BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON

In the Matter of the Application for a Site Certificate for the Shepherds Flat Wind Farm	))))	FINAL ORDER

The Oregon Energy Facility Siting Council

July 25, 2008

SHEPHERDS FLAT WIND FARM

FINAL ORDER

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LIST OF ABBREVIATIONS

ACEC	Area of Critical Environmental Concern established by the Bureau of Land Management
AINW	Archaeological Investigations Northwest, Inc.
APLIC	Avian Power Line Interaction Committee
App	Amended Preliminary Application for a Site Certificate a submitted on February 14, 2007
App Supp	Application Supplement submitted on November 19, 2007
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
Council	Energy Facility Siting Council
CRP	Conservation Reserve Program
CSF	Caithness Shepherds Flat, LLC
CUP	Conditional Use Permit
Department	Oregon Department of Energy
dBA	The "A-weighted" sound pressure level. The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
DEQ	Oregon Department of Environmental Quality
EFU	land zoned for "exclusive farm use"
ENES	Energy Northwest Environmental Services
FAA	Federal Aviation Administration
GCCP	Gilliam County Comprehensive Plan
GCZO	Gilliam County Zoning Ordinance
kV	kilovolt or kilovolts
LCDC	Land Conservation and Development Commission

MCCP	Morrow County Comprehensive Plan
MCZO	Morrow County Zoning Ordinance
mph	miles per hour
MW	megawatt or megawatts
m/s	meters per second
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	Operations and maintenance
ODA	Oregon Department of Agriculture.
ODFW	Oregon Department of Fish and Wildlife
ONHT	Oregon National Historic Trail
ONHIC	Oregon Natural Heritage Information Center
RAI	Oregon Department of Energy request for additional information
SCADA	Supervisory, Control and Data Acquisition
SHPO	Oregon State Historic Preservation Office, Department of Parks and Recreation
SFWF	Shepherds Flat Wind Farm
Typical Project Layout	Figures C-2a Amended through C-2g Amended, March 27, 2008
USFWS	U.S. Fish and Wildlife Service
WGS	Washington ground squirrel
WMMP	Wildlife Monitoring and Mitigation Plan (Attachment A)
ZVI	Zone of Visual Influence

SHEPHERDS FLAT WIND FARM

FINAL ORDER

I. INTRODUCTION

This Final Order addresses an application for a site certificate for the construction and operation of a proposed wind energy facility in Gilliam County and Morrow County near Arlington, Oregon. The applicant is Caithness Shepherds Flat, LLC (CSF). The applicant has named the proposed facility the "Shepherds Flat Wind Farm" (SFWF).[1] The Energy Facility Siting Council (Council) issues this Final Order based on its review of the application and the comments and recommendations on the application by state agencies, local governments, tribal organizations and the public and based on the recommendations of the Oregon Department of Energy (Department).

ORS 469.320 requires a site certificate from the Council before construction of a "facility." ORS 469.300 defines "facility" as "an energy facility together with any related or supporting facilities." The proposed SFWF would be an "energy facility" under the definition in ORS 469.300(11)(a). A "site certificate" is a binding agreement between the State of Oregon and the applicant, authorizing the applicant to construct and operate a facility on an approved site and incorporating all conditions imposed by the Council on the applicant.

It is the public policy of the State of Oregon that "the siting, construction and operation of energy facilities shall be accomplished in a manner consistent with protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of this state." ORS 469.310. A site certificate issued by the Council binds the state and all counties, cities and political subdivisions of Oregon. Once the Council issues the site certificate, the responsible state agency or local government must issue any necessary permits that are addressed in the site certificate without further proceedings. ORS 469.401(3). The Council has continuing authority over the site for which the site certificate is issued and may inspect the site at any time in order to ensure that the facility is being operated consistently with the terms and conditions of the site certificate. ORS 469.430.

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

[1] The applicant selected this name "to honor the generations of shepherds who have tended, and continue to tend, winter-grazing livestock in the northern project area" (App Supp, Amended Exhibit C, p. 2).

