does not comply with all of the applicable substantive criteria.

24
25 If the Council finds that the proposed facility does not comply with one or more of the
26 applicable substantive criteria, then the Council must proceed under ORS 469.504(1)(b)(B)
27 and must determine whether the proposed facility “otherwise [complies] with the applicable
28 statewide planning goals.”⁸ The Court held in *Save Our Rural Oregon* that “paragraph (B)
29 necessarily requires an evaluation of the same applicable substantive criteria as paragraph (A)
30 and, to the extent those criteria are not met, directs the council to consider statewide planning
31 goals.” The Council finds that the applicable statewide planning goal is Goal 3 and that an
32 exception to Goal 3 is justified, for the reasons discussed below.

33
34 The substantive criteria contained in Article 5 of the SCZO are in Sections 5.2 and 5.8
35 of the ordinance. The other sections of the article are procedural. The Council makes findings
36 regarding these criteria as discussed below.

⁶ Compatibility with the Sherman County Comprehensive Plan (SCCP) is required by SCZO Section 5.2.1.

⁷ See Draft Proposed Order, In the Matter of the Application for a Site Certificate for the Klondike III Wind Project, at 21.

⁸ Where the special advisory group does not recommend applicable substantive criteria within the stated time, the Council may elect, under ORS 469.504(1)(b)(C), (5), to evaluate a proposed facility solely against applicable statewide planning goals. However, for the reasons stated above, the Council finds that SCZO Article 5 provides the applicable substantive criteria. Therefore, ORS 469.504(1)(b)(C) does not apply.

1
2 A. Applicable Substantive Criteria
3

4 SCZO Section 5.2: General Criteria
5

6 *In determining whether or not a Conditional Use proposal shall be approved or*
7 *denied, it shall be determined that the following criteria are either met or can be*
8 *met through compliance with specific conditions of approval.*
9

- 10 1. *The proposal is compatible with the County Comprehensive Plan and*
11 *applicable Policies.*
12
13 2. *The proposal is in compliance with the requirements set forth by the*
14 *applicable primary Zone, by any applicable combining zone, and other*
15 *provisions of this Ordinance that are determined applicable to the subject*
16 *use.*
17
18 3. *That, for a proposal requiring approvals or permits from other local, state*
19 *and/or federal agencies, evidence of such approval or permit compliance is*
20 *established or can be assured prior to final approval.*
21
22 4. *The proposal is in compliance with specific standards, conditions and*
23 *limitations set forth for the subject use in this Article and other specific*
24 *relative standards required by this or other County Ordinance.*
25
26 5. *That no approval be granted for any use which is or expected to be found*
27 *to exceed resource or public facility carrying capacities, or for any use*
28 *which is found to not be in compliance with air, water, land, and solid*
29 *waste or noise pollution standards.*
30
31 6. *That no approval be granted for any use violation of this Ordinance.*
32

33 SCZO Section 5.2.1: Compatibility with the Comprehensive Plan
34

35 SCZO Section 5.2.1 requires that the proposal (construction and operation of the
36 facility) be compatible with the SCCP and applicable policies. SCCP Sections I through X
37 contain an introduction, definitions and procedural directives to the county commissioners.
38 These sections do not contain applicable substantive criteria. Sections XI through XVI
39 articulate the County's substantive land use goals. In addition, Section XVIII provides
40 requirements for certain land designations. Each Section contains findings and goals, and
41 policies designed to further the goals. Several goals address specific resources within the
42 County that would not be affected in any way by the proposed facility: Goal VII (aggregate
43 resources), Goal IX (BLM lands), Goal XII (use of resources within the Deschutes and John

1 Day Oregon State Scenic Waterways) and Goal XVI (affordable housing).⁹ Additionally,
2 Goal VIII calls for an investigation of ground water resources. The proposed use would not
3 conflict with an investigation of ground water resources, and, for the reasons discussed in the
4 Public Services Standard section of the order, the facility would not have a significant adverse
5 impact on ground water. The proposed facility is compatible with the remaining goals and
6 applicable policies for the reasons discussed in the sections that follow.

7
8 (a) Goal V: Quality of the Physical Environment

9
10 *Goal V: Improve or maintain the existing quality of the physical environment*
11 *within the County. [SCCP Section XI]*

12
13 Biglow would maintain the existing quality of the physical environment within the
14 County. The two policies under SCCP Goal V are not applicable to Biglow. Policy I
15 “recognizes... recommendations for a state-wide non-point source pollution control program.”
16 Neither construction nor operation of the facility will create a pollution source. Policy II
17 requires that erosion control provisions be incorporated into the subdivision ordinance, which
18 is not applicable to the facility.

19
20 Nonetheless, as discussed in the Soil Protection Standard section of the order, the site
21 certificate holder would implement measures to decrease soil exposure during the
22 construction of the facility. The site certificate holder would open the smallest necessary
23 sections of trench during each day of construction, and would backfill the trenches as soon as
24 is practical after the power lines have been set in the trenches. Construction would also take
25 place during the time of year when rainfall is lowest, minimizing erosion from precipitation.
26 Straw bales or similar containment features will be used to protect stockpiles of soil from
27 erosion. Water trucks would be used as needed to keep wind-borne erosion to a minimum.
28 After construction, the staging locations would be brought back to their original contours,
29 covered in topsoil, and revegetated or prepared for planting of wheat or barley or use as range
30 land. Finally, the facility would be constructed pursuant to an NPDES General Construction
31 Stormwater (1200-C) Permit issued by the DEQ. The NPDES permit would require the use of
32 best management practices to minimize the potential for erosion.

33
34 (b) Goal VI: Natural Hazards

35
36 *Goal VI: To protect life and property from natural disasters and hazards. [SCCP*
37 *Section XI]*

38
39 The proposed facility would meet the requirements of Goal VI. Policy I under Goal VI
40 requires the evaluation of lands designated as potential natural hazard areas before
41 construction of any permanent structure. The facility site contains no lands designated as
42 potential natural hazard areas. Nonetheless, as discussed in the Structural Standard section of
43 the order, the certificate holder would conduct appropriate site-specific geotechnical

⁹ The project's effects on the scenic quality of the State Scenic Waterways is addressed in relation to SCCP Goal X (Landscape) and in relation to the discussion of the Scenic and Aesthetic Values Standard in the order. The project's effects on housing availability are discussed in relation to the Public Services Standard in the order.

1 evaluation prior to construction to identify and avoid geological hazards.¹⁰ Policy II under
2 Goal VI is not applicable because it addresses construction within flood-prone areas, and the
3 facility site is not within a flood-prone area.

4
5 (c) Goal X: Landscape

6
7 *Goal X: Preserve the integrity of the Sherman County Landscape. [SCCP Section*
8 *XI]*

9
10 The features of the Sherman County landscape are addressed in SCCP Section XI,
11 Finding XI, which identifies rock outcroppings, trees, the John Day River Canyon and the
12 Deschutes River Canyon as the “all-important features of the County’s landscape.” The
13 Finding also notes certain segments of I-80, US 97, OR 206 and OR 216 were designated as
14 “scenic highways.” The facility would preserve the integrity of these landscape features. It
15 would not be located in the John Day River Canyon or the Deschutes River Canyon, and
16 would not be located adjacent to I-80, US 97, OR 206, or OR 216. The facility site contains
17 few significant rock outcrops, and neither construction, nor operation, nor retirement of the
18 facility is anticipated to result in the alteration of significant rock outcroppings.¹¹ As
19 discussed in the Scenic and Aesthetic Values Standard section of the order, the facility will
20 not have any significant effect on the scenic qualities of any of these resources. The single
21 policy under Goal X calls for retaining trees when practical. The proposed facility would not
22 require the removal of significant numbers of trees, if any.¹²

23
24 (d) Goal XI: Fish and Wildlife

25
26 *Goal XI: To maintain all species of fish and wildlife at optimum levels and prevent*
27 *the serious depletion of any indigenous species. [SCCP Section XI]*

28
29 Biglow is compatible with the goal of maintaining fish and wildlife populations.
30 Policy I calls for implementation of fish and wildlife management policies. Construction and
31 operation of the facility would be consistent with the Oregon Department of Fish and Wildlife
32 (ODFW) habitat mitigation goals and standards, and would not cause any significant adverse
33 impact to protected or sensitive plant or animal species, as discussed in the Fish and Wildlife
34 Habitat Standard and the Threatened and Endangered Species Standard sections of the order.
35 About 93 percent of the land permanently affected and 95 percent of the land temporarily
36 affected by the proposed facility is either cultivated agricultural land or developed land, and
37 designated as Habitat Category 6 (habitat that has low potential for becoming essential or
38 important habitat for fish and wildlife).

39
40 Policy II under Goal XI does not apply to the proposed facility because it addresses
41 range management programs. Policy III calls for consideration of retention of fence rows,
42 ditch banks and brush patches for wildlife use. Biglow would not remove any of these
43 habitats. Policy IV does not apply because it addresses maintenance by ODFW of “existing

¹⁰ App, Ex. H, page H-3.

¹¹ App, Ex. R, page R-9.

¹² App, pages K-13, R-9.

1 habitat plantings and water developments constructed for wildlife use.” Policy V addresses
2 the use of pesticides that have “low toxicity to wildlife, fish and people.” Pesticides would not
3 be used during construction and operation of the proposed facility. Herbicides might be used
4 for weed control, and, as addressed in the Siting Standards for Wind Facilities section of the
5 order, a weed management plan would be implemented in consultation with the Sherman
6 County Weed Control District and the Department. Policy VI does not apply because it
7 addresses habitat quality on Rufus Bar and Maryhill Islands. Biglow would not affect these
8 areas.

9
10 (e) Goal XIII: Plant and Animal Diversity

11
12 *Goal XIII: Attempt to maintain the diversity of plan [sic] and animal species*
13 *within the County. [SCCP Section XI]*

14
15 The two policies under Goal XIII encourage preservation of sites or areas considered
16 “critical habitat.” Goal XIII and its accompanying policies are phrased in aspirational rather
17 than mandatory language. Nevertheless, the proposed facility is compatible with Goal XIII
18 based on findings in the Fish and Wildlife Habitat Standard and Threatened and Endangered
19 Species Standard sections of the order.

20
21 (f) Goal XIV: Social Services and Public Facilities

22
23 *Goal XIV: To improve or maintain the current level of social services available*
24 *with the County and to assure the provision of public facilities consistent with the*
25 *intensity of land use. [SCCP Section XII]*

26
27 There are twenty specific policies under Goal XIV, but many of these policies are
28 inapplicable to the proposed facility. Policies that are applicable to the proposed facility are
29 discussed below. The facility would meet the requirements of each applicable policy. In
30 addition, the overall concern of Goal XIV is the adequacy of public services in Sherman
31 County. We address the effect of the proposed facility on the delivery of public services in the
32 analysis area in the Public Services Standard section in the order. Based on the findings in that
33 discussion and the discussion here, the proposed facility is compatible with Goal XIV.

34
35 Policies X, XII, and XX address the adequacy of roads and transportation services in
36 the County and are applicable to the facility. In relevant part, Policy X provides that “the
37 County road system shall be maintained and improved consistent with the needs of the
38 Sherman County citizenry.” The conditions below for road maintenance and improvement
39 would improve the quality of the roads and have a beneficial impact on traffic safety. To find
40 that Orion satisfies the requirements of Policy X, the Council adopts the following conditions
41 in the site certificate:

- 42
43 (17) **The certificate holder shall construct the public road improvements**
44 **described in the site certificate application to meet or exceed road**
45 **standards for the road classifications in the County’s Transportation**
46 **System Plan and Zoning Ordinance because roads will require a more**

1 **substantial section to bear the weight of the vehicles and turbine**
2 **components than would usually be constructed by the County.**

3
4 **(18) The certificate holder shall ensure that no equipment or machinery is**
5 **parked or stored on any county road except while in use.**

6
7 Policy XII provides that the “construction of new public roads and highways shall be
8 located whenever possible to avoid dividing existing farm units.” Orion will not build any
9 new public roads or highways as part of the facility. However, Orion stated in the ASC that it
10 would design and construct new private access roads to minimize dividing existing farm
11 units.¹³ The Council adopts the statement as the following condition in the site certificate:

12
13 **(19) The site certificate holder shall design and construct private access roads**
14 **to minimize the division of existing farm units.**

15
16 Finally, the proposed facility would be compatible with Policy XX, which contains the
17 County’s transportation planning policies.¹⁴ Subsection A.1 does not apply because the
18 facility is not a public road or highway project, and A.2 does not apply because no new public
19 roads would be built for the proposed facility. Subsection A.3, provides that “maintenance,
20 repair and preservation of existing transportation facilities shall be allowed without land use
21 review, except where specifically regulated.” As noted above, Orion would improve segments
22 of existing County roads to meet or exceed County standards because certain roads will
23 require a more substantial section to bear the weight of the vehicles and turbine components
24 than would usually be constructed by the County. Subsections A.4 and A.5 do not apply to the
25 facility, because the improvements are not designated in the Transportation Service Plan, and
26 the facility does not require an Environmental Impact Study or Environmental Assessment.
27 Section B, concerning local-state coordination policies, is not applicable to the facility.
28 Subsection B.2. requires the County to provide notice to the Oregon Department of
29 Transportation (ODOT) of land-use applications for properties that have direct frontage or
30 direct access onto a state highway. The facility will not have direct frontage or access onto
31 any state highway or road. Section C concerns protection of transportation facilities, and
32 requires the County to protect the function of existing and planned roads and consider a
33 proposal’s impact on existing or planned transportation facilities. As described above, the
34 project is consistent with the Policy X requirement to maintain and improve the County road
35 system consistent with the needs of the Sherman County citizenry. In addition, traffic impacts
36 would not be significant. Some minor local traffic delays might occur during the construction
37 period, but the roads near the facility site are not heavily used and alternative routes are
38 available for local traffic.

39
40 Policy XV, also related to transportation, requires that the Wasco State Airport be
41 protected from incompatible land uses. As discussed in the Siting Standards for Wind Energy

¹³ App. Page K-17

¹⁴ The county’s “transportation system plan” is incorporated in SCZO Sections 3.1.3(f) and 4.14. *See* Draft Proposed Order, In the Matter of the Application for a Site Certificate for the Klondike III Wind Project, at 25 n.33 (referencing personal communication with Georgia Macnab, Sherman County Planning Director).

1 Facilities section of the order, the certificate holder would install and maintain aviation
2 warning lights on the turbine strings as required by Federal Aviation Administration (FAA)
3 safety regulations. The proposed facility is also subject to review by the FAA for a
4 determination of whether the facility would interfere with flight paths. As discussed in the
5 Public Health and Safety Standards for Wind Energy Facilities section in this order, the
6 certificate holder would submit a Notice of Proposed Construction or Alteration to the Federal
7 Aviation Administration identifying the proposed final locations of the turbines and related or
8 supporting facilities.

9
10 Other applicable policies include IV, VI, and VIII, which deal with the adequacy of
11 hospital, school, and sanitary landfill services, respectively. As discussed in both the Public
12 Services Standard and the Waste Minimization Standard sections of the order, the facility
13 would not have any adverse impacts on the availability of these services.

14
15 Finally, Goal XIV contains two applicable economic development policies, I and IX.
16 Policy I encourages business growth consistent with population growth and the other policies
17 of the SCCP. Policy XIX encourages increased economic diversity and creation of long-term
18 employment opportunities, although not to the detriment of existing residential structures. The
19 facility would require about 15 to 20 permanent employees once operational, in addition to an
20 estimated 250 workers at peak construction periods during the construction process. The
21 facility would also increase economic diversity in the County by providing jobs outside the
22 agricultural sector. The facility would not affect existing residential structures. As discussed
23 herein, Biglow would be consistent with the other policies of the SCCP. The project is thus
24 consistent with Policies I and XIX.

25
26 (g) Goal XV: Cultural Resources

27
28 *Goal XV: To protect historical, cultural and archeological [sic] resources from*
29 *encroachment by incompatible land uses and vandalism. [SCCP Section XII]*

30
31 As discussed in the Historic, Cultural and Archaeological Resources Standard section
32 of the order, historic, cultural and archaeological resources would be protected during
33 construction and operation of the proposed facility. Policy I identifies specific areas and
34 structures considered historically, archaeologically or culturally significant, and Policy II calls
35 for protection of these areas. The proposed facility is consistent with the County policies
36 because it would not affect any of these significant areas or structures. The Oregon Trail is
37 shown to pass through the southern portion of the facility area and is intersected by several
38 existing roads: Emigrant Springs Road, Oehman Road, and Medler Lane, and six turbine
39 strings (shown on Figure 1, attached to Supp. Exhibit S). In addition, the trail would be
40 intersected by a proposed overhead transmission line between Beacon Road and Oehman
41 Road.

42
43 The facility area has long been under intensive cultivation and each of the areas
44 mentioned above is currently in wheat production. Each turbine string was examined for
45 evidence of archaeological and historical cultural resources, including the trail, and no
46 physical evidence of the trail was observed, likely due to farming of the area. If intact

1 segments of the trail were discovered at a later date, the certificate holder would avoid any
2 adverse impacts to the trail.

3
4 (h) Goal XVII: Economic Base and Viability of Agriculture

5
6 *Goal XVII: Diversify the economic base of the County and maintain the viability of*
7 *the agricultural sector. [SCCP Section XIV]*
8

9 The five policies under Goal XVII are not directly applicable to the proposed facility.
10 Policy II, which calls for the adoption of zoning and other necessary ordinances “to assure
11 conservation and retention of agricultural lands in agricultural uses,” applies indirectly
12 through the provisions of the SCZO that address protection of agricultural uses (see
13 discussion of SCZO Section 5.8.16 below). The project is consistent with the language of the
14 goal itself. It would diversify the economic base of the County by providing non-agricultural
15 sector jobs and investment. The project would also help to maintain the viability of the
16 agricultural sector by being compatible with surrounding farm uses and providing a stable
17 source of revenue, through wind facility lease payments, to farm operators.
18

19 (i) Goal XVIII: Energy Resources

20
21 *Goal XVIII: Conserve energy resources. [SCCP Section XV]*
22

23 Policy I under Goal XVIII calls for cooperation in the use and development of
24 renewable resources. The proposed facility is a renewable resource energy project. Policy II
25 concerns “pumped storage” and is inapplicable to the proposed facility. Policy III requires
26 “new high voltage electrical transmission lines with nominal voltage in excess of 230 kV” to
27 be constructed within or adjacent to existing electrical transmission line right-of-way. The
28 applicant proposes two transmission-line alternatives for the project. Either line would be
29 230-kV to 500-kV and, to comply with Policy III, must therefore be “within or adjacent to” an
30 existing transmission line right-of-way. The Applicant has not demonstrated that either line
31 would be within or adjacent to such a right-of-way. Accordingly, the Council finds that the
32 proposed transmission lines do not comply with SCCP Goal XVIII, Policy III and as a result
33 do not comply with SCZO Section 5.2.1. However, the Council finds that the transmission
34 lines are in compliance with applicable statewide planning goals, as required by ORS
35 469.504(1)(b)(B) and discussed below. Policy IV is inapplicable to Biglow because it
36 concerns integration of transportation services at Biggs Junction.
37

38 (j) Goal XIX: Orderly Use of Lands

39
40 *Goal XIX: To provide an orderly and efficient use of the lands within Sherman*
41 *County. [SCCP Section XVI]*
42

43 With the exception of Policy IV, the five policies under Goal XIX are not applicable
44 to the proposed project. Policy IV states that “commercial businesses, except those related to
45 agricultural uses, should be located within incorporated cities.” The proposed facility is a
46 “commercial utility facility,” which is a use specifically conditionally allowable in Sherman
47 County’s Exclusive Farm Use Zone.

1
2 SCZO Section 5.2.2: Compliance with Zoning Requirements
3

4 The proposal is in compliance with the requirements set forth by the applicable
5 primary Zone, by any applicable combining zone, and other provisions of this Ordinance that
6 are determined applicable to the subject use.
7

8 (a) Applicable Primary Zone and Applicable Combining Zone
9

10 Under SCZO Section 5.2.2, the proposed facility must comply with the requirements
11 of the applicable primary zone and any applicable combining zone. The proposed facility
12 would be located entirely within an Exclusive Farm Use zone, which is designated "F-1"
13 under SCZO Section 3.1. There is no applicable combining zone.
14

15 Section 3.1.2 lists uses permitted outright in the F-1 zone, and subsection (g) allows
16 "reconstruction or modification of public roads." The proposed facility would include
17 improvement of certain segments of public roads to support the weight of vehicles and turbine
18 components.¹⁵
19

20 Section 3.1.3 lists uses "and their accessory uses" conditionally permitted in the F-1
21 zone. Subsection 3.1.3(e)(17) conditionally allows "operations conducted for" "commercial
22 utility facilities." SCZO Section 1.4.136 defines a "utility facility" to include "any major
23 structure owned or operated by a...private...electric...company for the generation,
24 transmission, distribution or processing of its products...but excluding local...power
25 distribution lines, and similar minor facilities."¹⁶ SCZO Section 1.4.6 defines "[a]ccessory use
26 or structure" as "[a] use or structure, or a portion of a structure, the use of which is incidental
27 and subordinate to the main use of the property or structure and located on the same premises
28 as the main or primary use and/or structure." The proposed wind turbines and meteorological
29 towers, power collection system, aboveground transmission line, substation, site control and

¹⁵ Section 3.1.2, which lists permitted uses in the F-1 zone is not entirely consistent with ORS 215.283(1). ORS 215.283(1) lists uses that are permitted under state law and includes "utility facilities necessary for public service" (ORS 215.283(1)(d)) and "reconstruction * * * of public roads, *including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right of way* * * *" (ORS 215.283(1)(L)(emphasis added)). While SCZO Section 3.1.2(g) contains the introductory language for 215.283(1)(L) permitting "reconstruction or modification of public roads," it does not contain the additional language permitting placement of utilities "along the right-of-way." However, the county cannot narrow the application of uses permitted under ORS 215.283(1). *Brentmar v. Jackson County*, 321 Ore. 481; 900 P.2d 1030; 1995 Ore. LEXIS 93 (1995). Furthermore, ORS 758.010 grants to any person or corporation the right to place utility service lines along public roads. Thus, under ORS 215.283(1)(L), utility facilities such as transmission lines and junction boxes may be placed in the public right-of-way as a matter of right.

¹⁶ SCZO Section 3.1.3(e)(17) appears to be modeled on ORS 215.283(2)(g), which conditionally allows "commercial utility facilities for the purpose of generating power for public use by sale." However, the definition of "utility facility" in SCZO Section 1.4.136 is overbroad and includes some utility facilities, such as transmission lines, that are permitted outright under ORS 215.283(1)(d), subject to compliance with ORS 215.275. Thus, under SCZO Section 3.1.3, some uses that are allowed outright under applicable state law are improperly subjected to additional conditions under SCZO Section 3.1.3. *Brentmar v. Jackson County*, 321 Ore. 481; 900 P.2d 1030; 1995 Ore. LEXIS 93 (1995).

1 data acquisition system, and the O&M building are structures that meet the definition of a
2 “utility facility.”¹⁷

3
4 The proposed access roads are “transportation improvements” that are separately
5 allowed as a conditional use under SCZO Section 3.1.3(f).¹⁸ “Transportation improvements”
6 are subject to four requirements (in addition to the other applicable requirements of Article 5).
7 The proposed access roads comply with these four requirements. Subsection (A) requires that
8 the project be designed to be compatible with existing land use and social patterns, including
9 noise generation, safety, and zoning. The access roads will be compatible with existing land

¹⁷ The proposed meteorological towers and O&M building may alternatively be allowed as “accessory uses” rather than being considered parts of the “utility facility.” The power collection system and the substations might also be considered “accessory uses,” but we believe that these structures fit more directly within the definition of utility facility structures for “transmission, distribution or processing” of electricity.

The applicant proposes treating the power collection system, the aboveground transmission line, the substation, the meteorological towers, and the O&M building as uses permitted as of right in an F-1 zone by characterizing them as “Non-Commercial utility facilities necessary for private service or public service,” pursuant to SCZO Section 3.1.2(m). App. Page K-6. At Page K-23 of the application, the applicant also suggests that the access roads are governed by 3.1.2(m), although at Page K-6 the applicant treats them as “transportation improvements” subject to SCZO Section 3.1.3(f)(1). The Council rejects this interpretation of SCZO Section 3.1.2(m), and instead treats these elements of the proposed facility as components of a “commercial utility facility,” a conditional use in an F-1 zone pursuant to SCZO Section 3.1.3(e)(17).

The applicant argues that “commercial utility facility” is an implementation of ORS 215.283(2)(g), which concerns “commercial utility facilities for the purpose of generating power for public use by sale” and that “non-commercial utility facilities necessary for private service or public service” is an implementation of ORS 215.283(1)(d), which concerns “utility facilities necessary for public service.” The applicant thus separates the power-generating component of the facility (the turbines) from the other components of the facility necessary to make the power available. However, the SCZO makes a distinction between “commercial” and “non-commercial” utility facilities, rather than between facility components for power generation and those necessary to make the power available. The primary purpose of the proposed facility, to sell the power generated by connection to the energy grid, is consistent with the plain meaning of “commercial.” It would therefore be contrary to the plain language of the SCZO to treat any component of the facility necessary to sell the power through the grid as a “non-commercial utility facility.” Additionally, while the SCZO does not specifically define “commercial,” it treats at least some operations accessory to the growing of crops and livestock and used in their distribution and sale, such as processing, packaging, and reshipment facilities, as “commercial activities in conjunction with farm use.” Finally, the Department’s recommended interpretation is supported by the Sherman County Planning Director, and all similar previously permitted wind facilities have had components such as the collection system and O&M buildings reviewed as “commercial utility facilities.” See Letter from Georgia L. Macnab, Sherman County Planning Director, April 20, 2006.

¹⁸ The proposed access roads may also be considered an “accessory use,” which is defined at SCZO Section 1.3.6 as “a use or structure, or a portion of a structure, the use of which is incidental and subordinate to the main use of the property or structure and located on the same premises as the main or primary use and/or structure.” In addition to being a use “incidental and subordinate” to the main use of the property, and located within the same lease area, the access roads are necessary to the construction and operation of the facility. However, the Council need not decide in this instance whether characterizing the access roads as an “accessory use” would be more appropriate than characterizing them as “transportation improvements.” Treating the access roads as “transportation improvements” subjects them to all the same requirements as would treating them as an “accessory use,” in addition to the requirements that are specific to “transportation improvements,” and the Council finds that the access roads comply with the requirements that are specific to “transportation improvements.”

1 use patterns. As discussed below, in reference to SCZO 5.8.16, the proposed facility,
2 including the access roads, will be compatible with farm uses (the primary land use in the
3 vicinity). In addition, the roads will provide improved access by land managers and farmers to
4 their fields. Trips on the roads generated by the 15 to 20 operational staff of the facility will
5 not cause a perceptible increase in traffic in the vicinity. Finally, as discussed in the Noise
6 Control Regulations section of the order, the access roads would meet DEQ noise standards.

7
8 Subsection (B) requires that the project be designed to minimize unavoidable
9 environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural
10 resources, and scenic qualities. The new access roads will minimize unavoidable
11 environmental impacts to these resources as discussed in the Removal-Fill Law, Public
12 Services, Fish and Wildlife Habitat, Threatened and Endangered Species, Scenic and
13 Aesthetic Values, Historic, Cultural, and Archaeological Resources, and Recreation sections
14 of the order.

15
16 Additionally, the construction and use of the access roads will not create substantial
17 adverse air quality impacts. Construction of the roads may create dust, but, as discussed in the
18 Soil Protection Standard section of the order, the applicant would use standard best
19 management practices to control dust and wind erosion, such as sprinkling the site with water
20 periodically. Subsection (C) requires that the project “preserves or improves the safety and
21 function of the facility through access management, traffic calming, or other design features.”
22 General usage of the public roads intersecting the proposed access roads is low, and the trips
23 on the access roads generated by the 15-to-20 operational staff will not have a significant
24 impact on traffic. Therefore, the Council finds that the access roads preserve the safety and
25 function of intersecting public roads without the need for access management, traffic calming,
26 or other design features.

27
28 Subsection (D) requires that the project “includes provision for bicycle and pedestrian
29 circulation as consistent with the comprehensive plan and other requirements of this
30 ordinance.” As discussed below, SCZO Section 4.15, which relates to pedestrian and bicycle
31 facilities, is not applicable to the proposed facility. There are no other provisions of the SCCP
32 or SCZO that would require bicycle and pedestrian facilities for the proposed facility.

33
34 The conditional uses listed in SCZO Section 3.1.3 and their “accessory uses” are
35 permitted in an F-1 zone “when authorized in accordance with the requirements of Article 5
36 of this Ordinance and this Section.” In context, “this Section” includes the dimensional
37 standards of Section 3.1.4. The wind turbines, O&M building, substations, and
38 meteorological towers are “buildings” under the definition in SCZO Section 1.4.20 and are
39 therefore subject to applicable setback requirements. In the ASC, the Applicant provided a
40 site plan for the proposed facility showing the location of these structures and stating that all
41 of the turbines and above-ground elements of the proposed facility would be located at least
42 50 feet from any property line.¹⁹ However, the applicant later found that the 50-foot setback
43 requirement would apply to residential structures and that the setback requirement applicable
44 to non-residential structures is 30 feet from the property line. The applicant requested that it

¹⁹ App p. K-8 and Appendix C-2.

1 be held to the setback requirement applicable to non-residential structures, not to include
2 aboveground transmission and collector lines and junction boxes. Article 4 of the SCZO
3 contains "Supplementary Provisions," and Sections 4.2 and 4.9 are applicable to the proposed
4 use. Section 4.2 prohibits projections from buildings by more than 2 feet into a required
5 setback, and the proposed facility would not have such projections.
6

7 In Condition (20) of the draft proposed order, the Department recommended a 50-foot
8 setback for all aboveground facility structures, based on the applicant's statement in the
9 application. In its comments during the public hearing process, the applicant asked that
10 aboveground power collection and transmission lines and junction boxes be excluded from
11 the 50-foot setback condition so as not to interfere with farm operations. SCZO Section 3.1.4
12 requires a setback of 30 feet from the property line, "except that the front yard setback
13 requirement from the right-of-way line of an arterial or major collector road or street shall be
14 50 feet unless approved otherwise by the Planning Commission." For most of the
15 aboveground structures, the ordinance requires a 30-foot setback. There are no arterials or
16 major collector roads in the project area, so SCZO 3.1.4 does not require a 50-foot setback for
17 any of the facility structures.²⁰ The Department recommended revising Condition (20) to
18 make it consistent with SCZO Section 3.1.4. However, exclusion of the aboveground power
19 collection and transmission lines and junction boxes from the setback requirements, as
20 requested by the applicant, would conflict with SCZO Section 3.1.4. The Council finds that
21 the facility does not meet SCZO Section 3.1.4 if the site certificate condition removes the
22 aboveground power collection and transmission lines and junction boxes from the setback
23 requirements.
24

25 Under ORS 469.504(1)(b)(B), if a facility does not meet the applicable substantive
26 criteria recommended by the special advisory group pursuant to ORS 469.504(5), the Council
27 may nevertheless approve the facility if it complies with applicable statewide planning goals.
28 The applicable statewide planning goal is Goal 3, which is the state's Agricultural Lands goal.
29 The facility's compliance with Goal 3 is discussed below. Goal 3 requires that non-farm uses
30 within exclusive farm use zones not have significant adverse effects on accepted farm or
31 forest practices. The applicant noted that the permanent occupation of farmland by facility
32 structures could cause some small-scale changes in agricultural practices, including changes
33 in harvest patterns.²¹ To avoid these impacts as a result of placement of aboveground
34 collection and transmission lines and junction boxes, the Council finds that the proposed
35 aboveground collection and transmission lines and junction boxes should be located along
36 property lines and rights-of-way where practicable. The Council modifies Condition (20) by
37 removing aboveground power collection and transmission lines and junction boxes from the
38 setback requirements and modifies Condition (21) to require placement of transmission lines
39 and junction boxes along road rights-of-way or property lines to the extent practicable.
40

41 The Council adopts the following condition in the site certificate:
42

²⁰ Letter from Georgia MacNab, Sherman County Planning Director, dated June 1, 2006.

²¹ App. Page K-5.

1 **(20) The certificate holder shall not locate any aboveground facility structure**
2 **(including wind turbines, O&M building, substations, and meteorological**
3 **towers, but not including aboveground transmission and collector lines**
4 **and junction boxes) within 30 feet from any property line or within 50 feet**
5 **from the right-of-way of any arterial or major collector road or street and**
6 **shall not allow any architectural feature, as described in Sherman County**
7 **Zoning Ordinance Section 4.2, to project into these required setbacks by**
8 **more than 2 feet.**

9
10 (b) Other Applicable Provisions

11
12 In addition to consideration of the requirements of the primary zone and any
13 combining zone, Section 5.2.2 requires consideration of other provisions of the SCZO that are
14 determined “applicable to the subject use.” Many provisions of the SCZO are clearly not
15 applicable to the proposed facility, and are not discussed here. SCZO Articles 4
16 (Supplementary Provisions) and 11 (Design and Improvement Standard Requirements) are at
17 least potentially applicable to the proposed project, and are considered below.

18
19 Sections 4.9 and 4.13 are applicable to the proposed facility. Section 4.9 provides:
20 “Approval of any use or development proposal pursuant to the provisions of this Ordinance
21 shall require compliance with and consideration of all applicable State and Federal agency
22 rules and regulations.” This provision is similar to language in the Council’s General Standard
23 of Review, which requires a finding that “except for those statutes and rules for which the
24 decision on compliance has been delegated by the federal government to a state agency other
25 than the Council, the facility complies with all other Oregon statutes and administrative rules
26 identified in the project order.” ORS 469.503(3). The project order for the proposed facility
27 identifies all applicable state agency permits, rules and regulations. The Department’s
28 recommendations regarding the General Standard of Review are discussed above.

29
30 Exhibit E of the application identifies the applicable federal agency rules and
31 regulations. Federal agencies having regulations that are potentially applicable are the FAA,
32 the U.S. Army Corps of Engineers (USACOE), the Bonneville Power Administration (BPA),
33 and the United States Fish and Wildlife Service (USFWS).

34
35 As discussed in the Public Health and Safety Standards for Wind Energy Facilities
36 section of the order, the certificate holder will file the required Notice of Proposed
37 Construction or Alteration with the FAA and will notify the Department as soon as the FAA’s
38 response has been received. The USACOE administers the Section 404 permit program under
39 the Clean Water Act, which addresses fill activities in of waters of the United States including
40 wetlands. The applicant states that the facility is covered by USACOE Nationwide Permit
41 Number 12, which covers construction, maintenance, and repair of utility lines and associated
42 facilities in waters of the United States, provided the discharge from the facility does not
43 cause the loss of more than one-half of an acre of waters of the United States and the length of
44 fill does not exceed 50 linear feet. This permit is self-executing, so no further permission or
45 permitting action from the USACOE is required for the project. The BPA will lead review of
46 the facility’s interconnection to BPA’s transmission system under the National Environmental
47 Policy Act (NEPA). The NEPA review (in the form of an Environmental Impact Statement)

1 will include review under the Endangered Species Act, the National Historical Preservation
2 Act, and related cultural resources protection statutes. No formal consultation with the
3 USFWS is needed, because no federal license, permit, or authorization is required for the
4 project under the Endangered Species Act. The Council finds that the proposed facility
5 complies with SCZO Section 4.9.

6
7 Section 4.13 contains conditions that the County “may require...for development
8 proposals.” The section is a list of discretionary conditions rather than substantive standards.
9 In issuing a Conditional Use Permit for the proposed facility, the County would be bound by
10 the conditions listed in the site certificate.²² The Department has consulted with the Sherman
11 County Planning Department regarding proposed site certificate conditions.

12
13 The other sections in Article 4 are not applicable. Sections 4.1 and 4.3 do not apply in
14 an F-1 zone. Section 4.2, governing projections from buildings, applies in an F-1 zone;
15 however, each of the structures proposed for the facility will meet setback requirements even
16 when any “projections” from the structures are taken into account. None of the structures need
17 rely upon the 2-foot allowance for “projection” into the setback zone. Sections 4.4, 4.5, 4.6,
18 4.7, 4.8, 4.11 and 4.12 apply to residential uses, and therefore these sections do not apply to
19 Biglow. Section 4.10 applies to “divisions of land within the F-1 zone.” The proposed use
20 does not require a division of land, and therefore Section 4.10 is not applicable.

21
22 Section 4.14 contains the county’s access management policies. Section 1.4.5 defines
23 “access management” as “the process of providing and managing access to land development
24 while preserving the flow of traffic in terms of safety, capacity and speed.” Section 1.4.62
25 defines “land development” as “any subdivision or partition of land, or any other division of
26 land provided for in this Document.” Because the proposed facility does not involve a
27 division of land, Section 4.14 is not applicable. Section 4.15 is intended to provide for “safe
28 and convenient pedestrian, bicycle and vehicular circulation consistent with access
29 management standards and the function of affected streets.” As noted, the access management
30 standards do not apply to the proposed facility. In addition, the specific standards under
31 Section 4.15 are directed at “developments,” and the proposed project does not involve a
32 division of land. Section 4.15 is not applicable.²³

33
34 According to Section 11.1, the requirements of SCZO Article 11 apply to “any land
35 division or development and the improvements required, whether by subdivision, partitioning,
36 creation of a street or other right-of-way, zoning approval, or other land development
37 requiring approval pursuant to the provisions of this Ordinance.” SCZO Section 1.4.62
38 defines “land development” as “any subdivision or partition of land, or any other division of
39 land provided for in this Document.” The proposed facility would not require any land
40 division or land development. For that reason, the Council finds that Article 11 of the SCZO
41 does not apply to the proposed facility.

²² ORS 469.401(3).

²³ The Department confirmed this interpretation of the SCZO with Sherman County Planning Director Georgia Macnab in a personal communication on October 3, 2005. *See* Draft Proposed Order, In the Matter of the Application for a Site Certificate for the Klondike III Wind Project, at 27 n.37.

1
2 SCZO Section 5.2.3: Other Local, State and Federal Permits
3

4 Section 5.2.3 addresses any required approvals or permits from “other local, state
5 and/or federal agencies” and requires evidence of approval or permit compliance. In context,
6 “other” local agencies means local agencies other than the Sherman County Planning
7 Commission. As discussed in the Retirement and Financial Assurance Standard and Waste
8 Minimization Standard sections of the order, the certificate holder will obtain a building
9 permit and a local on-site sewage permit that would be required prior to construction. These
10 are construction-related permits that are not subject to Council approval.²⁴ Orion applied to
11 the Oregon Department of Environmental Quality (DEQ) for an NPDES 1200-C General
12 Construction Storm Water permit, and DEQ has issued a permit for the facility.²⁵ Orion also
13 has applied to DEQ for a Wastewater General Permit 1700 in the event it needs to wash
14 turbine blades. As discussed in the Waste Minimization Standard section of the order, the
15 certificate holder will provide the Department with a copy of the permit once it is issued by
16 DEQ. The project order for the proposed project identifies all applicable state agency permits
17 and approvals. The Department’s recommended findings regarding applicable state agency
18 permits, rules and regulations are summarized below. Compliance with federal permitting
19 requirements is discussed in reference to SCZO 5.2.2, above.
20

21 SCZO Section 5.2.4: Compliance with Specific Standards, Conditions and Limitations
22

23 Section 5.2.4 requires compliance with “specific standards, conditions and limitations
24 set forth for the subject use” in Article 5 and “other specific relative standards required by this
25 or other County Ordinance.” Applicable substantive criteria contained in other Articles of the
26 SCZO are discussed in Section 5.2.2. The substantive criteria contained in Article 5 of the
27 SCZO are in Sections 5.2 and 5.8 of the ordinance. We discuss Sections 5.2.1, 5.2.2 and 5.2.3
28 above, and we discuss Sections 5.2.5 and 5.2.6 below. Section 5.8 provides standards specific
29 to various conditionally permitted uses, including the uses at issue here, and we discuss these
30 standards below. The Council finds that the application, as conditioned, will comply with all
31 provisions in Article 5 and other standards required by the SCZO.
32

33 SCZO Section 5.2.5: Resource Carrying Capacity and Pollution Standards
34

35 Section 5.2.5 prohibits land use approval if the use exceeds “resource or public facility
36 carrying capacities” or does not comply with “air, water, land, and solid waste or noise
37 pollution standards.”
38

39 As discussed in the Public Services Standard and the Waste Minimization Standard
40 sections of the order, the facility would not have any adverse impact or otherwise exceed the
41 “carrying capacity” of public facilities. Neither would the project exceed resource carrying

²⁴ ORS 469.401(4). The Facility does not require a Water Pollution Control Facility (WPCF) for the on-site septic system because it would have a design capacity of less than 2,500 gallons-per-day and not produce effluent greater than residential strength wastewater. OAR 340-071-0130; *see also* Draft Proposed Order, In the Matter of the Application for a Site Certificate for the Klondike III Wind Project, at 29 n.39.

²⁵ App. Supp. Page E-1.

1 capacities. The construction and operation of the facility would not injure existing water
2 rights or exceed the amount of water available for beneficial use within the watershed. As
3 discussed below, the facility would occupy a minimal percentage of the both the County's and
4 the surrounding area's farmland.

5
6 The proposed facility would comply with all air, water, land and solid waste or noise
7 pollution standards. It would have no emissions that would result in an adverse impact to air
8 quality. Water used for construction-related purposes would evaporate or infiltrate into the
9 ground on-site.²⁶ As discussed in the Waste Minimization Standard section of the order,
10 wastewater contained in portable toilets would be pumped and disposed of by a licensed
11 contractor. Water would not be discharged to wetlands, lakes, rivers or streams, and there
12 would be no adverse impact on water quality.²⁷ Water used during operation at the O&M
13 building would be disposed of in an approved on-site septic system and would not result in an
14 adverse impact on water quality or affect any public sewer facilities. The amount of water
15 used during operation would be insignificant. As discussed in the Public Services Standard
16 section of the order, the facility would obtain water for use during operation from an on-site
17 well, and thus there would be no demand on public facilities to supply water during operation.
18 As discussed in the Soil Protection Standard section of the order, to avoid or reduce soil
19 erosion, the certificate holder would comply with the requirements of the NPDES 1200-C
20 storm water permit and an Erosion and Sediment Control Plan and would implement erosion
21 control measures during construction and operation

22
23 Measures to reduce and properly dispose of solid waste are discussed in the Waste
24 Minimization Standard section of the order. The facility would comply with applicable noise
25 control regulations, which we discuss in the Noise Control Regulations section of the order.

26
27 SCZO Section 5.2.6: Use Violation

28
29 Section 5.2.6 prohibits land use approval for "any use violation of this Ordinance."
30 The proposed facility would not involve any use violations. The proposed principal use is a
31 commercial utility facility, which is a conditional use allowed in an EFU zone under SCZO
32 Section 3.1.3(e)(17). The access roads are transportation improvements, which is a
33 conditional use allowed in an EFU zone under SCZO Section 3.1.3(f). The proposed
34 improvement of public roads within the site boundary is allowed outright in an EFU zone
35 under Section 3.1.2(g).