In accordance with ORS 469.370(1), the Department issues a draft proposed order on an application. After the draft proposed order has been issued, the Council must conduct at least one public hearing in the affected area. At the hearing, the Council takes public comment on the application and draft proposed order. ORS 469.370(2). Any issues that may be the basis for a contested case hearing must be raised by the public hearing comment deadline or they are waived and cannot be considered in a contested case. ORS 469.370(3).

After the public hearing and the Council's review of the draft proposed order, the Department issues a proposed order. The Department issues a public notice of the proposed order and a notice to eligible persons that specifies a deadline for requests to participate as a party in the contested case and the date for the initial prehearing conference. ORS 469.370(4). Only those who appeared in person or in writing at the public hearing on the application (described in the preceding paragraph) may request to become parties to the contested case, and only those issues that were raised on the record of the public hearing with sufficient specificity can be considered in the contested case. ORS 469.370(5).

After the conclusion of the contested case proceeding, the Council decides whether to grant a site certificate and issues a final order that either approves or rejects the application based on the standards adopted under ORS 469.501 and any additional state statutes, rules or local government ordinances determined to be applicable to the proposed facility by the project order. ORS 469.370(7). Any party to a contested case proceeding may apply for rehearing within 30 days from the date of service of the final order.

The Council's final order is subject to judicial review by the Oregon Supreme Court. Only a party to the contested case may request judicial review, and the only issues that may be subject to judicial review are issues raised by parties to the contested case. A petition for judicial review must be filed with the Supreme Court within 60 days after the date of service of the Council's final order or within 30 days after the date the petition for rehearing is denied or deemed denied. ORS 469.403.

The definitions in ORS 469.300 and OAR 345-001-0010 apply to terms used in this Final Order.

II. PROCEDURAL HISTORY

1. The Site Certificate Application

On June 27, 2006, CSF submitted a notice of intent (NOI) to submit an application for a site certificate. The Department issued a public notice of the NOI and sent notice to the reviewing agencies. The Department held a public informational meeting in Arlington on July 28, 2006. On August 25, 2006, the Council appointed the Gilliam County Court and the Morrow County Court as special advisory groups for the SFWF application review.

The Department issued a project order on October 16, 2006.

On February 1, 2007, CSF submitted a preliminary application for a site certificate.

On February 14, 2007, CSF submitted an amended preliminary application for a site certificate. The amended preliminary application was distributed to the reviewing agencies in

accordance with OAR 345-021-0050, and the Department requested comments from the agencies.[2]

On July 27, 2007, the Council appointed John W. Burgess as the Hearing Officer for the review of the SFWF site certificate application and any further proceedings, as needed.

On November 15, 2007, the Department determined that the application was complete based on additional information submitted by the applicant since the date of the preliminary application. The Department requested that the applicant submit an application supplement.[3] The Department accepted the application supplement on November 19 and filed the application as of that date.[4] The applicant distributed copies of the supplement to the reviewing agencies and others identified by the Department, together with the notice described in OAR 345-015-0200. In the notice, the Department asked the reviewing agencies to submit agency reports by January 10, 2008.

On November 26, 2007, the Department issued public notice of the filing. The Department mailed the notice to the property owners listed in Exhibit F of the application and to persons on the Council's general mailing list and the special mailing list set up for the proposed facility, as described in OAR 345-015-0190. The notice included information about locations where copies of the complete application would be available for public review. The Department published the notice of the application by publishing the notice in the *East Oregonian*, the Condon *Times-Journal* and the Heppner *Gazette*, newspapers of general circulation available in the vicinity of the proposed facility. The Department, in addition, posted notice of the filing on its website. In the public notices, the Department invited public comment by a deadline of January 10, 2008.

In accordance with OAR 345-021-0055, the complete application consists of the Amended Preliminary Application submitted in February 2007 and the Application Supplement submitted in November 2007.