36
37 SCZO Section 5.8: Standards Governing Specific Conditional Uses

38
39 Three subsections of SCZO Section 5.8 are applicable to the proposed project. Section
40 5.8.10 contains standards for "Radio or Television Transmission Tower, Utility Station or
41 Substation." Section 5.8.14 contains standards for "Public Facilities and Services." Section
42 5.8.16 contains standards for "Non-farm Uses in an F-1 Zone." The other subsections of
43 SCZO 5.8 are not applicable to the proposed facility.

²⁶ App. Page 0-2.

²⁷ *Id.*

1
2 SCZO Section 5.8.10: Radio or Television Transmission Tower, Utility Station or Substation
3

4 *When authorized as a Conditional Use, the following standards and limitations*
5 *apply:*
6

7 *(a) In a residential zone or area, all equipment storage on the site shall be*
8 *enclosed within a building.*
9

10 *(b) The use may be required to be fenced and provided with landscaping*
11

12 *(c) Coloring of structures, buildings and other permanent installations shall be of*
13 *neutral colors or as otherwise required by the Commission or reviewing authority.*
14

15 The proposed facility would include one new substation, in one of two proposed
16 alternative locations. "Substation" is not specifically listed as a conditional use in an F-1 zone,
17 but SCZO Section 3.1.3 authorizes the listed conditional uses "and their accessory uses." As
18 noted in the discussion of SCZO Section 5.2.2, above, the Council finds that the proposed
19 substations are authorized as conditional uses in the F-1 zone because they are "accessory
20 uses" related to a "utility facility" (the wind energy facility).
21

22 Subsection (a) of SCZO 5.8.10 does not apply because the substations would not be
23 located in a "residential zone or area." Subsection (b) provides that fencing and landscaping
24 of the proposed use "may be required." As described in the Public Health and Safety
25 Standards for Wind Facilities section of the order, the substation would be fenced. As
26 described in the Siting Standards for Wind Energy Facilities section of the order, the proposed
27 substation building would comply with subsection (c) because it would be painted a neutral
28 color, and substation equipment would incorporate a low-reflectivity finish to minimize visual
29 impact.
30

31 SCZO Section 5.8.14: Public Facilities and Services
32

33 *(a) Public facilities including, but not limited to, utility substations, sewage*
34 *treatment plants, storm water and water lines, water storage tanks, radio and*
35 *television transmitters, electrical generation and transmission devices, fire*
36 *stations and other public facilities shall be located so as to best serve the County*
37 *or area with a minimum impact on neighborhoods, and with consideration for*
38 *natural or aesthetic values.*
39

40 *(b) Structures shall be designed to be as unobtrusive as possible. Wherever*
41 *feasible, all utility components shall be placed underground.*
42

43 *(c) Public facilities and services proposed within a wetland or riparian area shall*
44 *provide findings that: Such a location is required and a public need exists; and*
45 *Dredge, fill and adverse impacts are avoided or minimized.*
46

1 Section 5.8.14 applies to “public facilities,” including utility substations and electrical
2 generation and transmission devices. The applicability of Section 5.8.14 is “not limited to” the
3 facilities listed in subsection (a). The Council finds that Section 5.8.14 applies to the proposed
4 facility substation, wind turbines (as “electrical generation devices”) and transmission lines
5 (as “electrical transmission devices”).
6

7 Subsection (a) requires the location of public facilities to “best serve” the County or
8 area, to have “minimum impact” on neighborhoods and to consider “natural and aesthetic
9 values.” The wind turbines and associated power collection lines (“electrical generation and
10 transmission devices”) would be located to take optimal advantage of the wind resource for
11 power generation. To best serve their intended purpose, the substations and transmission lines
12 that would be part of the proposed facility must be located within the general area of the wind
13 turbines and close to the point of interconnection with the BPA system. The location of these
14 facilities would “best serve” the County or the area because they would use a small fraction of
15 agricultural land (about 0.75 percent of the actively farmed acres adjacent to these facilities)
16 to generate significant new tax revenues for the County and income for the landowners of the
17 property leased to the facility. The facilities would have a “minimum impact on
18 neighborhoods” because they would be located on rural land and not within neighborhoods.
19 The location of the facilities would not have a significant adverse impact on, and would
20 comply with the Council’s standards concerning, “natural and aesthetic values,” as is
21 discussed in the Threatened and Endangered Species Standard, Fish and Wildlife Habitat
22 Standard, Scenic and Aesthetic Resources Standard, Historical, Cultural and Archeological
23 Resources Standard, Recreation Standard, and Protected Areas Standard sections of the order.
24

25 Subsection (b) requires that public facilities be designed to be as “unobtrusive as
26 possible” and requires utility components to be placed underground wherever feasible.
27 However, wind turbines must be mounted on tall tower structures. Likewise, meteorological
28 towers associated with operation of the facility must be aboveground. As discussed in the
29 Siting Standards for Wind Facilities section of the order, the certificate holder would make
30 these facilities as unobtrusive as possible by the use of uniform design and neutral colors. As
31 discussed in the Scenic and Aesthetic Values Standard section of the order, the facility would
32 not have an adverse impact on significant or important scenic resources.
33

34 Subsection (c) applies to public facilities proposed “within a wetland or riparian area.”
35 No part of the substation, transmission lines, or wind turbines would be located within a
36 wetland or riparian area. We discuss the analysis of area wetlands and other waters of the state
37 in the Removal-Fill Law section in this order.
38

39 SCZO Section 5.8.16: Non-farm Uses in an F-1 Zone
40

41 *Non-farm uses, excluding farm related, farm accessory uses or uses conducted in*
42 *conjunction with a farm as a secondary use thereof, may be approved upon a*
43 *findings [sic] that each such use:*
44

45 *(a) Is compatible with farm uses described in ORS 215.203(2);*
46

1 (b) Does not interfere seriously with accepted farming practices on adjacent lands
2 devoted to farm use;

3
4 (c) Does not materially alter the overall land use pattern of the area;

5
6 (d) Is situated upon generally unsuitable land for the production of farm crops and
7 livestock, considering the terrain, adverse soil or land conditions, drainage and
8 flooding, vegetation, location and size of the tract, and the availability of
9 necessary support resources for agriculture;

10
11 (e) Complies with other applicable significant resource provisions; and

12
13 (f) Complies with such other conditions as deemed necessary.
14

15 Although the SCZO allows commercial utility facilities to be located in an F-1 zone,
16 “non-farm uses” must meet the standards contained in SCZO Section 5.8.16. Subsection (a)
17 requires a finding that the proposed use is compatible with farm uses.
18

19 The placement of the proposed facility would take very little area out of farm use.²⁸
20 The area occupied by the facility is a small fraction of the adjacent farmed area. The
21 permanent footprint of the project would have an impact on about 157 acres of agricultural
22 land within the 25,000 acres of adjacent land under wind energy easement. Construction
23 would have a temporary impact on about 363 acres of agricultural land. Countywide, in 1997
24 approximately 80 percent of the land was in farmland. Assuming that about 80 percent of the
25 25,000 acres of land under easement is farmland (about 20,000 acres), then the impact of the
26 permanent facility to the surrounding area would be about 0.80 percent. Even during
27 construction less than 2 percent of the area would be affected.
28

29 Farming activities could continue on cropland within the site boundary adjacent to
30 facility structures, especially if facility components are strategically placed to be as
31 compatible as possible with farming.²⁹ Local farmers would be able to maneuver around the
32 turbine strings and across gravel access roads, with some minor alterations to sowing and
33 harvesting patterns in the immediate vicinity of the turbine strings. As discussed in the Fish
34 and Wildlife Habitat Standard section of the order, the certificate holder would implement a
35 weed control plan to mitigate the spread of weeds to cropland. Landowners would be able to
36 use the new turbine access roads for movement of farm equipment between cultivated fields.
37

38 To find that the proposed facility is compatible with the farm uses of the wind
39 easement property, the Council adopts the following conditions in the site certificate:
40

41 **(21) The certificate holder shall locate access roads and temporary**
42 **construction laydown and staging areas to minimize disturbance with**

²⁸ **Orion figures:** In 1997, 80 percent of the land in Sherman County was farmland, with 30 percent in harvested cropland. The approximate total acreage is 526, 853 acres. Approximately 157 acres of agricultural land would be disturbed by the completed facility.

²⁹ App. Ex. K, Attachment K-1 (statements by farmers).

1 farming practices and, wherever feasible, shall place turbines and
2 transmission interconnection lines along the margins of cultivated areas to
3 reduce the potential for conflict with farm operations. The certificate
4 holder shall place aboveground transmission and collector lines and
5 junction boxes along property lines and public road rights-of-way to the
6 extent practicable.

7
8 **(22) During operation of the facility, the certificate holder, in cooperation with**
9 **landowners, shall avoid impact on cultivated land to the extent reasonably**
10 **possible when performing facility repair and maintenance activities.**

11
12 Subsection (b) requires that the proposed use “not interfere seriously with accepted
13 farming practices on adjacent lands.” “Accepted farming practices” is defined at ORS
14 215.203(2)(c) as “a mode of operation that is common to farms of a similar nature, necessary
15 for the operation of such farms to obtain a profit in money, and customarily utilized in
16 conjunction with farm use.”

17
18 Farming on adjacent land consists predominantly of dry land wheat and barley.³⁰ No
19 cattle grazing is expected to occur in the facility area.³¹ Accepted farm practices include soil
20 preparation in the spring and fall, sowing, fertilizing, pest and weed management, and
21 harvesting.³² Aerial crop dusting is used in some areas.³³

22
23 The Council finds that Biglow would not seriously interfere with accepted farming
24 practices. Construction activities would cause the temporary displacement of crops, and
25 construction traffic could cause temporary delays for farm equipment and trucks. However,
26 the certificate holder will reseed temporarily disturbed areas, and, when construction is
27 complete, farm operators would be able to cultivate the land around the turbine pads. Some
28 minor changes to plowing and harvesting patterns will be required, but none that will
29 seriously interfere with accepted farm practices. Maneuvering large farm equipment around
30 the tight radius of a wind turbine could result in corners or edges that cannot be easily be
31 cultivated, increasing the opportunity for weeds to grow in those spots. Farmers cite weed
32 control in general as a major concern. As described in the Siting Standards for Wind Energy
33 Facilities section of this order, the certificate holder would practice weed control measures
34 during construction and operation of the facility to minimize the spread of weeds. According
35 to Orion, neither local crop dusters nor lease-holding landowners expressed concern about the
36 impact of facility components on the effectiveness of aerial spraying.

37
38 To find that the proposed facility can comply with Subsection (b), the Council adopts
39 the following condition in the site certificate:

40
41 **(23) Where necessary and feasible, the certificate holder shall provide access**
42 **across construction trenches to fields within the facility site and otherwise**

³⁰ App Page K-4.

³¹ App. Page K-25.

³² App. Page K-4.

³³ App. Page K-25.

1 **provide adequate and timely access to properties during critical periods in**
2 **the farming cycle, such as harvest.**
3

4 Subsection (c) requires a finding that the non-farm use would not materially alter the
5 overall land use pattern of the area. The Council finds that approval of Biglow would not
6 materially alter the overall land use pattern of the area. The area within one-half mile of the
7 proposed facility (the “analysis area”) consists of wheat or barley crops with some rangeland
8 where the soil is poor or too steep to cultivate. Beyond the analysis area, except for
9 incorporated towns and rural nodes, wheat farming is the main use. In 1997, 80 percent of the
10 land in Sherman County was in farm land, with 30 percent in harvested cropland. Agricultural
11 areas enrolled in the Conservation Reserve Program (CRP) are found throughout the analysis
12 area, occurring as narrow strips in previously plowed drainage ways and as large blocks in
13 other areas. CRP areas have been planted with a mix of native and non-native bunchgrasses
14 with the primary intent of increasing wildlife habitat in the area.³⁴
15

16 As noted above, the facility would permanently impact only 0.75 percent of the
17 estimated 20,000 acres of the wind lease lands in farmland. The facility would have a
18 similarly minor impact on individual parcels within the facility footprint. The applicant
19 conducted a comparison of the maximum footprint of the facility’s permanent infrastructure
20 to the total acreage within the top five landowner parcels (in terms of preliminary siting
21 layout). The percentage of land within each parcel affected by the permanent footprint ranges
22 from between 0.55 percent and 1.66 percent, with an average percentage of 0.98 percent. The
23 footprint of the facility as a percentage of total parcel size is substantially similar or smaller
24 throughout the land area that would be potentially occupied by the facility.
25

26 Given evidence that the facility will not have serious impacts on the generally
27 accepted farming practices in the area, it is unlikely that the facility will cause any given
28 parcel in the surrounding area to go out of farm use. Finally, land leases for the placement and
29 operation of the facility provide an additional source of income for the parcel owners, helping
30 to stabilize the inherent volatility of farm income and therefore minimizing the potential for
31 changes in the overall land use pattern of the area.
32

33 Subsection (d) requires a finding that the proposed use is “situated upon generally
34 unsuitable land for the production of farm crops and livestock.” Orion argues that the land
35 that would be occupied by the proposed facility is unsuitable for the production of farm crops
36 and livestock because the soils “do not support a diversity of crops, nor crops that are high
37 value” and because the soils “also do not generally support livestock in the county.” Orion
38 further argues that “there is increasing evidence that maintaining production of wheat and
39 barley on such lands is becoming uneconomic.”³⁵
40

41 The Natural Resources Conservation Service (NRCS) soil survey for Sherman County
42 identifies the soil types within the proposed facility site and classifies soil types into
43 “capability” classes. This classification system shows, in a general way, the suitability of soils

³⁴ App. Page K-25.

³⁵ App. Page K-26.

1 for growing field crops, and subclasses identify limitations or hazards affecting suitability for
2 crop production. The land on which permanent facility structures would be located is not of
3 uniform suitability. Instead, the land is characterized by a mosaic of soil types, predominantly
4 ranging from Class IV (soils that have very severe limitations that restrict the choice of plants
5 or require very careful management, or both.) to Class IIc (soils that have moderate
6 limitations “that reduce the choice of plants or that require moderate conservation practices”;
7 the subclass “c” designation indicates soils that are limited by being very cold or very dry).
8 Nevertheless, Biglow would occupy approximately 157 acres of land that is now used for
9 non-irrigated crop production.³⁶ The fact of such use demonstrates the “general suitability” for
10 the use. Accordingly, the Council finds that Biglow would be located on land “generally
11 suitable” for crop production and does not comply with SCZO Section 5.8.16(d).
12

13 Subsection (e) of SCZO Section 5.8.16 requires that the proposed non-farm use
14 comply with “other applicable significant resource provisions.” The Council finds that the
15 proposed facility would comply with the other SCZO provisions applicable to the EFU zone,
16 for the reasons discussed above. Subsection (f) requires compliance with “such other
17 conditions as deemed necessary.” The facility would be subject to the conditions of the site
18 certificate.
19

20 B. Applicable Statewide Planning Goals 21

22 For the reasons discussed above, the proposed facility does not comply with Policy III
23 under SCCP Goal XVIII, and therefore does not comply with SCZO Section 5.2.1, which
24 requires that the proposed facility is compatible with the SCCP and applicable policies. In
25 addition, the proposed facility does not comply with SCZO Sections 3.1.4 and 5.8.16(d).
26 Therefore, the proposed facility does not comply with all of the applicable substantive criteria.
27 Under ORS 469.504(1)(b)(B), the Council must determine whether the proposed facility
28 “otherwise [complies] with the applicable statewide planning goals.”
29

30 The “applicable statewide planning goal” in this case is Goal 3, the state’s Agricultural
31 Lands goal. SCZO Section 5.8.16(d) relates to “non-farm uses in an F-1 zone.” SCCP Goal
32 XVIII relates to conservation of energy resources, which does not necessarily invoke Goal 3.
33 However, Policy III concerns the siting of high-voltage transmission lines, and Finding V
34 under Section XV of the SCCP (the Energy section) is that such transmission lines have
35 impacts on farm operations in the County. Because the County’s intent in promulgating
36 Policy III is to regulate impacts on farm operations, Goal 3 is an applicable statewide
37 planning goal. No other statewide planning goals are applicable.
38

39 As expressed in *Oregon’s Statewide Planning Goals and Guidelines*, Goal 3 is:

40
41 ***To preserve and maintain agricultural lands.***

42 *Agricultural lands shall be preserved and maintained for farm use, consistent with*
43 *existing and future needs for agricultural products, forest and open space and with*
44 *the state's agricultural land use policy expressed in ORS 215.243 and 215.700.*

³⁶ App. Supp. Page P-6.

1
2 Consistent with Goal 3, Sherman County has identified the “F-1” zone as an
3 “exclusive farm use” zone. Under Goal 3, non-farm uses are permitted within a farm use zone
4 as provided under ORS 215.283.
5

6 To find compliance with ORS 215.283, the Council must determine whether the
7 proposed energy facility and its related or supporting facilities are uses that fit within the
8 scope of the uses permitted in exclusive farm use zones as described in ORS 215.283(1), (2)
9 or (3). The Biglow project would consist of the energy facility (the wind turbines) and the
10 following related or supporting facilities: the underground and aboveground power collection
11 lines, one substation, up to ten meteorological towers, an O&M building, the control system
12 and access roads.³⁷
13

14 In the Final Order on Amendment #2 for the Stateline Wind Project, the Council found
15 that a wind energy facility (the “principal use”) was a “commercial utility facility for the
16 purpose of generating power for public use by sale” and allowable under ORS 215.283(2)(g).
17 The Council found that the power collector system and meteorological towers were part of the
18 principal use. The Council found that the Stateline substation and the aboveground
19 transmission line connecting the substation with the main power grid were “utility facilities
20 necessary for public service” allowed under ORS 215.283(1)(d). The Council, further, found
21 that the Stateline access roads had “independent utility” and were not part of the principal use.
22 The Council found that the access roads were allowable under ORS 215.283(3).
23

24 The Council follows its own precedent in the Stateline decision and finds that the wind
25 turbines constitute a “commercial utility facility for the purpose of generating power for
26 public use by sale” and that the power collection system and meteorological towers are part of
27 that principal use. In addition, the Council finds that the Biglow control system and O&M
28 building are part of the principal use.
29

30 The Council finds that the proposed substation and transmission line are a “utility
31 facility necessary for public service” allowed under ORS 215.283(1)(d). The applicant
32 proposes a new substation at one of two potential locations. The first location would be in the
33 southern section of the facility site, and might involve the construction of an overhead high-
34 voltage (230-kV to 500-kV) transmission line about three miles long. The second location
35 would be located near the center of the facility site, and might involve the construction of an
36 overhead high-voltage transmission line about seven miles long. Regardless of the selected
37 location, the substation would function to step up the power to accommodate interconnection
38 with the BPA system, and the overhead transmission line would be used to interconnect with
39 the BPA system.
40

³⁷ Under ORS 469.300, the “energy facility” is “an electric power generating plant.” Some facility components, such as the control system, might be considered intrinsic to the “electric power generating plant” and therefore part of the “energy facility” rather than separate, related or supporting facilities. The “related or supporting facilities” listed in the text are treated separately in this discussion, without implying any finding that any given component is separate from the energy facility.

1 Either of these substations and transmission lines would be similar in function to the
2 substation and transmission line at Stateline, which was proposed to step up the power for
3 transmission over a 115-kV or 230-kV line that would interconnect the Stateline facility with
4 the regional power grid in Washington. Because one of the two proposed locations for the
5 substation and transmission line is necessary to make the power from Biglow available to the
6 public through the BPA system, the “utility facility necessary for public service” provision is
7 applicable.
8

9 Finally, consistent with precedent in the Stateline decision, the Council finds that the
10 access roads are allowable under ORS 215.283(3).
11

12 Having concluded that each of the facility components falls within the definitions of
13 non-farm uses permitted within a farm use zone as provided under ORS 215.283, we now
14 apply the standards for determining whether each use is allowable in the case of the proposed
15 facility.
16

17 The Principal Use and Access Roads 18

19 While the principal use and the access roads are allowable subject to two different
20 subsections of ORS 215.283, the substantive standards that both uses must meet for a finding
21 of compliance with Goal 3 are identical; therefore, the following discussion addresses both
22 the principal use and the access roads.
23

24 In this case, the principal use is a “commercial utility facility.” ORS 215.283(2)(g)
25 authorizes “commercial utility facilities for the purpose of generating power for public use by
26 sale” on agricultural land, subject to ORS 215.296. OAR Chapter 660, Division 33, contains
27 the Land Conservation and Development Commission (LCDC) administrative rules for
28 implementing the requirements for agricultural land as defined by Goal 3. OAR 660-033-0120
29 (Table 1) lists the “commercial utility facility” use as a type “R” use (“use may be approved,
30 after required review”) and references the standards found in OAR 660-033-0130(5) and (22)
31 for such a facility if it is proposed to be located on non-high-value farmland, and (5) and (17)
32 if it is proposed to be located on high-value farmland.³⁸
33

34 The proposed access roads are allowable on EFU land under ORS 215.283(3).
35 ORS 215.283(3) allows “roads, highways and other transportation facilities and
36 improvements” that are not otherwise allowed under paragraphs (1) and (2) of ORS 215.283
37 to be established in an EFU zone, subject to:
38

- 39 (a) *Adoption of an exception to the goal related to agricultural lands and to any*
40 *other applicable goal with which the facility or improvement does not comply;*
41 *or*

³⁸ OAR 660-033-0020(8) defines “high value farmland.” Non-irrigated farmland is “high value” if the tract is composed predominantly of soils that are classified prime, unique, Class I or II by the NRCS. The soils in the area affected by the principal use are not classified as “prime farmland” by the NRCS, and the soil capability classifications in the area range from Class VIII to Class IIc (a subclass indicating limitation due to soil being very cold or very dry).

1
2 (b) ORS 215.296 for those uses identified by rule of the Land Conservation and
3 Development Commission as provided in section 3, chapter 529, Oregon Laws
4 1993.
5

6 The subparagraphs are conjoined by “or” and so either (a) or (b) applies. In this case,
7 subparagraph (b) applies because the facility access roads are a use that has been identified by
8 the LCDC. OAR 660-033-0120 identifies uses authorized on agricultural lands. OAR 660-
9 033-0120 (Table 1) lists “transportation improvements on rural lands allowed by OAR 660-
10 012-0065” as a type “R” use (“use may be approved, after required review”). OAR 660-033-
11 0120 does not make reference to any criteria in OAR 660-033-0130 for this use.
12

13 OAR 660-012-0065 applies to transportation improvements on rural lands. The
14 proposed facility access roads fall within the definition of “accessory transportation
15 improvements” in OAR 660-012-0065(2)(d) because they are “transportation improvements
16 that are incidental to a land use to provide safe and efficient access to the use.”³⁹
17

18 Under OAR 660-012-0065(3)(a), “accessory transportation improvements for a use
19 that is allowed or conditionally allowed by ORS...215.283” are consistent with Goal 3,
20 “subject to the requirements of this rule.” The proposed access roads are accessory
21 transportation improvements for a “commercial utility facility for the purpose of generating
22 power for public use by sale,” which is a use conditionally allowed by ORS 215.283(2)(g).
23 Accordingly, the access roads are consistent with Goal 3, subject to any applicable
24 requirements of OAR 660-012-0065.
25

26 The requirements of OAR 660-012-0065(4) are applicable:
27

28 *Accessory transportation improvements required as a condition of development*
29 *listed in subsection (3)(a) of this rule shall be subject to the same procedures,*
30 *standards and requirements applicable to the use to which they are accessory.*
31

32 The rule language applies specifically to accessory transportation improvements
33 “required as a condition of development.” Because the facility access roads are necessary for
34 the operation and maintenance of the wind energy facility, they are a necessary condition of
35 the development of the commercial utility facility. Accordingly, the access roads are subject
36 to the standards and requirements applicable to the principal use. As discussed above, the
37 applicable standards and requirements are contained in OAR 660-033-0130(5) and (22) for
38 non-high-value farmland and (5) and (17) for high-value farmland.
39

40 The facility would preclude from agricultural use about 157 acres of farmland, the
41 majority of which are high-value farmlands.
42

43 OAR 660-033-0130(5) provides:

³⁹ OAR 660-12-0065(2)(a) defines “access roads” as “low volume public roads that principally provide access to property or as specified in an acknowledged comprehensive plan.” The proposed Facility turbine string access roads are not “access roads” under this definition because they are not public roads.

1
2 *Approval requires review by the governing body or its designate under ORS*
3 *215.296. Uses may be approved only where such uses:*

4
5 *(a) will not force a significant change in accepted farm or forest practices*
6 *on surrounding lands devoted to farm or forest use; or*

7
8 *(b) will not significantly increase the cost of accepted farm or forest*
9 *practices on lands devoted to farm or forest use.⁴⁰*

10
11 The Council finds that the principal use and the access roads for the facility would not
12 force a significant change in accepted farm practices on surrounding farm land and would not
13 significantly increase the cost of accepted farm practices. There would be no significant
14 change in accepted farming practices as a result of the proposed facility for the reasons
15 discussed above with respect to SCZO Sections 3.1.4 and 5.8.16(a), (b) and (c). In summary,
16 accepted farming activities could continue on the farm parcels where the facility structures
17 would be located. The facility would occupy less than 1 percent of the actively farmed land
18 adjacent to the facility. Construction and operation of the proposed facility would be
19 compatible with farm uses and would not seriously interfere with accepted farming practices.

20
21 The cost of farming practices in the area could be affected because of changes in
22 patterns of harvesting and other mechanical operations on the fields, increased need for weed
23 control, and temporary delays to movement of farm equipment and trucks due to construction
24 or construction traffic. The location of the turbines and access roads could require farmers to
25 change their previous patterns of harvesting and other mechanical operations on the fields, but
26 there would be no significant impact on the time needed to perform these farming operations
27 and no significant increase in cost. Construction or construction traffic could cause temporary
28 delays in the movement of farm equipment and trucks or access to fields during the
29 construction period, but these delays, although inconvenient, would not result in a significant
30 increase in the cost of farm practices. As discussed in reference to SCZO Section 5.8.16(b),
31 above, where necessary and feasible, the certificate holder will provide access across
32 construction trenches to fields within the facility area. While some increased weed control
33 may be necessary, it would not significantly increase costs.⁴¹ As noted earlier, the certificate
34 holder would implement a weed control plan to mitigate the spread of weeds to cropland both
35 during construction and operation. In addition, farm income could be affected by the acreage
36 taken out of crop production by placement of permanent facilities and temporary
37 displacement of crops by construction activities. The acreage that would become unavailable
38 for crop production due to the principal use and the access roads amounts to 0.80 percent of

⁴⁰ OAR 660-033-0130(5) reiterates the standards set forth in OAR 215.296(1).

⁴¹ App. Ex. K, Attachment K-1.

1 the actively farmed area adjacent to the proposed facility.⁴² Assuming that all of this area is
2 now used for crop production, the loss of this area would result in at most a 0.80 percent
3 reduction in farm income. During the construction period, about 363 acres of agricultural land
4 would be temporarily unavailable for crop production. This amounts to approximately 1.6
5 percent of the actively farmed area adjacent to the proposed facility, and consequently not
6 more than about 1.6 percent of farm income for one year. These income losses will be
7 defrayed by wind project lease revenue, which is expected to be significantly greater than the
8 expected farm revenues from the acreage occupied by the facility.⁴³

9
10 For the reasons discussed above, the Council finds that the principal use and access
11 roads would comply with the standards of ORS 215.296 and OAR 660-033-0130(5). On non-
12 high-value farmland, the principal use and access roads are also subject to OAR 660-033-
13 0130(22), which provides:

14
15 *(22) A power generation facility shall not preclude more than 20 acres from*
16 *use as a commercial agricultural enterprise unless an exception is taken*
17 *pursuant to ORS 197.732 and OAR chapter 660, division 004.*

18
19 On high-value farmland, the principal use and access roads are subject to OAR 660-
20 033-0130(17), which provides:

21
22 *(17) A power generation facility shall not preclude more than 12 acres from*
23 *use as a commercial agricultural enterprise unless an exception is taken*
24 *pursuant to OAR chapter 660, division 004.*⁴⁴

25
26 In this case, the “power generation facility” consists of the principal use and the
27 turbine string access roads. The area occupied by the power generation facility is shown in
28 Table 6.

⁴² The total area permanently affected by the proposed facility is estimated to be about 177 acres. Excluding 6 acres occupied by the proposed substation, the principal use and access roads would occupy 171 acres. Not all 171 acres are currently used for crop production (the 171 acres includes CRP land, shrub-steppe and grassland not in production, as well as some previously developed acreage). Nevertheless, assuming all 171 acres is potentially available for crop production, this area is only 0.80 percent of the actively-farmed area adjacent to the proposed facility.

⁴³ App. Ex. K, Attachment K-1.

⁴⁴ The Applicant correctly points out that the requirements of OAR 660-033-0130(17), (22) would be directly applicable to the proposed facility even if ORS 469.504(1)(b)(B) did not, as a result of the proposed facility’s noncompliance with certain SCZO provisions, require the Department to apply OAR 660-033-0130(17), (22). ORS 197.646(3) provides:

When a local government does not adopt comprehensive plan or land use regulation amendments as required by subsection (1) of this section, the new or amended goal, rule or statute shall be directly applicable to the local government’s land use decisions.

The SCZO has not incorporated OAR 660-033-0130(17), (22) as required by ORS 197.646(3), so these regulations are directly applicable to the proposed facility.

1

Table 6	
Area Occupied By the Power Generation Facility	
Structure	Acres
Principal use	
Turbine towers	14.39
Meteorological towers	0.19
O&M building site	5.00
Subtotal	19.58
Access roads	151.15
Total	170.73

2

3 In total, the facility would occupy about 177 acres. As shown above, the principal use
 4 and access roads would occupy about 170.73 acres within the EFU zone, the majority of
 5 which is high-value farmland. (The remaining 6 acres would be occupied by the substation,
 6 which is analyzed for land use purposes in a separate section of the order.) These numbers
 7 exceed the allowances of OAR 660-0333-0130(17) and (22), respectively; therefore, the
 8 Council finds that the principal use and access roads would not comply with OAR 660-033-
 9 0130(17) and (22) and Goal 3. We discuss an exception to Goal 3 below.

10

11 Substations

12

13 The Council finds that the proposed substation and aboveground transmission line,
 14 regardless of the location chosen, would be “utility facilities necessary for public service”
 15 allowed on EFU land under ORS 215.283(1)(d), subject to the provisions of ORS 215.275.
 16 Such a finding is consistent with the Council’s finding that the Stateline substation and the
 17 aboveground transmission line connecting the substation with the main power grid were
 18 “utility facilities necessary for public service.” Like the substation and transmission line at
 19 Stateline, the proposed substation and transmission line would function to step up the power
 20 to accommodate interconnection with the BPA system. Because the proposed substation and
 21 transmission line is necessary to make the power from the facility available to the public
 22 through the BPA system, a finding that they are “utility facilities necessary for public service”
 23 is appropriate.

24

25 ORS 215.275 lists factors for deciding whether a utility facility is “necessary for
 26 public service.” The statute provides:

27

28 *(1) A utility facility established under ORS 215.213 (1)(d) or 215.283 (1)(d) is*
 29 *necessary for public service if the facility must be sited in an exclusive farm use*
 30 *zone in order to provide the service.*

31

32 *(2) To demonstrate that a utility facility is necessary, an applicant for approval*
 33 *under ORS 215.213 (1)(d) or 215.283 (1)(d) must show that reasonable*
 34 *alternatives have been considered and that the facility must be sited in an*
 35 *exclusive farm use zone due to one or more of the following factors:*

1
2 (a) *Technical and engineering feasibility;*

3
4 (b) *The proposed facility is locationally dependent. A utility facility is*
5 *locationally dependent if it must cross land in one or more areas zoned for*
6 *exclusive farm use in order to achieve a reasonably direct route or to meet*
7 *unique geographical needs that cannot be satisfied on other lands;*

8
9 (c) *Lack of available urban and nonresource lands;*

10
11 (d) *Availability of existing rights of way;*

12
13 (e) *Public health and safety; and*

14
15 (f) *Other requirements of state or federal agencies.*

16
17 The proposed substation must be located in an EFU zone because there is no non-EFU
18 land in the vicinity of the facility. There are no reasonable alternatives. At least three of the
19 factors listed in ORS 215.275(2) apply. First, “technical and engineering feasibility” requires
20 that there be a substation to accommodate interconnection with the BPA system. It is not
21 feasible or technically possible to interconnect with the main transmission grid without a
22 substation. Second, the proposed substation is “locationally dependent.” The substation must
23 be located in proximity to the proposed wind turbines, because that is where the power would
24 be generated. It must also be located near the point of interconnection with the BPA system so
25 that the power can be transmitted to customers. Third, there are no urban or non-resource
26 lands available to locate the substation where it could serve its purpose. For these reasons,
27 location of the substation on EFU land is “necessary for public service.” The Council finds
28 that the substation is allowable under ORS 215.283(1)(d).

29
30 ORS 215.275 imposes two requirements on “utility facilities necessary for public
31 service” allowed under ORS 215.283(1)(d). ORS 215.275(4) requires that the owner of the
32 utility facility be responsible for restoring agricultural land and associated improvements to
33 their former condition if they are damaged or disturbed by the siting, maintenance, repair or
34 reconstruction of the facility. The proposed substation would be located on a six-acre parcel
35 of land that would be part of the permanent Biglow “footprint.” Construction of the substation
36 would not affect agricultural land or associated improvements outside of the six-acre parcel.
37 Nevertheless, as discussed in the Council Conditions Required By Rule and the Fish and
38 Wildlife Habitat Standard sections of this order and in the Revegetation Plan (Attachment B),
39 the certificate holder would be responsible for restoring all areas temporarily disturbed during
40 construction of the facility upon completion of construction.

41
42 ORS 215.275(5) requires the imposition of “clear and objective conditions” on siting a
43 utility facility under 215.283(1)(d) “to mitigate and minimize the impacts of the proposed
44 facility, if any, on surrounding lands devoted to farm use in order to prevent a significant
45 change in accepted farm practices or a significant increase in the cost of farm practices on the
46 surrounding farmlands.” Construction of the proposed substation as part of Biglow would not

1 substantially increase the impacts of the principal use and access roads, which would occupy a
2 much larger area of agricultural land than the substation. For the reasons discussed above, the
3 principal use and access roads would not result in a significant change in accepted farm
4 practices or significantly increase the cost of those practices. The Council finds that the
5 proposed substation and transmission line would not cause a significant change in accepted
6 farm practices or significantly increase the cost of those practices. As discussed throughout
7 the Land Use section of this order, the Council imposes certain conditions on the site
8 certificate holder to “mitigate and minimize” the impacts of the proposed facility on
9 surrounding lands devoted to farm use.

10
11 C. Goal 3 Exception

12
13 The proposed principal use and access roads would occupy more than 20 acres of non-
14 high-value farmland and more than 12 acres of high-value farmland in the EFU zone and
15 therefore would not comply with OAR 660-033-0130(17), (22) and Goal 3. Therefore, to find
16 compliance under ORS 469.504(1)(b)(B), the Council must find “that an exception to any
17 applicable statewide planning goal is justified under subsection (2)” of ORS 469.504.
18 Accordingly, the Council must determine whether an exception to Goal 3 is justified.

19
20 ORS 469.504(2)(c) sets out the requirements that must be met for the Council to take
21 an exception to a land use planning goal, as follows:

22
23 *(2) The council may find goal compliance for a facility that does not otherwise*
24 *comply with one or more statewide planning goals by taking an exception to the*
25 *applicable goal. Notwithstanding the requirements of ORS 197.732, the statewide*
26 *planning goal pertaining to the exception process or any rules of the Land*
27 *Conservation and Development Commission pertaining to an exception process*
28 *goal, the council may take an exception to a goal if the council finds:*

29 * * *

30
31 *(c) The following standards are met:*

32
33 *(A) Reasons justify why the state policy embodied in the applicable goal*
34 *should not apply;*

35
36 *(B) The significant environmental, economic, social and energy*
37 *consequences anticipated as a result of the proposed facility have been*
38 *identified and adverse impacts will be mitigated in accordance with rules*
39 *of the council applicable to the siting of the proposed facility; and*

40
41 *(C) The proposed facility is compatible with other adjacent uses or will be*
42 *made compatible through measures designed to reduce adverse impacts.*

43
44 The Council makes the findings discussed below and concludes that the standards for
45 an exception to Goal 3 under ORS 469.504(2)(c) are met.

1
2 Reasons Supporting an Exception
3

4 The state policy embodied in Goal 3 is the preservation and maintenance of
5 agricultural land for farm use. Several reasons support an exception to Goal 3.
6

7 First, although the proposed facility would occupy more than 20 acres of non-high-
8 value farmland and more than 12 acres of high-value farmland, it would occupy less than one
9 percent of the actively farmed land adjacent to the facility. The land that would be occupied
10 by the wind facility would not be in a single, contiguous area within which no farming
11 activities could occur. Rather, the spacing of turbines and turbine strings would preserve most
12 of the land upon which the facility lies for farm use. The total amount of land occupied by
13 wind turbines would be about 14 acres; the majority of the area occupied by the facility would
14 be occupied by the access roads (about 151 acres). The access roads would be available for
15 use by the landowner in farm operations.
16

17 Second, for the reasons discussed above in reference to SCZO 5.8.16, the facility is
18 compatible with farm use, would not seriously interfere with accepted farm practices on
19 adjacent land and would not materially alter the overall land use pattern of the area.
20

21 Third, approval of the proposed facility furthers the state policy embodied in Goal 13
22 (Energy Conservation). The Guidelines for implementing Goal 13 expressly direct land use
23 planning to utilize renewable energy sources, including wind, "whenever possible." State
24 policy supporting development of renewable energy is also found in the State's Renewable
25 Energy Action Plan (ODOE, 2005), which calls for significant, additional development of
26 renewable resources, including wind energy.
27

28 Fourth, it is not feasible to locate a renewable wind energy facility in the County
29 without affecting agricultural land because the best wind resources are all located on
30 agricultural land.⁴⁵ The only non-EFU land in the area is located in the cities of Moro, Wasco,
31 Rufus, and Biggs Junction. None of these locations has the necessary wind resource, adequate
32 parcels of land, or proximate transmission system necessary to build the facility.
33

34 Fifth, the farmers who own the land where the facility would be located are willing to
35 enter into land leases to allow the project to be built. In return, the landowners would receive
36 annual lease payments. Lease payments would provide a stable, supplemental income source
37 that would help maintain the land in farm use by increasing the economic viability of the
38 landowners' farm operations.
39

40 Sixth, the project would boost the local economy by creating jobs and contributions to
41 the local tax base. The applicant estimates the number of construction jobs would range from

⁴⁵ We note that *Save Our Rural Oregon* held that "the legislature did not intend to require the council to perform an alternatives analysis in making a determination under ORS 469.504(2)(c) that an exception could be taken to a land use planning goal." *Save Our Rural Oregon et al. v. Energy Facility Siting Council*, 339 Or 353, 372 (2005). While an alternatives analysis is not required, the lack of feasible alternatives to the proposed facility site nonetheless is a valid reason justifying an exception to Goal 3.

1 50 to 250 during the construction period. Operation of the facility would require 15 to 20 full-
2 time employees.⁴⁶ The facility is expected to provide substantial tax revenues to the County
3 over the life of the project, with insubstantial countervailing public service demands.⁴⁷

4
5 Significant environmental, economic, social and energy consequences

6
7 The facility would be in compliance with all rules of the Council applicable to the
8 siting of the proposed facility. As demonstrated in other sections of this order, the facility,
9 including proposed mitigation measures will not cause significant adverse environmental,
10 social, or economic consequences. In addition, the facility will create jobs and contribute
11 significant income to the County. Finally, the energy consequences of the facility will be
12 positive.

13
14 Compatibility with adjacent uses

15
16 For the reasons discussed above in reference to SCZO 5.8.16 (see page 49), the facility
17 is compatible with farm use, would not seriously interfere with accepted farm practices on
18 adjacent land and would not materially alter the overall land use pattern of the area.

19
20 Conclusion

21
22 For the reasons set forth above, the Council concludes that the standards for an
23 exception to Goal 3 under ORS 469.504(2)(c) are met.

24
25 D. Additional Land Use Conditions

26
27 In addition to the conditions set forth above, to find that Orion can comply with OAR
28 345-022-0030, the Council adopts the following conditions in the site certificate:

- 29
30 **(24) Before beginning construction of the facility, the certificate holder shall**
31 **record a Farm Management Easement covering the properties on which**
32 **the certificate holder locates wind power generation facilities. The**
33 **certificate holder shall record the easement in the real property records of**
34 **Sherman County and shall file a copy of the recorded easement with the**
35 **Sherman County Planning Director.**
- 36
37 **(25) The certificate holder shall remove from Special Farm Assessment the**
38 **portions of parcels on which facilities are located and shall pay all**
39 **property taxes due and payable after the Special Farm Assessment is**
40 **removed from such properties.**

41
42 The Council interprets the removal of properties from Special Farm Assessment to
43 apply only to the portion of the properties on which the facilities are located in accordance
44 with ORS 308A.113(1)(a).

⁴⁶ App. Page U-1.

⁴⁷ App pp. U-8, K-15.

1
2 Conclusions of Law
3

4 Based on the foregoing findings of fact, reasoning, proposed conditions and
5 conclusions, the Council concludes that the proposed facility does not comply with three
6 applicable substantive criteria. The proposed facility does not comply with SCZO Sections
7 3.1.4 and 5.8.16(d), and does not comply with Policy III under SCCP Goal XVIII, which in
8 turn means that the proposed facility does not comply with SCZO Section 5.2.1, which
9 requires that the proposed facility is compatible with the SCCP and applicable policies.

10
11 Accordingly, the Council must proceed with its land use analysis under ORS
12 469.504(1)(b)(B). The Council finds that the proposed facility does not comply with OAR
13 660-033-0130(17) and (22) and therefore does not comply with the applicable statewide
14 planning goal (Goal 3). The Council concludes that an exception to Goal 3 is justified under
15 ORS 469.504(2)(c). The Council adopts Conditions (17), (18), (19), (20), (21), (22), (23), (24)
16 and (25) in the site certificate. Based on these findings and recommended conditions, the
17 Council concludes that the proposed facility complies with the Land Use Standard.

18
19 **(b) Soil Protection**
20

21 **OAR 345-022-0022**

22 *To issue a site certificate, the Council must find that the design, construction,*
23 *operation and retirement of the facility, taking into account mitigation, are not*
24 *likely to result in a significant adverse impact to soils including, but not limited to,*
25 *erosion and chemical factors such as salt deposition from cooling towers, land*
26 *application of liquid effluent, and chemical spills.*

27
28 Findings of Fact
29

30 Biglow provided evidence regarding soil impacts in Exhibit I of the application. The
31 analysis area for the Soil Protection standard is the area within the site boundary.

32
33 Adverse impacts to soils can affect crop production on adjacent agricultural lands,
34 native vegetation, fish and wildlife habitat, and water quality. Construction and operation of
35 the facility could have soil impacts such as erosion, compaction, and chemical spills. Because
36 a wind facility does not have a cooling tower or liquid effluent, there is no potential for salt
37 deposition.

38
39 Biglow identified the near surface soils in the analysis area using the U.S. Department
40 of Agriculture Natural Resources Conservation Service soil survey of Sherman County,
41 Oregon. Soil types are depicted in Figure I-1 of the application. Soil erosion potential at the
42 proposed Biglow site is moderate to high. Much of the land surrounding the project site is
43 cropland, which is subject to erosion from agricultural activities.

44
45 **A. Impacts During Construction**
46

1 Wind and water erosion is of concern on both the facility site and within temporarily
2 disturbed areas. Construction of the energy facility would include removal of surface
3 vegetation, grading and leveling operations, and the use of large cranes and other heavy
4 equipment that could temporarily increase the potential for soil erosion. Installation of
5 underground communications and power collection systems would require trenching that
6 could expose the affected areas to increased erosion risk.

7
8 Heavy equipment movement, car and truck traffic, and component laydown during
9 construction could cause soil compaction. Soil compaction in relation to this standard is a
10 concern where it could reduce agricultural productivity or interfere with revegetation. During
11 construction of the facility, about 74 to 100 acres could be temporarily disturbed for laydown
12 and staging areas, turbine-string turnaround areas, parking and other construction-related uses.

13
14 There is a risk of chemical spills during construction from fuels, oils and grease
15 associated with operation of construction equipment. Federal law (40 CFR 112) requires the
16 operators of facilities that store quantities of oil and engage in refueling operations onsite to
17 develop and implement a Spill Prevention, Control, and Countermeasure Plan during
18 construction and operation.

19 20 B. Impacts During Operation

21
22 Operation of the facility would have little impact on soils. Precipitation could result in
23 surface water collecting on structures and on concrete or gravel surfaces. Drainage from those
24 areas could erode nearby soils. In addition, repair or maintenance of underground
25 communications or power collection lines could expose soils to increased erosion. Small
26 amounts of chemicals, such as lubricating oils and cleaners for the turbines and herbicides for
27 weed control, would be used at the facility site and present a risk to soils from accidental
28 spills.

29 30 C. Impacts During Retirement

31
32 Retirement would cause soil disturbance similar to construction. Use of trucks and
33 heavy equipment could compact soils and temporarily increase the potential for soil erosion
34 during removal of equipment, dismantling turbines, demolishing foundations, and grading.
35 Disturbance or removal of vegetation would expose soils to greater risk of wind and water
36 erosion. Site restoration would be carried out subject to the terms of a final retirement plan
37 approved by the Council, which would include measures for protection of the environment
38 during the retirement process.

39 40 D. Control and Impact Mitigation Measures

41
42 During construction of the facility, Biglow would be subject to the requirements of the
43 NPDES Storm Water Discharge General Permit #1200-C and the associated Erosion and
44 Sediment Control Plan. The Erosion and Sediment Control Plan would describe best
45 management practices for erosion and sediment control and would be subject to DEQ
46 approval. Construction truck traffic would be limited to existing and improved road surfaces

1 to avoid soil compaction. Gravel or other non-erosive covering would be spread on turbine
2 pad areas immediately after soil exposure during construction. All areas of temporary
3 disturbance would be restored upon completion of construction. During operation, facility
4 staff would regularly inspect all project areas for signs of erosion or sedimentation and, as
5 necessary, maintain or repair erosion control measures. Measures would be taken to avoid
6 accidental spills of hazardous materials and to remedy any spills that occur, as discussed
7 under the Waste Minimization Standard section of the order.

8
9 To find that Orion can comply with OAR 345-022-0022, the Council adopts the
10 following conditions in the site certificate:

- 11
12 **(26) The certificate holder shall conduct all construction work in compliance**
13 **with an Erosion and Sediment Control Plan (ESCP) satisfactory to the**
14 **Oregon Department of Environmental Quality and as required under the**
15 **National Pollutant Discharge Elimination System (NPDES) Storm Water**
16 **Discharge General Permit #1200-C. The certificate holder shall include in**
17 **the ESCP any procedures necessary to meet local erosion and sediment**
18 **control requirements and storm water management requirements.**
19
20 **(27) During construction of the facility, the certificate holder shall limit truck**
21 **traffic to designated existing and improved road surfaces to avoid soil**
22 **compaction, to the extent possible.**
23
24 **(28) The certificate holder shall cover turbine pad areas with gravel or other**
25 **non-erosive material immediately following exposure during construction**
26 **and shall maintain the pad area covering during operation of the facility.**
27
28 **(29) During construction of the facility, the certificate holder shall restore**
29 **areas that are temporarily disturbed in accordance with the methods,**
30 **monitoring procedures and success criteria described in the Revegetation**
31 **Plan that is incorporated in this order as Attachment B and as that**
32 **Revegetation Plan may be amended from time to time. During operation**
33 **of the facility, the certificate holder shall restore areas that are**
34 **temporarily disturbed during facility maintenance or repairs according to**
35 **the same methods and monitoring procedures.**
36
37 **(30) During operation of the facility, the certificate holder shall routinely**
38 **inspect and maintain all roads, pads and trenched areas and, as necessary,**
39 **maintain or repair erosion control measures.**
40
41 **(31) During construction of the underground collector system, the certificate**
42 **holder shall open the smallest necessary sections of trench during each**
43 **day of construction and backfill the trenches as soon as is practical after**
44 **power lines have been set in the trenches.**
45

- 1 **(32) During construction of the facility, the certificate holder shall strip and**
2 **stockpile soil from laydown areas only during the time of year when**
3 **rainfall is lowest, minimizing erosion from precipitation.**
4
5 **(33) During construction of the facility, the certificate holder shall use straw**
6 **bales or similar containment features to protect soil stockpiles from**
7 **erosion, as needed.**
8
9 **(34) During construction of the facility, the certificate holder shall keep wind-**
10 **borne erosion to a minimum by using water trucks for dust suppression,**
11 **as necessary.**
12
13 **(35) During construction of the facility, the certificate holder shall restore**
14 **staging locations by bringing them back to their original contours,**
15 **covering them with topsoil, and revegetating or preparing them for**
16 **planting of wheat or barley or use as range land.**
17

18 Conclusions of Law
19

20 The Council concludes that the design, construction, operation and retirement of the
21 proposed facility, taking into account mitigation and subject to the conditions stated in this
22 order, are not likely to result in a significant adverse impact to soils. The Council adopts
23 Conditions (26), (27), (28), (29), (30), (31), (32), (33), (34) and (35) in the site certificate.
24 Based on these findings and recommended conditions, the Council concludes that the
25 proposed facility complies with the Soil Protection Standard.
26

27 **(c) Protected Areas**
28

29 **OAR 345-022-0040**

30 *(1) Except as provided in sections (2) and (3), the Council shall not issue a site*
31 *certificate for a proposed facility located in the areas listed below. To issue a site*
32 *certificate for a proposed facility located outside the areas listed below, the*
33 *Council must find that, taking into account mitigation, the design, construction*
34 *and operation of the facility are not likely to result in significant adverse impact to*
35 *the areas listed below. Cross-references in this rule to federal or state statutes or*
36 *regulations are to the version of the statutes or regulations in effect as of August*
37 *28, 2003:*
38

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

41
42 *(b) National monuments, including but not limited to John Day Fossil Bed*
43 *National Monument, Newberry National Volcanic Monument and Oregon Caves*
44 *National Monument;*
45

1 (c) *Wilderness areas established pursuant to The Wilderness Act, 16 U.S.C.*
2 *1131 et seq. and areas recommended for designation as wilderness areas pursuant*
3 *to 43 U.S.C. 1782;*

4
5 (d) *National and state wildlife refuges, including but not limited to Ankeny,*
6 *Bandon Marsh, Baskett Slough, Bear Valley, Cape Meares, Cold Springs, Deer*
7 *Flat, Hart Mountain, Julia Butler Hansen, Klamath Forest, Lewis and Clark,*
8 *Lower Klamath, Malheur, McKay Creek, Oregon Islands, Sheldon, Three Arch*
9 *Rocks, Umatilla, Upper Klamath, and William L. Finley;*

10
11 (e) *National coordination areas, including but not limited to Government*
12 *Island, Ochoco and Summer Lake;*

13
14 (f) *National and state fish hatcheries, including but not limited to Eagle Creek*
15 *and Warm Springs;*

16
17 (g) *National recreation and scenic areas, including but not limited to Oregon*
18 *Dunes National Recreation Area, Hell's Canyon National Recreation Area, and*
19 *the Oregon Cascades Recreation Area, and Columbia River Gorge National*
20 *Scenic Area;*

21
22 (h) *State parks and waysides as listed by the Oregon Department of Parks and*
23 *Recreation and the Willamette River Greenway;*

24
25 (i) *State natural heritage areas listed in the Oregon Register of Natural*
26 *Heritage Areas pursuant to ORS 273.581;*

27
28 (j) *State estuarine sanctuaries, including but not limited to South Slough*
29 *Estuarine Sanctuary, OAR Chapter 142;*

30
31 (k) *Scenic waterways designated pursuant to ORS 390.826, wild or scenic*
32 *rivers designated pursuant to 16 U.S.C. 1271 et seq., and those waterways and*
33 *rivers listed as potentials for designation;*

34
35 (l) *Experimental areas established by the Rangeland Resources Program,*
36 *College of Agriculture, Oregon State University: the Prineville site, the Burns*
37 *(Squaw Butte) site, the Starkey site and the Union site;*

38
39 (m) *Agricultural experimental stations established by the College of*
40 *Agriculture, Oregon State University, including but not limited to:*
41 *Coastal Oregon Marine Experiment Station, Astoria*
42 *Mid-Columbia Agriculture Research and Extension Center, Hood River*
43 *Agriculture Research and Extension Center, Hermiston*
44 *Columbia Basin Agriculture Research Center, Pendleton*
45 *Columbia Basin Agriculture Research Center, Moro*
46 *North Willamette Research and Extension Center, Aurora*

1 *East Oregon Agriculture Research Center, Union*
2 *Malheur Experiment Station, Ontario*
3 *Eastern Oregon Agriculture Research Center, Burns*
4 *Eastern Oregon Agriculture Research Center, Squaw Butte*
5 *Central Oregon Experiment Station, Madras*
6 *Central Oregon Experiment Station, Powell Butte*
7 *Central Oregon Experiment Station, Redmond*
8 *Central Station, Corvallis*
9 *Coastal Oregon Marine Experiment Station, Newport*
10 *Southern Oregon Experiment Station, Medford*
11 *Klamath Experiment Station, Klamath Falls;*

12
13 *(n) Research forests established by the College of Forestry, Oregon State*
14 *University, including but not limited to McDonald Forest, Paul M. Dunn Forest,*
15 *the Blodgett Tract in Columbia County, the Spaulding Tract in the Mary's Peak*
16 *area and the Marchel Tract;*

17
18 *(o) Bureau of Land Management areas of critical environmental concern,*
19 *outstanding natural areas and research natural areas;*

20
21 *(p) State wildlife areas and management areas identified in OAR chapter 635,*
22 *Division 8.*

23
24 Findings of Fact

25
26 Orion provided evidence about potential impacts to protected areas in Exhibit L of the
27 application. The analysis area for the Protected Areas Standard is the area within the site
28 boundary and 20 miles from the site boundary, including areas outside the state.

29
30 The proposed facility would not be located within any protected area designated under
31 OAR 345-022-0040(1). In Table L-1 of the application, Orion identified 11 federal and state
32 management areas within 20 miles of the proposed facility site. In three instances, Orion
33 listed two protected areas under a single heading. The DPO separates the following combined
34 areas of concern into distinct areas: The Deschutes River State Recreation Area and Heritage
35 Landing, the Deschutes Federal Wild and Scenic River/State Scenic Waterway, and the John
36 Day Federal Wild and Scenic River/State Scenic Waterway. Orion listed the "J.S. Burres
37 State Park" in Oregon, which is a state-owned property managed by the BLM and not subject
38 to the Protected Areas standard. In addition, Orion listed three state parks in Washington not
39 subject to the Protected Areas standard. The following table shows 10 protected areas, a
40 reference to the applicable subparagraph of OAR 345-022-0040(1), the approximate distance
41 and direction of each protected area from the proposed facility site, and the state in which the
42 area is located:
43

1
2

Table 7
Protected Areas within 20 Miles of the Proposed Facility Site

Protected Area	Rule Reference	Distance (Miles)	Direction from Biglow	State
Columbia River Gorge National Scenic Area	(g)	10	NW	Oregon Washington
Deschutes River State Recreation Area	(h)	11	W	Oregon
Heritage Landing Day Use Area	(h)	11	W	Oregon
Deschutes Federal Wild and Scenic River	(k)	15	SW	Oregon
Deschutes State Scenic Waterway (Pelton Dam to Columbia River)	(k)	15	SW	Oregon
Lower Deschutes Wildlife Area	(p)	11	W	Oregon
John Day Wildlife Refuge	(d)	1	E	Oregon
John Day Federal Wild and Scenic River	(k)	1	E	Oregon
John Day State Scenic Waterway (Parrish Creek to Tumwater Falls)	(k)	1	E	Oregon
Columbia Basin Agriculture Research Center (Moro)	(m)	9	SW	Oregon

3

4 A. Noise

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16 B. Traffic

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29

The primary transportation route for facility construction vehicles would begin from either eastbound or westbound I-84 and continue south on US 97 from Biggs Junction to Wasco. Construction traffic might also approach the facility site from the south on US 97. From US 97, construction-related vehicles would follow OR 206 to reach Wasco and would use local Sherman County roads to reach the site. For any facility phase, construction is anticipated to take up to 10 months and employ an estimated maximum of 250 workers at peak construction periods. In addition to travel by construction workers, construction traffic would include deliveries of heavy equipment, building materials and turbine components. Orion anticipates that construction traffic could cause short-term traffic delays on US 97 and local roads that might adversely affect access on these routes to the protected areas along the John Day River corridor (John Day Wildlife Refuge, John Day Federal Wild and Scenic River and John Day State Scenic Waterway) and to the Columbia Basin Agriculture Research

1 Center in Moro. Access to other protected areas would not be affected by construction traffic.
2 The Council finds that traffic delays affecting access to protected areas along the John Day
3 River would not result in a significant adverse impact on those areas and that access to other
4 protected areas would be unaffected by construction-related traffic.
5

6 During operation of the facility, Orion estimates that Biglow would employ 15 to 20
7 people. Road use by employees, combined with road use for deliveries and other facility-
8 related purposes, is not likely to have a significant impact on local road traffic. The Council
9 finds that local facility-related road use during operation of the proposed facility would not
10 result in a significant adverse impact on any protected area.
11

12 C. Water Use and Wastewater Disposal 13

14 Construction and operation of the proposed facility would not result in a significant
15 adverse impact on water quantity or water quality within any protected area. During
16 construction, water would be used primarily for dust suppression, road compaction and
17 concrete mixing. An estimated 12 million gallons of water would be used during construction.
18 The water would be acquired by a contractor and trucked in from an off-site source that would
19 not require a new or transferred water right. The source of construction water is expected to
20 be the City of Wasco, which has agreed to provide a source of construction water at the rate of
21 up to 125,000 gallons per day, provided such deliveries would not jeopardize its ability to
22 satisfy demands within the City. All water used during construction would be lost on or very
23 near the site, primarily through evaporation. No water used on the site would be discharged
24 into wetlands, lakes, rivers or streams. There would be no impact on any protected area.
25

26 During the operations phase, water would be used for sanitary purposes at the O&M
27 facility. Water for these purposes would be supplied from an on-site well and would be
28 discharged to an on-site septic system. Turbine blade washing may occur, but water use
29 would be only occasional and not substantial. Water for blade-washing activities would be
30 obtained from the on-site well or permitted off-site sources. There would be no impact on any
31 protected area.
32

33 The Council finds that water use and disposal during construction and operation of the
34 proposed facility would not result in a significant adverse impact on water quantity or water
35 quality within any protected area.
36

37 D. Visual Impacts 38

39 Wind energy facilities have no emissions to affect air quality or visibility. Visual
40 impacts would result from the visibility of wind turbine structures from locations within a
41 protected area that might adversely affect a visual resource for which the area is designated as
42 protected. In evaluating the visual impact of wind turbines on protected areas near the
43 Stateline Wind Project, the Council found that the view of the turbines would not be
44 significant at distances of five miles or more from the site (Final Order for the Stateline Wind
45 Project, p. 48). Although the turbine towers for Biglow are taller than those in operation at

1 Stateline (about 85 meters at hub height compared to 50 meters for the Stateline turbines), the
2 difference would not be significant when viewed from a distance of five miles or more.

3
4 Of the 10 protected areas identified in Table 7, only three are within five miles of the
5 site: the John Day Wildlife Refuge, the John Day Federal Wild and Scenic River, and the
6 John Day State Scenic Waterway (Parrish Creek to Tumwater Falls). While portions of the
7 John Day Wildlife Refuge are within five miles of the proposed facility, the wildlife refuge
8 area is protected because it provides wildlife habitat, and it is not managed primarily for its
9 scenic views. The John Day Federal Wild and Scenic River and the John Day State Scenic
10 Waterway are managed, in part, for outstanding scenic quality. Orion used computer
11 modeling to determine what parts of Biglow would be visible from the John Day River and
12 performed additional modeling at the request of the Bureau of Land Management. The
13 Oregon Department of Parks and Recreation also expressed concern about the visibility of
14 turbines along the John Day River.

15
16 Orion found that the turbines would not be visible from about 80 percent of the river's
17 length in the reach between the Klondike-John Day Road and Tumwater Falls. In the limited
18 areas along the river corridor from which the turbines might be visible, few would be visible
19 from any one point, and only the blades are likely to be visible in many instances. More of the
20 project would be visible from higher locations on the river canyon walls, where access is
21 limited.

22
23 The Council finds that, although parts of Biglow might be visible from some locations
24 within protected areas along the John Day River, the visual impact of the facility would not
25 result in a significant adverse impact to these protected areas. In addition, the Council finds
26 that the visual impact of the proposed facility, if it were visible at all, would be insignificant
27 in protected areas located five miles or more from the facility.

28
29 To find that Orion can comply with OAR 345-022-0040, the Council adopts the
30 following condition in the site certificate:

- 31
32 **(36) Without Department approval, the certificate holder shall not move any**
33 **turbines within its micro-siting corridors such that a worst-case visual**
34 **impact beyond that stated in the ASC and ASC Supplement would occur**
35 **for the John Day Wildlife Refuge, the John Day Federal Wild and Scenic**
36 **River, or the John Day State Scenic Waterway (Parrish Creek to**
37 **Tumwater Falls).**

38
39 Conclusions of Law

40
41 The Council concludes that the proposed facility is not located in a protected area as
42 listed in OAR 345-022-0040 and that the design, construction and operation of the proposed
43 facility, taking into account mitigation and subject to the conditions stated in this order, are
44 not likely to result in significant adverse impact to any protected area. The Council adopts
45 Condition (36) in the site certificate. Based on these findings and recommended condition, the
46 Council concludes that the proposed facility complies with the Protected Areas Standard.

1
2 **(d) Scenic and Aesthetic Values**

3
4 **OAR 345-022-0080**

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

11 ***

12
13 Findings of Fact

14
15 Orion provided evidence about potential impacts to scenic and aesthetic values in
16 Exhibit R of the ASC and ASC Supplement. The analysis area for the Scenic and Aesthetic
17 Values Standard is the area within the site boundary and 30 miles from the site boundary,
18 including areas outside the state. In applying this standard, the Council focuses on the effects
19 of facility structures on “scenic and aesthetic values identified as significant or important in
20 applicable federal land management plans or in local land use plans in the analysis area.”

21
22 The tallest structures that would be part of Biglow are the turbine towers, and these
23 structures, therefore, are the visual elements of the facility most likely to be visible from a
24 distance. In evaluating the visual impact of wind turbines on protected areas near the Stateline
25 Wind Project, the Council found that the view of the turbines would not be significant at
26 distances of five miles or more from the site (Final Order for the Stateline Wind Project, p.
27 48). Although the turbine towers for the Biglow are taller than those in operation at Stateline
28 (about 85 meters at hub height compared to 50 meters for the Stateline turbines), the
29 difference would not be significant when viewed from a distance of five miles or more.

30
31 **A. Visual Features of the Site and the Proposed Facility**

32
33 The proposed Biglow site occupies an overall area of about 25,000 acres under
34 easement, or about 360 square miles. Within that area, up to 225 wind turbine towers and
35 tower pad areas, about 40.5 miles of new access roads, an O&M building, a substation and up
36 to 22 miles of aboveground collector or transmission lines would be constructed on about 177
37 acres of land. Turbines would be arrayed in “strings” spaced about one-half to one mile apart.
38 Under the Maximum Turbine Layout (150 3.0-MW turbines), the turbine towers were
39 assumed to be 85 meters (279 feet) tall at the turbine hub, and the rotors were assumed to be
40 100 meters (328 feet) in diameter, resulting in an overall height of the towers and blades of
41 135 meters (443 feet). Under the Minimum Turbine Layout (225 1.5-MW turbines), the
42 turbine towers were assumed to be 80 meters (262 feet) tall, and the rotors were assumed to
43 be 82 meters (269 feet) in diameter, resulting in an overall height of the towers and blades of
44 121 meters (397 feet). The towers would be smooth, tubular steel structures with low-
45 reflectivity neutral gray, white, off-white or earth-tone finishes to minimize contrast with the
46 sky backdrop and to minimize the reflections that can call attention to structures in the

1 landscape. Exterior lighting on the turbine towers would be limited to the aviation warning
 2 lights required by the FAA and would be kept to the minimum required number and intensity
 3 to meet FAA standards. In addition, up to 10 meteorological towers would be built. The
 4 meteorological towers would be either guyed or un-guyed steel towers, about 85 meters (279
 5 feet) tall.

6
 7 Orion would install one of two alternative overhead 230-kV or 500-kV transmission
 8 lines. One alternative would be a 3-mile transmission line interconnecting a substation located
 9 in the southern portion of the facility with the Klondike Schoolhouse Substation south of the
 10 facility site. The other alternative would be a 7-mile transmission line interconnecting a
 11 substation near the center of the facility site with the BPA John Day Substation northwest of
 12 the facility site. Under both alternatives, the transmission line would be mounted on wood or
 13 steel poles or towers about 60 to 90 feet tall. The O&M building would occupy about 5,000
 14 square feet on a 5-acre parcel. The substation would occupy a 6-acre parcel.

15
 16 B. Effect on Identified Scenic Values

17
 18 Orion considered the following managed areas within the analysis area for potential scenic
 19 values:

20
 21 **Table 8**
 22 **Land Management Areas**

Area	Management	Location
Columbia River Gorge National Scenic Area	Federal	Oregon Washington
Lower Klickitat Wild and Scenic River	Federal/State	Washington
Deschutes River	Federal/State	Oregon
John Day River	Federal/State	Oregon
Oregon Trail	Federal	Oregon
Sherman County	County	Oregon
Gilliam County	County	Oregon
Wasco County	County	Oregon
Morrow County	County	Oregon
Klickitat County	County	Washington
Yakima County	County	Washington
The Dalles	City	Oregon
Goldendale	City	Washington

23
 24 Columbia River Gorge National Scenic Area

25
 26 The Columbia River Gorge National Scenic Area (CRGNSA) consists of the 80-mile
 27 corridor extending along the Columbia River from Troutdale to the Deschutes River. The

1 Biglow facility site would lie outside and about 10 miles east of the Scenic Area's eastern
2 boundary.

3
4 The Columbia River Gorge was the first and is still the only National Scenic Area
5 (NSA) in the United States. The federal legislation that established the NSA in 1986 included
6 among its purposes:

- 7
- 8 • Protect and provide for the enhancement of the scenic, cultural, recreational,
9 and natural resources of the Columbia River Gorge
- 10
- 11 • Protect and support the economy of the Gorge area by encouraging growth to
12 occur in existing urban areas and by allowing future economic development in
13 a manner that is consistent with protection of the resources
- 14

15 The Scenic Area Management Plan, adopted by the Columbia River Gorge
16 Commission in 1991 establishes policies and guidelines for resource protection that are
17 implemented by the National Scenic Area Ordinance adopted by the local jurisdictions within
18 the NSA boundaries. Among other things, the Management Plan designates key viewing areas
19 that are considered to be the most important vantage points within the scenic area from which
20 the public views the scenic area landscapes. Orion found that four of these key viewing areas
21 would be located within 30 miles of the proposed Biglow facility: (1) the Columbia River; (2)
22 the Historic Columbia River Highway; (3) Interstate Highway I-84; and (4) Washington State
23 Route 14 (SR-14). Based on its analysis, Orion found that from all four areas the facility
24 might be visible as a feature in the far distance.

25
26 The applicant's visibility analysis indicated that facility turbines might be visible from
27 the CRGNSA but that because they would be at least ten miles from the nearest key viewing
28 area, the facility's effects on scenic values would be less than significant. The Council finds
29 that the proposed facility is not likely to result in a significant adverse impact to the important
30 scenic values of the CRGNSA.

31 Lower Klickitat Wild and Scenic River

32
33
34 The lower ten miles of the Klickitat River is a Federal Wild and Scenic River. Biglow
35 would not be visible from any part of the designated area. The area lies entirely in the State of
36 Washington about 30 miles from the Biglow facility site. The Council finds that the Biglow
37 facility is not likely to result in significant adverse impact to the scenic values associated with
38 the Lower Klickitat Wild and Scenic River.

39 Deschutes River

40
41
42 The Deschutes River is a federal Wild and Scenic River and an Oregon State Scenic
43 Waterway. Orion found that the proposed Biglow facility would not be visible from the areas
44 in the Deschutes River canyon along the Deschutes Wild and Scenic River and would be
45 visible only from a small area of the BLM lands within and adjacent to the canyon. Orion
46 found that because none of the BLM or private lands that lie within the canyon would be
47 directly affected by the facility, and because the facility would not be visible from the interior

1 of the canyon, the facility would be consistent with the BLM Two Rivers Plan and with the
2 provisions of the Wasco County and Sherman County comprehensive plans that identify the
3 Deschutes River as an important land feature. The Council finds that the proposed Biglow
4 facility would not have any significant impact on visual resources along the designated
5 Deschutes River resource areas.

6
7 John Day River
8

9 The Bureau of Land Management (BLM) manages the John Day River Canyon as an
10 “area of high visual quality” and has designated the area as a Visual Resource Management
11 Class II resource, a management classification that permits management activities resulting in
12 changes to the existing character of the landscape, provided that they do not attract the
13 attention of the casual observer. BLM’s management plans do not apply directly to lands,
14 such as the proposed facility site, that are located outside the jurisdictional boundaries of
15 BLM’s plans.

16
17 The same stretch of the John Day River is also a designated State Scenic Waterway.
18 Under the State Scenic Waterways Act, the river segments in the analysis area have been
19 classified as a Scenic River Area. Scenic River Areas are administered to preserve their
20 undeveloped character and maintain or enhance their high scenic quality, recreation, fish, and
21 wildlife values while allowing continued agricultural use. Like the BLM management plan,
22 administration of the State Scenic Waterways Act is not directly applicable to the proposed
23 Biglow facility because it lies outside of the area regulated by the plan.

24
25 Orion described the potential visual impact of the proposed facility on the John Day
26 River area using computer modeling and visibility analyses, field investigation, interviews
27 with local, state and federal agency staff and visual simulations. Portions of the proposed
28 facility would be visible to some degree in scattered locations along the northern reach of the
29 John Day River, up to about mile 17. Regarding protection of visual resources of the John
30 Day and Deschutes river canyons, the BLM prioritizes areas “normally seen from these
31 rivers.” Portions of the facility would be visible from many vantage points at higher elevation
32 along the canyon walls, but these areas have limited access. The Oregon Parks and Recreation
33 Department administers the state’s Scenic Waterways Act, and its regulations are aimed at
34 maintaining the scenic qualities as seen from the river.

35 Orion’s modeling showed that in limited areas along the river corridor from which the
36 facility’s turbines might be visible, few turbines would be visible from any one point, and
37 only the blades would be visible from many locations, rather than the turbines or turbine
38 towers. In the places where they are visible, the turbines would appear as elements on the
39 ridgelines in the landscape’s background and would have no direct effect on the appearance of
40 the canyon walls or canyon floor. Although the turbines could be noticeable in some of the
41 views, because of their small numbers, their location in the background, and the viewing
42 distance (which would range from 1 to 3.5 miles), they would be unlikely to be dominant
43 elements in the scene. The Council finds that construction and operation of the facility would
44 not result in significant adverse impact to the significant or important scenic and aesthetic
45 values within the John Day River area.

1
2 Oregon National Historic Trail
3

4 The Oregon National Historic Trail received federal designation to commemorate the
5 historic travel route and to promote its preservation, interpretation and public use and
6 appreciation. The Trail passes through six states and covers 2,130 miles. Within the analysis
7 area are five “high potential” sites: Fourmile Canyon, John Day River Crossing, Biggs
8 Junction, Deschutes River Crossing and The Dalles Complex. The management plan does not
9 identify specific scenic or aesthetic values beyond these five sites. “High potential” sites are
10 sites that have potential to interpret the Trail’s historical significance, that afford a high-
11 quality recreational experience and greater than average scenic values.
12

13 Orion found that all of these “high potential” sites lie outside the areas from which the
14 proposed facility’s turbines might be visible. The Council finds that the Biglow facility is not
15 likely to result in significant adverse impact to the scenic values associated with the Oregon
16 National Historic Trail.
17

18 Sherman County
19

20 Section XI of the Sherman County Comprehensive Plan identifies important landscape
21 features within the County, including rock outcroppings, trees, the John Day River Canyon
22 and the Deschutes River Canyon. The related goal is SCCP Goal X: “Preserve the integrity of
23 the Sherman County Landscape.” The single policy under this goal is: “Trees should be
24 considered an important feature of the landscape and therefore the County Court shall
25 encourage the retention of this resource when practical.” The proposed Biglow facility would
26 not require the removal of any trees. The Council finds that the proposed Biglow facility
27 would not result in a significant adverse impact to the scenic resources identified in the local
28 Sherman County land use plan.
29

30 The segment of US Highway 97 extending from Biggs in Sherman County to Baker
31 City in Baker County has been designated by the Oregon Department of Transportation as the
32 Journey Through Time Scenic Byway. Although the Biglow facility would be visible from
33 locations along US 97, there are no scenic overlooks or vista points along the segment of the
34 highway in the vicinity of the proposed facility. The Council finds that the proposed Biglow
35 facility would not result in a significant adverse impact to the Journey Through Time Scenic
36 Byway.
37

38 Gilliam County
39

40 The applicant states that the Gilliam County Comprehensive Plan, Part 5, identifies
41 “rock outcroppings marking the rim and walls of steep canyon slopes” as important scenic
42 resources. The Council finds that the proposed Biglow facility is not likely to have a
43 significant impact on viewing rock outcroppings and scenic canyons in Gilliam County. In
44 addition, the Plan identifies the John Day River corridor as a scenic resource, but Gilliam
45 County defers to the Oregon State Scenic Waterways Act to govern this resource and deems
46 additional regulation unnecessary. The visual impact of the proposed facility on the John Day
47 River Canyon has been described above.

1
2 Wasco County
3

4 The applicant states that the Wasco County Comprehensive plan identifies the
5 Deschutes and John Day Scenic Waterways, the White River canyon, and the Columbia River
6 Gorge as important scenic resources. The visual impacts of the proposed facility on the
7 Columbia River Gorge and on the Deschutes and John Day River canyons have been
8 described above. White River Canyon lies outside the 30-mile analysis area. The nearest parts
9 of Wasco County are eight miles or more from the proposed Biglow facility. The Council
10 finds that the proposed facility would not have a significant adverse effect on important scenic
11 resources in Wasco County.
12

13 Morrow County
14

15 The nearest parts of Morrow County are at least 20 miles from the proposed Biglow
16 facility site, and the facility would not be visible from any part of Morrow County. The
17 Council finds that the proposed facility would not have a significant effect on important
18 scenic resources in Morrow County.
19

20 Klickitat County
21

22 Klickitat County, Washington, lies north of Sherman County on the north side of the
23 Columbia River. The nearest parts of Klickitat County are at least nine miles from the
24 proposed Biglow facility site. While some facility turbines may be visible from Klickitat
25 County, the facility is unlikely to have a significant effect on visual qualities due to the
26 distance from the site and intervening topography. The Council finds that the proposed
27 facility would not have a significant effect on important scenic resources in Klickitat County.
28

29 Yakima County
30

31 Orion found that Biglow facility turbines might be visible in a very small area at the
32 southern edge of Yakima County. This area falls within the boundaries of the Yakama Indian
33 Reservation. Because this small area is about 29 miles from the closest turbine, the turbines
34 have a low probability of being detectable under most atmospheric and lighting conditions.
35 Consequently, the turbines are unlikely to have any impact on views from Yakima County.
36 The Council finds that the proposed facility would not have a significant effect on important
37 scenic resources in Yakima County.
38

39 The Dalles
40

41 Orion found that the proposed facility would not be visible from The Dalles. The
42 Council finds that the proposed facility would not have a significant effect on important
43 scenic resources in The Dalles.
44

45 Goldendale
46

1 Orion found that the proposed facility would not be visible from Goldendale,
2 Washington. The Council finds that the proposed facility would not have a significant effect
3 on important scenic resources in Goldendale.

4
5 The Council finds that no conditions other than those addressed in the Siting
6 Standards for Wind Energy Facilities section in the order are required for Orion to comply
7 with OAR 345-022-0080.

8
9 Conclusions of Law

10
11 The Council concludes that the design, construction, operation and retirement of the
12 facility, taking into account mitigation, are not likely to result in significant adverse impact to
13 scenic and aesthetic values identified as significant or important in applicable federal land
14 management plans or in local land use plans in the analysis area. Based on these findings and
15 recommended conditions, the Council concludes that the proposed facility complies with the
16 Scenic and Aesthetic Values Standard.

17
18 **(e) Recreation**

19
20 **OAR 345-022-0100**

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

27
28 *(a) Any special designation or management of the location;*

29
30 *(b) The degree of demand;*

31
32 *(c) Outstanding or unusual qualities;*

33
34 *(d) Availability or rareness;*

35
36 *(e) Irreplaceability or irretrievability of the opportunity.*

37 * * *

38
39 Findings of Fact

40
41 **A. Recreational Opportunities in the Analysis Area**

42
43 Orion provided information about compliance with the Council's Recreation Standard
44 in Exhibit T of the ASC. The analysis area for the Recreation is the area within the site
45 boundary and five miles from the site boundary.

1 In general, recreational activities in the vicinity of the proposed facility include
2 camping, hiking, upland bird and big game hunting, rafting, boating, fishing, sightseeing,
3 nature and wildlife photography, and bicycling. Based on the criteria outlined in the Council's
4 Recreation Standard, Orion found there were no important recreational facilities or
5 opportunities within the site boundary. However, Orion did identify three potentially
6 important opportunities in the analysis area: (1) the John Day River; (2) the Journey Through
7 Time Scenic Byway; and (3) the Historic Oregon Trail alignment, including the Barlow Road
8 Cutoff Trail alignment.

9
10 John Day River

11
12 The main stem of the John Day River, between river miles 0 and 20, runs through the analysis
13 area. This segment of the river, a designated federal Wild and Scenic River, is classified as
14 Recreational. The primary recreational uses on the segment of river within the analysis area
15 include fishing, boating, and bird hunting. Outstanding remarkable values include scenery,
16 recreation, fish, wildlife, geology, paleontology, and archaeology. Botanical and ecological
17 values are also deemed significant. The segment is also designated as a State Scenic
18 Waterway pursuant to the Oregon State Scenic Waterways Act administered by the Oregon
19 Parks and Recreation Department. The Oregon Department of Fish and Wildlife administers
20 the John Day Wildlife Refuge located upstream of the confluence of the John Day and
21 Columbia Rivers (located within the analysis area). The primary purpose of the refuge is to
22 protect wintering and nesting waterfowl. In addition, the US Army Corps of Engineers
23 administers the John Day Arm of the Columbia Reservoir and Le Page Park, located from
24 river mile 10 downstream to the Columbia River. The Council finds that this segment of the
25 John Day River is an important recreational opportunity.

26
27 Journey Through Time Scenic Byway

28
29 The Journey Through Time Byway is a designated Oregon State Scenic Byway. The
30 byway runs south out of Biggs along US 97 through the analysis area to Shaniko, where it
31 turns east, and eventually travels to Baker City. Primary recreational uses include sightseeing
32 and road touring. There are no developed scenic overlooks or waysides along the byway in
33 the analysis area. The Council finds that the Journey Through Time Byway is an important
34 recreational opportunity.

35
36 Historic Oregon Trail and Barlow Road Cutoff Trail Alignments

37
38 The Oregon Trail and the Barlow Road Cutoff Trail run through the analysis area,
39 including portions within the site boundary. Agricultural practices and other development
40 activities have destroyed nearly all evidence of the trails in the analysis area. Orion was
41 unable to identify intact segments within the site boundary. The only accessible, intact
42 segment within the analysis area that has been identified occurs near the McDonald Crossing,
43 which is southeast of the analysis area.

44
45 Trail crossings at county and state roads are somewhat well signed within the analysis
46 area, but many signs are dilapidated or missing. Furthermore, the surrounding landscape is

1 primarily private land cultivated for wheat, so the recreational opportunity is limited to
2 visiting and viewing the approximate historic alignments from county roads.

3
4 The Council finds that the Historic Oregon Trail and Barlow Road Cutoff Road
5 Alignments are important recreational opportunities.

6
7 **B. Potential Impact on Important Recreational Opportunities**

8
9 The Council finds that important recreational opportunities exist within the analysis
10 area associated with the following features: the John Day River, the Journey Through Time
11 Scenic Byway, and Historic Oregon Trail and Barlow Road Cutoff Road Alignments. Design,
12 construction and operation of the proposed facility would have no direct effect on any
13 recreational opportunities in the analysis area. The only recreation-related feature within the
14 site boundary is some segments of the historic trail alignments, but because there are no
15 visible signs of the trails within the site boundary, the proposed facility would have no
16 adverse impact on any physical remnant of the trails. Wind turbines might be visible from
17 some locations within the John Day River corridor and along the Scenic Byway. Construction
18 noise and wind turbine noise may be audible at some locations on segments of the historic
19 trail alignments and within the John Day River corridor. Short-term traffic delays may occur
20 on parts of the Scenic Byway due to construction traffic, but traffic impact during operation of
21 the proposed facility would be insignificant. These impacts are not likely to interfere
22 significantly with the recreational opportunities for hunting, rafting, boating, fishing,
23 sightseeing, nature and wildlife photography, bicycling, horseback riding, hiking or camping
24 within the analysis area.

25
26 Conclusions of Law

27
28 The Council concludes that the design, construction and operation of the proposed
29 facility, taking into account mitigation and subject to conditions stated in this order, are not
30 likely to result in significant adverse impact to important recreational opportunities in the
31 analysis area. The Council concludes that the proposed facility complies with the Recreation
32 Standard. There are no conditions specifically related to this finding, but conditions
33 recommended in the Scenic and Aesthetic Values Standard, Historic, Cultural and
34 Archaeological Resources Standard, and Noise Control Regulations sections may serve to
35 mitigate the impact of the facility on the enjoyment of recreational opportunities.

36
37 **(f) Public Health and Safety Standards for Wind Energy Facilities**

38
39 **OAR 345-024-0010**

40 * * *

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

43
44 *(a) Can design, construct and operate the facility to exclude members of the public*
45 *from close proximity to the turbine blades and electrical equipment;*
46

1 ***(b) Can design, construct and operate the facility to preclude structural failure of***
2 ***the tower or blades that could endanger the public safety and to have adequate***
3 ***safety devices and testing procedures designed to warn of impending failure and to***
4 ***minimize the consequences of such failure.***
5

6 Findings of Fact
7

8 Because Biglow would be located on private property, public access to the facility
9 would be limited. Turbine towers would be located at least 450 feet from any residence or
10 public road to ensure that in the unlikely event a turbine tower became dislodged from its
11 foundation it would not fall upon a house or roadway. Turbine blade tips would be
12 approximately 132 feet above ground at the closest point of rotation. Towers would be smooth
13 steel structures with no exterior ladders or access to the turbine blades. Tower entry doors
14 would be locked. There would be no access to the nacelles or turbine tower interiors or to the
15 electrical equipment contained within the nacelles or turbine tower interiors. Step-up
16 transformers would be located within locked cabinets at the base of each tower.
17

18 Towers and tower foundations, as well as aboveground transmission line support
19 structures, would be designed according to applicable building codes to avoid failure or
20 collapse. During construction of the facility, the certificate holder would follow the
21 manufacturers' recommended handling instructions and procedures to prevent damage to
22 towers or blades that could lead to failure.
23

24 During operation of the facility, the certificate holder would have an operational
25 safety-monitoring program and would inspect turbine blades on a regular basis for signs of
26 wear. All turbines would have self-monitoring devices linked to sensors at the O&M facility
27 to alert operators to potentially dangerous conditions.
28

29 Electric transformers and other equipment associated with the proposed substation
30 would be enclosed by a fence with a locked gate and otherwise be made inaccessible to the
31 public. Warning signs would be posted as required by law for the safety of the public.
32

33 To find that Orion can comply with OAR 345-024-0010, the Council adopts the
34 following conditions in the site certificate:
35

36 **(37) During construction, operation or retirement of the facility, the**
37 **certificate holder shall notify the Department within 72 hours of**
38 **any accidents that may result in public health and safety concerns,**
39 **including mechanical failures on the site associated with**
40 **construction or operation of the facility.**
41

42 **(38) Before beginning construction of any phase of the facility, the**
43 **certificate holder shall submit a Notice of Proposed Construction**
44 **or Alteration to the Federal Aviation Administration (FAA)**
45 **identifying the proposed final locations of the turbines and related**
46 **or supporting facilities for that phase of the facility. The certificate**

1 holder shall notify the Department of the FAA's response as soon
2 as it has been received.

- 3
- 4 (39) The certificate holder shall enclose the facility substation with
5 appropriate fencing and locked gates to protect the public from
6 electrical hazards.
- 7
- 8 (40) The certificate holder shall not locate turbine towers within 450
9 feet of any residence. The certificate holder shall not locate turbine
10 towers within 450 feet of any public road, unless the certificate
11 holder demonstrates to the Department's satisfaction that a lesser
12 setback is consistent with the protection of public health and safety.
- 13
- 14 (41) The certificate holder shall construct turbine towers that are
15 smooth steel structures with no exterior ladders or access to the
16 turbine blades and shall install locked access doors accessible only
17 to authorized personnel.
- 18
- 19 (42) During construction of the facility, the certificate holder shall
20 follow manufacturers' recommended handling instructions and
21 procedures to prevent damage to towers or blades that could lead
22 to failure.
- 23
- 24 (43) During operation of the facility, the certificate holder shall have an
25 operational safety-monitoring program and shall inspect turbine
26 blades on a regular basis for signs of wear. The certificate holder
27 shall repair turbine blades as necessary to protect public safety.
- 28
- 29 (44) During operation of the facility, the certificate holder shall install
30 and maintain self-monitoring devices on each turbine, connected to
31 a fault annunciation panel or supervisory control and data
32 acquisition (SCADA) system at the O&M facility, to alert operators
33 to potential dangerous conditions, and the certificate holder shall
34 remedy any dangerous conditions immediately.
- 35
- 36 (45) During construction of the facility, the certificate holder shall
37 install generator step-up transformers at the base of each turbine
38 tower in locked cabinets designed to protect the public from
39 electrical hazards and to avoid creation of artificial habitat for
40 raptor prey.
- 41
- 42 (46) During construction of the facility, the certificate holder shall
43 require that all on-site construction contractors develop and
44 implement a site health and safety plan that informs on-site
45 workers and others what to do in case of an emergency and that

1 includes the locations of fire extinguishers and nearby hospitals,
2 important telephone numbers, and first aid techniques.