In response to the notice of filing, the Department received written comments from the following reviewing agencies and members of the public:

- Reviewing Agencies
  Linda Hayes-Gorman, Oregon Department of Environmental Quality
  Heidi Williams, Oregon Department of Environmental Quality
  Jerry Sauter, Water Resources Department
  Morrow County Court
  Rose Owens, Oregon Department of Fish and Wildlife
- Public Comments
  Andrew Vetterlein
  Jaqueline Wilson

[2] The Department received completeness comments from Keith May (Oregon Historic Trails Advisory Council, Parks and Recreation Department), Jerry Sauter (Water Resources Department), Stacy Warner (State Fire Marshal), Joe Misek (Oregon Department of Forestry), Rebecca Currin (Native Plant Conservation Program, Oregon Department of Agriculture), Susie Anderson (Gilliam County Planning Director), Lori Timmons (Morrow County Planning Department) and Rose Owens (Oregon Department of Fish and Wildlife).
[3] Email from John White, November 15, 2007.
[4] Email from John White, November 19, 2007.

David Bullock
John Chess, Oregon Historic Trails Advisory Council
Christina Welch, Bureau of Land Management
Dave Iadarola, Invenergy Wind North America LLC
Glenn Harrison, Oregon-California Trails Association
Stafford Hazelett
Leslie Nelson, The Nature Conservancy
Nancy Gilbert, US Fish and Wildlife Service
Jill and Charles Barker

The Department considered all of the comments in preparing the Draft Proposed Order. A summary of the comments received and the Department's responses is included in Attachment D, incorporated herein by this reference. The Department responded by letter to The Nature Conservancy and met with the organization's representatives.[5] In addition, the Department met with staff of the Oregon Department of Fish and Wildlife to discuss their concerns. The Department consulted with the Planning Directors of Morrow County and Gilliam County to address their concerns and to discuss proposed site certificate conditions.

The Department issued the Draft Proposed Order on April 7, 2008, and provided notice of a public hearing at least 20 days before the hearing date, as required under OAR 345-015-0220. The Department published the notice in the *East Oregonian*, the Condon *Times-Journal* and the Heppner *Gazette*, newspapers of general circulation available in the vicinity of the proposed facility. The Department, in addition, posted notice of the public hearing on its website.

The Department held a public hearing on May 8, 2008, in Arlington, Oregon. Hearing Officer John Burgess presided and explained that any person intending to raise an issue that may be the basis for a contested case must raise the issue in person or in writing on the record of the public hearing. On May 8, after taking public comment at the hearing, the Hearing Officer closed the public comment period but held the record open for the limited purpose of allowing the Department to present questions to commenters and the applicant addressing issues that were raised before the close of the comment period. The Hearing Officer set a deadline of May 16 for the Department to present questions and set a deadline of May 28 for the applicant and commenters to respond.

The following persons commented at the public hearing on May 8, 2008, or in writing before the close of the public comment period:

Dawn Stover (White Salmon, Washington)
Daniel Dancer (Mosier, Oregon)
Christina Welch, Bureau of Land Management
G.K. David, Naval Air Station Whidbey Island, Washington
Leslie Nelson, The Nature Conservancy
Loren & Della Heideman (Ione, Oregon)
Susie Anderson, Gilliam County Planning Director
Carla McLane, Morrow County Planning Director

[5] Letter from John White, Oregon Department of Energy, January 31, 2008. Enclosed with the Department's letter was a letter from the applicant responding to the concerns expressed by The Nature Conservancy (letter from Patricia Pilz, January 31, 2008).

Rich Melaas, Naval Air Station Whidbey Island, Washington
Dana Heideman (Ione, Oregon)

The Department presented follow-up questions to the applicant, to Leslie Nelson (The Nature Conservancy) and to Carla McLane (Morrow County Planning Director), as allowed by the Hearing Officer.[6] The applicant and the commenters responded before the deadline.[7]

The Department considered all of the public comments and follow-up responses in preparing the Proposed Order. A summary of the comments received and the Department's responses is included in Attachment E, incorporated herein by this reference.

The Siting Council met in Hood River, Oregon, on May 30, 2008. At the meeting, the Department discussed the Draft Proposed Order, the issues raised by the public comments and the Department's responses and recommendations regarding the public comments. The Department issued the Proposed Order on June 11 and provided the contested case notice required under OAR 345-015-0230(3).

The contested case notice specified a deadline of June 25, 2008, for interested persons to request party status. No requests for party status were received by the deadline. On June 26, 2008, the Hearing Officer issued an Order concluding the contested case proceeding. The Council considered the Department's Proposed Order at a public meeting in Boardman, Oregon, on July 25, 2008, and issued this Final Order.