- 3
4 (47) During operation of the facility, the certificate holder shall develop
5 and implement a site health and safety plan that informs on-site
6 employees and others what to do in case of an emergency and that
7 includes the locations of fire extinguishers and nearby hospitals,
8 important telephone numbers, and first aid techniques.
9

10 Conclusions of Law

11
12 The Council concludes that the certificate holder can design, construct and operate the
13 facility to exclude members of the public from close proximity to the turbine blades and
14 electrical equipment. The Council further concludes that the certificate holder can design,
15 construct and operate the facility to preclude structural failure of the turbine towers or blades
16 that could endanger the public safety and to have adequate safety devices and testing
17 procedures designed to warn of impending failure and to minimize the consequences of such
18 failure. The Council adopts Conditions (37), (38), (39), (40), (41), (42), (43), (44), (45), (46)
19 and (47) in the site certificate. Based on these findings and conditions, the Council concludes
20 that the proposed facility complies with the Public Health and Safety Standards for Wind
21 Energy Facilities.
22

23 **(g) Siting Standards for Wind Energy Facilities**

24
25 **OAR 345-024-0015**

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

28
29 *(1) Can design and construct the facility to reduce visual impact by methods*
30 *including, but not limited to:*

31
32 *(a) Not using the facility for placement of advertising, except that advertising does*
33 *not include the manufacturer's label or signs required by law;*

34
35 *(b) Using the minimum lighting necessary for safety and security purposes and*
36 *using techniques to prevent casting glare from the site, except as otherwise*
37 *required by the Federal Aviation Administration or the Oregon Department of*
38 *Transportation, Transportation Development Branch, Aeronautics Section; and*
39

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

42
43 *(2) Can design and construct the facility to restrict public access by the following*
44 *methods:*
45

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

3
4 (b) For a horizontal-axis wind energy facility with lattice-type towers:

5
6 (A) Removal of wind facility tower climbing fixtures to 12 feet from the
7 ground;

8
9 (B) Installation of a locking, anti-climb device on the wind facility tower; or

10
11 (C) Installation of a protective fence at least 6 feet high with a locking gate; or

12
13 (c) For a vertical-axis wind energy facility, installation of a protective fence at
14 least 6 feet high with a locking gate;

15
16 (3) Can design and construct facility to reduce cumulative adverse environmental
17 impacts in the vicinity to the extent practicable by measures including, but not
18 limited to, the following, where applicable:

19
20 (a) Using existing roads to provide access to the facility site, or if new roads are
21 needed, minimizing the amount of land used for new roads and locating them to
22 reduce adverse environmental impacts;

23
24 (b) Combining transmission lines and points of connection to local distribution
25 lines;

26
27 (c) Connecting the facility to existing substations, or if new substations are
28 needed, minimizing the number of new substations; and

29
30 (d) Avoiding, to the extent practicable, the creation of artificial habitat for raptors
31 or raptor prey. Artificial habitat may include, but is not limited to:

32
33 (A) Above-ground portions of foundations surrounded by soil where weeds can
34 accumulate;

35
36 (B) Electrical equipment boxes on or near the ground that can provide shelter
37 and warmth; and

38
39 (C) Horizontal perching opportunities on the towers or related structures.

40
41 Findings of Fact

42
43 A. Visual Impact

44
45 In constructing Biglow, Orion would use turbine towers, nacelles and rotors that are
46 locally uniform and that conform to high standards of industrial design to present a trim,

1 uncluttered, aesthetic appearance. Orion would paint the turbine towers, nacelles and rotors
2 with a low-reflectivity, neutral gray, white, off-white or earth tone finish to control contrast
3 with the sky backdrop and to control the reflections that can call attention to structures in the
4 landscape. Orion would use neutral gray, white, off-white or earth tone finishes for the small
5 cabinets containing pad-mounted equipment that may be located at the base of each turbine to
6 help the cabinets blend into the surrounding background.

7
8 Orion would restrict exterior lighting on the turbines to the aviation warning lights
9 required by the Federal Aviation Administration (FAA). Orion would use the minimum
10 number of lowest intensity lights required to meet the FAA standards.

11
12 Orion would apply a low-reflectivity finish to the exterior of the O&M building and
13 substation equipment to control their visual integration into the surrounding background.
14 Outdoor lighting at the O&M building and substation would be restricted to the minimum
15 lighting required for safety and security. Sensors and switches would be used to keep the
16 lighting turned off when not required, and all lights would be hooded and directed to control
17 backscatter and off-site light trespass. Orion would use low-reflectivity insulators and fencing
18 with a dull finish at the substation to reduce contrast with the surroundings.

19
20 Orion would not allow advertising on any part of the facility site. Signs would be
21 limited to those required by law or for safety and convenience, including signs posting the
22 maximum traffic speed, stop signs at intersections of access roads, and warning signs on or
23 near electrical equipment. Turbine nacelles would be printed with the turbine manufacturer's
24 logo.

25 26 B. Restriction of Public Access

27
28 Because Biglow would be located on private property, public access to the facility
29 would be limited. The facility would use horizontal-axis wind turbines on tubular towers.
30 Tower entry doors would be locked. There would be no access to the nacelles or turbine tower
31 interiors or to the electrical equipment contained within the nacelles or turbine tower interiors.
32 Step-up transformers would be located within locked cabinets at the base of each tower.

33 34 C. Cumulative Environmental Effects

35
36 At maximum build-out, Biglow would consist of up to 225 turbines. In addition, the
37 proposed Klondike III Wind Project (with up to 165 turbines) and the existing Klondike I and
38 Klondike II Wind Projects (with a total of 66 turbines) would lie south of the Biglow site. If
39 the maximum number of proposed turbines are approved and built, there would be a
40 cumulative total of 456 wind turbines in the immediate area.

41 42 Access Roads

43
44 Orion proposes to use existing roads for access to the facility site to the maximum
45 extent feasible. However, in order to reach ridges where no roads currently exist, Orion would
46 build about 40.49 miles of new access roads. All new access roads would be limited to

1 locations within the site boundary. Road construction and improvement would not
2 significantly affect wetlands, other waters of the state, or fish and wildlife habitat.

3
4 Transmission Lines and Substations

5
6 Electrical lines for the facility would consist primarily of underground 34.5-kV
7 collector cables that would follow road rights-of-way wherever possible. To address
8 geotechnical, environmental or agricultural constraints, up to 15 miles of the 88.6-mile
9 collector system could be mounted on aboveground single wood poles. Collector cable routes
10 would be combined where cables could run close to one another, such as on approach to the
11 substation.

12
13 Orion proposes to build one of two alternative substations and high-voltage
14 transmission lines. Under one alternative, Orion would construct a substation near the center
15 of the facility site and install a 7-mile-long overhead transmission line to interconnect with the
16 BPA John Day Substation northwest of the facility site. Under the other alternative, Orion
17 would construct a substation in the southern section of the facility site and install a 3-mile-
18 long transmission line to interconnect with the Klondike Schoolhouse Substation south of the
19 facility site.

20
21 Raptor Protection

22
23 Orion would design the facility to avoid creating artificial habitat for raptors or raptor
24 prey. All aboveground portions of the turbine pads would be graveled to reduce the potential
25 for weed infestation and raptor use. Orion would implement an ongoing weed control plan.
26 The turbine towers and pad-mounted transformers would be enclosed and would provide no
27 opportunities for shelter or warmth for wildlife. Orion would ensure that the turbine towers
28 and meteorological towers provided no perching opportunities by using tubular steel
29 structures rather than lattice towers. The overhead transmission structures would be equipped
30 with anti-perching devices.

31
32 To find that the certificate holder can comply with OAR 345-024-0015, the Council
33 adopts the following conditions in the site certificate:

- 34
35 **(48) The certificate holder shall construct turbines on concrete foundations**
36 **and shall cover the ground within a minimum 10-foot radius with non-**
37 **flammable material. The certificate holder shall maintain the non-**
38 **flammable pad area covering throughout operation of the facility.**
39
40 **(49) During construction and operation of the facility, the certificate holder**
41 **shall implement a plan to control the introduction and spread of noxious**
42 **weeds. The certificate holder shall develop the weed control plan in**
43 **consultation with the Sherman County Weed Control District and the**
44 **Department.**
45
46 **(50) During construction of the facility, to reduce the visual impact of the**
47 **facility, the certificate holder shall:**

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33
- (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.**
 - (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.**
- (51) **The certificate holder shall design and construct the O&M building to be generally consistent with the character of similar buildings used by commercial farmers or ranchers in the area and shall paint the building in a neutral color to blend with the surrounding background.**
- (52) **The certificate holder shall not use exterior nighttime lighting except:**
- (a) **The minimum turbine tower lighting required by the Federal Aviation Administration.**
 - (b) **Security lighting at the O&M building and substation, provided that such lighting is shielded or directed downward to reduce glare.**
 - (c) **Minimum lighting necessary for repairs or emergencies.**

34 Conclusions of Law

35
36 The Council concludes that, subject to the conditions stated in this order, the proposed
37 design and construction of Biglow would reduce visual impact, restrict public access and
38 reduce cumulative adverse environmental impacts in accordance with the requirements of
39 OAR 345-024-0015. The Council adopts Conditions (48), (49), (50), (51) and (52) in the site
40 certificate. Based on these findings and conditions, the Council concludes that the proposed
41 facility complies with the Council's Siting Standards for Wind Energy Facilities.
42

1 **(h) Siting Standards for Transmission Lines**

2
3 **OAR 345-024-0090**

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

6
7 *(1) Can design, construct and operate the proposed transmission line so that*
8 *alternating current electric fields do not exceed 9 kV per meter at one meter above*
9 *the ground surface in areas accessible to the public;*

10
11 *(2) Can design, construct and operate the proposed transmission line so that*
12 *induced currents resulting from the transmission line and related or supporting*
13 *facilities will be as low as reasonably achievable.*

14
15 Findings of Fact

16
17 Orion proposes to build one or the other of two alternative overhead high-voltage
18 transmission lines, each with two optional routings, to connect the wind energy facility to the
19 BPA system. One alternative would be a transmission line about 3 miles long connecting a
20 new substation in the southern portion of the facility site to the Klondike Schoolhouse
21 Substation. Under the first option, this transmission line would interconnect with the Klondike
22 Schoolhouse substation by passing diagonally across agricultural land from the intersection of
23 North Klondike Road and Hilderbrand Lane to interconnect with the substation. Under the
24 second option, this transmission line would avoid crossing agricultural land by paralleling the
25 route of existing roads. The other alternative would be a transmission line about 7 miles long
26 connecting a new substation near the center of the facility site to the BPA John Day
27 Substation. Under the first option, this transmission line would interconnect with the BPA
28 John Day Substation by paralleling the route of Herin Lane. Under the second option, this
29 transmission line would generally follow the same route but by means of straight lines across
30 agricultural lands rather than paralleling the route of Herin Lane. The transmission lines
31 would be either one 3-phase, 230-kV circuit, with two conductors per phase, or one 3-phase,
32 500-kV circuit, with three conductors per phase.

33
34 In addition to the overhead high-voltage transmission line, Orion proposes to install a
35 34.5-kV collector system to interconnect the wind turbines with the substation. This collector
36 system would consist of about 233,333 feet of 3-wire electric cable, most of which would be
37 installed underground, and some of which would be bundled in a single trench where the
38 cables follow the same alignment, *e.g.*, on approach to the substation. To span terrain,
39 including canyons, grasslands, wetlands, intermittent streams, and cultivated areas, Orion
40 expects to install some portion (about 15 miles) of the collector system above ground on pole
41 or tower structures.

42
43 **Electric Fields.** Strong electric fields can induce electric voltages in nearby objects,
44 such as fences. If proper precautions are not taken, these induced currents might result in
45 electric shocks.

1 The Council has adopted a limit for electric fields from transmission lines of 9 kV per
2 meter at one meter above the ground surface in areas that are accessible to the public. OAR
3 345-024-0090(1). The BPA guidelines for its transmission lines limit electric fields to a
4 maximum of 9 kV per meter within the ROW, 5 kV per meter at the edge of the ROW, and 5
5 kV per meter at highway crossings. (BPA Red Book, 1993)

6
7 For the overhead transmission lines, Orion calculated electric fields one meter above
8 grade at mid-span where the conductor is positioned at its lowest point between structures (the
9 estimated maximum sag point) using the program called, "Corona and Field Effect Program
10 (Version 3) developed by the Bonneville Power Administration.0

11
12 The calculations showed that the maximum electric field strengths in the right-of-way
13 would be about 3.8 kV per meter for the 230-kV transmission line, about 8.2 kV per meter for
14 the 500-kV transmission line, about 0.25 kV per meter for the overhead segments of the
15 single-circuit 34.5-kV collector system, and about 0.705 kV per meter for the overhead
16 segments of the double-circuit 34.5-kV collector system. For the underground segments of the
17 34.5-kV collector system, the electric field is contained within the cables, and no electric field
18 is measurable at the ground surface.

19
20 Orion stated there would be no occupied buildings, including residences, within 200
21 feet on either side of the proposed centerline of the 230-kV and 500-kV electric transmission
22 line alternatives. However, four residences and a proposed O&M building would lie within
23 200 feet of the centerline of the proposed 34.5-kV collector system. Until Orion has
24 completed its final turbine site layout, it will not be possible to determine whether these
25 structures will lie adjacent to underground or overhead segments of the proposed 34.5-kV
26 collector system. In any event, it appears there would be no ground level electric fields
27 associated with the underground segments of the 34.5-kV collector system, and the electric
28 fields associated with the overhead segments of the 34.5-kV collector system would be well
29 below the Council's limit of 9 kV per meter at one meter above the ground surface in areas
30 that are accessible to the public.

31
32 To find that the certificate holder can comply with OAR 345-024-0090, the Council
33 adopts the following conditions in the site certificate:

- 34
35 **(53) The certificate holder shall design the transmission lines so that**
36 **alternating current electric fields shall not exceed 9 kV per meter at one**
37 **meter above the ground surface in areas accessible to the public.**
38
39 **(54) The certificate holder shall design the transmission lines so that induced**
40 **voltages resulting from the transmission lines are as low as reasonably**
41 **achievable.**

42
43 Conclusions of Law

44
45 The Council concludes that, subject to the conditions stated in this Order, the
46 certificate holder can design, construct and operate the proposed transmission lines so that

1 alternating current electric fields do not exceed 9 kV per meter at one meter above the ground
2 surface in areas accessible to the public. The Council concludes that, subject to the conditions
3 stated in this Order, the certificate holder can design, construct and operate the proposed
4 transmission lines so that induced currents resulting from the transmission lines and related or
5 supporting facilities will be as low as reasonably achievable. The Council adopts Conditions
6 (53) and (54) in the site certificate. Based on these findings and recommended conditions, the
7 Council concludes that the proposed facility would comply with the Siting Standards for
8 Transmission Lines.

9 10 **4. Standards to Protect Wildlife**

11 12 **(a) Threatened and Endangered Species**

13 14 **OAR 345-022-0070**

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

17
18 *(1) For plant species that the Oregon Department of Agriculture has listed as*
19 *threatened or endangered under ORS 564.105(2), the design, construction,*
20 *operation and retirement of the proposed facility, taking into account mitigation:*

21
22 *(a) Are consistent with the protection and conservation program, if any, that*
23 *the Oregon Department of Agriculture has adopted under ORS 564.105(3); or*

24
25 *(b) If the Oregon Department of Agriculture has not adopted a protection and*
26 *conservation program, are not likely to cause a significant reduction in the*
27 *likelihood of survival or recovery of the species; and*

28
29 *(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed*
30 *as threatened or endangered under ORS 496.172(2), the design, construction,*
31 *operation and retirement of the proposed facility, taking into account mitigation,*
32 *are not likely to cause a significant reduction in the likelihood of survival or*
33 *recovery of the species.*

34 35 Findings of Fact

36
37 Orion provided information about compliance with the Council standard in Exhibit Q
38 of the application. The analysis area for threatened or endangered plant and wildlife species is
39 the area within the site boundary and 5 miles from the site boundary.

40
41 Orion contacted the U.S. Fish and Wildlife Service (USFWS) and the Oregon Natural
42 Heritage Information Center (ONHIC) to request information on threatened, endangered and
43 sensitive species within the 5-mile analysis area. Orion reviewed available wildlife literature
44 and scientific data and contacted the Oregon Department of Fish and Wildlife (ODFW) to
45 request information on fish and wildlife habitat requirements and distribution in the area. In

1 addition, Orion contacted the Oregon Department of Agriculture (ODA) for information about
2 plant distribution and protection and conservation programs.

3
4 **Plant Identification and Survey Protocol**

5
6 CH2M Hill conducted an investigation for rare plants in the analysis area. The survey
7 included a thorough literature review and consultation with USFWS and ORNHIC and other
8 sources. "Target" species for the investigation included plants listed as threatened or
9 endangered by USFWS, as well as plants that have been formally proposed, or are candidates,
10 for federal listing. In addition, target species included those defined as threatened or
11 endangered by the ODA.

12
13 The analysis area is predominantly cultivated agricultural land under dry land wheat
14 production. A few small native plant communities remain, mostly along the northern edge of
15 turbine strings and steep side slopes of canyons. These areas consist largely of sagebrush and
16 rabbitbrush-dominated shrub lands with an understory of native and invasive grasses and
17 forbs. Large and small tracts of Conservation Reserve Program land are sprinkled through the
18 analysis area.

19
20 CH2M Hill performed field surveys in June 2005. The rare plant field survey was
21 designed to take in all ground potentially disturbed by construction or operation of Biglow,
22 including all land within at least 400 feet on both sides of the centerline of all proposed
23 turbine strings, underground and overhead electrical lines and access roads.

24
25 CH2M Hill's research found that the proposed Biglow area could provide at least
26 small areas of suitable habitat for the three target plant species, but its field surveys did not
27 locate any occurrences of the target species. Based on the research and field surveys
28 conducted by CH2M Hill, the design, construction, operation and retirement of Biglow is
29 unlikely to have any impact on state or federally listed threatened or endangered plant species.

30
31 Because Orion does not anticipate any direct facility-related impacts to any federal or
32 state endangered, threatened, sensitive, proposed, or candidate plant species, the applicant has
33 not proposed any species-specific mitigation measures. However, Orion proposed measures to
34 mitigate possible indirect effects to any plant species of concern in the vicinity, including a
35 plan for the control of noxious weeds (as discussed in the Siting Standards for Wind Energy
36 Facilities section of the order) and a comprehensive fire control plan (as discussed in the
37 Public Health and Safety Standard section of the order).

38
39 In its application supplement, Orion proposed transmission line and substation
40 modifications that added nearly 40 acres located within the analysis area but not yet surveyed
41 for threatened and endangered species. The unsurveyed acres occur in three locations. The
42 first location is a sliver of 5.22 acres of Conservation Reserve Program land located adjacent
43 to the site of the John Day substation. The land is designated habitat category 3. The second
44 location is 12.91 acres of grassland land adjacent to and north of the transmission line. The
45 land is designated habitat category 4. The third location is 21.14 acres of mostly Conservation
46 Reserve Program land to the north of the proposed easterly substation. The land is designated
47 habitat category 3.

1
2 The Department directed Orion to perform the appropriate surveys in the appropriate
3 season for threatened and endangered plant and wildlife species in these areas and to provide
4 the results for inclusion in the proposed order. However, Orion's results were scheduled for
5 delivery at the end of June 2006 at about the same time as the Council was scheduled to make
6 its decision on the order. As a result of this timing, Orion must now provide these results prior
7 to commencement of construction.

8
9 The Council adopts the following condition in the site certificate:

10
11 **(55) Before beginning construction of the facility, the certificate holder shall**
12 **deliver to the Department surveys for threatened and endangered plant**
13 **and wildlife species in newly affected areas as identified in the ASC**
14 **Supplement.**

15
16 **Fish and Wildlife Identification and Survey Protocol**

17
18 Orion requested database information from the USFWS and the ONHIC on the
19 potential for occurrence of threatened, endangered and sensitive species within the 5-mile
20 analysis area (the area within the site boundary and five miles beyond the site boundary). In
21 addition, Orion conducted a literature search and consulted with ODFW regarding species
22 distribution and habitat requirements. Based on the literature review and consultations, Orion
23 identified the threatened or endangered species that have the potential to exist in the analysis
24 area. These species are listed in Table 9.

25
26
Table 9
Threatened and Endangered Species That May Occur in the Analysis Area

Species	Status
Birds	
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Federal and state threatened species
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	State endangered species; no federal listing
Mammals	
Gray Wolf (<i>Canis lupus</i>)	Federal and state endangered species; considered extirpated.
Fish	
Steelhead – Mid-Columbia River ESU, summer run (<i>Oncorhynchus mykiss</i>)	Federal threatened species; state sensitive-vulnerable species
Steelhead – Snake River Basin ESU	Federal threatened species; no state listing
Steelhead – Upper Columbia River ESU	Federal endangered species; no state listing
Sockeye Salmon – Salmon River Tributary to the Snake River (<i>Oncorhynchus nerka</i>)	Federal endangered species; no state listing
Chinook Salmon – Snake River ESU, spring/summer and fall runs (<i>Oncorhynchus tshawytscha</i>)	Federal and state threatened species
Chinook Salmon – Upper Columbia River ESU	Federal endangered species

1 In addition to the literature review, Orion performed wildlife surveys as described in
2 the *Wildlife Baseline Study Protocols (August 2005)*, which is included in the application as
3 Attachment P-1A, and the *Additional Wildlife Baseline Survey Protocols (Fall 2005)*, which
4 is included in the application as Attachment P-1B, and in the *Wildlife and Habitat Baseline*
5 *Study Report (October 2005)*, which is included in the application as Attachment P-2. In
6 summary, these surveys included:

- 7
- 8 • General habitat mapping to delineate habitat categories within a minimum of 1,000
- 9 feet of all facilities as well as all areas within the interior of the project area.
- 10 • Ground surveys consisting of walking transect searches for sensitive species
- 11 within 836 feet of all project component centerlines or boundaries located in non-
- 12 cultivated or non-developed habitat. Searches were conducted twice during the
- 13 spring nesting/breeding season.
- 14 • Nocturnal surveys to identify the presence of white-tailed jackrabbits and bats.
- 15 • Fixed-point avian use surveys: year-round avian use based on standard point
- 16 counts and in-transit observations, with additional fall studies.
- 17 • Avian baseline raptor nesting survey, consisting of air surveys within a three-mile
- 18 radius of the project area and follow-up ground surveys in the vicinity of some
- 19 nests observed during the aerial surveys to determine activity/species.
- 20

21 In addition, the applicant analyzed existing mortality data for bats at existing regional
22 wind projects in the Pacific Northwest to predict the potential impacts to bat populations from
23 construction and operation of the proposed facility. The applicant also collected nocturnal
24 Anabat information during the 2005 peak fall mortality period for migrating bats. In the 18
25 survey nights, six bat calls were detected, most likely from big brown bats (*Eptesicus fuscus*).
26 Based on these results, the mean call rate (0.17 calls/night) for Biglow is lower than the mean
27 call rate for existing wind energy facilities in the region.

28 Potential Impacts on Threatened or Endangered Wildlife Species

29

30

31 Because Orion has proposed siting its turbines anywhere within specified corridors, it
32 has calculated potential impacts to threatened or endangered wildlife species using a “worst-
33 case” approach. The impacts discussed below are the maximum impacts that could occur
34 within the facility footprint.

35

36 The proposed facility would have no significant impact on any of the fish species
37 listed in Table 9 because of the lack of fish habitat within or near the site boundary. Suitable
38 habitat for the Washington ground squirrel includes native grassland and shrub-steppe habitat.
39 Small areas of these habitat types occur within the site boundary, but there have been no
40 reported sightings of the ground squirrel west of the John Day River.

41 Bald Eagle

42

43

44 The bald eagle is a federal and state-listed threatened species. The critical nesting
45 period for the bald eagle is from January 1 to August 15. Based on the literature, no bald eagle
46 nests, roosting areas or critical habitat areas exist within the analysis area. The nearest known
47 bald eagle nest to the site is 10 miles west along the Columbia River.

1
2 The bald eagle wintering period is from November 15 to March 15. Wintering bald
3 eagles favor undisturbed areas where food and water are abundant. Wintering bald eagles may
4 roost communally at night near major foraging areas, typically isolated areas within old
5 growth stands. Winter raptor surveys conducted by ODFW and others in the vicinity of
6 Biglow have found bald eagles feeding on wintering waterfowl along the Columbia River
7 corridor but have not found bald eagles using upland areas within or near the site boundary.
8

9 No bald eagles were observed during the project's avian baseline surveys.
10 Accordingly, the design, construction, operation and retirement of Biglow is not expected to
11 have any significant impact on bald eagles. Because nesting ranges and locations of bald
12 eagles are constantly changing, the database should be reviewed again if construction of
13 Biglow occurs after 2006.
14

15 Peregrine Falcon

16

17 The peregrine falcon is a state-listed endangered species. The species was removed
18 from the federal list of endangered and threatened wildlife in August 1999. The critical
19 nesting period for the peregrine falcon is mid-February through May. Peregrine falcons prefer
20 to nest on ledges found along river courses and other large bodies of water, but they will also
21 use suitable nesting ledges on man-made structures. Prey species may exist within the site
22 boundary where suitable habitat exists. Grain elevators in the vicinity support pigeons, which
23 are likely prey for peregrine falcons.
24

25 Peregrine falcons may occur in the analysis area year-round. There are three peregrine
26 falcon eyries in the vicinity of Biglow. The two closest eyries are about three miles to the
27 north along the south side of the Columbia River corridor. Data on these nests indicate they
28 were active in 2003 and 2004, with all nests fledging young in 2003 and all but one nest
29 fledging young in 2004. No peregrine falcons were observed during the project's avian
30 baseline surveys. Accordingly, although the species may be present in the area, the design,
31 construction, operation and retirement of the Biglow is not expected to have any significant
32 impact on peregrine falcons. Because nesting ranges and locations of peregrine falcons eagles
33 are constantly changing, the database should be reviewed again if construction of Biglow
34 occurs after 2006.
35

36 To find that the certificate holder can comply with OAR 345-022-0070, the Council
37 adopts the following conditions in the site certificate:
38

- 39 **(56) If construction of the facility begins after 2006, the certificate holder shall**
40 **review the ONHIC and USFWS databases and consult with an expert**
41 **designated by ODFW on an annual basis before beginning construction to**
42 **determine whether nesting bald eagles or peregrine falcons have been**
43 **documented to occur within two miles of the facility. The certificate holder**
44 **shall report the results of the database review and consultation to the**
45 **Department and to ODFW and, if there have been new documentations of**
46 **nesting bald eagles or peregrine falcons within two miles of the facility, the**

1 certificate holder shall implement appropriate measures to protect the
2 species from adverse impact, as approved by the Department and ODFW.
3

4 (57) The certificate holder shall implement measures to mitigate impacts to
5 sensitive wildlife habitat during construction including, but not limited to,
6 the following:
7

8 (a) Preparing maps to show sensitive areas, such as nesting or denning
9 areas for sensitive wildlife species, that are off limits to
10 construction personnel.
11

12 (b) Ensuring that a qualified person instructs construction personnel
13 to be aware of wildlife in the area and to take precautions to avoid
14 injuring or destroying wildlife or significant wildlife habitat.
15

16 (c) Avoiding unnecessary road construction, temporary disturbance
17 and vehicle use.
18

1 Conclusions of Law

2
3 The Council concludes that no Oregon Department of Agriculture conservation
4 program applies and that the design, construction, operation and retirement of the proposed
5 facility, taking into account mitigation and subject to the conditions stated in this order, does
6 not have the potential to significantly reduce the likelihood of the survival or recovery of any
7 threatened or endangered species listed under Oregon law. The Council adopts Conditions
8 (55), (56) and (57) in the site certificate. Based on these findings and recommended
9 conditions, the Council concludes that the proposed facility complies with the Threatened and
10 Endangered Species Standard.

11
12 **(b) Fish and Wildlife Habitat**

13
14 **OAR 345-022-0060**

15 *To issue a site certificate, the Council must find that the design, construction,*
16 *operation and retirement of the facility, taking into account mitigation, are*
17 *consistent with the fish and wildlife habitat mitigation goals and standards of OAR*
18 *635-415-0025 in effect as of September 1, 2000.*

19
20 Findings of Fact

21
22 A. Mitigation Goals and Standards

23
24 ODFW has defined six categories of habitat in order of value to wildlife. The rule
25 establishes mitigation goals and corresponding implementation standards for each habitat
26 category. The habitat definitions contained in OAR 635-415-0025 are as follows.⁴⁸

27
28 *“Habitat Category 1” is irreplaceable, essential habitat for a fish or wildlife*
29 *species, population, or a unique assemblage of species and is limited on either a*
30 *physiographic province or site-specific basis, depending on the individual species,*
31 *population or unique assemblage.*

32
33 The mitigation goal for Category 1 habitat is no loss of either habitat quantity or
34 quality. This goal requires avoidance of impacts.

35
36 *“Habitat Category 2” is essential habitat for a fish or wildlife species, population,*
37 *or unique assemblage of species and is limited either on a physiographic province*
38 *or site-specific basis depending on the individual species, population or unique*
39 *assemblage.*

40

⁴⁸ The ODFW rules define habitat into two broad classifications of “essential” and “important.” OAR 635-415-0005 defines “essential habitat” as “any habitat condition or set of habitat conditions which, if diminished in quality or quantity, would result in depletion of a fish or wildlife species.” The rule defines “important habitat” as “any habitat recognized as a contributor to sustaining fish and wildlife populations on a physiographic province basis over time.”

1 If impacts are unavoidable, the mitigation goal for Category 2 habitat is no net loss of
2 either habitat quantity or quality *and* provision of a net benefit of habitat quantity or quality.
3 The Council interprets this to mean that both habitat quantity and quality must be preserved
4 and either habitat quantity or habitat quality must be improved. To achieve this goal, impacts
5 must be avoided or unavoidable impacts must be mitigated through reliable “in-kind, in-
6 proximity” habitat mitigation to achieve no net loss of either pre-development habitat quantity
7 or quality. In addition, a net benefit of habitat quantity or quality must be provided.

8
9 *“Habitat Category 3” is essential habitat for fish and wildlife, or important*
10 *habitat for fish and wildlife that is limited either on a physiographic province or*
11 *site-specific basis, depending on the individual species or population.*
12

13 The mitigation goal for Category 3 habitat is no net loss of either habitat quantity or
14 quality. The Council interprets this to mean that both habitat quantity and quality must be
15 preserved. The goal is achieved by avoidance of impacts or by mitigation of unavoidable
16 impacts through reliable “in-kind, in-proximity” habitat mitigation to achieve no net loss in
17 either pre-development habitat quantity or quality.

18
19 *“Habitat Category 4” is important habitat for fish and wildlife species.*
20

21 Like Category 3, the mitigation goal for Category 4 habitat is no net loss in either
22 existing habitat quantity or quality. The Council interprets this to mean that both existing
23 habitat quantity and quality must be preserved. The goal is achieved by avoidance of impacts
24 or by mitigation of unavoidable impacts. In contrast to Category 3, mitigation options are less
25 constrained and may involve reliable “in-kind or out-of-kind, in-proximity or off-proximity”
26 habitat mitigation to achieve no net loss in either pre-development habitat quantity or quality.

27
28 *“Habitat Category 5” is habitat for fish and wildlife having high potential to*
29 *become either essential or important habitat.*
30

31 If impacts are unavoidable, the mitigation goal for Category 5 habitat is to provide a
32 net benefit in habitat quantity or quality. The Council interprets this to mean that there must
33 be some improvement in either habitat quality or quantity. The goal is achieved by avoidance
34 of impacts or by mitigation of unavoidable impacts through actions that contribute to essential
35 or important habitat.

36
37 *“Habitat Category 6” is habitat that has low potential to become essential or*
38 *important habitat for fish and wildlife.*
39

40 The mitigation goal for Category 6 habitat is to minimize impacts. The goal is
41 achieved by actions that minimize direct habitat loss and avoid impacts to off-site habitat.

42 43 B. Habitat in the Analysis Area 44

45 Orion provided information in Exhibit P of the application and of the application
46 supplement about compliance with the Habitat Standard. As described in the *Wildlife Baseline*

1 *Study Protocol*, which is included in the application as Attachment P-1A, Orion identified
 2 general habitat types within 1,000 feet of all project components based on field surveys and
 3 consultation with the Oregon Department of Fish and Wildlife (ODFW). Orion first used
 4 aerial photography to create a preliminary map, then determined the habitat area boundaries
 5 based on ground surveys that recorded dominant vegetation and habitat quality. Orion applied
 6 the ODFW habitat categories (1 through 6) using the ODFW habitat mitigation goals and
 7 standards defined in OAR 635-415-0025 to habitat within 750 feet of all project components.
 8 Figures P-1 through P-10 in the application identify and map the habitat types and categories
 9 within the analysis area. ODFW concurs with Orion's identification of the habitat categories.

10
 11 While 2.64 acres of Category 1 habitat (upland trees with a Swainson's hawk nest) and
 12 13.47 acres of Category 2 habitat (mostly higher value shrub-steppe) exist within the analysis
 13 area, none of these acres would be directly affected by the project. More than 90 percent of
 14 the habitat that would be affected by construction and operation of Biglow is Category 6
 15 agricultural land. About eight acres of Category 3 habitat would be permanently affected, and
 16 about 15 acres of Category 3 habitat would be temporarily affected. About four acres of
 17 Category 4 habitat would be affected temporarily and the same amount permanently. The area
 18 of permanent and temporary habitat impact is shown in Table 10. "CRP" refers to the
 19 Conservation Reserve Program, a voluntary program for agricultural landowners to encourage
 20 them to plant long-term resource-conserving cover crops to improve soil, water and wildlife
 21 resources.

22
 23 Because Orion has proposed siting its turbines anywhere within specified corridors, it
 24 has calculated potential impacts to fish and wildlife habitat using a "worst-case" approach.
 25 The impacts discussed below are the maximum impacts that could occur within the facility
 26 footprint.
 27

Table 10
Area of Affected Habitat

Habitat Type	Area of temporary impact (acres)	Area of permanent impact (acres)
Category 3	14.92	7.59
CRP	13.47	7.42
Shrub-steppe	1.45	0.17
Category 4	4.13	3.66
CRP	3.07	2.70
Shrub-steppe	.06	.08
Grassland	1.00	0.88
Category 6	368.73	161.64
Developed	5.23	4.89
Agricultural	363.5	156.75
TOTAL	387.78	172.89

28
 29 C. Habitat Impacts during Construction and Operation
 30

1 Category 1 Habitat

2
3 Category 1 habitat consists of scattered patches of black locust and other upland trees
4 that serve as home to raptor nests. The patches also contain varying degrees of understory
5 deciduous shrubs, smaller locust trees and native and invasive grasses and forb species. These
6 areas provide forage, cover and nesting habitat for sensitive species such as Swainson's
7 hawks and potentially could provide habitat for ferruginous hawks as well as migratory
8 songbirds. No Category 1 habitats lie within the facility footprint or within 500 feet of a
9 turbine corridor. However, the transmission line labeled "Alternative 2" passes 269 feet south
10 of a Swainson's hawk nest. Another Swainson's hawk nest sits in upland trees along an
11 existing public road about 919 feet from a proposed turbine corridor. Three other upland tree
12 active nest sites exist outside of the habitat analysis area. Those include two Swainson's hawk
13 nests about 1,640 to 1969 feet from a turbine corridor and a red-tailed hawk nest about 902
14 feet from a turbine corridor.

15
16 The construction and operation of Biglow will not have any temporary or permanent
17 direct impact on Category 1 habitat. However, the Swainson's nest close to the overhead
18 transmission line could be indirectly affected by construction activities for the line. Impacts to
19 the nest site from operations are not expected to be significant. The certificate holder will,
20 during construction, protect the area within a 1300-foot buffer around any active Swainson's
21 hawk nest during the sensitive period.

22
23 Category 2 Habitat

24
25 Category 2 habitat consists of either shrub-steppe or intermittent stream/riparian tree
26 areas. A small area of shrub-steppe with old-growth sagebrush, understory native and invasive
27 grasses and forbs and open areas with larger mammal burrows sits at the north end of a
28 turbine corridor in the eastern region of the proposed project. While the area is grazed, it
29 represents existing diverse vegetative structure important to wildlife that is limited within the
30 agricultural landscape. However, the facility will cause no permanent or temporary direct
31 impacts in the area, nor will the facility have any direct impact to the intermittent
32 stream/riparian tree area located in the upper reach of Biglow Canyon. White poplar, willow,
33 poplars, sagebrush and deciduous shrubs grow in the area. A spring-fed intermittent stream
34 that ranges in width from about 0.5 to 2.0 meters feeds emergent wetland vegetation in the
35 area. This habitat provides an important area to wildlife, is essential for food, water, cover and
36 nesting, and is limited within the landscape.

37
38 Category 3 Habitat

39
40 Category 3 habitat within the analysis area consists of upland trees that lack raptor
41 nests, intermittent streams, a pond, CRP land and shrub-steppe areas. Only the CRP and
42 shrub-steppe lands would be affected by the proposed project. Shrub-steppe occurs primarily
43 at the northern ends of turbine corridors in the eastern half of the proposed project, where the
44 steeper slopes of John Day River drainages sit. Two additional areas exist along one of the
45 proposed transmission line routes. This habitat consists of native sagebrush, rabbitbrush and
46 mixed forb species. Several of the areas have shallow-soiled areas relatively resistant to
47 invasive species while other areas are home to invasive species in varying quantities. These

1 areas are important to wildlife habitat, including sensitive species, and have the potential to be
2 of higher quality if managed differently. Less than 0.2 acres of Category 3 shrub-steppe will
3 be permanently affected and less than 2 acres temporarily affected by the proposed project.
4

5 Large tracts of Category 3 CRP habitat are found in the habitat analysis area. Once
6 farmed, CRP areas have since been reseeded with grasses to provide vegetative cover for soil
7 and wildlife conservation. Some tracts have larger, well-established sagebrush and
8 rabbitbrush shrub cover, in addition to non-native grasses. Most, if not all, CRP lands were
9 documented as having grasshopper sparrows, a sensitive species, and white-tailed jack rabbits
10 also were documented in a few areas. These areas are important because they provide cover
11 and food for wildlife and suitable habitat for grassland or ground-nesting birds. Out of the 710
12 acres of CRP in the analysis area, the project would affect nearly 7.42 acres permanently and
13 a little more than 13.47 acres temporarily.
14

15 Category 4 Habitat 16

17 Category 4 habitat within the analysis area includes shrub-steppe, grassland and CRP.
18 Category 4 grasslands are dominated by non-native weeds with occasional patches of native
19 bunchgrass, Idaho fescue, rabbitbrush, or sagebrush. Some of these areas are narrow, small
20 and isolated within a farmed area, containing deep-soiled areas too steep to cultivate. Other
21 patches are shallow drainage areas within cultivated fields, again dominated by invasive
22 species. Grasslands classified as Category 4 are important to wildlife, but they are small,
23 covered by invasive weeds that limit wildlife forage or cover, bordered by cultivated farm
24 ground and located where invasive species and disturbance likely will persist. Out of the 136
25 acres of Category 4 habitat in the analysis area, the project would affect less than an acre
26 permanently and one acre temporarily.
27

28 Nearly 40 acres of shrub-steppe in the analysis area are labeled Category 4 habitat
29 because of heavy livestock grazing, moderate to high levels of interspersed weeds, and only
30 short and sparse stands of sagebrush and rabbitbrush. Such habitat has the potential for better
31 quality if grazing intensity is modified. The project would permanently affect nearly an acre
32 and temporarily affect less than an acre of Category 4 shrub steppe.
33

34 CRP land labeled Category 4 habitat within the analysis area is of lesser quality with
35 less developed vegetation than other area CRP lands. While Category 4 CRP land could
36 develop into a more diverse and dynamic wildlife habitat, it currently has limited wildlife
37 value. Of 138.31 acres of Category 4 CRP within the analysis area, the project would affect
38 nearly 3 acres permanently and a little more than 3 acres temporarily.
39

40 Category 6 Habitat 41

42 Category 6 habitats within the analysis area include nearly 10,500 acres of non-
43 irrigated agricultural croplands and about 64 acres of developed areas. The agricultural areas
44 are a monoculture of dryland winter wheat and include those areas currently in production as
45 well as cut, fallow fields. Developed areas include residential yards and outbuildings, road
46 and road margins, utility structures for farming, grain storage facilities, feed lots and corrals.
47 Developed areas are highly disturbed and lack native vegetation. Due to the high level of

1 disturbance, these areas are unlikely to become important or essential wildlife habitat in the
2 foreseeable future.

3
4 The proposed facility would permanently affect 156.75 acres of Category 6
5 agricultural land and would have a temporary impact on about 363.5 acres. The proposed
6 facility would permanently affect 4.89 acres of Category 6 developed land and would have a
7 temporary impact on about 5.23 acres.

8
9 **D. Mitigation and Monitoring**

10
11 The lack of well-established regional information about certain wind energy facility impacts
12 on fish, wildlife and habitat has been a continuing issue for the Department as it reviews wind
13 facility applications and recommends appropriate mitigation to the Council. In particular,
14 recent discussions have questioned the cumulative effects on birds of miles of wind farms in a
15 region, the potential for individual turbines to have heightened impacts, the fatality levels at
16 which mitigation should occur for particular species, which impacts in one region may
17 become heightened in another, the appropriate way to mitigate for certain impacts, and other
18 issues. Some of the mitigation formulae and calculations included in this and other orders on
19 Oregon wind energy facilities are based on the best available science, which in turn is based
20 on limited research. The Department notes this lack of information in this order to avoid
21 giving the appearance of setting a precedent for future wind energy facilities with respect to
22 mitigation or other related issues. There are no calculations or formulae in this order that
23 would not be benefited by better regionally focused information and more research. Indeed,
24 the Department aims to work with other stakeholders to sponsor a wind conference in the near
25 future to begin identifying and working through regional wind issues in a more systematic
26 manner than is possible in a case-by-case review of wind energy facility applications.

27
28 Table 11 summarizes the levels of mitigation that are required under the ODFW
29 habitat mitigation goals and standards:
30

31
32 **Table 11**
33 **ODFW Mitigation Standards**

Habitat Category	Mitigation
Category 3	"In-kind, in-proximity" habitat mitigation to achieve no net loss of either habitat quantity or quality
Category 4	"In-kind or out-of-kind, in-proximity or off-proximity" habitat mitigation to achieve no net loss in either existing habitat quantity or quality
Category 6	Minimize direct habitat loss and avoid impacts to off-site habitat

34
35 Orion designed the proposed facility to avoid or minimize adverse impacts to wildlife
36 habitat to the extent practical, including the avoidance of Category 1 and Category 2 habitat.
37 The Council allows the certificate holder to microsite turbines and other facility components
with the 500-foot corridors shown on Figures P-1 through P-10 of the ASC and ASC
Supplement, subject to the conditions in this order that address potential habitat impact.

1 Micrositing considerations include the size of the turbine selected and available for the
2 project, optimization of capture of the wind energy resource, geotechnical factors, avoidance
3 of higher-value wildlife habitat and reduction of adverse impacts on accepted farm practices
4 in the area. Before beginning construction, the certificate holder would provide to the
5 Department a description of the final design layout, taking into consideration the micrositing
6 considerations. During construction, the certificate holder would avoid or reduce construction
7 activity that could interfere with any raptors nesting in areas within a half-mile of proposed
8 turbine or other construction locations. If construction is scheduled during the sensitive
9 nesting periods for Swainson's hawk, golden eagle, ferruginous hawk or burrowing owl, a
10 qualified independent third-party biological monitor, as approved by the Department, shall
11 survey potential nesting areas near the proposed turbine strings. High-impact construction
12 activities, such as blasting or other major ground disturbance, would be avoided during the
13 nesting period until the monitor has determined that the nest locations are unoccupied (or, if
14 occupied, that the young have fledged).

15
16 As described in the "Habitat Mitigation Plan" ("mitigation plan") incorporated into this
17 order as Attachment C, Orion has proposed a 117-acre mitigation site for meeting ODFW
18 mitigation standards for land permanently disturbed by the project, for potential displacement
19 impacts, and for potential future impacts. Under Orion's "worst-case" micrositing calculations
20 for siting within the project's proposed corridors, Biglow would permanently affect a
21 maximum of 7.59 acres of Category 3 habitat and a maximum of 3.66 acres of Category 4
22 habitat. Thus, Orion must mitigate for 11.25 acres of permanently disturbed Category 3 and 4
23 habitat.

24
25 In addition, Orion proposes adding acres to the mitigation site to enhance 97 acres as
26 mitigation for potential bird displacement. The operation of wind energy facilities is believed
27 to have a displacement impact on grassland/shrub-steppe bird species. Orion points out that
28 existing studies show some displacement effect on birds out to between 50-to-100 meters
29 from turbines, but that little information exists about whether displacement is temporary or
30 whether displacement translates into true impacts on population size or reproduction.
31 Nonetheless, Orion proposes mitigating for the small portion of the proposed facility that is
32 located in nesting habitat for grassland/shrub steppe species and that could be subject to
33 displacement effects. The Council approves mitigation for the potential displacement impact
34 that might result from operation of Biglow, in lieu of a multi-year study of grassland bird
35 displacement.

36
37 The formula Orion originally proposed for calculating mitigation acreage first
38 calculates the amount of CRP, grassland and shrub steppe within 80 meters of each turbine
39 and new access road. The formula then conservatively assumes that the average reduction in
40 density of nesting species in the calculated acreage is 50 percent. For Biglow, the formula
41 results in a maximum of 97 acres that would be added to the mitigation project area. Several
42 days before the release of the draft proposed order, Orion proposed changing the formula to
43 be consistent with the formula used on the Klondike III Wind Project, a change that would
44 reduce Orion's mitigation obligation for potential displacement effects to 33 acres, although
45 Orion remained committed to the original level of mitigation. Orion later also committed to
46 meeting success criteria for the entire mitigation site. As a result, Orion would be required to

1 mitigate for nearly 45 acres, but would commit to enhancing 117 acres. The 72 acres that
2 Orion would enhance beyond its mitigation obligation would be “banked” for consideration as
3 meeting any future mitigation obligation.
4

5 Orion proposes a mitigation site that occupies about 117 acres located to the northeast
6 of the Biglow site, less than 0.5 miles from the John Day River and just more than 0.5 miles
7 from the nearest wind turbine. The site contains existing degraded grassland, shrub steppe and
8 riparian habitat, and it has recently and historically been grazed. The entire site is generally
9 categorized as Category 4 habitat. Within the mitigation area, the certificate holder would
10 improve the quality of wildlife habitat by weed control, grazing exclusion, revegetation with
11 native grass species and water project enhancements. To protect the area for the benefit of
12 wildlife, a conservation easement, deed restriction or other legal means would be used for the
13 life of the facility.
14

15 As described in the mitigation plan, to mitigate for the permanent loss of 11.25 acres
16 of Category 3 and Category 4 habitat as a result of Biglow turbines, roads and other facilities,
17 the site certificate holder would reseed 11.25 acres of deep-soiled Category 4 habitat within
18 the mitigation site along the upper, more level slopes adjacent to cultivated areas. Reseeding
19 is expected to enhance about 11.25 acres of deep-soiled Category 4 habitat to Category 2 and
20 Category 3 grassland habitats. To mitigate for the 97 acres calculated for the potential
21 displacement effect, the site certificate holder would install fences to remove livestock
22 grazing from the 117-acre mitigation site. In combination with other actions described below,
23 fencing is expected to improve most of the portion of the mitigation site that is not reseeded
24 (about 106 acres) from Category 4 to at least Category 3 habitat. The mitigation plan also
25 calls for planting enhancement at an existing spring and the installation of a wildlife guzzler.
26

27 To meet the ODFW habitat mitigation standard for impacts to Category 6 habitat,
28 Orion proposes to design and construct facility components that are the minimum size needed
29 for operations, to replace agricultural topsoil to original condition after construction, to use
30 best management practices to prevent loss of topsoil during construction and to control
31 noxious weeds in areas disturbed by construction activities. Agricultural areas temporarily
32 disturbed during construction would be restored upon completion of construction. During
33 operation, facility repair and maintenance activities would avoid impact on agricultural areas.
34

35 Wildlife Monitoring and Mitigation Plan

36

37 A common element of the ODFW mitigation goals and standards applicable to
38 Category 3 and 4 habitat is the protection of habitat quality as well as quantity. In both of
39 these habitat categories, the ODFW goal is “no net loss” of habitat quality. To address the
40 issue of habitat quality and to ensure that the operation of Biglow complies with the Council’s
41 Fish and Wildlife Habitat Standard, the certificate holder would conduct wildlife monitoring.
42 Based on the results of the monitoring, the certificate holder would provide additional
43 mitigation, as needed. The overall objectives for wildlife monitoring for the Biglow facility
44 are:

- 45 • To determine whether the operation of the facility causes significant fatalities
46 of birds and bats,
47

- 1 • To determine whether the operation of the facility results in a reduction of
2 nesting activity or nesting success of raptor species, and
3
- 4 • To determine whether the operation of the facility results in a significant loss
5 of habitat quality.
6

7 Monitoring requirements, as well as details of the monitoring components, statistical
8 analysis and data reporting, are described in the Biglow Canyon Wind Farm Wildlife
9 Monitoring and Mitigation Plan (WMMP), incorporated in this order as Attachment A. The
10 requirement of monitoring during the operation of the Biglow facility is a necessary part of
11 finding compliance with the Fish and Wildlife Habitat Standard. Adequate monitoring
12 provides data necessary to evaluate the impacts of facility operation on nearby wildlife
13 habitat. If monitoring reveals significant unforeseen impacts, additional mitigation may be
14 needed to ensure that operation of the facility is consistent with the habitat mitigation goals
15 and standards. If the data show significant fatalities of avian species, adverse impact to raptor
16 nesting, or other loss of habitat quality, the Department may require the certificate holder to
17 implement additional mitigation, subject to approval by the Council.
18

19 The WMMP includes “thresholds of concern” for five species groups: raptors, raptor
20 species of special concern, grassland species, State Sensitive avian species listed under OAR
21 635-100-0040, and bat species as a group. The thresholds are expressed as fatalities per MW
22 of peak generating capacity, and Orion would be required to calculate the average annual
23 fatality rates for species groups after two years of monitoring. If that data show that a
24 threshold of concern for a species group has been exceeded, the Department would determine
25 whether additional mitigation is appropriate based on analysis of the data, consultation with
26 ODFW, and consideration of any other significant information available at the time. In
27 addition, mitigation might be appropriate if the Department were to determine that fatality
28 rates for individual avian or bat species (especially State Sensitive Species) were higher than
29 expected and at a level of biological concern.
30

31 The Department developed the thresholds of concern for species groups in
32 consultation with Orion, Orion’s wildlife consultants, ODFW, and the Department’s own
33 wildlife consultant. The Department also considered the analysis of monitoring results from
34 the Stateline Wind Project. Although the threshold numbers provide a rough measure for
35 deciding whether the Council should be concerned about observed fatality rates, the
36 thresholds have a very limited scientific basis. The exceeding of a threshold, by itself, would
37 not be a scientific indicator that operation of the facility would result in range-wide
38 population level declines of any of the species affected. The thresholds are provided in the
39 WMMP to guide consideration of additional mitigation based on two years of monitoring
40 data.
41

42 At the Council’s first reading of the Biglow draft proposed order on June 6, 2006,
43 Council members generally expressed two concerns: Council members wanted more and
44 longer monitoring on wind projects, and Council members wanted a way to “reopen” a site
45 certificate in the future should relevant research point to a need for operational changes to
46 protect the environment. Because Orion asked the Department to produce a proposed order

1 three days after the Council's first reading of the draft, staff had limited time in which to
2 address the Council's comments. The Oregon Department of Justice advised staff that the
3 Council likely did not have the authority to insert a general "reopener" into the site certificate
4 that preserved the right to adjust site certificate monitoring and mitigation conditions based on
5 future environmental research.
6

7 As a result, staff researched the most appropriate long-term monitoring for the Biglow
8 site with the idea in mind that each forthcoming wind project under the Council's jurisdiction
9 might be subject to some kind of long-term monitoring for specific species of concern at a
10 particular site. For the Biglow project, raptors are the primary focus of concern. On another
11 project, grassland birds or Washington ground squirrels may be the primary focus because of
12 the surrounding habitat, leading to possible long-term monitoring of other species.
13

14 In the Wildlife Monitoring and Mitigation Plan (Attachment A), staff has proposed
15 long-term monitoring for nesting raptors. In addition, in the Habitat Mitigation Plan, staff has
16 proposed evaluating future results from Stateline 3 grassland bird displacement studies to
17 determine if Biglow's assumed displacement mitigation remains suitable in light of the new
18 data.
19

20 Although the long-term monitoring of bats remains of interest to staff, ODFW and at
21 least some Council members, staff understands that the best bat study is likely to be one
22 carried out across a wider area than the Biglow project alone. Staff recommends that the
23 Council direct the Department to work collaboratively outside of the site certificate process
24 with wind applicants and site certificate holders to pursue a long-term monitoring plan for bat
25 impacts.
26

27 E. Habitat Impacts and Mitigation During Retirement of the Facility 28

29 As required under Council rules and as discussed above, retirement would proceed
30 according to a Council-approved final retirement plan. The retirement plan would ensure
31 minimal impacts to fish, wildlife and the environment and provide for restoration of the site
32 and temporarily disturbed areas to a useful, non-hazardous condition. Retirement of the
33 facility would include removal of facility structures and restoration of the underlying land to
34 farm or habitat uses. It is anticipated that site restoration activities would temporarily affect
35 additional habitat adjacent to the facility site as needed to accommodate the movement and
36 placement of cranes and other heavy equipment used during facility demolition. This adjacent
37 area is likely to be similar in size to the area temporarily disturbed during construction.
38

39 F. General Findings of Consistency with ODFW Goals and Standards 40

41 Design 42

43 The proposed facility would occupy a permanent footprint of about 177 acres or less.
44 About 157 acres of the affected habitat would be Category 6 agricultural land. The component
45 parts of a wind facility (turbines, access roads, transmission lines and substations) must be
46 disbursed over a wide area to capture the wind resource effectively. Locating the majority of
47 facility primarily components within Category 6 habitat ensures the least impact on higher-

1 value habitat, although some amount of impact is unavoidable. The design of the proposed
2 Biglow facility is consistent with ODFW's habitat mitigation goals and standards (OAR 635-
3 415-0025).

4
5 Construction
6

7 More than 90 percent of the area that would be temporarily disturbed during
8 construction is Category 6 habitat. There would be no impact to intermittent streams and
9 stream habitat. The certificate holder would avoid construction activity within a buffer area
10 around raptor nests during the sensitive nesting period. Upon completion of construction,
11 areas of temporary disturbance would be restored and re-planted to pre-construction condition
12 or better. Construction would be carried out in a manner consistent with ODFW's mitigation
13 goals and standards (OAR 635-415-0025).

14
15 Operation
16

17 The certificate holder would establish a habitat mitigation area and would undertake
18 habitat enhancement activities to improve the value of the area to wildlife. The habitat area
19 would be protected from other development during the life of the facility. Operational
20 monitoring as described in the Biglow Canyon Wind Farm Wildlife Monitoring and
21 Mitigation Plan would provide data necessary to evaluate the operational impacts of the
22 facility on habitat quality. If analysis of monitoring data indicates significant impacts further
23 mitigation may be required. Taking into account the mitigation of impacts, operation of the
24 facility would be consistent with ODFW's mitigation goals and standards (OAR 635-415-
25 0025).

26
27 Retirement
28

29 Retirement of the facility would likely cause temporary disturbance to an area of
30 habitat similar in size to the area temporarily disturbed during construction, most of which
31 would be Category 6 agricultural land. Retirement would include restoration and revegetation
32 of the area of temporary disturbance in addition to the area occupied by the proposed facility.
33 Retirement would be done subject to a final retirement plan approved by the Council. The
34 final retirement plan would provide for minimizing impact to fish and wildlife habitat.
35 Retirement can be carried out in a manner consistent with ODFW's mitigation goals and
36 standards (OAR 635-415-0025).

37
38 To find that Orion can comply with OAR 345-022-0060, the Council adopts the
39 following conditions in the site certificate:

- 40
41 **(58) The certificate holder shall design and construct all aboveground**
42 **transmission line support structures following the practices suggested by**
43 **the Avian Powerline Interaction Committee (APLIC 1996, referenced in**
44 **the site certificate application, p. P-33) and shall install anti-perching**
45 **devices on transmission pole tops and cross arms where the poles are**
46 **located within one-half mile of any wind turbine.**
47

1 **(59) The certificate holder may construct turbines and other facility**
2 **components within the 500-foot corridors shown on Figures P-1 through**
3 **P-10 of the site certificate application and March 2006 supplement,**
4 **subject to the following requirements addressing potential habitat impact:**

- 5
6 **(a) The certificate holder shall not construct any facility components**
7 **within areas of Category 1 or Category 2 habitat and shall avoid**
8 **temporary disturbance of Category 1 or Category 2 habitat.**
9
10 **(b) The certificate holder shall design and construct facility**
11 **components that are the minimum size needed for safe operation of**
12 **the energy facility.**
13
14 **(c) To the extent possible, the certificate holder shall construct facility**
15 **components in the locations shown on Figure C-2 of the March**
16 **2006 site certificate application supplement.**

17
18 **(60) During construction, the certificate holder shall protect the area within a**
19 **1300-foot buffer around any active nests of the following species during**
20 **the sensitive period, as provided in this condition:**
21

Species	Sensitive Period	Early Release Date
Swainson's hawk	April 1 to August 15	May 31
Golden eagle	February 1 to August 31	May 31
Ferruginous hawk	March 15 to August 15	May 31
Burrowing owl	April 1 to August 15	July 15

22
23 **The 1300-foot buffer may be reduced, with Department approval, if there**
24 **is an adequate physical barrier between the nest site and the construction**
25 **impacts such that a 1300-foot buffer proves to be excessive.**
26

27 **During the year in which construction of any phase occurs, the certificate**
28 **holder shall use a protocol approved by the Oregon Department of Fish**
29 **and Wildlife (ODFW) to determine whether there are any active nests of**
30 **these species within a half-mile of any areas that would be disturbed**
31 **during construction. If a nest is occupied by any of these species after the**
32 **beginning of the sensitive period, the certificate holder shall not engage in**
33 **high-impact construction activities (activities that involve blasting,**
34 **grading or other major ground disturbance) or allow high levels of**
35 **construction traffic within 1300 feet of the nest site, or such lesser distance**
36 **as may be approved by the Department in the event there is an adequate**
37 **physical barrier between the nest site and the construction impacts.**
38

39 **In addition, the certificate holder shall flag the boundaries of the 1300-foot**
40 **buffer area, or such lesser distance as may be approved by the**
41 **Department in the event there is an adequate physical barrier between the**

1 nest site and the construction impacts, and shall instruct construction
2 personnel to avoid any unnecessary activity within the buffer area. The
3 certificate holder shall direct a qualified independent third-party
4 biological monitor, as approved by the Department, to observe the active
5 nest sites during the sensitive period for signs of disturbance and to notify
6 the Department of any non-compliance with this condition. If the monitor
7 observes nest site abandonment or other adverse impact to nesting
8 activity, the certificate holder shall implement appropriate mitigation, in
9 consultation with ODFW and subject to the approval of the Department,
10 unless the adverse impact is clearly shown to have a cause other than
11 construction activity. The certificate holder may begin or resume high
12 impact construction activities before the ending day of the sensitive period
13 if any known nest site is not occupied by the early release date. If a nest
14 site is occupied, then the certificate holder may begin or resume high-
15 impact construction before the ending day of the sensitive period with the
16 approval of ODFW, after the young are fledged. The certificate holder
17 shall use a protocol approved by ODFW to determine when the young are
18 fledged (the young are independent of the core nest site).

- 19
- 20 (61) The certificate holder shall conduct wildlife monitoring and mitigation in
21 accordance with the Wildlife Monitoring and Mitigation Plan that is
22 incorporated in the order as Attachment A and as may be amended from
23 time to time.
- 24
- 25 (62) The certificate holder shall restore areas that are temporarily disturbed
26 during construction in accordance with the methods, monitoring
27 procedures and success criteria set forth in the Revegetation Plan that is
28 incorporated in the order as Attachment B and as may be amended from
29 time to time.
- 30
- 31 (63) Before beginning construction of the facility, the certificate holder shall
32 acquire the legal right to create, maintain and protect a habitat mitigation
33 area for the life of the facility by means of an outright purchase,
34 conservation easement or similar conveyance and shall provide a copy of
35 the documentation to the Department. Within the habitat mitigation area,
36 the certificate holder shall improve the habitat quality in accordance with
37 the Habitat Mitigation Plan that is incorporated in the order as
38 Attachment C and as may be amended from time to time.
- 39
- 40 (64) For the life of the project, the certificate holder shall provide to the
41 appropriate staff of the Confederated Tribes of the Warm Springs
42 Reservation of Oregon the same annual mitigation and monitoring reports
43 it submits to the Department.
- 44
- 45 (65) For the life of the project, the certificate holder shall consult annually with
46 the appropriate staff of the Confederated Tribes of the Warm Springs

1 **Reservation of Oregon to discuss noxious weed or other issues that may**
2 **arise from the close proximity of the facility site and tribal lands. The**
3 **certificate holder shall provide a summary of that consultation in the**
4 **annual report it provides to the Department.**

5
6 Conclusions of Law

7
8 The Council concludes that the design, construction, operation and retirement of the
9 proposed facility, taking into account mitigation and subject to the conditions stated in this
10 order, would be consistent with ODFW's habitat mitigation goals and standards (OAR 635-
11 415-0025). The Council adopts Conditions (58), (59), (60), (61), (62), (63), (64) and (65) in
12 the site certificate. Based on these findings and recommended conditions, the Council
13 concludes that the proposed facility complies with the Council's Fish and Wildlife Habitat
14 Standard.

15
16 **5. Standards Not Applicable to Site Certificate Eligibility**

17
18 Under ORS 469.501(4), the Council may issue a site certificate without making the
19 findings required by the standards discussed in this section (Structural Standard, Historic,
20 Cultural and Archaeological Resources Standard, Public Services Standard and Waste
21 Minimization Standard). Nevertheless, the Council may impose site certificate conditions
22 based on the requirements of these standards.

23
24 **(a) Structural Standard**

25
26 **OAR 345-022-0020**

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

29
30 *(a) The applicant, through appropriate site-specific study, has adequately*
31 *characterized the site as to seismic zone and expected ground motion and ground*
32 *failure, taking into account amplification, during the maximum credible and*
33 *maximum probable seismic events; and*

34
35 *(b) The applicant can design, engineer, and construct the facility to avoid dangers*
36 *to human safety presented by seismic hazards affecting the site that are expected to*
37 *result from all maximum probable seismic events. As used in this rule "seismic*
38 *hazard" includes ground shaking, landslide, liquefaction, lateral spreading,*
39 *tsunami inundation, fault displacement, and subsidence;*

40
41 *(c) The applicant, through appropriate site-specific study, has adequately*
42 *characterized the potential geological and soils hazards of the site and its vicinity*
43 *that could, in the absence of a seismic event, adversely affect, or be aggravated by,*
44 *the construction and operation of the proposed facility; and*
45

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

3
4 (2) The Council may issue a site certificate for a facility that would produce power
5 from wind, solar or geothermal energy without making the findings described in
6 section (1). However, the Council may apply the requirements of section (1) to
7 impose conditions on a site certificate issued for such a facility.

8 * * *

9
10 Proposed Conditions

11
12 Orion provided information about the seismic characteristics of the site and possible
13 seismic and geological hazards in Exhibit H of the ASC. The analysis area for the Structural
14 Standard is the area within the site boundary. Orion assessed the geologic and seismic
15 conditions of the site by reference to relevant available literature, examination of aerial
16 photographs, and field reconnaissance. Orion did not perform site-specific subsurface and
17 geophysical investigations as part of this preliminary assessment. Before beginning
18 construction of the facility, Orion would conduct a detailed site-specific geotechnical
19 investigation to assess subsurface and geologic conditions and provide information what
20 would be used for the design of turbine foundations and foundations of other significant
21 facility structures and installation of underground collector cables and overhead transmission
22 lines. Council rules include mandatory conditions regarding geotechnical investigation and
23 protection of the public from seismic hazards.

24
25 The proposed facility site is located in the north-central part of Sherman County, in
26 north-central Oregon. The site is just south of the Columbia River, in an area bounded by the
27 John Day River to the east and US Highway 97 to the west. The local topography is
28 characterized by gently rolling hills consisting primarily of wheat fields and other cultivated
29 crops, and the site is at an elevation more than 1,000 feet above the Columbia River. Bedrock
30 is believed to be generally shallow (less than 10 feet in most locations), and the groundwater
31 table is deep.

32
33 In conducting its seismic hazard assessment, Orion found that the seismic hazard in
34 the vicinity of the proposed facility site would result from three seismic sources: Cascadia
35 Subduction Zone interplate events, Cascadia Subduction Zone intraslab events, and crustal
36 events.

37
38 Interplate and intraslab events are related to the subduction of the Juan De Fuca plate
39 beneath the North American Plate. Interplate events occur because of movement at the
40 interface of these two tectonic plates. Intraslab events originate within the subducting tectonic
41 plate, away from its edges, when built-up stresses within the subducting plate are released.
42 These source mechanisms are referred to as the Cascadia Subduction Zone (CSZ) source
43 mechanisms. The CSZ is located near the coastlines of Oregon, Washington and British
44 Columbia. The CSZ interplate and intraslab source mechanisms are currently thought to be
45 capable of producing maximum earthquakes with moment magnitudes of about 9.0 and 7.5,
46 respectively.

1
2 Earthquakes caused by movements along crustal faults, generally in the upper 10 to 15
3 miles, result in the third source mechanism. In the vicinity of Biglow, earthquakes occur
4 within the crust of the North American tectonic plate when built-up stresses near the surface
5 are released through fault rupture. There are several crustal faults in the vicinity of Biglow,
6 including several northwest-striking faults that have been mapped near The Dalles and
7 Arlington-Shutler Buttes Faults. None of these fault zones have been identified in the facility
8 area, and the faults are generally considered to be inactive or to have a low probability of
9 activity.

10
11 Orion estimated the peak ground acceleration (PGA) at the proposed facility site from
12 a seismic event on one of the three source mechanisms using a database developed by the
13 USGS in its National Seismic Hazard Mapping Facility. The USGS database includes
14 estimated PGA at a theoretical soft rock/stiff soil interface for different probabilities of
15 exceedance. Deaggregation information included in the database provides estimates of the
16 mean earthquake moment magnitude and mean epicentral distance associated with given
17 probability of exceedance at a given location.

18
19 The maximum probable earthquake (MPE) is considered to be an earthquake that has a
20 probability of exceedance of approximately 10 percent in 50 years (an approximate 500-year
21 recurrence interval). The USGS deaggregation information indicates that the MPE mean
22 moment magnitude for the proposed facility site would be magnitude 6.25 at a mean distance
23 of 40 miles, with an associated PGA at the soft rock/stiff soil interface of 0.087g.

24
25 The maximum considered earthquake (MCE) is considered to be an earthquake that
26 has a probability of exceedance of approximately 2 percent in 50 years (an approximate
27 2,500-year recurrence interval). The USGS database indicates that a MCE mean moment
28 magnitude of 6.1 at a distance of 16 miles from the proposed facility site would produce a
29 PGA of 0.19g.

30
31 Based on the USGS data available for the site of the proposed facility, Orion believes
32 that a design based on the MPE 500-year event would be well within the design code site-
33 specific spectra set forth in the 2003 International Building Code that is now applied in
34 measuring compliance with Oregon Building Code.

35
36 Based on topographic features of the proposed facility site, Orion believes the
37 potential for ground rupture, earthquake-induced landslides and slope instability, lateral
38 spreading, liquefaction, and settlement or subsidence is low. Tsunami inundation is not a
39 hazard at the inland site, which is not located near any large water bodies and lies over 1,000
40 feet above the Columbia River.

41
42 Orion would employ current engineering standards in the design of the proposed
43 facility. These standards require that under the design earthquake, the resistance factors used
44 in design must exceed certain values. For example, in the case of slope design, a factor of
45 safety of at least 1.1 is normally required during evaluation of seismic stability. In the event
46 the factor of safety for slope stability is not met, the common practice is to estimate amounts

1 of soil displacement. If the displacement is predicted to cause permanent structural damage or
2 risk to occupants, remedial measures are required. Such measures could include use of ground
3 improvement methods, including retaining structures, to limit the movement to acceptable
4 levels.

5
6 The Council adopts the following conditions in the site certificate:

- 7
8 **(66) Before beginning construction of the facility, the certificate holder shall**
9 **conduct a site-specific geotechnical investigation and shall report its**
10 **findings to the Oregon Department of Geology & Mineral Industries**
11 **(DOGAMI). The certificate holder shall conduct the geotechnical**
12 **investigation after consultation with DOGAMI and in accordance with the**
13 **Oregon Board of Geologists Examiners guidelines entitled: Guidelines for**
14 **Engineering Geology Reports and Site-Specific Seismic Hazard Report.**
- 15
16 **(67) The certificate holder shall design and construct the facility in accordance**
17 **with requirements set forth by the State of Oregon's Building Code**
18 **Division and any other applicable codes and design procedures.**
- 19
20 **(68) The certificate holder shall design, engineer and construct the facility to**
21 **avoid dangers to human safety presented by non-seismic hazards. As used**
22 **in this condition, "non-seismic hazards" include settlement, landslides,**
23 **flooding and erosion.**

24
25 **(b) Historic, Cultural and Archaeological Resources**

26
27 **OAR 345-022-0090**

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

32
33 *(a) Historic, cultural or archaeological resources that have been listed on, or*
34 *would likely be listed on the National Register of Historic Places;*

35
36 *(b) For a facility on private land, archaeological objects, as defined in ORS*
37 *358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and*

38
39 *(c) For a facility on public land, archaeological sites, as defined in ORS*
40 *358.905(1)(c).*

41
42 *(2) The Council may issue a site certificate for a facility that would produce power*
43 *from wind, solar or geothermal energy without making the findings described in*
44 *section (1). However, the Council may apply the requirements of section (1) to*
45 *impose conditions on a site certificate issued for such a facility.*

46 * * *

1
2 Proposed Conditions
3

4 Orion provided information regarding historic, cultural and archaeological resources
5 in Exhibit S of the ASC. The analysis area for potential impacts to these resources is the area
6 within the site boundary. Orion commissioned CH2M Hill to prepare a Cultural Resources
7 Survey Report applicable to the analysis.
8

9 CH2M Hill searched the files maintained by the State Historic Preservation Office
10 (SHPO) to assess the cultural and environmental background and history of the proposed
11 facility site and to develop an interpretive context for the cultural resources inventory.
12 Literature was reviewed to examine the location and nature of potential Traditional Cultural
13 Properties in the analysis area. CH2M Hill then conducted a cultural resources inventory to
14 check for the presence or absence of historic properties and cultural resources that otherwise
15 might not meet the threshold of significance necessary to qualify them as historic properties.
16 The study methods followed applicable National Environmental Policy Act (NEPA)
17 regulations and were consistent with standards for cultural resource survey and documentation
18 outlined in Section 106 of the National Historic Preservation Act.
19

20 In conducting the cultural resources inventory, CH2M Hill surveyed the proposed
21 turbine corridors to a width of about 500 feet with 30-meter transect intervals, the proposed
22 transmission line corridors with 75-meter transect intervals, and the proposed roadways with
23 60-meter transect intervals. The proposed staging areas and O&M facility sites were surveyed
24 with buffers of about 25 percent to allow for some variation in the final placement of
25 facilities.
26

27 In its Cultural Resources Survey for Biglow Canyon Wind Farm, CH2M Hill concluded
28 there were no cultural sites formally recorded in the analysis area. Within the area surveyed,
29 CH2M Hill identified three historic sites and one archaeological site:
30

- 31 • Homestead A, a wheat farm and cattle ranch operation associated with an occupied
32 residence. The residence is a heavily altered, remodeled Victorian farmhouse believed
33 by its current owners to be one of the earliest homesteads in the vicinity.
- 34 • Homestead B, an abandoned Victorian farmhouse with associated outbuildings and
35 cached older farm equipment. The farmhouse is believed to be one of the earliest
36 homesteads in the vicinity.
- 37 • An isolated garage building now used for storage of a non-functioning automobile.
- 38 • A small historic period surface dump feature that does not seem to have any direct
39 connection with any nearby homesteads.
40

41 For reasons enumerated in the ASC, CH2M Hill does not believe any of the three historic
42 sites or the archaeological site would meet the criteria for listing on the National Register of
43 Historic Places.
44

45 Orion states that Homestead A could undergo direct physical impacts from
46 construction of the facility, but, because the property is not an eligible resource, impacts

1 would not be significant. Orion goes on to state that all other cultural resources would be
2 avoided during construction, operation and retirement of the Biglow facility.

3
4 By letter dated January 26, 2006, SHPO notified the Department that it had reviewed
5 the report prepared by CH2M Hill and that Biglow would have "no effect on any known
6 cultural resources" and "no further archaeological research is needed with this project." By
7 letter dated February 2, 2006, SHPO notified the Department it had received a citizen inquiry
8 noting the complete absence of the Oregon Trail in the analysis of cultural resources impacts.
9 In response to that inquiry, SHPO engaged in further discussions with CH2M Hill and Orion
10 and was satisfied that the cultural resources inventory did not locate any above ground
11 evidence for the trail or any associated cultural objects and that "due to the lack of visible
12 remains of the Oregon Trail, it is difficult to envision an adverse impact to it." In addition, on
13 March 22, 2006, the Department met with staff to the Oregon Trails Advisory Council to
14 ensure that concerns about the Oregon Trail had been addressed.

15
16 On May 4, 2006, the Department received an e-mail message from Sally Bird,
17 Cultural Resources Director for the Confederated Tribes of the Warm Springs Reservation of
18 Oregon, in which she forwarded an earlier letter address to CH2M Hill that expressed concern
19 about cultural, wildlife and habitat issues related to the Biglow facility. After discussions
20 between the Department, Ms. Bird and CH2M Hill, Ms. Bird later on May 4, 2006, e-mailed a
21 second time to note that the Tribe's concerns would be addressed given several conditions.
22 The Department has included those conditions in this section and in the Wildlife Mitigation
23 and Monitoring Plan included with this order as Attachment A.

24
25 The Council adopts the following conditions in the site certificate:

26
27 **(69) Before beginning construction of any phase of the facility, the certificate**
28 **holder shall provide to the Department a map showing the final design**
29 **locations of all components of that phase of the facility and areas that**
30 **would be temporarily disturbed during construction and also showing the**
31 **areas surveyed by CH2M Hill in preparing the Cultural Resources Survey**
32 **for Biglow Canyon Wind Farm included in the site certificate application**
33 **as Attachment S-1. The certificate holder shall hire qualified personnel to**
34 **conduct field investigation of all areas of permanent or temporary**
35 **disturbance that CH2M Hill did not previously survey and shall provide**
36 **to the Department a written report of the field investigation. If any**
37 **significant historic, cultural or archaeological resources are found during**
38 **the field investigation, the certificate holder shall ensure that construction**
39 **and operation of the facility will have no impact on the resources. The**
40 **certificate holder shall instruct all construction personnel to avoid areas**
41 **where the resources were found and shall implement other appropriate**
42 **measures to protect the resources.**

43
44 **(70) The certificate holder shall ensure that a qualified person instructs**
45 **construction personnel in the identification of cultural resources.**
46

- 1 **(71) The certificate holder shall ensure that a qualified archaeologist is present**
2 **on site during any ground-disturbing activities, including grading and**
3 **graveling; or, the certificate holder shall implement an alternate**
4 **monitoring procedure, including a testing strategy, as agreed to in**
5 **consultation with the Department, SHPO, and the tribes.**
6
7 **(72) The certificate holder shall ensure that construction personnel cease all**
8 **ground-disturbing activities in the immediate area if any archaeological or**
9 **cultural resources are found during construction of the facility until a**
10 **qualified archaeologist can evaluate the significance of the find. The**
11 **certificate holder shall notify the Department and the State Historic**
12 **Preservation Office (SHPO) of the find. If the archaeologist determines**
13 **that the resource is significant, the certificate holder shall make**
14 **recommendations to the Council for mitigation, including avoidance or**
15 **data recovery, in consultation with the Department, SHPO, and other**
16 **appropriate parties. The certificate holder shall not restart work in the**
17 **affected area until the certificate holder has demonstrated to the**
18 **Department that it has complied with the archaeological permit**
19 **requirements administered by SHPO.**
20
21 **(73) The certificate holder shall ensure that construction personnel proceed**
22 **carefully in the vicinity of the mapped alignment of the Oregon Trail. If**
23 **any intact physical evidence of the trail is discovered, the certificate holder**
24 **shall avoid any disturbance to the intact segments, by redesign, re-**
25 **engineering or restricting the area of construction activity. The certificate**
26 **holder shall promptly notify the Department and SHPO of the discovery.**
27 **The certificate holder shall consult with the Department and with SHPO**
28 **to determine appropriate mitigation measures.**
29

30 **(c) Public Services**
31

32 **OAR 345-022-0110**

33 *(1) Except for facilities described in sections (2) and (3), to issue a site certificate,*
34 *the Council must find that the construction and operation of the facility, taking*
35 *into account mitigation, are not likely to result in significant adverse impact to the*
36 *ability of public and private providers within the analysis area described in the*
37 *project order to provide: sewers and sewage treatment, water, storm water*
38 *drainage, solid waste management, housing, traffic safety, police and fire*
39 *protection, health care and schools.*
40

41 *(2) The Council may issue a site certificate for a facility that would produce power*
42 *from wind, solar or geothermal energy without making the findings described in*
43 *section (1). However, the Council may apply the requirements of section (1) to*
44 *impose conditions on a site certificate issued for such a facility.*
45

* * *

1
2 Proposed Conditions
3

4 Orion provided information in Exhibit U about the potential impacts of the facility on
5 public services. The analysis area for public services is the area within the site boundary and
6 30 miles from the site boundary, including area within the State of Washington. The analysis
7 area includes parts of Gilliam, Sherman and Wasco Counties in Oregon and Klickitat County
8 in Washington. Incorporated communities within the analysis area include: Arlington, Rufus,
9 Wasco, Moro, Grass Valley and The Dalles in Oregon and Goldendale and Dallasport in
10 Washington.

11
12 A. Sewage, Storm Water and Solid Waste
13

14 During construction of the facility, the impact on sewers and sewage treatment would
15 be minimal. The certificate holder would provide and maintain portable toilets for on-site
16 sewage handling during construction. Storm water drainage during construction would be
17 subject to the NPDES Storm Water Discharge General Permit #1200-C, which would ensure
18 appropriate on-site handling of storm water. There are no local sewers to be affected.
19 Construction of Biglow would generate solid waste that would be transported for off-site
20 disposal. Orion would contract with a local commercial hauler or haulers, *e.g.*, Sunrise
21 Disposal and Recycling, for transport and disposal of waste generated during construction of
22 the facility. The public landfill nearest the facility site is Columbia Ridge Recycling and
23 Landfill near Arlington, Oregon, which has an estimated 50-year capacity.
24

25 During operation of the facility, sewage from the O&M building would be disposed of
26 in an on-site septic system. Appropriate measures would be used to avoid or reduce erosion
27 from storm water run-off during operation of the facility, and there are no local storm sewers
28 that would be affected. Orion would control water used for blade-washing activities in
29 accordance with a Wastewater General Permit #1700 issued by the Department of
30 Environmental Quality. Solid waste generated during operation of the facility would be
31 insignificant and would be recycled or transported for disposal at Columbia Ridge Recycling
32 and Landfill by a licensed hauler.
33

34 B. Water
35

36 Orion estimates that about 12 million gallons of water would be used for road
37 compaction, underground collection line installation, dust suppression and concrete mixing
38 during construction of Biglow. The construction contractor would be responsible for
39 arranging for delivery of water to the site by means of water trucks from a source with an
40 existing water right. Orion has an agreement with the City of Wasco to provide all water
41 required for construction of the facility at the rate of up to 125,000 gallons per day. However,
42 the Department of Water Resources has not made a final determination that the City of Wasco
43 wells targeted for supply are available for the use. If additional water is needed, if the City of
44 Wasco determines that at specific periods it will not release water to the facility because of
45 other water use needs or commitments, or if the City of Wasco well is unavailable for use, the
46 contractor would be required to secure additional water from another permitted source.

1
2 During operation of the facility, less than 5,000 gallons per day would be required for
3 domestic purposes at the O&M facility. This water would come from an on-site well that
4 requires no water permit provided the use is less than 5,000 gallons per day. The facility's use
5 of water during operation of the facility would have no impact on municipal water systems.
6 The small volume of water required during operation of the facility is unlikely to have an
7 impact on other wells that serve local landowners.

8
9 The Council adopts the following conditions in the site certificate:

- 10
11 **(74) During construction of the facility, the certificate holder and its**
12 **contractors shall obtain all water required for construction activities from**
13 **off-site sources previously permitted for such uses.**
14
15 **(75) Before beginning operation of the facility, the certificate holder shall have**
16 **in operation a well suitable for delivering water, not exceeding 5,000**
17 **gallons per day, for domestic use at the facility's O&M building and,**
18 **provided the rate of extraction would not exceed 5,000 gallons per day,**
19 **blade-washing activities. The certificate holder shall not change the source**
20 **of water for the facility's domestic use without prior Council approval.**
21
22 **(76) During operation of the facility, the certificate holder and its contractors**
23 **shall obtain all water required for blade-washing activities from off-site**
24 **sources previously permitted for such uses or from the on-site well,**
25 **provided such use of well water would not cause the rate of extraction to**
26 **exceed 5,000 gallons in any one-day period.**

27
28 C. Housing, Police and Fire Protection, Health Care and Schools

29
30 Orion estimates that construction of the facility would take about 10 months at full
31 build-out and would employ a maximum of 250 workers during peak construction, or an
32 average of about 125 workers. Locally hired workers would be employed for road and turbine
33 pad construction, and specialized workers would be employed for specialized construction,
34 *e.g.*, substation and electrical transmission construction, turbine erection and turbine testing.
35 Orion estimated that about 30 percent of the construction workers would be hired locally and
36 the remainder would come from outside the local area. Based on vacancy rates in
37 communities within the analysis area, Orion believes there is sufficient housing to
38 accommodate temporary construction workers.

39
40 During operation, Orion estimates that 15 to 20 people would be employed at the
41 facility. Most of the operations and maintenance staff would be hired locally, with the
42 exception of those positions that require previous experience at other wind energy facilities.
43 Orion estimates that permanent housing for about four new households would be required
44 starting in 2007, so no significant adverse housing impacts would be anticipated.
45

1 Orion does not anticipate that the additional temporary and permanent work force
2 would place significant new demands on the providers of police protection in the area. The
3 Sherman County Sheriff's Office provides services in the area of the proposed facility, and, if
4 needed, backup law enforcement services would be available from the Oregon State Police
5 (The Dalles Area Command in The Dalles) and from local police in the surrounding
6 jurisdictions. No significant adverse impacts on the ability of surrounding communities to
7 provide police protection or law enforcement services would be anticipated from construction
8 and operation of Biglow.

9
10 Orion received confirmation from the Sherman County Emergency Services Director
11 that there would be no concerns about providing fire protection services in connection with
12 construction and operation of the facility⁴⁹. Orion would take steps for preventing fires during
13 construction, including establishing roads before accessing the site to keep vehicles away
14 from grass, using diesel vehicles whenever possible to prevent potential ignition by catalytic
15 converters, avoiding idling vehicles in grassy areas, and keeping cutting torches and similar
16 equipment away from grass. In addition, Orion would implement measures to promote fire
17 prevention during operation of the facility. No significant adverse impacts on the ability of
18 surrounding communities to provide fire protection services would be anticipated from
19 construction and operation of Biglow.

20
21 The hospital nearest Biglow would be the Mid-Columbia Medical Center, located in
22 The Dalles. Private service providers contract with Sherman County to provide ambulance
23 service in the area. Providers offer basic, intermediate and advanced life support emergency
24 medical care and transportation. Orion received confirmation from the Sherman County
25 Emergency Services Director that there would be no concerns about providing ambulance
26 services in connection with construction and operation of the facility.⁵⁰ No significant adverse
27 impacts on the ability of surrounding communities to provide health care services would be
28 anticipated from construction and operation of Biglow.

29
30 Five school districts and 14 individual schools are located in the analysis area. The
31 schools closest to the proposed facility are operated by the Sherman County School District.
32 The elementary schools are located in Wasco and Grass Valley; the high school (grades 7-12)
33 is located in Moro. Because construction work for the facility would be short term and
34 temporary, and because peak construction would occur during the summer months, no new
35 students are anticipated in connection with construction of the facility. Assuming that four
36 new permanent households would result from operation of the facility, about eight new school
37 children (assuming two children per household) could move to the analysis area. No
38 significant adverse impacts on the ability of surrounding communities to provide schooling
39 would be anticipated from construction and operation of Biglow.

40 41 D. Traffic Safety 42

⁴⁹ Letter from Shawn Payne, Director, Sherman County Emergency Services, dated August 17, 2005, included as Attachment U-1, Exhibit U, ASC.

⁵⁰ *Id*

1 Construction-related traffic could cause short-term traffic delays on highways and
2 local roads in the vicinity of the proposed facility, including I-84, US 97 and ORE 206, during
3 deliveries of turbines, construction-related equipment, concrete and other building materials.
4 Such delays would be short term and temporary. During construction, flaggers would be used
5 at appropriate locations to direct traffic.
6

7 Conditions on a segment of US 97 between I-84 and the Wasco-Heppner Highway are
8 poor. Because Orion has included this segment as a potential transporter route, the condition
9 would be reviewed before any construction traffic is added. If conditions were determined to
10 be unsafe for construction traffic, Orion would discuss improvement options with the Oregon
11 Department of Transportation (ODOT) before beginning construction of the facility.
12

13 Assuming the roadways are deemed safe for construction traffic, Orion would develop
14 a system for monitoring for degradation, *e.g.*, major potholes, so that safe travel paths may be
15 maintained. The monitoring system could include site inspection and photographic
16 cataloguing of existing road conditions so that pre-construction conditions can be compared
17 with conditions after construction has been completed. Orion would discuss monitoring
18 methods and preferred mitigation efforts with Sherman County Public Works and ODOT
19 before beginning construction of the facility.
20

21 Pavement conditions on local county roadways vary from paved to dirt or gravel. For
22 most segments of county roadways that would be used as transporter routes, the surface is
23 paved. Gravel road segments would be evaluated before and after construction of the facility
24 to determine what, if any, degradation had occurred. Orion would assume responsibility for
25 repairing these gravel roadways to pre-existing conditions or better.
26

27 The volumes of traffic that would be generated by the facility represent a minimal
28 amount of traffic with respect to the state highway system average daily traffic volumes.
29 Based on traffic trips on transporter routes, construction of the facility is not expected to cause
30 any traffic safety impacts to the state highway system. With respect to existing county
31 roadways, the volumes of traffic that would be generated by construction of the facility would
32 represent an increase, but traffic volumes are not expected to exceed capacity. Even with
33 traffic increases, construction is not expected to cause adverse impacts to traffic operations.
34

35 Although construction-related traffic could cause short-term traffic delays, those
36 delays would be temporary and would be mitigated with measures that would reduce impacts.
37 Measures Orion would implement to reduce traffic delays would include:
38

- 39 • Provide notice to adjacent landowners when construction takes place to help minimize
40 access disruptions.
- 41 • Provide proper road signage and warnings of "Equipment on Road," "Truck Access,"
42 or "Road Crossings."
- 43 • Implement traffic diversion equipment, such as advance signage and pilot cars,
44 whenever possible when slow or oversized loads are being hauled.
- 45 • Encourage carpooling for the construction workforce to reduce traffic volume.

- 1 • Employ flaggers, as necessary, to direct traffic when large equipment is entering or
- 2 exiting public roads to minimize risk of accidents.
- 3 • Maintain at least one travel lane at all times so that roadways will not be closed to
- 4 traffic as a result of construction vehicles entering or exiting public roads.

5
6 During operation of the facility, the anticipated permanent workforce of 15 to 20
7 workers would not significantly increase traffic in the analysis area. The use of area highways
8 and local roads by employees and during occasional deliveries is not likely to result in a
9 significant adverse impact on traffic safety.

10
11 The Council adopts the following conditions in the site certificate:

- 12
- 13 **(77) Before beginning construction of the facility, the certificate holder shall**
- 14 **develop a system for monitoring state highways and local roads that**
- 15 **would serve as transporter routes for delivering equipment to the facility**
- 16 **site for degradation, e.g., major potholes, so that safe travel paths may be**
- 17 **maintained. The monitoring system shall include site inspection and**
- 18 **photographic cataloging of existing road conditions so that pre-**
- 19 **construction conditions can be compared with conditions after**
- 20 **construction has been completed. Orion shall coordinate monitoring**
- 21 **methods and preferred mitigation efforts with Sherman County Public**
- 22 **Works and the Oregon Department of Transportation.**
- 23
- 24 **(78) After completing construction of the facility, the certificate holder shall**
- 25 **restore state highways and county roads affected by facility construction**
- 26 **activities to at least their pre-construction conditions, to the satisfaction of**
- 27 **Sherman County Public Works and the Oregon Department of**
- 28 **Transportation.**
- 29
- 30 **(79) During construction of the facility, the certificate holder shall implement**
- 31 **the following measures to reduce traffic delays on county roads serving as**
- 32 **transporter routes for delivery of equipment to the facility site:**
- 33
- 34 **(a) Provide notice to adjacent landowners when construction takes**
- 35 **place to help minimize access disruptions;**
- 36 **(b) Provide proper road signage and warnings of “Equipment on**
- 37 **Road,” “Truck Access,” or “Road Crossings;”**
- 38 **(c) Implement traffic diversion equipment, such as advance signage**
- 39 **and pilot cars, whenever possible when slow or oversized loads are**
- 40 **being hauled;**
- 41 **(d) Encourage carpooling for the construction workforce to reduce**
- 42 **traffic volume;**
- 43 **(e) Employ flaggers, as necessary, to direct traffic when large**
- 44 **equipment is entering or exiting public roads to minimize risk of**
- 45 **accidents; and**

1 (f) Maintain at least one travel lane at all times so that roadways will
2 not be closed to traffic as a result of construction vehicles entering
3 or exiting public roads.
4

5
6 (d) Waste Minimization

7
8 OAR 345-022-0120

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

11
12 (a) The applicant's solid waste and wastewater plans are likely to minimize
13 generation of solid waste and wastewater in the construction, operation, and
14 retirement of the facility, and when solid waste or wastewater is generated, to
15 result in recycling and reuse of such wastes;

16
17 (b) The applicant's plans to manage the accumulation, storage, disposal and
18 transportation of waste generated by the construction and operation of the facility
19 are likely to result in minimal adverse impact on surrounding and adjacent areas.
20

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

25 * * *

26
27 Proposed Conditions

28
29 Orion provided information about waste minimization in Exhibit V of the ASC.

30
31 A. Solid Waste

32
33 During construction of the facility, Orion would generate a variety of non-hazardous, inert
34 wastes. The major solid waste types generated during construction of the facility would be
35 concrete waste from turbine pad construction, wood waste from wood forms used for concrete
36 pad construction, and scrap steel from turbine tower construction. Additional waste would
37 include erosion control materials, such as straw bales and silt fencing, and packaging
38 materials for associated turbine parts and other electrical equipment. Some minor and
39 potentially hazardous waste would include oily rags or similar waste.
40

41 Orion proposes to minimize the generation of construction waste by carefully
42 estimating its materials needs and by means of efficient construction practices. Waste
43 generated during construction would be recycled to the extent feasible. Steel scrap would be
44 collected and transported to a recycling facility. Wood waste would also be recycled to the
45 greatest extent feasible, depending on size and quantity of scrap or leftover materials.
46 Packaging waste, such as paper and cardboard, would be separated and recycled. Any non-

1 recyclable waste would be collected and transported to a local landfill. Orion would store all
2 oily waste, such as rags or dirt, in sealable drums and remove the oily waste for recycling or
3 disposal by a licensed contractor. In addition, Orion would maintain spill kits containing items
4 such as absorbent pads on equipment and in the temporary on-site storage facilities to respond
5 to accidental spills that might occur.

6
7 Orion proposes to use concrete waste as fill on site or at another site or, if no reuse
8 option were available, to transport the waste to a local landfill. In the event Orion uses
9 concrete waste as fill on site, disposal would be conducted in accordance with OAR 340-093-
10 0080 and other applicable regulations. With agreement of the landowner, the construction
11 contractor would bury concrete waste in an excavated hole, cover the waste with at least 3 feet
12 of topsoil, and regrade the area to match existing contours.

13
14 The main waste generated during operation of the facility would be office waste
15 related to the O&M facility, such as paper and food packaging scraps. Some minor and
16 potentially hazardous waste would include oily rags or similar waste related to turbine
17 lubrication and other maintenance. The only other waste Orion expects to generate during
18 operation of the facility would be incidental waste from repair or replacement of electrical or
19 turbine equipment.

20
21 Waste from the O&M facility would be collected and recycled, as feasible. Non-
22 recyclable waste would be collected and transported to a local landfill, most likely the
23 Columbia Ridge Recycling and Landfill located near Arlington, Oregon. The actual site of
24 disposal would depend on Orion's selection of the contracted waste hauler. Orion would store
25 all oily waste, such as rags or dirt, in sealable drums and remove the oily waste for recycling
26 or disposal by a licensed contractor. In addition, Orion would maintain spill kits containing
27 items such as absorbent pads on equipment and in the on-site storage facilities to respond to
28 accidental spills that might occur.

29
30 Measures for reducing, reusing and recycling solid waste upon retirement of the
31 facility would be addressed as part of the retirement plan that the Council must approve
32 before retirement of the facility.

33 B. Wastewater

34
35
36 During construction of the facility, wastewater would be generated from the wash
37 down of concrete trucks after concrete loads had been emptied. Wash down would occur at
38 tower foundation locations or existing permitted off-site facilities, *i.e.*, the permitted concrete
39 plant or gravel pit where the truck was loaded. If wash down of concrete trucks occurs at
40 tower foundation locations, Orion would ensure that wash down wastewater does not run off
41 the construction site into otherwise undisturbed areas and that the wastewater is disposed of
42 on backfill piles and buried underground with the backfill over the tower foundation. During
43 construction, portable toilets would be provided for on-site sewage handling and would be
44 pumped and cleaned regularly by the construction contractor.

1 During operation of the facility, wastewater would be generated from wash-down of
2 the turbine blades. Orion has filed Wastewater General Permit #1700 with the Oregon
3 Department of Environmental Quality to address blade-washing activities. Sewage from the
4 on-site O&M building would be discharged to an on-site septic system. Any wastewater
5 generated during retirement of the facility would be addressed as part of the retirement plan
6 that the Council must approve before retirement of the facility.

7
8 C. Impact on Surrounding and Adjacent Areas
9

10 The accumulation, storage, disposal and transportation of waste generated by
11 construction and operation of the facility would have minimal adverse impact on surrounding
12 and adjacent areas. Most waste would be removed from the site and reused, recycled or
13 transported for disposal at an appropriate facility.

14
15 Transportation of wastes to landfills or recycling facilities would involve periodic
16 truck trips over public and private roads between the facility site and the landfill or recycling
17 facilities. Because of the expected low volume of waste materials, these trips would not have
18 an adverse impact on surrounding or adjacent areas.

19
20 Water used on site during construction for dust suppression and road compaction
21 would evaporate or infiltrate into the ground. Water would not be discharged to wetlands,
22 lakes, rivers or streams.

23
24 During construction of the facility, the certificate holder would ensure that contractors
25 manage and monitor waste generation and recycle or dispose of wastes in an appropriate
26 manner. During operation of the facility, the certificate holder would be responsible for a
27 waste management program ensuring that solid waste is recycled to the extent feasible or
28 transported for disposal at appropriate landfills and that hazardous wastes are properly
29 handled and disposed of in accordance with applicable regulations.

30
31 The Council adopts the following conditions in the site certificate:
32

33 **(80) The certificate holder shall use hazardous materials in a manner that**
34 **protects public health, safety and the environment and shall comply with**
35 **applicable local, state and federal environmental laws and regulations.**
36

37 **(81) If a spill or release of hazardous materials occurs during construction or**
38 **operation of the facility, the certificate holder shall notify the Department**
39 **within 72 hours and shall clean up the spill or release and dispose of any**
40 **contaminated soil or other materials according to applicable regulations.**
41 **The certificate holder shall ensure that spill kits containing items such as**
42 **absorbent pads are located on equipment and storage facilities to respond**
43 **to accidental spills and shall instruct employees handling hazardous**
44 **materials in the proper handling, storage and cleanup of these materials.**
45

- 1 (82) During construction of the facility, the certificate holder shall provide
2 portable toilets for on-site sewage handling and shall ensure that the
3 portable toilets are pumped and cleaned regularly by a licensed contractor
4 that is qualified to pump and clean portable toilet facilities.
5
- 6 (83) During operation of the facility, the certificate holder shall discharge
7 sanitary wastewater generated at the O&M building to a licensed on-site
8 septic system in compliance with county permit requirements. The
9 certificate holder shall design the septic system with a capacity that is less
10 than 2,500 gallons per day.
11
- 12 (84) During construction of the facility, the certificate holder shall implement a
13 waste management plan that includes but is not limited to the following
14 measures:
15
- 16 (a) Training employees to minimize and recycle solid waste;
 - 17 (b) Minimizing the generation of wastes from construction through
18 detailed estimating of materials needs and through efficient
19 construction practices;
 - 20 (c) Recycling steel and other metal scrap;
 - 21 (d) Recycling wood waste;
 - 22 (e) Recycling packaging wastes, such as paper and cardboard;
 - 23 (f) Collecting non-recyclable waste for transport to a landfill by a
24 licensed waste hauler; and
 - 25 (g) Segregating all hazardous wastes, such as used oil, oily rags and
26 oil-absorbent materials, mercury-containing lights and lead-acid
27 and nickel-cadmium batteries for disposal by a licensed firm
28 specializing in the proper recycling or disposal of hazardous
29 wastes.
30
- 31 (85) The certificate holder may dispose of waste concrete on site with the
32 permission of the landowner and in accordance with OAR 340-093-0080
33 and other applicable regulations. The certificate holder shall dispose of
34 waste concrete on site by placing the material in an excavated hole,
35 covering the concrete with at least 3 feet of topsoil, and grading the area to
36 match existing contours. If the waste concrete is not disposed of on site,
37 the certificate holder shall arrange for proper disposal in a licensed
38 landfill.
39
- 40 (86) During construction of the facility, the certificate holder shall ensure that
41 the wash down of concrete trucks occurs only at a contractor-owned batch
42 plant or at tower foundation locations. If such wash down occurs at tower
43 foundation locations, then the certificate holder shall ensure that wash
44 down wastewater does not run off the construction site into otherwise
45 undisturbed areas and that the wastewater is disposed of on backfill piles
46 and buried underground with the backfill over the tower foundation.

1
2 (87) During operation of the facility, the certificate holder shall implement a
3 waste management plan that includes but is not limited to the following
4 measures:

- 5
6 (a) Training employees to minimize and recycle solid waste;
7 (b) Recycling paper products, metals, glass and plastics;
8 (c) Collecting non-recyclable waste for transport to a landfill by a
9 licensed waste hauler; and
10 (d) Segregating all hazardous wastes, such as used oil, oily rags and
11 oil-absorbent materials, mercury-containing lights and lead-acid
12 and nickel-cadmium batteries for disposal by a licensed firm
13 specializing in the proper recycling or disposal of hazardous
14 wastes.

15
16 (88) During operation of the facility, the certificate holder shall engage in
17 blade-washing activities only in accordance with the appropriate
18 Wastewater General Permit #1700 issued by the Oregon Department of
19 Environmental Quality and all applicable regulations.
20

21 **V. OTHER APPLICABLE REGULATORY REQUIREMENTS: FINDINGS AND**
22 **CONCLUSIONS**

23
24 **1. Requirements under Council Jurisdiction**

25
26 Under ORS 469.503(3) and under the Council's General Standard of Review (OAR
27 345-022-0000, the Council must determine that the proposed facility complies with "all other
28 Oregon statutes and administrative rules identified in the project order, as amended, as
29 applicable to the issuance of a site certificate for the proposed facility." Applicable Oregon
30 statutes and administrative rules that are not otherwise addressed in Section IV of this order
31 include the noise control regulations adopted by the Environmental Quality Commission, the
32 Division of State Lands' regulations for removal or fill of material affecting waters of the
33 state, the Water Resources Department's (WRD) regulations for appropriating ground water
34 and the Council's statutory authority to consider protection of public health and safety.
35

36 **(a) Noise Control Regulations**

37
38 The applicable noise control regulations are as follows:

39
40 **OAR 340-035-0035**

41 **Noise Control Regulations for Industry and Commerce**

42 *(1) Standards and Regulations:*

43 * * *

44
45 *(b) New Noise Sources:*

46 * * *

1
2 (B) *New Sources Located on Previously Unused Site:*
3

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

11
12 (ii) *The ambient statistical noise level of a new industrial or commercial noise*
13 *source on a previously unused industrial or commercial site shall include all*
14 *noises generated or indirectly caused by or attributable to that source including*
15 *all of its related activities. Sources exempted from the requirements of section (1)*
16 *of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule,*
17 *shall not be excluded from this ambient measurement.*

18
19 (iii) *For noise levels generated or caused by a wind energy facility:*

20
21 (I) *The increase in ambient statistical noise levels is based on an assumed*
22 *background L50 ambient noise level of 26 dBA or the actual ambient background*
23 *level. The person owning the wind energy facility may conduct measurements to*
24 *determine the actual ambient L10 and L50 background level.*

25
26 (II) *The "actual ambient background level" is the measured noise level at the*
27 *appropriate measurement point as specified in subsection (3)(b) of this rule using*
28 *generally accepted noise engineering measurement practices. Background noise*
29 *measurements shall be obtained at the appropriate measurement point,*
30 *synchronized with windspeed measurements of hub height conditions at the*
31 *nearest wind turbine location. "Actual ambient background level" does not include*
32 *noise generated or caused by the wind energy facility.*

33
34 (III) *The noise levels from a wind energy facility may increase the ambient*
35 *statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits*
36 *specified in Table 8), if the person who owns the noise sensitive property executes*
37 *a legally effective easement or real covenant that benefits the property on which*
38 *the wind energy facility is located. The easement or covenant must authorize the*
39 *wind energy facility to increase the ambient statistical noise levels, L10 or L50 on*
40 *the sensitive property by more than 10 dBA at the appropriate measurement point.*

41
42 (IV) *For purposes of determining whether a proposed wind energy facility*
43 *would satisfy the ambient noise standard where a landowner has not waived the*
44 *standard, noise levels at the appropriate measurement point are predicted*
45 *assuming that all of the proposed wind facility's turbines are operating between*
46 *cut-in speed and the wind speed corresponding to the maximum sound power level*

1 established by IEC 61400-11 (version 2002-12). These predictions must be
2 compared to the highest of either the assumed ambient noise level of 26 dBA or to
3 the actual ambient background L10 and L50 noise level, if measured. The facility
4 complies with the noise ambient background standard if this comparison shows
5 that the increase in noise is not more than 10 dBA over this entire range of wind
6 speeds.

7
8 (V) For purposes of determining whether an operating wind energy facility
9 complies with the ambient noise standard where a landowner has not waived the
10 standard, noise levels at the appropriate measurement point are measured when
11 the facility's nearest wind turbine is operating over the entire range of wind speeds
12 between cut-in speed and the windspeed corresponding to the maximum sound
13 power level and no turbine that could contribute to the noise level is disabled. The
14 facility complies with the noise ambient background standard if the increase in
15 noise over either the assumed ambient noise level of 26 dBA or to the actual
16 ambient background L10 and L50 noise level, if measured, is not more than 10
17 dBA over this entire range of wind speeds.

18
19 (VI) For purposes of determining whether a proposed wind energy facility
20 would satisfy the Table 8 standards, noise levels at the appropriate measurement
21 point are predicted by using the turbine's maximum sound power level following
22 procedures established by IEC 61400-11 (version 2002-12), and assuming that all
23 of the proposed wind facility's turbines are operating at the maximum sound
24 power level.

25
26 (VII) For purposes of determining whether an operating wind energy facility
27 satisfies the Table 8 standards, noise generated by the energy facility is measured
28 at the appropriate measurement point when the facility's nearest wind turbine is
29 operating at the windspeed corresponding to the maximum sound power level and
30 no turbine that could contribute to the noise level is disabled.

31 * * *

32
33 Findings of Fact

34
35 Applicable Regulations

36
37 The proposed facility would be a "new industrial or commercial noise source" under
38 OAR 340-035-0035 because construction of the facility would begin after January 1, 1975.⁵¹
39 The noise control regulations impose different limits on new noise sources constructed on a
40 "previously used industrial or commercial site" compared to the limits imposed on sources
41 constructed on a "previously unused industrial or commercial site." A site is considered a
42 "previously unused industrial or commercial site" if the site has not been used by any

⁵¹ OAR 340-035-0015(33) defines "new industrial or commercial noise source."

1 industrial or commercial noise source at any time during the 20 years preceding the
2 construction of a new noise source on the site.⁵²

3
4 According to Orion, all the equipment associated with Biglow would be located on
5 property that has not been used for industrial or commercial operations during the past 20
6 years. Therefore, the noise generated by the proposed facility must comply with OAR 340-
7 035-0035(1)(b)(B).

8
9 The regulation quoted above requires that the noise generated by a new wind energy
10 facility located on a previously unused site must comply with two tests. Facility-generated
11 noise must not increase the ambient hourly L₁₀ or L₅₀ noise levels at any noise sensitive
12 property by more than 10 decibels (dBA)⁵³ when turbines are operating “between cut-in speed
13 and the wind speed corresponding to the maximum sound power level.”⁵⁴ This requirement is
14 known as the “ambient noise degradation” test. To show that a proposed facility complies
15 with this test, the applicant may use an assumed ambient hourly L₅₀ noise level of 26 dBA;
16 otherwise, the applicant must measure the actual ambient hourly noise levels at the noise
17 sensitive property in accordance with the procedures specified in the regulation. OAR 340-
18 035-0035(1)(b)(B)(iii)(III) relieves the applicant from having to show compliance with the
19 ambient degradation test “if the person who owns the noise sensitive property executes a
20 legally effective easement or real covenant that benefits the property on which the wind
21 energy facility is located.”

22
23 The potential “waiver” of the ambient degradation test does not relieve the wind
24 facility from compliance with the second test imposed under OAR 340-035-0035(1)(b)(B). A
25 new wind energy facility located on a previously unused site must not radiate sound levels to
26 any noise sensitive property exceeding the noise limits specified in Table 8 of the regulation.
27 This is known as the “Table 8” or “maximum allowable” test. Table 8 provides the following
28 limits:

⁵² OAR 340-035-0015(47) defines “previously unused industrial or commercial site.” Agricultural activities are specifically excluded from this definition.

⁵³ The sound pressure level (in decibels), as measured on a sound level meter using the A-weighted filter network, which corresponds to the frequency response of the human ear.

⁵⁴ The regulation applies the test “as measured at an appropriate measurement point.” The “appropriate measurement point,” as defined by OAR 340-035-0015(3), is “25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source” or “that point on the noise sensitive property line nearest the noise source,” whichever is farther from the source. OAR 340-035-0015(38) defines “noise sensitive property” as “real property normally used for sleeping, or normally used as schools, churches, hospitals, or public libraries.” Private residences are the only “noise sensitive properties” potentially affected by Biglow. We refer to these as the “noise sensitive property.”

1

Statistical Noise Limits for Industrial and Commercial Sources		
Statistical Descriptor	Maximum Permissible Statistical Noise Levels (dBA)	
	Daytime	Nighttime
	(7:00 AM - 10:00 PM)	(10:00 PM - 7:00 AM)
L ₅₀	55	50
L ₁₀	60	55
L ₁	75	60

The hourly L₅₀, L₁₀ and L₁ noise levels are defined as the noise levels equaled or exceeded 50 percent, 10 percent and 1 percent of the hour, respectively.

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The proposed energy facility would operate on a 24-hour basis. Therefore, the noise radiating from the proposed facility must not exceed the maximum allowable nighttime noise limits (10:00 PM to 7:00 AM). Consequently, to comply with the maximum allowable test, the noise radiating from Biglow must not exceed an hourly L₅₀ noise level of 50 dBA at any noise sensitive property. For the purpose of determining whether a proposed wind facility would comply with this test, noise levels must be predicted “assuming that all of the proposed wind facility’s turbines are operating at the maximum sound power level.”

Compliance with the Regulations

OAR 340-035-0035(5)(g) specifically exempts noise caused by construction activities. Construction of Biglow would produce localized, short duration noise levels similar to those produced by any large construction project with heavy construction equipment. Much of the project work would be far removed from any noise sensitive property. Nevertheless, in those areas near residences, the certificate holder should confine the noisiest construction activities to daylight hours to help mitigate noise impacts at the residences.

Orion has elected to use the assumed ambient hourly L₅₀ noise level of 26 dBA for the background ambient noise level rather than to conduct noise measurements at the noise sensitive properties in the vicinity of the facility. Accordingly, to show compliance with the ambient degradation test, the noise generated by the operation of the proposed Biglow wind turbines between cut-in wind speed and maximum sound power level wind speed must not cause the hourly L₅₀ noise level at any noise sensitive property to exceed 36 dBA.

Orion proposes to use either 1.5-MW or 3.0-MW wind turbines in construction of the wind energy facility. The exact make and model of the turbines has not been selected, but for the purpose of predicting the noise generated by the wind facility, Orion used the sound data provided by GE for the GE 1.5-MW turbines (a guaranteed maximum sound power level of 104 dBA). Because sound data was not yet available for GE’s 3.0-MW turbines, Orion estimated the sound level of those turbines by adding 2 dB to the levels associated with the GE 1.5-MW turbines to arrive at a maximum sound power level of 106 dBA. Orion provided

1 no explanation as to why the addition of 2 dB to the levels associated with the 1.5-MW
 2 turbines would provide reliable data for the larger turbines. For the sake of conservatism,
 3 Orion then added 2 dB to the maximum sound power level for both turbines in conducting its
 4 noise analysis. In predicting the noise that would be generated by substation transformers,
 5 Orion used sound data for transformers having a National Electrical Manufacturers
 6 Association (NEMA) sound rating of 87 dBA.

8 Noise analyses were made to identify those noise sensitive properties where the
 9 facility-generated noise levels could exceed the ambient noise degradation criteria level of 36
 10 dBA and the maximum allowable noise level criteria of 50 dBA. To perform the noise
 11 analyses, Orion used the noise model, CADNA/A by DataKustik GmbH of Munich,
 12 Germany. An analysis was made for the Minimum Turbine Layout (225 1.5-MW turbines)
 13 and for the Maximum Turbine Layout (150 3.0-MW turbines). In the analyses, all turbines
 14 were assumed to be located in the center of a 500-foot-wide corridor and operating at their
 15 maximum sound power level. Three step-up transformers were assumed to be located at one
 16 of two possible substation locations. Atmospheric conditions for the analyses included
 17 temperature of 10°C and relative humidity of 70 percent. No terrain shielding was included in
 18 the analyses.

20 Orion identified 25 noise sensitive properties that have the potential of receiving
 21 hourly L₅₀ noise levels equaling or exceeding 36 dBA from the proposed facility. At two of
 22 the properties, the noise levels were predicted to equal or exceed the DEQ L₅₀ noise level
 23 criteria of 50 dBA. Table 12 shows the predicted maximum hourly L₅₀ noise levels at the 25
 24 noise sensitive properties.⁵⁵

Table 12
Predicted Noise Based on GE Turbines and
Assumed Turbine Locations

Noise Sensitive Property	Predicted Maximum Hourly L ₅₀ Noise Level at Noise Sensitive Property (dBA)
R1	45
R2	47
R3	46
R4	46
R5	47
R6	46

⁵⁵ The table shows results based on modeling data from CH2M-Hill generated in response to a December 25, 2005 request for additional information.

R7	47
R8	54
R9	45
R10	45
R11	50
R12	46
R13	47
R14	36
R15	37
R16	35
R17	37
R18	41
R19	37
R20	36
R21	39
R22	39
R23	43
R24	38
R25	37

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As shown in Table 12, the predicted noise levels at all locations except R14, R16, and R20 exceed the ambient noise degradation limit of 36 dBA. The predicted noise level at R8 and R11 meet or exceed the DEQ maximum allowable noise level limit of 50 dBA. The predicted noise levels include the sound contributed by the transformers proposed at a single substation.

In a response to a request for additional information, Orion provided information showing the amount of noise each turbine and substation would contribute to the total noise level at each noise sensitive property. That data demonstrates that in order to meet the ambient noise degradation rule, Orion must obtain ambient noise degradation waivers for most of the noise sensitive properties or eliminate or relocate further from the noise sensitive properties (but within the micrositing corridors) many of the proposed turbines. Even with the waivers, there will be a need to either eliminate or move some of the turbines influencing noise sensitive properties R8 and R11 to bring the levels into compliance with the maximum allowable noise level rule.

1 At the Council's first reading on the draft proposed order on June 6, 2006, Council
2 members generally expressed reservations about the use of non-occupancy agreements as one
3 means of demonstrating that the noise standard has been met at noise sensitive properties
4 where the predicted noise level would meet or exceed the DEQ maximum allowable noise
5 level limit of 50 dBA.

6
7 As provided under OAR 340-035-0035(1)(b)(B)(iii)(III), the certificate holder would
8 be relieved from having to show compliance with the ambient degradation test by obtaining a
9 "legally effective easement or real covenant" from the affected landowner where the noise
10 level would exceed 36 dBA but not exceed 50 dBA. To ensure that Biglow would comply
11 with the applicable state noise control regulations, the Council adopts a condition that would
12 require the certificate holder, before beginning construction of the facility, to present to the
13 Department data demonstrating that the final selected make, model and location of all turbines
14 and substations would not generate noise in excess of 36 dBA at those properties for which
15 Orion has not obtained an ambient noise degradation waiver.

16
17 To find that the siting, construction and operation of the proposed facility are
18 consistent with Oregon noise control regulations, the Council adopts the following conditions
19 in the site certificate:

20
21 **(89) To reduce noise impacts at nearby residential areas, the certificate holder
22 shall:**

- 23
24 **(a) Confine the noisiest operation of heavy construction equipment to
25 the daylight hours;**
26
27 **(b) Require contractors to install and maintain exhaust mufflers on all
28 combustion engine-powered equipment; and**
29
30 **(c) Establish a complaint response system at the construction
31 manager's office to address noise complaints.**

32
33 **(90) If the GE 1.5-MW turbines (for which the certificate holder states the
34 maximum sound power level warranted by the manufacturer is 104 dBA)
35 or the GE 3.0-MW turbines (provided the certificate holder is able to
36 demonstrate, by means of the manufacturer's warranty or other means
37 acceptable to the Department, that the maximum sound power level of the
38 GE 3.0-MW turbine is 106 dBA) will be used at the facility, before
39 beginning construction, the certificate holder shall present information
40 demonstrating to the satisfaction of the Department that each of the
41 following requirements have been met at all 25 properties identified as
42 noise sensitive properties in the site certificate application:**

- 43
44 **(a) For any noise sensitive property listed in Table 12 where the
45 predicted maximum hourly L_{50} noise level caused by the facility
46 would equal or exceed 50 dBA, the certificate holder shall identify**

1 the final design locations of all turbines to be built and perform a
2 noise analysis demonstrating, in accordance with OAR 340-035-
3 0035(1)(b)(B)(iii)(IV), that the total hourly L₅₀ noise level generated
4 by the facility would not exceed 50 dBA at the appropriate
5 measurement point. The certificate holder shall perform the noise
6 analysis using the CADNA/A by DataKustik GmbH of Munich,
7 Germany, and shall assume the following input parameters:

- 8 • The maximum sound power level warranted by the
9 manufacturer or confirmed by other means acceptable to the
10 Department
- 11 • The exact locations of the proposed turbines
- 12 • The environmental factors included in the original noise
13 analysis, *i.e.*, the temperature, relative humidity, barrier effects
14 and ground effects used in the original analysis. If the
15 certificate holder has cause to believe the environmental factors
16 included in the original noise analysis are no longer valid for a
17 particular receiver, the certificate holder shall perform the
18 noise analysis for that receiver using both the environmental
19 factors included in the original noise analysis and the
20 environmental factors the certificate holder now believes to be
21 applicable to that receiver.

22
23 (b) Where the hourly L₅₀ noise levels caused by the facility would
24 exceed 36 dBA but not exceed 50 dBA at any noise sensitive
25 property listed in Table 12, the certificate holder has obtained a
26 legally effective easement or real covenant pursuant to which the
27 owner of the property authorizes the certificate holder's operation
28 of the facility to increase ambient statistical noise levels L₁₀ and L₅₀
29 by more than 10 dBA at the appropriate measurement point. A
30 legally effective easement or real covenant shall: (i) include a legal
31 description of the burdened property (the noise sensitive property);
32 (ii) be recorded in the real property records of the county; (iii)
33 expressly benefit the certificate holder; (iv) expressly run with the
34 land and bind all future owners, lessees or holders of any interest
35 in the burdened property; and (v) not be subject to revocation
36 without the certificate holder's written approval.

37
38 (c) If, for any noise sensitive property listed in Table 12 where the
39 hourly L₅₀ noise levels caused by the facility would exceed 36 dBA
40 but not exceed 50 dBA, the certificate holder has not obtained a
41 legally effective easement or real covenant as described in (b)
42 above, the certificate holder shall identify the final design locations
43 of all turbines to be built and perform a noise analysis
44 demonstrating, in accordance with OAR 340-035-
45 0035(1)(b)(B)(iii)(IV), that the total noise generated by the facility
46 would meet the ambient noise degradation test at the appropriate

1 measurement point on those noise sensitive properties. The
2 certificate holder shall perform the noise analysis using the
3 CADNA/A by DataKustik GmbH of Munich, Germany, and shall
4 assume the following input parameters:

- 5 • The maximum sound power level warranted by the
6 manufacturer or confirmed by other means acceptable to the
7 Department
- 8 • The exact locations of the proposed turbines
- 9 • The environmental factors included in the original noise
10 analysis, *i.e.*, the temperature, relative humidity, barrier effects
11 and ground effects used in the original analysis. If the
12 certificate holder has cause to believe the environmental factors
13 included in the original noise analysis are no longer valid for a
14 particular receiver, the certificate holder shall perform the
15 noise analysis for that receiver using both the environmental
16 factors included in the original noise analysis and the
17 environmental factors the certificate holder now believes to be
18 applicable to that receiver.

19
20 (91) If turbines other than the GE 1.5-MW turbines (for which the certificate
21 holder states the maximum sound power level warranted by the
22 manufacturer is 104 dBA) or the GE 3.0-MW turbines (for which the
23 certificate holder has assumed a maximum sound power level of 106 dBA)
24 will be used at the facility, before beginning construction of the facility the
25 certificate holder shall identify the final design locations of all turbines to
26 be built, perform a complete new noise analysis for all turbines, and
27 generate a new table listing each noise sensitive property, as defined in
28 OAR 340-035-0015(3), and the predicted maximum hourly L_{50} noise level
29 at each noise sensitive property. The certificate holder shall perform the
30 noise analysis using the CADNA/A by DataKustik GmbH of Munich,
31 Germany, and shall assume the following input parameters:

- 32 • The maximum sound power level warranted by the manufacturer or
33 confirmed by other means acceptable to the Department
- 34 • The exact locations of the proposed turbines
- 35 • The environmental factors included in the original noise analysis, *i.e.*,
36 the temperature, relative humidity, barrier effects and ground effects
37 used in the original analysis. If the certificate holder has cause to
38 believe the environmental factors included in the original noise
39 analysis are no longer valid for a particular receiver, the certificate
40 holder shall perform the noise analysis for that receiver using both the
41 environmental factors included in the original noise analysis and the
42 environmental factors the certificate holder now believes to be
43 applicable to that receiver.

44
45 After generating the new table identifying noise sensitive properties and the
46 predicted maximum hourly L_{50} noise level at each noise sensitive property, the

1 **certificate holder shall meet Conditions (90)(a), (90)(b) and (90)(c) with respect to**
2 **the noise sensitive properties identified in that table.**

3
4 Conclusions of Law

5
6 Based on these findings and recommended conditions, the Council concludes that the
7 proposed facility would comply with the applicable state noise control regulations in (OAR
8 340-035-0035(1)(b)(B)). The Council adopts Conditions (89), (90) and (91) in the site
9 certificate.

10
11 **(b) Removal-Fill Law**

12
13 The Oregon Removal-Fill Law (ORS 196.800 through 990) and regulations (OAR
14 141-085-0005 through 141-085-0090) adopted by the Department of State Lands (DSL)
15 require a permit if 50 cubic yards or more of material is removed, filled or altered within any
16 "waters of the state" at the proposed site.⁵⁶ The Council must determine whether a permit is
17 needed. The U.S. Army Corps of Engineers administers Section 404 of the Clean Water Act,
18 which regulates the discharge of fill into waters of the United States (including wetlands). A
19 Nationwide or Individual fill permit may be required.

20
21 Findings of Fact

22
23 Orion provided information about wetlands and other waters of the State in Exhibit J
24 of the ASC. The analysis areas for its field investigations included a 400-foot buffer on either
25 side of proposed access roads and the centerline of proposed turbine corridors. Included in
26 that area are 22 intermittent streams that cross or lie adjacent to proposed turbine corridors,
27 access roads or collector lines. None of the soil types in the analysis area were found to be
28 hydric, and all crossings were examined in the field for indications of potential jurisdictional
29 status under state and federal guidelines for waters of the State or United States.

30
31 Based on its literature review and fieldwork, Orion found 22 crossings of USGS-
32 mapped drainages in the analysis area. Of these 22 crossings, Orion identified eight crossings
33 of six potentially jurisdictional waters of the State. It also found one wetland within the
34 analysis area. In consultation with the Oregon Department of State Lands (DSL), Orion was
35 advised that seven of these crossings did not meet the definition of "intermittent stream" and,
36 because Orion would avoid disturbance of the eighth crossing, a state removal-fill permit
37 would not be required for Biglow.⁵⁷ By locating the collector system so as to avoid any
38 impacts, Orion would also avoid disturbance of the one wetland found in the course of
39 fieldwork in the analysis area.

⁵⁶ OAR 141-085-0010(225) defines "Waters of this State." The term includes wetlands and certain other water bodies.

⁵⁷ Letter to Orion Sherman County Wind Farm LLC from Eric D. Metz, Eastern Region Operations Manager, Wetlands and Waterways Conservation Division, Oregon Department of State Lands, dated February 3, 2006.

1 Conclusions of Law

2
3 Based on these findings, the Council concludes that a Removal-Fill Permit is not
4 required.

5
6 **(c) Ground Water Act**

7
8 Through the provisions of the Ground Water Act of 1955, ORS 537.505 to 537.796,
9 and OAR Chapter 690, the Oregon Water Resources Commission administers the rights of
10 appropriation and use of the ground water resources of the state. Under OAR 345-022-
11 0000(1), the Council must determine whether the proposed Biglow facility complies with
12 these statutes and administrative rules.

13
14 Findings of Fact

15
16 Construction and operation of Biglow would not require a new or transferred water
17 right. During construction, Orion would use about 12 million gallons of water for road
18 compaction, underground collector line installation, dust suppression, and concrete mixing.
19 About half of the water would be used for dust control and the remaining half would be used
20 for all other construction activities. Orion will hold its construction contractors responsible for
21 arranging for delivery of water to the site via water trucks from a source with an existing
22 water right. The City of Wasco, Oregon (City), has agreed to provide the construction
23 contractors with water for construction activities. Orion included in the ASC a copy of the
24 City's agreement to provide this water, together with a copy of the City's existing water right.
25 The City's water right and water delivery system would allow it to provide up to about
26 125,000 gallons per day. However, the Oregon Department of Water Resources has not made
27 a final determination that the City of Wasco wells targeted for use are available. If available,
28 the City water alone should be adequate for all construction activities. If additional water is
29 needed or the City's water is unavailable, Orion's contractors will be required to secure
30 additional water from another permitted source.

31
32 During operation of the facility, water would come from a new on-site well. Because
33 the volume of water used would be less than 5,000 gallons per day, Orion would not be
34 required to obtain a new water right. ORS 537.545(1)(f) provides that a new water right is not
35 required for industrial and commercial uses of up to 5,000 gallons per day. During operation
36 of the facility, well water would be used for domestic purposes at the O&M facility and blade
37 washing. During operation of the facility, Orion would also require a source of water for
38 turbine blade washing. Orion or its contractors would acquire water for blade washing from
39 off-site, permitted sources or from the on-site well, provided the rate of consumption would
40 not exceed 5,000 gallons per day.

41
42 To find that the siting, construction and operation of the proposed facility are
43 consistent with the Ground Water Act of 1955 and the rules of the Water Resources
44 Department, the Council adopts the conditions recommended under the Public Services
45 standard pertaining to water use.

1 Conclusions of Law

2
3 Based on these findings, the Council concludes that the proposed use of ground water
4 for the construction and operation of the proposed facility would comply with the Ground
5 Water Act of 1955 and the rules of the Water Resources Department.
6

7 **(d) Public Health and Safety**

8
9 Under ORS 469.310, the Council is charged with ensuring that the “siting,
10 construction and operation of energy facilities shall be accomplished in a manner consistent
11 with protection of the public health and safety ...” State law also provides that “the site
12 certificate shall contain conditions for the protection of the public health and safety ...” ORS
13 469.401(2).
14

15 Findings of Fact

16
17 The site certificate will contain conditions for the protection of the public health and
18 safety with respect to several Council standards. In this section, we discuss the issues of fire
19 protection, electric and magnetic fields, and coordination with the Oregon Public Utility
20 Commission.
21

22 A. Fire Protection

23
24 Orion would equip wind turbines in the facility with built-in fire prevention measures
25 that allow the turbines to shut down automatically before mechanical problems create excess
26 heat or sparks. The use of underground collector cables would substantially reduce the risk of
27 fire from short circuits caused by wildlife or lightning. Most of the facility’s new access roads
28 would be oriented perpendicular to the prevailing winds and could be expected to act as
29 firebreaks. Throughout construction of the facility, Orion would clear vegetation from a
30 laydown area adjacent to each wind turbine. After completion of construction, there would be
31 no welding, cutting, grinding, or other flame- or spark-producing operations near the turbines.
32 Orion would reseed the laydown area with agricultural crops or native grasses, as appropriate.
33

34 All on-site employees during both construction and operation of the facility would
35 receive annual fire prevention and response training by a professional fire-safety training firm.
36 The volunteer fire departments from the City of Rufus and the City of Wasco would be asked
37 to participate in this training. Employees would be prohibited from smoking outside of
38 company vehicles during dry summer months.
39

40 Each on-site company vehicle would contain a fire extinguisher, water spray can,
41 shovel, emergency response procedures book, and two-way radio for immediate
42 communication with the O&M facility. The O&M facility staff would coordinate fire
43 response efforts.
44

45 Orion would place water-carrying trailers (“water buffaloes”) at appropriate locations
46 around the facility site, to be determined in consultation with the local fire departments. A

1 water buffalo would be brought to the site of any work where there is a substantial risk of fire.
2 Each water buffalo would have a capacity of 500 gallons of water and would be equipped
3 with a pump and hoses. The pumps would be 5-horsepower, engine-driven units with a
4 pumping rate of 60 gallons per minute. One-inch hoses would be stored with each water
5 buffalo. The water buffalos could be towed by a variety of vehicles, including service trucks
6 and pickup trucks. Such vehicles would be present on the site in sufficient numbers at all
7 times during construction and operation of the facility.

8
9 Local fire departments would be provided with maps and gate keys to the facility site.

10
11 To find that the siting, construction and operation of the proposed facility are
12 consistent with protection of the public health and safety, the Council adopts the following
13 conditions in the site certificate:

- 14
15 **(92) During operation of the facility, the certificate holder shall maintain built-**
16 **in fire prevention measures in each turbine that would shut down the**
17 **turbine automatically before mechanical problems create excess heat or**
18 **sparks.**
- 19
20 **(93) During construction and operation of the facility, the certificate holder**
21 **shall develop and implement fire management plans in consultation with**
22 **local fire control authorities to minimize the risk of fire and to respond**
23 **appropriately to any fires that occur on the facility site. In developing the**
24 **fire management plans, the certificate holder should take into account the**
25 **dry nature of the region and should address risks on a seasonal basis.**
- 26
27 **(94) During construction and operation of the facility, the certificate holder**
28 **shall ensure that each on-site company vehicle contains a fire extinguisher,**
29 **water spray can, shovel, emergency response procedures book, and two-**
30 **way radio for immediate communication with the O&M facility.**
- 31
32 **(95) During construction of the facility, the certificate holder shall clear**
33 **vegetation from a laydown area adjacent to each wind turbine where**
34 **welding, cutting, grinding, or other flame- or spark-producing operations**
35 **are likely to occur.**
- 36
37 **(96) Upon beginning operation of the facility, the certificate holder shall**
38 **provide to all local fire departments maps of the facility site. During**
39 **operation of the facility, the certificate holder shall provide to all local fire**
40 **departments the names and telephone numbers of facility personnel**
41 **available to respond on a 24-hour basis in case of an emergency on the**
42 **facility site.**
- 43
44 **(97) During operation of the facility, the certificate holder shall ensure that all**
45 **on-site employees receive annual fire prevention and response training by**
46 **qualified instructors or members of the local fire department and that all**

1 employees are instructed to keep vehicles on roads and off dry grassland,
2 except when off-road operation is required for emergency purposes.
3

4 (98) During operation of the facility, the certificate holder shall ensure that
5 water-carrying trailers ("water buffaloes") are maintained at strategic
6 locations around the facility site and that a water buffalo is always present
7 at a job site where there is substantial risk of fire. Each water buffalo shall
8 be equipped with one-inch hoses, have a capacity of 500 gallons of water,
9 and be equipped with a 5-horsepower pump with a pumping rate of 60
10 gallons per minute. Each water buffalo shall be capable of being towed by
11 on-site service vehicles or pickup trucks.
12

13 B. Electric and Magnetic Fields
14

15 **Electric Fields.** Electric fields can induce voltages in structures, causing electric
16 shock when the structure is touched. That is, the induced voltage causes an unwanted current
17 to flow in a person contacting the structure. Protection can be effected by either isolating the
18 structure to prevent contact or by grounding or bonding the structure. Grounding or bonding
19 provides a free path for electric current through a conducting wire or metal rod to the ground,
20 serving a function similar to that of a lightning rod. Electricity follows the path of least
21 resistance to ground, thereby reducing the possibility of a shock hazard due to stray currents.
22

23 **Magnetic Fields.** There has been public concern that exposure to magnetic fields
24 might cause health risks. This issue has been the subject of considerable scientific research
25 and discussion.
26

27 The Council considered this issue in 1993. Based on its review, the Council concluded
28 that the credible evidence relating health risks to low levels of exposure to magnetic fields
29 was inconclusive and that there was insufficient information upon which to set "health based"
30 limits for exposure to magnetic fields. The Council recommended that, given the uncertainty
31 as to health consequences, those who propose transmission lines under the Council's
32 jurisdiction should use low-cost ways to reduce or manage public exposure to magnetic fields.
33 This approach is sometimes referred to as "prudent avoidance."
34

35 Several other authorities have considered this issue and have reached conclusions
36 similar to those of the Council. As part of the 1992 Energy Policy Act, the U.S. Congress
37 authorized the Electric and Magnetic Fields Research and Public Information Dissemination
38 Program. It culminated in a report by the National Institute of Environmental Health Sciences
39 ("NIEHS") in May 1999, entitled "Health Effects from Exposure to Power-Line Frequency
40 Electric and Magnetic Fields" (NIH Publication No. 99-4493).
41

42 The NIEHS report includes the following conclusions.
43

- 44 1. The scientific evidence suggesting that extremely low frequency electric and
45 magnetic fields ("ELF-EMF") exposures pose any health risk is weak. The
46 only health impacts of concern are childhood leukemia and chronic

1 lymphocytic leukemia in occupationally exposed adults. Epidemiological
2 studies of humans show a pattern of small increased risk of leukemia with
3 increasing exposure to ELF-EMF.

- 4
- 5 2. Mechanistic studies and experimental studies on non-humans do not indicate
6 any increase in leukemia as a result of exposure to ELF-EMF, although
7 sporadic findings of increases in other forms of cancer in experimental animals
8 have been reported. A causal link that would explain the weak epidemiological
9 evidence of increased leukemia has not been found.
 - 10
 - 11 3. ELF-EMF cannot be recognized as entirely safe. However, the evidence that
12 exposure may pose a leukemia hazard is too weak to warrant aggressive
13 regulatory concern. Passive regulatory action is warranted.
 - 14

15 In June 2002, the California Department of Health Services (DHS) published an
16 assessment of the biological effects of magnetic fields. In general, the DHS found reason to
17 suspect a greater likelihood of adverse effects on human health than did the NIEHS report.
18 Like the NIEHS report, the DHS assessment reports substantial uncertainty on the effects of
19 magnetic fields. The DHS assessment has not been used by the Council to modify its existing
20 policy of prudent avoidance.

21

22 The states of Florida and New York have limits on magnetic fields from transmission
23 lines. For 500-kV lines, both states limit magnetic fields at the edge of the right-of-way to 200
24 mG. Florida has a 150-mG limit at the edge of the right-of-way for lines of 69 kV to 230 kV.

25

26 Orion calculated the potential magnetic field strengths for the proposed transmission
27 lines. The calculations showed that the greatest magnetic fields would be about 78.6 mG for
28 the 500-kV transmission line, about 305 mG for the 230-kV transmission line, about 82.6 mG
29 for the overhead segments of a single-circuit 34.5-kV collector system, and about 143.7 mG
30 for the overhead segments of a double-circuit 34.5-kV collector system. These field strengths
31 would occur at the centerline of the right-of-way. At the edge of the right-of-way (75 feet
32 from the centerline for the 230-kV transmission line, 100 feet from the centerline for the 500-
33 kV transmission line, and 200 feet from the centerline for the 34.5-kV collector system), the
34 calculated field strengths were about 55.7 mG for the 230-kV transmission line, about 11 to
35 13 mG for the 500-kV transmission line, about 1.2 mG for the single-circuit 34.5-kV collector
36 system, and about 2.8 mG for the double-circuit 34.5-kV collector system. For the
37 underground segments of the 34.5-kV collector system, the magnetic field was calculated at
38 about 62.9 mG at the centerline of the right-of-way. The magnetic fields at the edges of the
39 rights-of-way are lower than the most restrictive limits imposed by Florida.

40

41 With respect to the potential for radio and TV interference from the proposed
42 transmission lines, Orion points out that the alternative 230-kV and 500-kV transmission lines
43 may generate random corona radiation during wet weather. However, the power levels would
44 be low and difficult to detect. Orion also notes that the 34.5-kV collector system, operating in
45 a clean environment, would not cause measurable or problematic foul-weather corona noise.

1 To find that the siting, construction and operation of the proposed facility are
2 consistent with protection of the public health and safety, the Council adopts the following
3 condition in the site certificate:

4
5 **(99) The certificate holder shall take reasonable steps to reduce or manage**
6 **exposure to electromagnetic fields (EMF), consistent with Council findings**
7 **presented in the "Report of EMF Committee to the Energy Facility Siting**
8 **Council," March 30, 1993, and subsequent findings. Effective on the date**
9 **of this site certificate, the certificate holder shall provide information to**
10 **the public, upon request, about EMF levels associated with the energy**
11 **facility and related transmission lines.**

12
13 C. Coordination with the PUC

14
15 The Oregon Public Utility Commission Safety and Reliability Section ("OPUC") has
16 previously requested that the Council ensure that certificate holders coordinate with OPUC
17 staff on the design and specifications of electrical transmission lines. The OPUC has
18 explained that others in the past have made inadvertent, but costly, mistakes in the design and
19 specifications of transmission lines that could have easily been corrected early if the
20 developer had consulted with the OPUC staff responsible for the safety codes and standards.

21
22 To promote coordination between Orion and the OPUC regarding the design and
23 specifications of electrical transmission lines, the Council adopts the following condition in
24 the site certificate to ensure timely consultation:

25
26 **(100) At least 30 days before beginning preparation of detailed design and**
27 **specifications for the electrical transmission lines, the certificate holder**
28 **shall consult with the Oregon Public Utility Commission staff to ensure**
29 **that its designs and specifications are consistent with applicable codes and**
30 **standards.**

31
32 Conclusions of Law

33
34 The Council concludes that, subject to the conditions stated in this Order, the siting,
35 construction and operation of the proposed facility are consistent with protection of the public
36 health and safety. The Council adopts Conditions (92), (93), (94), (95), (96), (97), (98), (99)
37 and (100) in the site certificate.

38
39 **2. Requirements That Are Not Under Council Jurisdiction**

40
41 **(a) Federally-Delegated Programs**

42
43 Under ORS 469.503(3), the Council does not have jurisdiction for determining
44 compliance with statutes and rules for which the federal government has delegated the
45 decision on compliance to a state agency other than the Council. Nevertheless, the Council
46 may rely on the determinations of compliance and the conditions in the federally-delegated

1 permits issued by these state agencies in deciding whether the proposed facility meets other
2 standards and requirements under its jurisdiction.

3
4 Orion has applied to the Oregon Department of Environmental Quality (DEQ) for a
5 NPDES Storm Water Discharge General Permit #1200-C (for construction activities), and
6 DEQ has issued the permit. Orion has also applied to DEQ for a Wastewater General Permit
7 #1700 for blade washing activities.

8
9 **(b) Requirements That Do Not Relate to Siting**

10
11 Under ORS 469.401(4), the Council does not have authority to preempt the
12 jurisdiction of any state agency or local government over matters that are not included in and
13 governed by the site certificate or amended site certificate. Such matters include
14 design-specific construction or operating standards and practices that do not relate to siting.
15 Nevertheless, the Council may rely on the determinations of compliance and the conditions in
16 the permits issued by these state agencies and local governments in deciding whether the
17 facility meets other standards and requirements under its jurisdiction.

18
19 **VI. CONDITIONS REQUIRED BY COUNCIL RULES**

20
21 This section lists conditions to be included in the site certificate as specifically
22 required by OAR 345-027-0020 (Mandatory Conditions in Site Certificates), OAR 345-027-
23 0028 (Monitoring Conditions), and OAR Chapter 345, Division 26 (Construction and
24 Operation Rules for Facilities). All references to the Office of Energy or Office shall be
25 construed to refer to the Department of Energy. These conditions should be read together with
26 the specific facility conditions included in Sections IV and V to ensure compliance with the
27 siting standards of OAR Chapter 345, Divisions 22 and 24, and to protect the public health
28 and safety. The certificate holder shall comply with all site certificate conditions.

29
30 In addition to all other conditions stated in this order, the site certificate holder is
31 subject to all conditions and requirements contained in the rules of the Council and in local
32 ordinances and state law in effect on the date the certificate is executed. Under ORS
33 469.401(2), upon a clear showing of a significant threat to the public health, safety or the
34 environment that requires application of later-adopted laws or rules, the Council may require
35 compliance with such later-adopted laws or rules.

36
37 The Council recognizes that many specific tasks related to the design, construction,
38 operation and retirement of the facility will be undertaken by the certificate holder's agents or
39 contractors. Nevertheless, the certificate holder is responsible for ensuring compliance with
40 all provisions of the site certificate.

41
42 **(101) OAR 345-027-0020(1): The Council shall not change the conditions of the**
43 **site certificate except as provided for in OAR Chapter 345, Division 27.**
44

- 1 (102) OAR 345-027-0020(2): Except as provided in OAR 345-027-0023(6),
2 before beginning construction, the certificate holder shall submit to the
3 Office of Energy a legal description of the site.
4
- 5 (103) OAR 345-027-0020(3): The certificate holder shall design, construct,
6 operate and retire the facility:
7
- 8 (a) Substantially as described in the site certificate;
 - 9
 - 10 (b) In compliance with the requirements of ORS Chapter 469,
11 applicable Council rules, and applicable state and local laws, rules
12 and ordinances in effect at the time the site certificate is issued; and
13
 - 14 (c) In compliance with all applicable permit requirements of other
15 state agencies.
16
- 17 (104) OAR 345-027-0020(4): The certificate holder shall begin and complete
18 construction of the facility by the dates specified in the site certificate.
19
- 20 (105) OAR 345-027-0020(5): Except as necessary for the initial survey or as
21 otherwise allowed for transmission lines or pipelines under this section,
22 the certificate holder shall not begin construction, as defined in OAR 345-
23 001-0010, or create a clearing on any part of the site until the certificate
24 holder has construction rights on all parts of the site. For the purpose of
25 this rule, "construction rights" means the legal right to engage in
26 construction activities. For transmission lines or pipelines, if the certificate
27 holder does not have construction rights on all parts of the site, the
28 certificate holder may nevertheless begin construction, as defined in OAR
29 345-001-0010, or create a clearing on a part of the site if:
30
- 31 (a) The certificate holder has construction rights on that part of the
32 site; and
33
 - 34 (b) The certificate holder would construct and operate part of the
35 facility on that part of the site even if a change in the planned route
36 of the transmission line or pipeline occurs during the certificate
37 holder's negotiations to acquire construction rights on another part
38 of the site.
39
- 40 (106) OAR 345-027-0020(6): If the Council requires mitigation based on an
41 affirmative finding under any standards of Division 22 or Division 24 of
42 this chapter, the certificate holder shall consult with affected state
43 agencies and local governments designated by the Council and shall
44 develop specific mitigation plans consistent with Council findings under
45 the relevant standards. The certificate holder must submit the mitigation

1 plans to the Office and receive Office approval before beginning
2 construction or, as appropriate, operation of the facility.

3
4 (107) OAR 345-027-0020(7): The certificate holder shall prevent the
5 development of any conditions on the site that would preclude restoration
6 of the site to a useful, non-hazardous condition to the extent that
7 prevention of such site conditions is within the control of the certificate
8 holder.

9
10 (108) OAR 345-027-0020(8): Before beginning construction of the facility, the
11 certificate holder shall submit to the State of Oregon, through the Council,
12 a bond or letter of credit, satisfactory to the Council, in an amount
13 specified in the site certificate to restore the site to a useful, non-hazardous
14 condition. The certificate holder shall maintain a bond or letter of credit
15 in effect at all times until the facility has been retired. The Council may
16 specify different amounts for the bond or letter of credit during
17 construction and during operation of the facility.

18
19 (109) OAR 345-027-0020(9): The certificate holder shall retire the facility if the
20 certificate holder permanently ceases construction or operation of the
21 facility. The certificate holder shall retire the facility according to a final
22 retirement plan approved by the Council, as described in OAR 345-027-
23 0110. The certificate holder shall pay the actual cost to restore the site to a
24 useful, non-hazardous condition at the time of retirement,
25 notwithstanding the Council's approval in the site certificate of an
26 estimated amount required to restore the site.

27
28 (110) OAR 345-027-0020(10): The Council shall include as conditions in the site
29 certificate all representations in the site certificate application and
30 supporting record the Council deems to be binding commitments made by
31 the applicant.

32
33 (111) OAR 345-027-0020(11): Upon completion of construction, the certificate
34 holder shall restore vegetation to the extent practicable and shall
35 landscape portions of the site disturbed by construction in a manner
36 compatible with the surroundings and proposed use. Upon completion of
37 construction, the certificate holder shall dispose of all temporary
38 structures not required for facility operation and all timber, brush, refuse
39 and flammable or combustible material resulting from clearing of land
40 and construction of the facility.

41
42 (112) OAR 345-027-0020(12): The certificate holder shall design, engineer and
43 construct the facility to avoid dangers to human safety presented by
44 seismic hazards affecting the site that are expected to result from all
45 maximum probable seismic events. As used in this rule "seismic hazard"

1 includes ground shaking, landslide, liquefaction, lateral spreading,
2 tsunami inundation, fault displacement and subsidence.
3

- 4 (113) OAR 345-027-0020(13): The certificate holder shall notify the Office, the
5 State Building Codes Division and the Department of Geology and
6 Mineral Industries promptly if site investigations or trenching reveal that
7 conditions in the foundation rocks differ significantly from those
8 described in the application for a site certificate. After the Office receives
9 the notice, the Council may require the certificate holder to consult with
10 the Department of Geology and Mineral Industries and the Building
11 Codes Division and to propose mitigation actions.
12
- 13 (114) OAR 345-027-0020(14): The certificate holder shall notify the Office, the
14 State Building Codes Division and the Department of Geology and
15 Mineral Industries promptly if shear zones, artesian aquifers,
16 deformations or clastic dikes are found at or in the vicinity of the site.
17
- 18 (115) OAR 345-027-0020(15): Before any transfer of ownership of the facility or
19 ownership of the site certificate holder, the certificate holder shall inform
20 the Office of the proposed new owners. The requirements of OAR 345-
21 027-0100 apply to any transfer of ownership that requires a transfer of the
22 site certificate.
23
- 24 (116) OAR 345-027-0020(16): If the Council finds that the certificate holder has
25 permanently ceased construction or operation of the facility without
26 retiring the facility according to a final retirement plan approved by the
27 Council, as described in OAR 345-027-0110, the Council shall notify the
28 certificate holder and request that the certificate holder submit a
29 proposed final retirement plan to the Office within a reasonable time not
30 to exceed 90 days. If the certificate holder does not submit a proposed
31 final retirement plan by the specified date, the Council may direct the
32 Office to prepare a proposed a final retirement plan for the Council's
33 approval. Upon the Council's approval of the final retirement plan, the
34 Council may draw on the bond or letter of credit described in section (8)
35 to restore the site to a useful, non-hazardous condition according to the
36 final retirement plan, in addition to any penalties the Council may impose
37 under OAR Chapter 345, Division 29. If the amount of the bond or letter
38 of credit is insufficient to pay the actual cost of retirement, the certificate
39 holder shall pay any additional cost necessary to restore the site to a
40 useful, non-hazardous condition. After completion of site restoration, the
41 Council shall issue an order to terminate the site certificate if the Council
42 finds that the facility has been retired according to the approved final
43 retirement plan.
44
- 45 (117) OAR 345-027-0023(4): If the energy facility or related or supporting
46 facility is a transmission line, the certificate holder shall restore the

1 reception of radio and television at residences and commercial
2 establishments in the primary reception area to the level present prior to
3 operations of the transmission line, at no cost to residents experiencing
4 interference resulting from the transmission line.

5
6 (118) OAR 345-027-0023(5): If the facility includes any high voltage
7 transmission line under Council jurisdiction:

8
9 (a) The certificate holder shall design, construct and operate the
10 transmission line in accordance with the requirements of the
11 National Electrical Safety Code (American National Standards
12 Institute, Section C2, 1997 Edition); and

13
14 (b) The certificate holder shall develop and implement a program that
15 provides reasonable assurance that all fences, gates, cattle guards,
16 trailers, or other objects or structures of a permanent nature that
17 could become inadvertently charged with electricity are grounded
18 or bonded throughout the life of the line.

19
20 (119) OAR 345-027-0023(6): If the proposed energy facility is a pipeline or a
21 transmission line or has, as a related or supporting facility, a pipeline or
22 transmission line, the Council shall specify an approved corridor in the
23 site certificate and shall allow the certificate holder to construct the
24 pipeline or transmission line anywhere within the corridor, subject to the
25 conditions of the site certificate. If the applicant has analyzed more than
26 one corridor in its application for a site certificate, the Council may,
27 subject to the Council's standards, approve more than one corridor.
28 Before beginning operation of the facility, the certificate holder shall
29 submit to the Office a legal description of the permanent right-of-way
30 where the applicant has built the pipeline or transmission line within an
31 approved corridor. The site of the pipeline or transmission line subject to
32 the site certificate is the area within the permanent right-of-way.

33
34 (120) OAR 345-027-0028: The following general monitoring conditions apply:

35
36 (a) The certificate holder shall consult with affected state agencies,
37 local governments and tribes and shall develop specific monitoring
38 programs for impacts to resources protected by the standards of
39 divisions 22 and 24 of this chapter and resources addressed by
40 applicable statutes, administrative rules and local ordinances. The
41 certificate holder must submit the monitoring programs to the
42 Office of Energy and receive Office approval before beginning
43 construction or, as appropriate, operation of the facility.
44

- 1 (b) The certificate holder shall implement the approved monitoring
2 programs described in section (a) and monitoring programs
3 required by permitting agencies and local governments.
4
- 5 (c) For each monitoring program described in sections (a) and (b), the
6 certificate holder shall have quality assurance measures approved
7 by the Office before beginning construction or, as appropriate,
8 before beginning commercial operation.
9
- 10 (d) If the certificate holder becomes aware of a significant
11 environmental change or impact attributable to the facility, the
12 certificate holder shall, as soon as possible, submit a written report
13 to the Office describing the impact on the facility and any affected
14 site certificate conditions.
15

16 (121) OAR 345-026-0048: Following receipt of the site certificate, the certificate
17 holder shall implement a plan that verifies compliance with all site
18 certificate terms and conditions and applicable statutes and rules. As a
19 part of the compliance plan, to verify compliance with the requirement to
20 begin construction by the date specified in the site certificate, the
21 certificate holder shall report promptly to the Office of Energy when
22 construction begins. Construction is defined in OAR 345-001-0010. In
23 reporting the beginning of construction, the certificate holder shall
24 describe all work on the site performed before beginning construction,
25 including work performed before the Council issued the site certificate,
26 and shall state the cost of that work. For the purpose of this exhibit, "work
27 on the site" means any work within a site or corridor, other than
28 surveying, exploration or other activities to define or characterize the site
29 or corridor. The certificate holder shall document the compliance plan
30 and maintain it for inspection by the Department or the Council.
31

32 (122) OAR 345-026-0080: The certificate holder shall report according to the
33 following requirements:
34

- 35 (a) General reporting obligation for non-nuclear facilities under
36 construction or operating:
37
- 38 (i) Within six months after beginning construction, and every
39 six months thereafter during construction of the energy
40 facility and related or supporting facilities, the certificate
41 holder shall submit a semiannual construction progress
42 report to the Council. In each construction progress report,
43 the certificate holder shall describe any significant changes
44 to major milestones for construction. The certificate holder
45 shall include such information related to construction as
46 specified in the site certificate. When the reporting date

1 coincides, the certificate holder may include the
2 construction progress report within the annual report
3 described in this rule;
4

5 (ii) The certificate holder shall, within 120 days after the end of
6 each calendar year after beginning construction, submit an
7 annual report to the Council addressing the subjects listed
8 in this rule. The Council secretary and the certificate holder
9 may, by mutual agreement, change the reporting date.
10

11 (iii) To the extent that information required by this rule is
12 contained in reports the certificate holder submits to other
13 state, federal or local agencies, the certificate holder may
14 submit excerpts from such other reports to satisfy this rule.
15 The Council reserves the right to request full copies of such
16 excerpted reports.
17

18 (b) In the annual report, the certificate holder shall include the
19 following information for the calendar year preceding the date of
20 the report:
21

22 (i) **Facility Status:** An overview of site conditions, the status of
23 facilities under construction, and a summary of the
24 operating experience of facilities that are in operation. In
25 this section of the annual report, the certificate holder shall
26 describe any unusual events, such as earthquakes,
27 extraordinary windstorms, major accidents or the like that
28 occurred during the year and that had a significant adverse
29 impact on the facility;
30

31 (ii) **Reliability and Efficiency of Power Production:** For electric
32 power plants,
33

34 (A) The plant availability and capacity factors for the
35 reporting year. If equipment failures or plant
36 breakdowns had a significant impact on those
37 factors, the certificate holder shall describe them and
38 its plans to minimize or eliminate their recurrence;
39

40 (B) The efficiency with which the power plant converts
41 fuel into electric energy. If the fuel chargeable to
42 power heat rate was evaluated when the facility was
43 sited, the certificate holder shall calculate efficiency
44 using the same formula and assumptions, but using
45 actual data; and
46

1 (C) The facility's annual hours of operation by fuel type
2 and, every five years after beginning operation, a
3 summary of the annual hours of operation by fuel
4 type as described in OAR 345-024-0590(5);
5

6 (iii) Status of Surety Information: Documentation
7 demonstrating that bonds or letters of credit as described in
8 the site certificate are in full force and effect and will remain
9 in full force and effect for the term of the next reporting
10 period;
11

12 (iv) Industry Trends: A discussion of any significant industry
13 trends that may affect the operations of the facility;
14

15 (v) Monitoring Report: A list and description of all significant
16 monitoring and mitigation activities performed during the
17 previous year in accordance with site certificate terms and
18 conditions, a summary of the results of those activities, and
19 a discussion of any significant changes to any monitoring or
20 mitigation program, including the reason for any such
21 changes;
22

23 (vi) Compliance Report: A description of all instances of
24 noncompliance with a site certificate condition. For ease of
25 review, the certificate holder shall, in this section of the
26 report, use numbered subparagraphs corresponding to the
27 applicable sections of the site certificate;
28

29 (vii) Facility Modification Report: A summary of changes to the
30 facility that the certificate holder has determined do not
31 require a site certificate amendment in accordance with
32 OAR 345-027-0050; and
33

34 (viii) Nongenerating Facility Carbon Dioxide Emissions: For
35 nongenerating facilities that emit carbon dioxide, a report of
36 the annual fuel use by fuel type and annual hours of
37 operation of the carbon dioxide emitting equipment as
38 described in OAR 345-024-0630(4).
39

40 (123) OAR 345-026-0100: The certificate holder shall promptly notify the Office
41 of Energy of any changes in major milestones for construction,
42 decommissioning, operation or retirement schedules. Major milestones are
43 those identified by the certificate holder in its construction, retirement or
44 decommissioning plan.
45

1 (124) **OAR 345-026-0105**: The certificate holder and the Office of Energy shall
2 exchange copies of all correspondence or summaries of correspondence
3 related to compliance with statutes, rules and local ordinances on which
4 the Council determined compliance, except for material withheld from
5 public disclosure under state or federal law or under Council rules. The
6 certificate holder may submit abstracts of reports in place of full reports;
7 however, the certificate holder shall provide full copies of abstracted
8 reports and any summarized correspondence at the request of the Office
9 of Energy.

10
11 (125) **OAR 345-026-0170**: The certificate holder shall notify the Office of
12 Energy within 72 hours of any occurrence involving the facility if:

- 13
14 (a) There is an attempt by anyone to interfere with its safe operation;
15
16 (b) A natural event such as an earthquake, flood, tsunami or tornado,
17 or a human-caused event such as a fire or explosion affects or
18 threatens to affect the public health and safety or the environment;
19 or
20
21 (c) There is any fatal injury at the facility.
22

23 VII. GENERAL CONCLUSION

24
25 In accordance with ORS 469.503, in order to issue a site certificate, the Council must
26 determine that the preponderance of the evidence on the record supports the following
27 conclusions:
28

- 29 1. The proposed Biglow Canyon Wind Farm complies with the requirements of
30 the Oregon Energy Facility Siting statutes, ORS 469.300 to 469.520.
31
32 2. The proposed Biglow Canyon Wind Farm complies with the standards adopted
33 by the Council pursuant to ORS 469.501.
34
35 3. The proposed Biglow Canyon Wind Farm complies with the statewide
36 planning goals adopted by the Land Conservation and Development
37 Commission.
38
39 4. The proposed Biglow Canyon Wind Farm complies with all other Oregon
40 statutes and administrative rules identified in the project order as applicable to
41 the issuance of a site certificate for the proposed facility.
42

43 Based on the findings of fact, reasoning, and conclusions of law in this order, the
44 Council concludes that these requirements are met, subject to the conditions stated in this
45 order.

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
[JUNE 30, 2006]

1
2 This plan describes wildlife monitoring that the certificate holder shall conduct during
3 operation of the Biglow Canyon Wind Farm (“Biglow”)¹. The monitoring objectives are to
4 determine whether operation of the facility causes significant fatalities of birds and bats and to
5 determine whether the facility results in a loss of habitat quality. The Biglow facility consists of
6 up to 225 wind turbines with a maximum generating capacity of 450 MW, up to 10 permanent
7 meteorological towers and other related or supporting facilities as described in the site certificate.
8 Biglow may be built in phases.

9
10 The certificate holder shall use experienced personnel to manage the monitoring required
11 under this plan and properly trained personnel to conduct the monitoring, subject to approval by
12 the Oregon Department of Energy (“Department”) as to professional qualifications. For all
13 components of this plan except the Wildlife Incident Response and Handling System, the
14 certificate holder shall direct a qualified independent third-party biological monitor, as approved
15 by the Department, to perform monitoring tasks.

16
17 The Wildlife Monitoring and Mitigation Plan for Biglow has the following components:

- 18
19 1) Fatality Monitoring Program including:
20
21 a) Removal Trials
22
23 b) Searcher Efficiency Trials
24
25 c) Fatality Monitoring Search Protocol
26
27 d) Statistical Analysis
28
29 2) Raptor Nesting Surveys
30
31 3) Avian Use and Behavior Surveys
32
33 4) Wildlife Incident Response and Handling System
34

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

37
38 The selection of the mitigation actions that the certificate holder may be required to
39 implement under this plan should allow for flexibility in creating appropriate responses to

¹ This document does not address all mitigation. The Application for Site Certificate includes proposed actions taken to avoid and reduce impacts. The Revegetation Plan addresses actions to restore habitat damaged by construction. The Habitat Mitigation Plan address actions to mitigate for the permanent loss of habitat from the “footprint” of the facility as well as assumed reduction in habitat quality due to “displacement” of bird species that rely on grassland habitat. The Proposed Order contains conditions the certificate holder must meet.

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1 monitoring results that cannot be known in advance. If the Department determines that
2 mitigation is needed, the certificate holder shall propose appropriate mitigation actions to the
3 Department and shall carry out mitigation actions approved by the Department, subject to review
4 by the Oregon Energy Facility Council ("Council").

5
6 **1. Fatality Monitoring**

7
8 **(a) Definitions and Methods**

9
10 Seasons

11
12 This plan uses the following dates for defining seasons:

13

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

14
15 Search Plots

16
17 The certificate holder shall conduct fatality monitoring within search plots. The
18 certificate holder, in consultation with the Oregon Department of Fish and Wildlife ("ODFW"),
19 shall select search plots based on the following sampling scheme, consistent with the sample size
20 requirements for that phase of the facility, as outlined below: All end-of-row and 2nd-to-end-of-
21 row wind turbines closest to the John Day River will be searched within the 8 proposed turbine
22 corridors closest to the John Day River. Among the remaining turbines in that phase of the
23 facility, representative turbines (e.g., every third turbine) will be sampled based on a systematic
24 sample, consistent with the sample size described below. Turbine corridors will be broken into
25 square or circular search plots that contain one turbine each. The edge of each plot will be no
26 closer to the center of the turbine tower than the distance equal to the distance from the ground to
27 the rotor tip when the rotor is in the 12 o'clock position ("maximum tip height").

28
29 The certificate holder shall provide maps of the search plots to the Department and
30 ODFW before beginning fatality monitoring at the facility. The certificate holder will use the
31 same search plots for each search conducted during each specific monitoring year. During the
32 second monitoring year, the same end-of-row turbines nearest the John Day River will be
33 sampled, but new samples will be selected from the turbines not sampled during the first
34 monitoring year.

35
36 Sample Size for Standardized Carcass Searches

37
38 The sample size for fatality monitoring is the number of turbines searched per monitoring
39 year. The facility may be built in phases. For the first phase of development, standardized carcass
40 searches (fatality monitoring) during the first two monitoring years will be conducted in search
41 plots that include a minimum of 40 percent of the wind turbines in that phase but not fewer than

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
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1 50 turbines, unless the entire phase is fewer than 50 turbines, in which event all turbines will be
2 sampled.

3
4 The sample size for future phases of the facility, if they are built, will be based on
5 whether, under Section 1(g) of this plan, mitigation is required based on the results of fatality
6 monitoring of the first phase.

7
8 If no mitigation is required under Section 1(g) of this plan based on the results of fatality
9 monitoring of the first phase, then the sample size for monitoring future phases of the facility
10 may be reduced appropriately if the Department concurs.

11
12 However, if mitigation is required under Section 1(g) of this plan based on the results of
13 fatality monitoring of the first phase, then the certificate holder shall propose an appropriate
14 sample size for monitoring the next phase of the facility. The need for, and scope of, fatality
15 monitoring for subsequent phases are subject to the approval of the Department.

16
17 *Scheduling and Sampling Frequency*

18
19 Fatality monitoring will begin upon the commencement of commercial operation of the
20 facility. If the facility is constructed in phases, fatality-monitoring studies for each phase will
21 begin upon commercial operation of that phase.

22
23 For each phase, the first fatality monitoring year will commence on the first day of the
24 month following the commercial operation date of that phase of the facility and will conclude
25 twelve months later (for example, if commercial operation begins in October of 2007, the
26 monitoring year will commence on November 1, 2007, and conclude on October 31, 2008).
27 Subsequent monitoring years of that phase will follow the same schedule (for example, the
28 second monitoring year would begin November 1, 2008) unless the second fatality-monitoring
29 year is postponed with the concurrence of the Department.

30
31 In each monitoring year, the certificate holder shall conduct fatality-monitoring searches
32 at the rates of frequency shown below. Over the course of one monitoring year, the certificate
33 holder would conduct 16 searches², as follows:

34

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

35

² Fewer than 16 searches may be conducted if searches are not possible due to safety reasons or severe weather.

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1 Duration of Fatality Monitoring

2
3 Fatality monitoring of the first phase of the facility will be complete after two monitoring
4 years, except as follows: A “worst-case” analysis will be used to resolve any uncertainty in the
5 results of the two years of monitoring data for purposes of determining the mitigation
6 requirements for the facility. If the first two years of monitoring data indicate the potential for
7 unexpected impacts of a type that cannot be resolved appropriately by “worst-case” analysis and
8 appropriate mitigation, additional, targeted monitoring may be conducted for the first phase of
9 the facility for up to an additional two years before determining the mitigation requirements for
10 the facility, or, alternatively, sample sizes larger than those outlined above will be used in
11 monitoring of subsequent phases of development of the facility.

12
13 Meteorological Towers

14
15 The facility will most likely use unguyed meteorological towers. Unguyed towers are
16 known to cause little if any bird and bat mortality. Therefore, monitoring will not occur at
17 unguyed meteorological towers. If the meteorological towers are guyed, the certificate holder
18 shall search all towers on the same monitoring schedule as fatality monitoring. The certificate
19 holder will use circular search plots. The radius of the circular search plots will extend a
20 minimum of 5 meters beyond the most distant guy wire anchor point.

21
22 (b) Removal Trials

23
24 The objective of the removal trials is to estimate the length of time avian and bat
25 carcasses remain in the search area. Carcass removal studies will be conducted during each
26 season in the vicinity of the search plots. Estimates of carcass removal rates will be used to
27 adjust carcass counts for removal bias. “Carcass removal” is the disappearance of a carcass from
28 the search area due to predation, scavenging or other means such as farming activity. Removal
29 rates will be estimated by habitat and season.

30
31 During the first phase, the certificate holder shall conduct carcass removal trials within
32 each of the seasons defined above during the years in which fatality monitoring occurs. During
33 the first year in which fatality monitoring occurs, trials will occur in at least eight different
34 calendar weeks in a year, with at least one calendar week between starting dates. Trials will be
35 spread throughout the year to incorporate the effects of varying weather, farming practices and
36 scavenger densities. At least two trials will be started in each season. Each trial will use at least
37 20 carcasses. For each trial, at least 5 small bird carcasses and at least 5 large bird carcasses will
38 be distributed in cultivated agriculture habitat and at least 3 small bird carcasses and at least 3
39 large bird carcasses will be distributed in non-cultivated habitat (grassland/shrub-steppe and
40 CRP). In a year, about 100 carcasses will be placed in cultivated agriculture and about 60 in non-
41 cultivated grassland/shrub-steppe and CRP for a total of about 160 trial carcasses. The number of
42 removal trials may be reduced to one per season (80 trial carcasses) during the second year of
43 fatality monitoring, subject to approval by the Department, if the certificate holder can
44 demonstrate that the calculation of fatality rates will continue to have statistical validity with the
45 reduced sample size.

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

4
5 The “small bird” size class will use carcasses of house sparrows, starlings, commercially
6 available game bird chicks or legally obtained native birds to simulate passerines. The “large
7 bird” size class will use carcasses of raptors provided by agencies, commercially available adult
8 game birds or cryptically colored chickens to simulate raptors, game birds and waterfowl. If
9 fresh bat carcasses are available, they may also be used.

10
11 To avoid confusion with turbine-related fatalities, planted carcasses will not be placed in
12 fatality monitoring search plots. Planted carcasses will be placed in the vicinity of search plots
13 but not so near as to attract scavengers to the search plots. The planted carcasses will be located
14 randomly within the carcass removal trial plots.

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

21
22 It is expected that carcasses will be checked as follows, although actual intervals may
23 vary. Carcasses will be checked for a period of 40 days to determine removal rates. They will be
24 checked about every day for the first 4 days, and then on day 7, day 10, day 14, day 20, day 30
25 and day 40. This schedule may vary depending on weather and coordination with the other
26 survey work. At the end of the 40-day period, the trial carcasses and scattered feathers will be
27 removed.

28
29 **(c) Searcher Efficiency Trials**

30
31 The objective of searcher efficiency trials is to estimate the percentage of bird and bat
32 fatalities that searchers are able to find. The certificate holder shall conduct searcher efficiency
33 trials on the fatality monitoring search plots in both grassland/shrub-steppe and cultivated
34 agriculture habitat types. Searcher efficiency will be estimated by habitat type and season.
35 Estimates of searcher efficiency will be used to adjust carcass counts for detection bias.

36
37 During the first phase, searcher efficiency trials will be conducted in each season as
38 defined above, during the years in which the fatality monitoring occurs. Trials will be spread
39 throughout the year to incorporate the effects of varying weather, farming practices and
40 scavenger densities. At least two trials will be conducted in each season. Each trial will use about
41 20 carcasses, although the number will be variable so that the searcher will not know the total
42 number of trial carcasses being used in any trial. For each trial, both small bird and large bird
43 carcasses will be used in about equal numbers. “Small bird” and “large bird” size classes and
44 carcass selection are as described above for the removal trials. A greater proportion of the trial
45 carcasses will be distributed in cultivated agriculture habitat than in non-cultivated habitat
46 (grassland/shrub steppe and CRP). In a year, about 100 carcasses will be placed in cultivated

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1 agriculture and about 60 in non-cultivated grassland/shrub steppe and CRP for a total of about
2 160 trial carcasses. The number of searcher efficiency trials may be reduced to one per season
3 (80 trial carcasses) during the second year of fatality monitoring, subject to approval by the
4 Department, if the certificate holder can demonstrate that the calculation of fatality rates will
5 continue to have statistical validity with the reduced sample size.

6
7 The need for, and scope of, searcher efficiency trials for subsequent phases may be
8 modified based on the variability of results of searcher efficiency trials for the first phase, subject
9 to the approval of the Department.

10
11 Personnel conducting searches will not know in advance when trials are conducted; nor
12 will they know the location of the trial carcasses. If suitable trial carcasses are available, trials
13 during the fall season will include several small brown birds to simulate bat carcasses. Legally
14 obtained bat carcasses will be used if available.

15
16 On the day of a standardized fatality monitoring search (described below) but before the
17 beginning of the search, efficiency trial carcasses will be placed at random locations within areas
18 to be searched. If scavengers appear attracted by placement of carcasses, the carcasses will be
19 distributed before dawn.

20
21 Searcher efficiency trials will be spread over the entire season to incorporate effects of
22 varying weather and vegetation growth. Carcasses will be placed in a variety of postures to
23 simulate a range of conditions. For example, birds will be: 1) placed in an exposed posture
24 (thrown over the shoulder), 2) hidden to simulate a crippled bird and 3) partially hidden.

25
26 Each non-domestic carcass will be discreetly marked so that it can be identified as an
27 efficiency trial carcass after it is found. The number and location of the efficiency trial carcasses
28 found during the carcass search will be recorded. The number of efficiency trial carcasses
29 available for detection during each trial will be determined immediately after the trial by the
30 person responsible for distributing the carcasses.

31
32 If new searchers are brought into the search team, additional detection trials will be
33 conducted to ensure that detection rates incorporate searcher differences.

34
35 (d) Coordination with the Klondike III Wind Project

36
37 The proposed Klondike III Wind Project lies to the south of the Biglow on similar terrain
38 and habitat. If the Council approves site certificates for both facilities and requires similar
39 wildlife monitoring, coordination of removal trials and searcher efficiency trials would be
40 possible. Subject to the approval of both certificate holders and the Department, the number of
41 trials at each site and the number of trial carcasses used at each site can be reduced by combining
42 the removal data and efficiency data from both facilities, if the certificate holder can demonstrate
43 that the calculation of fatality rates will continue to have statistical validity for both facilities and
44 that combining the data will not affect any other requirements of the monitoring plans for either
45 facility.

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1 (e) Fatality Monitoring Search Protocol
2

3 The objective of fatality monitoring is to estimate the number of bird and bat fatalities
4 that are attributable to facility operation and associated variances. The certificate holder shall
5 conduct fatality monitoring using standardized carcass searches.
6

7 The certificate holder shall use a worst-case analysis to resolve any uncertainty in the
8 results and to determine whether the data indicate that additional mitigation should be
9 considered. The Department may require additional, targeted monitoring if the data indicate the
10 potential for significant impacts that cannot be addressed by worst-case analysis and appropriate
11 mitigation.
12

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

20 Personnel trained in proper search techniques (“the searchers”) will conduct the carcass
21 searches by walking parallel transects within the search plots.³ Transects will be initially set at 6
22 meters apart in the area to be searched. A searcher will walk at a rate of about 45 to 60 meters
23 per minute along each transect searching both sides out to three meters for casualties. Search area
24 and speed may be adjusted by habitat type after evaluation of the first searcher efficiency trial.
25 The searchers will record the condition of each carcass found, using the following condition
26 categories:
27

- 28 ■ Intact – a carcass that is completely intact, is not badly decomposed and shows no
29 sign of being fed upon by a predator or scavenger
- 30 ■ Scavenged – an entire carcass that shows signs of being fed upon by a predator or
31 scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs,
32 pieces of skin, etc.)
- 33 ■ Feather Spot – 10 or more feathers at one location indicating predation or scavenging
34 or 2 or more primary feathers
35

36 All carcasses (avian and bat) found during the standardized carcass searches will be
37 photographed as found, recorded and labeled with a unique number. Distance from observer to
38 the carcass will be measured (to the nearest 0.25 meters), as will the perpendicular distance from
39 the transect line to the carcass. Each carcass will be bagged and frozen for future reference and
40 possible necropsy. A copy of the data sheet for each carcass will be kept with the carcass at all
41 times. For each carcass found, searchers will record species, sex and age when possible, date and
42 time collected, location, condition (e.g., intact, scavenged, feather spot) and any comments that
43 may indicate cause of death. Searchers will map the find on a detailed map of the search area
44 showing the location of the wind turbines and associated facilities such as power lines. The

³ Where search plots are adjacent, the search area may be rectangular.

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1 certificate holder shall coordinate collection of state endangered, threatened or protected species
2 with ODFW. The certificate holder shall coordinate collection of federal endangered, threatened
3 or protected species with the U.S. Fish and Wildlife Service (USFWS). The certificate holder
4 shall obtain appropriate collection permits from ODFW and USFWS.
5

6 The searchers might discover carcasses incidental to formal carcass searches (e.g., while
7 driving within the project area). For each incidentally discovered carcass, the searcher shall
8 identify, photograph, record data and collect the carcass as would be done for carcasses within
9 the formal search sample during scheduled searches
10

11 If the incidentally discovered carcass is found within a formal search plot, the fatality
12 data will be included in the calculation of fatality rates. If the incidentally discovered carcass is
13 found outside a formal search plot, the data will be reported separately.
14

15 The certificate holder shall coordinate collection of incidentally discovered state
16 endangered, threatened or protected species with ODFW. The certificate holder shall coordinate
17 collection of incidentally discovered federal endangered, threatened or protected species with the
18 USFWS.
19

20 The certificate holder shall develop and follow a protocol for handling injured birds. Any
21 injured native birds found on the facility site will be carefully captured by a trained project
22 biologist or technician and transported to Jean Cypher (wildlife rehabilitator) in The Dalles, the
23 Blue Mountain Wildlife Rehabilitation Center in Pendleton or the Audubon Bird Care Center in
24 Portland in a timely fashion.⁴ The certificate holder shall pay costs, if any are charged, for time
25 and expenses related to care and rehabilitation of injured native birds found on the site, unless
26 the cause of injury is clearly demonstrated to be unrelated to the facility operations.
27

28 (f) Statistical Methods for Fatality Estimates
29

30 The estimate of the total number of wind facility-related fatalities is based on:
31

- 32 (1) The observed number of carcasses found during standardized searches during the two
33 monitoring years for which the cause of death is attributed to the facility.⁵
34
35 (2) Searcher efficiency expressed as the proportion of planted carcasses found by
36 searchers.
37
38 (3) Non-removal rates expressed as the estimated average probability a carcass is
39 expected to remain in the study area and be available for detection by the searchers
40 during the entire survey period.

⁴ The people and centers listed here may be changed with Department approval.

⁵ If a different cause of death is not apparent, the fatality will be attributed to facility operation.

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1
2 Definition of Variables

3
4 The following variables are used in the equations below:

5

6	c_i	the number of carcasses detected at plot i for the study period of interest (e.g., one
7		year) for which the cause of death is either unknown or is attributed to the facility
8		
9	n	the number of search plots
10		
11	k	the number of turbines searched (includes the turbines centered within each
12		search plot and a proportion of the number of turbines adjacent to search plots to
13		account for the effect of adjacent turbines on the 90-meter search plot buffer area)
14		
15	\bar{c}	the average number of carcasses observed per turbine per year
16		
17	s	the number of carcasses used in removal trials
18		
19	s_c	the number of carcasses in removal trials that remain in the study area after 40
20		days
21		
22	se	standard error (square of the sample variance of the mean)
23		
24	t_i	the time (days) a carcass remains in the study area before it is removed
25		
26	\bar{t}	the average time (days) a carcass remains in the study area before it is removed
27		
28	d	the total number of carcasses placed in searcher efficiency trials
29		
30	p	the estimated proportion of detectable carcasses found by searchers
31		
32	I	the average interval between searches in days
33		
34	$\hat{\pi}$	the estimated probability that a carcass is both available to be found during a
35		search and is found
36		
37	m_t	the estimated annual average number of fatalities per turbine per year, adjusted
38		for removal and observer detection bias
39		
40	C	nameplate energy output of turbine in megawatts (MW)

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1
2 Observed Number of Carcasses

3
4 The estimated average number of carcasses (\bar{c}) observed per turbine per year is:
5

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

7 Estimation of Carcass Removal

8
9 Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean carcass
10 removal time (\bar{t}) is the average length of time a carcass remains at the site before it is removed:
11

12
$$\bar{t} = \frac{\sum_{i=1}^s t_i}{s - s_c} \quad (2)$$

13 This estimator is the maximum likelihood estimator assuming the removal times follow an
14 exponential distribution and there is right-censoring of data. Any trial carcasses still remaining at
15 40 days are collected, yielding censored observations at 40 days. If all trial carcasses are
16 removed before the end of the trial, then s_c is 0, and \bar{t} is just the arithmetic average of the
17 removal times. Removal rates will be estimated by carcass size (small and large) and season.
18

19 Estimation of Observer Detection Rates

20
21 Observer detection rates (i.e., searcher efficiency rates) are expressed as p , the proportion of trial
22 carcasses that are detected by searchers. Observer detection rates will be estimated by carcass
23 size and season.
24

25 Estimation of Facility-Related Fatality Rates

26
27 The estimated per turbine annual fatality rate (m_i) is calculated by:
28

29
$$m_i = \frac{\bar{c}}{\hat{\pi}} \quad (3)$$

30 where $\hat{\pi}$ includes adjustments for both carcass removal (from scavenging and other means) and
31 observer detection bias assuming that the carcass removal times t_i follow an exponential
32 distribution unless a different assumption about carcass removal is made with the approval of the
33 Department. Under these assumptions, this detection probability is estimated by:
34

35
$$\hat{\pi} = \frac{\bar{t} \cdot p}{I} \cdot \left[\frac{\exp\left(\frac{I}{\bar{t}}\right) - 1}{\exp\left(\frac{I}{\bar{t}}\right) - 1 + p} \right] \quad (4)$$

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

$$m = \frac{m_t}{C} \tag{5}$$

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{i} , p , $\hat{\pi}$ and m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap estimates is the estimated standard error. The lower 5th and upper 95th percentiles of the 5000 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

Nocturnal Migrant and Bat Fatalities

Differences in observed nocturnal 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 Biglow:

Species Group	Threshold of Concern (fatalities per MW)
Raptors (All eagles, hawks, falcons and owls, including burrowing owls.)	0.09
Raptor species of special concern (Swainson's hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl and any federal threatened or endangered raptor species.)	0.06
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.)	0.59
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.20

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Bat species as a group	2.50
Guyed Meteorological Tower Mortality	
Raptor T&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)	0.20/ guyed tower
Avian State Sensitive Species listed under OAR 635-100-0040 (Excluding raptors)	0.20/ guyed tower

1
2 In addition, mitigation may be appropriate if fatality rates for individual species
3 (especially State Sensitive Species) are higher than expected and at a level of biological concern.
4 If the data show that a threshold of concern for a species group has been exceeded or that the
5 fatality rate for any individual species is at a level of biological concern, mitigation shall be
6 required if the Department determines that mitigation is appropriate based on analysis of the data
7 and any other significant information available at the time. If mitigation is appropriate, the
8 certificate holder, in consultation with ODFW, shall propose mitigation measures designed to
9 benefit the affected species. This may take into consideration whether mitigation required or
10 provided for other impacts, such as raptor nesting or grassland bird displacement, would also
11 benefit the affected species.

12
13 The certificate holder shall implement mitigation as approved by the Council. The
14 Department may recommend additional, targeted data collection if the need for mitigation is
15 unclear based on the information available at the time. The certificate holder shall implement
16 such data collection as approved by the Council.

17
18 Mitigation shall be designed to benefit the affected species group. Mitigation may
19 include, but is not limited to, protection of nesting habitat for the affected group of native species
20 through a conservation easement or similar agreement. Tracts of land that are intact and
21 functional for wildlife are preferable to degraded habitat areas. Preference should be given to
22 protection of land that would otherwise be subject to development or use that would diminish the
23 wildlife value of the land. In addition, mitigation measures might include: enhancement of the
24 protected tract by weed removal and control; increasing the diversity of native grasses and forbs;
25 planting sagebrush or other shrubs; constructing and maintaining artificial nest structures for
26 raptors; reducing cattle grazing; improving wildfire response; and local research that would aid
27 in understanding more about the species and conservation needs.

28
29 If the threshold for bats species as a group is exceeded, the Certificate Holder shall
30 contribute to Bat Conservation International or to a Pacific Northwest bat conservation group
31 (\$10,000 per year for three years) to fund new or ongoing research in the Pacific Northwest to
32 better understand impacts to the bat species impacted by the facility and to develop possible
33 ways to reduce impacts to the affected species.

34
35 In addition, mitigation may be appropriate if fatality rates for a State Sensitive bat species
36 listed under OAR 635-100-0040 are higher than expected and at a level of concern. If the data
37 show that a threshold of concern for a species group has been exceeded or that the fatality rate
38 for any individual species is at a level of concern, mitigation shall be required if the Department
39 determines that mitigation is appropriate based on analysis of the data and any other significant
40 information available at the time. If mitigation is appropriate, the certificate holder, in

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
[JUNE 30, 2006]

1 consultation with ODFW, shall propose mitigation measures designed to benefit the affected
2 species. The certificate holder shall implement mitigation as approved by the Council.

3
4 2. Raptor Nest Surveys

5
6 The objectives of raptor nest surveys are to estimate the size of the local breeding
7 populations of tree or other above-ground-nesting raptor species in the vicinity of the facility and
8 to determine whether operation of the facility results in a reduction of nesting activity or nesting
9 success in the local populations of the following raptor species: Swainson's hawk, ferruginous
10 hawk and golden eagle.

11
12 (a) Survey Protocol

13
14 For the species listed above, aerial and ground surveys will be used to gather nest success
15 data on active nests, nests with young and young fledged. The certificate holder will share the
16 data with state and federal biologists. The certificate holder shall conduct two years of post-
17 construction raptor nest surveys for each phase of construction and long-term raptor nest surveys
18 for the completed facility during the sensitive nesting and breeding season. One year of post-
19 construction surveys will be done in the first nesting season after construction of the phase is
20 completed. The second year of post-construction surveys will be done after construction of the
21 phase is completed at a time recommended by the certificate holder and approved by the
22 Department. Long-term surveys will be conducted starting in the fifth year following completion
23 of the last post-construction survey and each five years thereafter for the life of the facility. The
24 certificate holder may collaborate with other certificate holders in the vicinity of the facility in
25 the development of useful information about future impacts on raptor nesting activity and nesting
26 success.

27
28 Prior to the raptor nesting surveys, the locations of known raptor nests will be reviewed
29 from the Biglow and Klondike Wind Project pre-construction surveys as well as any nest survey
30 data collected after construction. All known nest sites and any new nests observed within the
31 Biglow site and within two miles of the Biglow site will be given identification numbers. Nest
32 locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global
33 positioning system coordinates will be recorded for each nest and integrated with the baseline
34 database. Locations of inactive nests will also be recorded as they may become occupied during
35 future years.

36
37 During each raptor nesting monitoring year, the certificate holder shall conduct a
38 minimum of one helicopter survey in late May or early June within the Biglow site and a 2-mile
39 zone around the turbines to determine nest occupancy. Determining nest occupancy will likely
40 require two visits to each nest: The second visit may be done by air or by ground as appropriate.
41 For occupied nests of the species identified above, the certificate holder shall determine nesting
42 success by a minimum of one ground visit to determine species, number of young and nesting
43 success. "Nesting success" means that the young have successfully fledged (the young are
44 independent of the core nest site). Nests that cannot be monitored due to the landowner denying
45 access will be checked from a distance where feasible.

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
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1 (b) Mitigation
2

3 The certificate holder shall analyze the raptor nesting data collected after two monitoring
4 years to determine whether a reduction in either nesting success or nest use has occurred in the
5 vicinity of Biglow. If the analysis indicates a reduction in nesting success by Swainson's hawk,
6 ferruginous hawk or golden eagle within two miles of the facility (including the Biglow site),
7 then the certificate holder shall propose appropriate mitigation and shall implement mitigation as
8 approved by the Council. At a minimum, if the analysis shows that any of these species has
9 abandoned a nest territory within the facility site or within ½ mile of the facility site, or has not
10 fledged any young over the two-year period within the facility site or within ½ mile of the
11 facility site, the certificate holder shall assume the abandonment or unsuccessful fledging is the
12 result of the facility unless another cause can be demonstrated convincingly. If the Biglow
13 facility and the Klondike facility are both required to provide mitigation for the same nest, the
14 two certificate holders shall coordinate the required mitigation with the approval of the
15 Department.
16

17 Given the very low buteo nesting densities in the area, statistical power to detect a
18 relationship between distance from a wind turbine and nesting parameters (*e.g.*, number of
19 fledglings per reproductive pair) will be very low. Therefore, impacts may have to be judged
20 based on trends in the data, results from other wind energy facility monitoring studies and
21 literature on what is known regarding the populations in the region.
22

23 If the analysis shows that mitigation is appropriate, the certificate holder shall propose
24 mitigation for the affected species in consultation with the Department and ODFW, and shall
25 implement mitigation as approved by the Council. Mitigation should be designed to benefit the
26 affected species or contribute to overall scientific knowledge and understanding of what causes
27 nest abandonment or nest failure. Mitigation may be designed to proceed in phases over several
28 years. It may include, but is not limited to, additional raptor nest monitoring, protection of
29 natural nest sites from human disturbance or cattle activity (preferably within the general area of
30 the facility), or participation in research projects designed to improve scientific understanding of
31 the needs of the affected species. Mitigation may take into consideration whether mitigation
32 required or provided for other impacts, such as fatality impacts or grassland bird displacement,
33 would also benefit the raptor species whose nesting success was adversely affected.
34

35 3. Avian Use and Behavior Surveys
36

37 The certificate holder shall conduct a before/after avian behavior and monitoring study to
38 determine whether operation of Biglow reduces bird use and abundance in the area (often referred to
39 as displacement). The results of this study will aid in estimating indirect avian impacts of Biglow
40 and guide potential mitigation.
41

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

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
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1
2 These four stations are located in the northeastern portion of the Biglow area near the John
3 Day River canyon. The areas surrounding these survey stations were subject to numerous
4 micro-siting decisions during facility layout. Primary micro-siting decisions included shortening and
5 re-orientating turbine corridors to avoid native habitat, maintaining a minimum one-mile distance
6 from the centerline of the John Day River, and avoiding locating turbines on steep slopes.

7
8 Each survey will consist of one 30-minute observation period at each of these four stations
9 using the same protocol that was used for baseline data collection. In particular, raptor and
10 waterfowl use estimates and behavior relative to turbine locations, and flight path maps will be
11 compared between the pre- and post-construction periods to provide information on raptor and
12 waterfowl displacement and to estimate indirect impacts on raptors and waterfowl.

13
14 In addition to surveys at these four stations, searchers will also record live birds observed
15 and their behavior in relation to turbines before or after each standardized carcass search (as
16 described in Section 1(e) above). Observations will be recorded during 5-minute surveys at each
17 turbine sampled during the fatality monitoring program, using standard variable circular plot point
18 count survey methods. Collection and recording of these additional observations of live birds will be
19 carried out in a manner that does not distract searchers from carrying out the standardized carcass
20 searches.

21
22 All of these avian use and behavior data, as well as raptor and waterfowl mortality observed
23 at the turbines near these stations, will be used to understand direct and indirect impacts of the
24 Biglow facility on raptors, waterfowl and other species.

25
26 **4. Biglow Wildlife Incident Response and Handling System**

27
28 The Wildlife Incident Response and Handling System is a monitoring program set up for
29 responding to and handling avian and bat casualties found by construction and maintenance
30 personnel during construction and operation of the facility. This monitoring program includes the
31 initial response, the handling and the reporting of bird and bat carcasses discovered incidental to
32 construction and maintenance operations (“incidental finds”). Construction and maintenance
33 personnel will be trained in the methods needed to carry out this program.

34
35 All carcasses discovered by construction or maintenance personnel will be photographed,
36 recorded and collected.

37
38 If construction or maintenance personnel find carcasses within the plots for protocol
39 searches, they will notify a qualified independent third-party biologist, as approved by the
40 Department, who will collect the carcasses. The fatality data will be included in the calculation
41 of fatality rates.

42
43 If construction or maintenance personnel discover incidental finds that are not within
44 plots for fatality monitoring protocol searches, they will notify a qualified biologist, and the
45 carcass will be collected by a carcass-handling permittee (a person who is listed on state and

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
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1 federal scientific or salvage collection permits). Data for these incidental finds will be reported
2 separately from standardized fatality monitoring data.

3
4 The certificate holder shall coordinate collection of state endangered, threatened or
5 protected species with ODFW. The certificate holder shall coordinate collection of federal
6 endangered, threatened or protected species with the USFWS.

7
8 **5. Data Reporting**

9
10 The certificate holder will report the monitoring data and analysis to the Department.
11 Monitoring data include fatality monitoring program data, raptor nest survey data, avian use and
12 behavior survey data and data on incidental finds by fatality searchers and Biglow personnel.
13 The report may be included in the annual report required under OAR 345-026-0080 or may be
14 submitted as a separate document at the same time the annual report is submitted. In addition, the
15 certificate holder shall provide to the Department any data or record generated in carrying out
16 this monitoring plan upon request by the Department.

17
18 The certificate holder shall immediately notify USFWS and ODFW, respectively, in the
19 event that any federal or state endangered or threatened species are killed or injured on the
20 facility site.

21
22 The public will have an opportunity to receive information about monitoring results and
23 to offer comment. Within 30 days after receiving the annual report of monitoring results, the
24 Department will make the report available to the public on its website and will specify a time in
25 which the public may submit comments to the Department.⁶

26
27 **6. Amendment of the Plan**

28
29 This Wildlife Monitoring and Mitigation Plan may be amended from time to time by
30 agreement of the certificate holder and the Council. Such amendments may be made without
31 amendment of the site certificate. The Council authorizes the Department to agree to
32 amendments to this plan and to mitigation actions that may be required under this plan. The
33 Department shall notify the Council of all amendments and mitigation actions, and the Council
34 retains the authority to approve, reject or modify any amendment of this plan or mitigation action
35 agreed to by the Department.

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

BIGLOW CANYON WIND FARM: REVEGETATION PLAN
[JUNE 30, 2006]

1 **BACKGROUND**

2
3 This plan describes methods and standards for revegetating areas temporarily disturbed as
4 a result of construction of the proposed Biglow Canyon Wind Farm (Biglow), sited about 2.5
5 miles northeast of Wasco, Oregon. The objective of this plan is to restore temporarily disturbed
6 areas to pre-construction condition or better. The site certificate for the facility requires
7 restoration of these areas.

8
9 Biglow is located on privately owned agricultural land used primarily for dry wheat
10 production and, to a lesser extent, cattle grazing. The grazed land is grassland, shrub-steppe
11 rangeland and/or fallow wheat stubble fields. A few large tracts of land have been enrolled in the
12 Conservation Reserve Program (CRP).

13
14 This plan specifies seed mixes, planting methods, and weed control techniques developed
15 specifically for Biglow through consultations with the affected agencies (e.g., Natural Resources
16 Conservation Service), reviews of current literature, and site visits by revegetation specialists.
17 This plan also specifies monitoring procedures to evaluate the success of revegetation efforts,
18 including recommended remedial action should initial revegetation efforts prove unsuccessful.

19
20 **REVEGETATION PROCEDURES**

21
22 The following methods are to be used in areas of temporary ground and/or vegetation
23 disturbance in the Conservation Reserve Program (CRP) grasslands and native grassland and
24 shrub-steppe upland habitats throughout the Biglow site. Because no disturbance to wetland
25 habitats is expected, this plan does not specify wetland revegetation methods.

26
27 **Cultivated Areas**

28 The site certificate holder shall reseed with dry land wheat those cultivated agricultural
29 areas temporarily disturbed by construction activities. The species composition, seed and
30 fertilizer application rates, and application method for dry land wheat shall be coordinated with
31 the appropriate landowner and/or farmer.

32
33 **Seed Mixture**

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

BIGLOW CANYON WIND FARM: REVEGETATION PLAN

[JUNE 30, 2006]

1 **Seed Planting Methods**

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

10
11 Areas to be seeded shall be disked twice in early spring and spot-sprayed on the ground
12 with an herbicide. This area shall then be harrowed prior to seeding. A conventional seed drill
13 shall be used, except in areas where a rangeland drill is deemed more applicable, with a spacing
14 less than 12 inches and at a depth of 1/8-1/4 inch. A packing type roller shall be used to properly
15 compact the soil over the planted seed. The prescribed seed mixture (Table 1) shall be drilled at a
16 rate of 12 pounds pure live seed per acre. If fallowing the area is to be used to increase soil
17 moisture content, then the same procedure shall be followed, but without seeding. Seeding would
18 then occur the following spring.

19 20 **MONITORING**

21
22 The site certificate holder shall direct a qualified independent third-party botanist or
23 revegetation specialist, as approved by the Department, to conduct monitoring of seeded
24 grassland, shrub-steppe and CRP areas.

25
26 In the fall of the year following each seeding, and continuing annually thereafter until the
27 vegetation success criteria have been met, the qualified investigator shall examine a
28 representative cross-section of the revegetated sites. At each site, the investigator shall evaluate
29 the percent cover for the following classes:

- 30
31
- native forbs and grasses;
 - non-native forbs and grasses;
 - shrubs; and
 - bare ground and rock.
- 32
33
34
35

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

BIGLOW CANYON WIND FARM: REVEGETATION PLAN
[JUNE 30, 2006]

SUCCESS CRITERIA

Non-cultivated areas will be deemed successfully revegetated when total canopy cover of all vegetation exceeds 30 percent¹, 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 site certificate holder and the Energy Facility Siting Council (Council) or the Oregon Department of Energy (ODOE). Such amendments may be made without amendment of the site certificate. The Council authorizes the ODOE to agree to amendments to this plan. The ODOE 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 ODOE.

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

Common Name	Scientific Name	Pounds of pure live seed/ Acre
Luna pubescent wheatgrass	<i>Thinopyrum intermedium</i>	1
Sherman big bluegrass	<i>Poa ampla</i>	1
Magnar basin wildrye	<i>Leymus cinereus</i>	1
Whitmar beardless wheatgrass	<i>Pseudoroegneria spicata</i> ssp. <i>Inermis</i>	2
Small burnett	<i>Sanguisorba minor</i>	0.5
Alfalfa	<i>Medicago sativa</i>	1
Sanfoin	<i>Psoralea onobrychis</i>	0.5
Sandberg bluegrass	<i>Poa secunda</i>	2
Idaho fescue	<i>Festuca idahoensis</i>	2
Basin big sagebrush	<i>Artemisia tridentata</i> ssp. <i>Tridentate</i>	1
TOTAL		12

¹ NRCS Draft Guidelines for CRP Stand Certification

BIGLOW CANYON WIND FARM: HABITAT MITIGATION PLAN
[JUNE 30, 2006]

1 I. Introduction

2
3 This Habitat Mitigation Plan (“plan”) describes methods and standards for
4 enhancement of an area of land near the Biglow Canyon Wind Farm (“Biglow”) to
5 mitigate for certain impacts of Biglow on wildlife habitat. The applicant has proposed an
6 approximate 117-acre habitat mitigation site (“mitigation site” or “site”) as described
7 below. The certificate holder shall enhance the mitigation site as described in this plan
8 and shall place the site into a conservation easement for the life of the Biglow facility.
9

10 The objective of the enhancement methods is to improve the habitat value of the
11 mitigation area and to protect the area for wildlife use for the life of the facility. This plan
12 has been prepared to guide the habitat enhancement efforts on the mitigation site. The
13 plan specifies the primary actions the certificate holder must undertake and the goals,
14 monitoring procedures, and success criteria to evaluate enhancement success.
15

16 Prior to any construction of Biglow, the site certificate holder shall acquire the
17 legal right to create, maintain and protect this habitat mitigation area for the life of the
18 facility by means of an outright purchase, conservation easement or similar conveyance
19 and shall provide a copy of the documentation to the Department of Energy
20 (“Department”). Prior to any construction of Biglow, the site certificate holder shall
21 complete an “Implementation Plan” approved by the Department that describes in detail
22 how the Habitat Mitigation Plan will be enacted. During construction of Biglow, the site
23 certificate holder will implement the Habitat Mitigation Plan so that all mitigation efforts
24 in the plan are complete by the end of construction of Biglow’s first phase.
25

26 **II. Description of the Permanent Impacts**

27
28 Biglow would permanently affect a maximum of about 177 acres. Most of the
29 area of permanent impact (about 157 acres) would be within currently cultivated
30 agricultural fields. This area is lower-value habitat (Category 6). Biglow would occupy –
31 or have a permanent impact on – a maximum of about 11.25 acres of higher-value
32 Category 3 or Category 4 habitat. The actual area of each habitat category that Biglow
33 will permanently occupy will depend on the final design layout of the facility after
34 consideration of micrositing factors.
35

36 Data collected at other wind energy facilities indicate that the operation of wind
37 turbines may adversely affect the quality of nearby habitat that is important or essential
38 for grassland avian species. This is often referred to as a “displacement” impact.
39 Conducting a study at Biglow to determine whether operation of the facility had a
40 displacement effect on grassland birds would take several years. If the study concluded
41 that an adverse impact had occurred, additional mitigation would be needed. In lieu of
42 conducting a multi-year study, the certificate holder has proposed to provide additional
43 mitigation, based on the assumed likelihood that operation of Biglow would reduce the

BIGLOW CANYON WIND FARM: HABITAT MITIGATION PLAN
[JUNE 30, 2006]

1 quality of nearby habitat that is important or essential for grassland bird species. The
2 affected habitat near the Biglow wind turbines includes grassland, Conservation Reserve
3 Program ("CRP") and shrub-steppe habitat in Categories 3 and 4.

4
5 As defined by the fish and wildlife habitat mitigation goals and standards of the
6 Oregon Department of Fish and Wildlife (ODFW), the affected habitat and corresponding
7 mitigation goals are as follows:

- 8
9 • **Category 3:** Essential habitat for fish and wildlife, or important habitat for
10 fish and wildlife that is limited either on a physiographic province or site-
11 specific basis, depending on the individual species or population.

12
13 **Mitigation Goal:** No net loss of either habitat quantity or quality.
14 Mitigation must be in-kind.

- 15
16 • **Category 4:** Important habitat for fish and wildlife species.

17
18 **Mitigation Goal:** No net loss in either existing habitat quantity or quality.
19 Mitigation may be either in-kind or out-of-kind.

20
21 **III. Calculation of Impacts and Size of Mitigation Area**

22
23 The area needed to mitigate for the amount of higher-value habitat occupied by
24 Biglow turbines and related facilities is determined by Biglow's permanent impact within
25 each habitat category. The amount of additional area needed to mitigate for a
26 displacement effect that is uncertain cannot be precisely calculated. To determine a
27 reasonable area for displacement mitigation, the applicant has performed a rough
28 calculation of potential displacement impact by assuming a 50-percent reduction in use
29 by grassland birds within 50 meters of wind turbines in native grassland/shrub steppe
30 habitat and a 25 percent reduction in use by grassland birds within 50 meters of wind
31 turbines in CRP habitat. The applicant further assumed that the final design locations of
32 wind turbines within the micrositing corridors would be such that the maximum area of
33 native grassland would be affected (the "worst case"). The area of impact within each
34 affected habitat category and the corresponding mitigation area for each category are as
35 follows:

- 36
37 • The permanent impact is about 11.25 acres, of which about 7.59 acres are
38 Category 3 habitat (grassland, CRP and shrub-steppe combined) and about
39 3.66 acres are Category 4 habitat (grassland, CRP and shrub-steppe
40 combined).
- 41
42 • The calculated potential displacement impact is estimated to be about 33
43 acres, of which about 67 percent is Category 3 CRP habitat, 2 percent is
44 Category 3 grassland/shrub steppe habitat, 26 percent is Category 4 CRP
45 habitat, and 4 percent is Category 4 grassland/shrub steppe habitat.
- 46

BIGLOW CANYON WIND FARM: HABITAT MITIGATION PLAN
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- 1 • The combined impacts equal about 45 acres. Mitigation must be sufficient
2 to replace the quantity and quality of this combined impact in order to
3 achieve “no net loss” in habitat quantity or quality. The mitigation site
4 must be large enough to be capable of achieving this goal. In fact, the
5 certificate holder has agreed to secure a 117-acre mitigation site, provided
6 that mitigation acreage that exceeds the actual acreage of permanent and
7 indirect impacts may be applied to any future mitigation requirements.
8

9 If the data from future Stateline transect surveys demonstrates a statistically
10 significant displacement effect on grassland bird species that is greater than the
11 displacement effect described in the *Stateline Wind Project Wildlife Monitoring Final*
12 *Report, July 2001-December 2003*, then the certificate holder shall assume that the
13 facility is having a greater displacement effect on grassland species than was assumed
14 when the site certificate was issued and shall propose additional mitigation. The
15 Department shall recommend appropriate mitigation to the Council, and the certificate
16 holder shall implement mitigation as approved by the Council.
17

18 **IV. Description of the Mitigation Site**
19

20 The mitigation site is located to the northeast of the Biglow site, less than 0.5
21 miles from the John Day River and just more than 0.5 miles from the nearest wind
22 turbine. The site contains an intermittent spring that forms a small tributary drainage
23 immediately west of the Emigrant Springs tributary and watershed.
24

25 Thus, the mitigation site sits immediately adjacent to both the John Day River
26 riparian corridor and the large Emigrant Springs watershed, which provides additional
27 forage, thermal and security cover, and water. No road access exists to the site, which is
28 relatively remote and infrequently disturbed by humans.
29

30 The site is predominantly steep-sloped with shallow rocky soils and has been both
31 recently and historically grazed. Areas most degraded from livestock grazing include the
32 deeper soiled areas, and the spring and associated riparian draw in the southern end of the
33 mitigation site. Horizontal and vertical vegetative structure is largely depleted because of
34 exposed slopes and livestock grazing impacts, and large patches of cereal rye have out-
35 competed native species in some areas. However, the higher elevation western border
36 consists of deeper silt loam soils, with the potential to provide a more diverse vegetative
37 community.
38

39 Adjacent property to the west is cultivated and managed for wheat production.
40 Adjacent property to the north and east is rangeland managed for livestock production. A
41 four-strand barbed wire fence exists along the east boundary of the mitigation site. No
42 fence exists along the crop field boundary to the east or along the north boundary; this
43 area is grazed when fallow or electric fence is used during the planting and harvest period
44 to exclude livestock. The area around the spring source and downstream lacks a
45 vegetative buffer or a diverse vegetative community because of intensive grazing. Some

BIGLOW CANYON WIND FARM: HABITAT MITIGATION PLAN
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1 tall sagebrush cover exists near the stream area while cattails and aquatic succulents
2 occur in the spring source area.

3
4 Given the current condition of the site and livestock practices, the entire
5 mitigation site is generally characterized as Category 4 habitat, according to ODFW's
6 Habitat Mitigation Standards.

7
8 **V. Site Potential for Wildlife Habitat Enhancement**

9
10 For mitigation, the applicant has proposed entering into a conservation easement
11 or similar agreement with two landowners to enhance the mitigation site's existing
12 grassland/ shrub-steppe and riparian habitat for the life of the Biglow facility. The
13 mitigation site presents the opportunity to enhance grassland/ shrub-steppe quality and
14 quantity that is limited in the area for wildlife. Properly managed, the mitigation site has
15 the potential to provide more diverse grassland in greater quantity with greater horizontal
16 and vertical structure. If enhanced with reseeding, deeper soiled areas would provide
17 better nesting habitat for grassland bird species and provide higher quality forage for big
18 game. Excluding livestock with fencing would provide better fall, winter and early spring
19 rangeland for big game by allowing sandberg bluegrass, bluebunch wheatgrass, and
20 various forbs to grow undisturbed in shallow-soiled slopes. Removal of cattle grazing
21 should improve the habitat quality of the entire site, and especially the deeper soiled,
22 spring and riparian areas. The site's steeper areas also will see some benefit from reduced
23 grazing, especially during early spring green up. As well, livestock exclusion would
24 enhance summer habitat for ground-nesting birds.

25
26 The mitigation site also has the potential to provide several different quality
27 ecotones. Grassland patches in the lower-elevation eastern portion of the site may be of
28 greater suitability to long-billed curlews because of closer proximity to the John Day
29 River, where observations of this species breeding have been documented.

30
31 **VI. Proposed Enhancement**

32
33 To mitigate for the permanent loss of 11.25 acres of Category 3 and Category 4
34 habitat as a result of Biglow turbines, roads and other facilities, the site certificate holder
35 will reseed 11.25 acres of deep-soiled Category 4 habitat within the mitigation site along
36 the upper, more level slopes adjacent to cultivated areas. Reseeding is expected to
37 enhance about 11.25 acres of deep-soiled Category 4 habitat to Category 2 and Category
38 3 grassland habitats.

39
40 To mitigate for the displacement effect, the site certificate holder will install
41 fences to remove livestock grazing from the 117-acre mitigation site. In combination with
42 other actions described below, fencing is expected to improve most of the portion of the
43 mitigation site that is not reseeded (about 106 acres) from Category 4 to at least Category
44 3 habitat.

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1 The acreages stated above for maximum permanent and indirect displacement
2 habitat impacts (*i.e.*, 11.25 acres and 33 acres, respectively, or a total of less than 45
3 acres) are based on construction of the entire Biglow facility. If only a portion of the
4 Biglow facility is constructed, the maximum permanent and indirect displacement habitat
5 impacts are expected to be less than 45 acres based on the assumed impact model used at
6 the Klondike III Wind Project. Nevertheless, as part of the first phase of construction, the
7 certificate holder has proposed to secure the entire 117-acre mitigation site, install the
8 guzzler, enhance the spring area, and have the fencing installed to exclude livestock on
9 the entire mitigation site. However, if only a portion of the Biglow facility is constructed
10 and full build-out does not occur, then any mitigation acreage that exceeds the actual
11 acreage of permanent and indirect habitat impacts may be applied to any future
12 mitigation requirements, as outlined in the Wildlife Mitigation and Monitoring Plan and
13 as approved by the Department.

14
15 If approved by the Department, the certificate holder may use the mitigation site
16 to mitigate for impacts identified by wildlife monitoring as outlined in the Wildlife
17 Mitigation and Monitoring Plan. If the certificate holder constructs only a portion of the
18 Biglow facility, and if the certificate holder commits to relinquish the right to construct
19 the remainder of the facility, then, if approved by the Department, the certificate holder
20 may apply any mitigation acreage that exceeds the actual acreage of permanent and
21 displacement impacts to any future mitigation requirements as outlined in the Wildlife
22 Mitigation and Monitoring Plan.

23
24 **VII. Habitat Enhancement Methods**

25
26 The goal of habitat enhancement is to improve the habitat quality of the
27 mitigation site to achieve, over time, a Category 3 quality over most of the site and a mix
28 of Category 2 and Category 3 on 11.25 reseeded acres. The site certificate holder will use
29 the following five methods to enhance habitat quality and quantity on the site:

30
31 **Reseeding**

32
33 The site certificate holder shall prepare and seed about 11.25 acres within two defined
34 areas located along the western edge of the mitigation site.

35
36 A. Seed Mixture: The site certificate holder developed a seed mixture in consultation
37 with Mary Beth Smith at the local United States Department of Agriculture
38 Natural Resources Conservation Service office based on anticipated high value to
39 both big game and non-game wildlife and the historic vegetative climax
40 community for the area (Table 1). Prior to seeding, the site certificate holder shall
41 consult with the Department to determine if any mixture adjustments, either in
42 species composition or ratio of seed quantity among species, would further benefit
43 wildlife.

44
45 B. Seed Planting Methods: If enhancement efforts occur in the winter or spring,
46 seeding should occur sometime in February through early April, after the average

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1 last frost date. If enhancement efforts occur after the spring seeding window,
 2 seeding should occur sometime in October through November. Disturbed,
 3 unseeded ground may require chemical or mechanical weed control in May or
 4 June before weeds go to seed. In general, a weed-free seedbed should be prepared
 5 using conventional tillage equipment. Herbicide should be sprayed to control
 6 weedy and/or noxious species, following Oregon Department of Agriculture's
 7 (ODOA) guidelines. Summer fallowing may be required. Areas to be seeded shall
 8 be disked twice in early spring and spot-sprayed on the ground each time with an
 9 herbicide. The disked and sprayed areas must then be harrowed prior to seeding.
 10 A conventional seed drill must be used, except in areas where a rangeland drill is
 11 deemed more applicable, with a spacing less than 12 inches and at a depth of 1/8-
 12 1/4 inch. A packing type roller must be used to properly compact the soil over the
 13 planted seed. The prescribed seed mixture (Table 1) must be drilled at a rate of 12
 14 pounds pure live seed per acre. If an area is to be fallowed to increase soil
 15 moisture content, then the same procedure must be followed, but without seeding.
 16 Seeding would then occur the following spring.
 17

Table 1. Seed mixture to be used for reseeding deeper soiled areas of the mitigation site.

Common Name	Scientific Name	Pounds/ Acre ¹
Luna pubescent wheatgrass	<i>Thinopyrum intermedium</i>	1
Sherman big bluegrass	<i>Poa ampla</i>	1
Magnar basin wildrye	<i>Leymus cinereus</i>	1
Whitmar beardless wheatgrass	<i>Pseudoroegneria spicata</i> ssp. <i>Inermis</i>	2
Small burnett	<i>Sanguisorba minor</i>	0.5
Alfalfa	<i>Medicago sativa</i>	1
Sanfoin	<i>Psoralea onobrychis</i>	0.5
Sandberg bluegrass	<i>Poa secunda</i>	2
Idaho fescue	<i>Festuca idahoensis</i>	2
Basin big sagebrush	<i>Artemisia tridentata</i> ssp. <i>Tridentate</i>	1
TOTAL		12

18
19
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30

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.

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. About 9200 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

¹ Pure live seed.

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1 small 600 foot section running east/west along a portion of the northern border of the
2 agricultural field, will continue in use to the extent it remains effective in keeping cattle
3 out of the mitigation site.

4 5 **Creation of a Water Source**

6
7 The site certificate holder shall create a water source for wildlife use in the
8 northern end of the project area where no water source now exists. The site certificate
9 holder will build and install a 500-gallon capacity cistern or "guzzler" using a design
10 approved by ODFW and the Department. The new source of water should increase
11 wildlife density in the mitigation site.

12 13 **Spring Enhancement**

14
15 The site certificate holder shall plant appropriate native species of woody shrubs
16 near the source of the intermittent spring in the southern part of the site. Browse
17 protection shall be provided as long as necessary. Over time, the shrubs will provide
18 cover for wildlife as well as protect soils around the spring source.

19 20 **VIII. Habitat Mitigation Implementation**

21
22 Prior to the commencement of construction, the site certificate holder shall
23 complete a Department-approved detailed implementation plan to guide implementation
24 of the enhancement efforts. The plan shall include maps and photographs at appropriate
25 scale and detail that show the topography, vegetation, habitat and other site conditions of
26 the mitigation site; the proposed locations of the primary actions required by the
27 mitigation plan; a schedule showing when the primary actions required in the mitigation
28 plan will occur; and a proposed monitoring plan including monitoring protocols,
29 locations of monitoring stations, and a schedule of monitoring actions. The
30 implementation plan will take into consideration the physical and biological features of
31 the mitigation site such as slope, soil depth, and existing habitat conditions, the
32 appropriate time of year to conduct actions, and the appropriate sequence of actions.

33
34 The certificate holder shall not begin enhancement efforts until the Department
35 has reviewed and approved the implementation plan. Enhancement efforts must be
36 complete by the end of construction of Biglow's first phase.

37 38 **IX. Monitoring**

39 40 **Qualifications**

41
42 For all components of this plan the site certificate holder shall direct a qualified
43 independent third party biological monitor, as approved by the Department, to perform
44 monitoring tasks (the "investigator").

45 46 **Reporting Schedule and Duration/Type of Monitoring**

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1
2 The site certificate holder shall provide an annual report discussing the
3 investigator's findings and recommendations regarding habitat mitigation progress and
4 success to the Department and ODFW. The site certificate holder shall include this report
5 as part of the annual report on Biglow or as otherwise agreed between the site certificate
6 holder and the Department. The site certificate holder shall monitor the mitigation site for
7 the life of the Biglow facility.

8
9 For the reseeded sites, the investigator will monitor every year for the first five
10 years after the first seeding or until the site is determined by the Department to be
11 trending toward successful restoration. Thereafter, the investigator shall revisit the
12 reseeded sites every five years for the life of the Biglow facility, and the certificate holder
13 shall report the findings to the Department.

14
15 The investigator also shall monitor and perform maintenance as necessary:

- 16
- 17 • Once a year for the life of the project: The effectiveness of weed eradication
18 and control efforts throughout the mitigation site;
- 19 • Minimum of once a year for the life of the project: and within one week of
20 livestock turn-out on adjacent property: The effectiveness of fencing in
21 excluding livestock from and allowing big game access to the mitigation site;
- 22 • Minimum of annual fall maintenance for the life of the project: The
23 effectiveness of the new water source in providing water;
- 24 • Once a year for the life of the project: The effectiveness of enhancement
25 actions for the spring area in providing improved cover for wildlife and
26 reducing erosion near the spring source;
- 27 • Once a year for the life of the project: The overall condition of the mitigation
28 site (including such things as the degree of erosion, the occurrence of
29 potentially problematic weed concentrations and changes in habitat quality);
30 and
- 31 • Once a year for the life of the project: The general level of wildlife use,
32 especially grassland birds, within the mitigation site.
- 33

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

38
39 **Success Criteria**

40
41 The enhancement goal for the displacement impact is met when:

- 42
- 43 • 95 percent of the mitigation site (excluding the 11.25 acre reseeded mitigation
44 area for permanent impact) is Category 3 habitat or better;
- 45 • The remaining 5 percent does not pose a threat to maintaining habitat quality;
46 and

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- At least 70 percent of the mitigation site (excluding the 11.25 acre reseeded mitigation area for permanent impact) is grassland/shrub-steppe habitat.

Enhancement above or beyond these goals may be “credited” toward mitigation for other impacts, as outlined in the Wildlife Monitoring and Mitigation Plan, upon Department approval. Mitigation credit will be based on each successfully restored acre in excess of the mitigation acres required under the site certificate and Wildlife Monitoring and Mitigation Plan.

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

- A. **Reseeded Sites:** A reseeded site is successfully revegetated 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 revegetation. 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 site falls below the revegetation or enhancement success criteria levels, the investigator shall recommend corrective measures. The Department may require reseeded or other corrective measures in those areas that do not meet the success criteria.

The enhancement goal for the permanent impact is met when 70 percent of the 11.25 acre reseeded area 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. Enhancement above or beyond this goal may be “credited” toward mitigation for other impacts upon Department approval.

- B. **Weed control sites.** Weed control is considered to be 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, reseeded with seed approved by the Department may be necessary.
- C. **Fencing:** Fencing is considered to be successful when the Department deems that it has been properly constructed per ODFW specifications, and it continues to be effective at excluding livestock from entering the mitigation site. This criterion includes existing fencing.

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1 D. **New Water Source:** The new water source is considered to be successful when
2 the Department deems that it has been properly constructed per ODFW
3 specifications, and it continues to provide a reasonably reliable source of water
4 for wildlife.

5
6 E. **Spring Area Enhancement:** Enhancement of the spring area is considered to be
7 successful when appropriate native species of woody shrubs are planted, continue
8 to grow, and provide cover for wildlife.

9 10 **Success Criteria Rationale**

11
12 The direct impact is about 11.25 acres. The proportion of the impact is about 70
13 percent Category 3 habitat and about 30 percent Category 4 habitat. To mitigate for this
14 habitat loss requires enhancing and protecting for the life of the Biglow facility 11.25
15 acres within the mitigation site from current Category 4 grassland to a quality where 70
16 percent is Category 2 grassland and 30 percent is Category 3 grassland.

17
18 The calculated potential grassland bird displacement impact is estimated to be
19 about 33 acres. The proportion of the impact is about 70 percent Category 3 habitat
20 (about 23 acres) and about 30 percent Category 4 habitat (about 10 acres). To mitigate for
21 the Category 3 component of this habitat loss requires enhancing about 23 acres of
22 current Category 4 habitat to Category 3 grassland habitat. Mitigation for Category 3
23 habitat must be in-kind: Grassland habitat must be gained for grassland habitat that is
24 lost. To mitigate for the Category 4 component requires enhancing about 10 acres from
25 Category 4 to Category 3. However, mitigation for Category 4 habitat does not have to be
26 in-kind.

27
28 The total size of the mitigation site is 117 acres. Mitigation for the footprint
29 impact requires 11.25 acres, which leaves 105.5 acres in the habitat mitigation site.
30 Mitigation for the displacement impact is about 33 acres.

31 32 **X. Amendment of the Plan**

33
34 This Habitat Mitigation Plan may be amended from time to time by agreement of
35 the certificate holder and the Oregon Energy Facility Siting Council ("Council"). Such
36 amendments may be made without amendment of the site certificate. The Council
37 authorizes the Department to agree to amendments to this plan. The Department shall
38 notify the Council of all amendments, and the Council retains the authority to approve,
39 reject or modify any amendment of this plan agreed to by the Department.