III. GENERAL FINDINGS OF FACT

1. Description of the Proposed Facility

(a) Project Overview

The applicant provided information about the components of the proposed facility in Exhibit B of the application. The proposed SFWF is an electric power generating plant that would produce power from wind energy.

The SFWF would consist of not more than 303 wind turbines. The combined peak generating capacity of the project would be not more than 909 megawatts. The average electric generating capacity would be up to 303 megawatts.[8] Accordingly, the proposed facility is within the Council's jurisdiction.

(b) The Energy Facility

The energy facility is made up of individual wind turbines, each consisting of a nacelle (containing the gearbox and generator), a rotor and blade assembly and a turbine tower and foundation. The turbines would be arranged in strings generally as shown on Figures C-2a Amended through C-2g Amended (incorporated herein by this reference).[9] These figures depict

[6] Memoranda to Patricia Pilz, Leslie Nelson and Carla McLane dated May 15, 2008 (email from John White, May 15, 2008).
[7] Email from Patricia Pilz, May 22, 2008; FedEx delivery of electronic media from John Audley, The Nature Conservancy, May 27, 2008; Letter from Carla McLane, May 19, 2008 (received May 21).
[8] ORS 469.300(4) defines the "average electric generating capacity" of a wind energy facility as the peak generating capacity divided by 3.00.
[9] Submitted March 27, 2008, amending App Supp, Amended Exhibit C, Figures C-2a through C-2f.

the "Typical Project Layout" and shall be so referenced herein. The Typical Project Layout demonstrates a possible configuration of 303 wind turbines. CSF seeks authorization to construct wind turbines anywhere within the site boundary, subject to restrictions that would be specified by site certificate conditions.[10] The wind turbine towers would be spaced 500 to 600 feet apart in approximately 30 strings. Turbine strings would be oriented in a generally north-south alignment a half-mile or more apart.

The proposed facility would consist of up to 303 wind turbines. In the application, the applicant requested flexibility to use any combination of four turbine types: the GE Energy 1.5-MW, the Siemens SWT-93 2.3-MW, the Clipper Liberty 2.5-MW and the Vestas V90 3.0-MW. Specifications for the four turbine types are described in Table 1 below.

Table 1: Turbine Specifications

Specification	GE Energy 1.5xle	Siemens SWT-93	Clipper Liberty	Vestas V90
Peak Generating Capacity	1.5 MW	2.3 MW	2.5 MW	3.0 MW
Hub Height (meters)	80	80	80	105
Rotor Diameter (meters)	82.5	93	96	90
Maximum Sound Power Level[11]	102.7 dBA	107 dBA	107 dBA	109.2 dBA

The applicant would like to take advantage of potential improvements in turbine technology and choose from the best turbines available at the time of construction. The applicant, therefore, has requested the flexibility to select other turbine types, subject to the following limitations:[12]

- Maximum hub height: 105 meters
- Maximum rotor diameter: 105 meters
- Maximum blade tip height: 150 meters
- Minimum blade tip clearance above ground: 25 meters
- Maximum diameter of foundation: 17 feet
- Maximum volume of concrete above three feet below grade in turbine foundations: 66 cubic yards
- Maximum combined weight of metals in tower (including ladders and platforms) and nacelle (per turbine): 393 U.S. tons

Regardless of the turbine type selected, the total number of turbines would not exceed 303 and the maximum generating capacity of the facility would not exceed 909 MW (Condition 26). Any increase in these overall limits would require an amendment of the site certificate.

Turbines would be mounted on tubular steel towers. The turbine towers would have a hub height of up to 105 meters (345 feet) and would have a maximum blade tip height of up to 150 meters (492 feet) including the radius swept by the turbine blades. Access to the turbine nacelle would be by ladders within the turbine tower. Each tower would have a locked entry door at ground level.

[10] The "site boundary" is defined below in Section III.3.
[11] Values shown are the "guaranteed" or nominal maximum sound power levels and do not include adjustment for uncertainty (typically +/- 2dBA).
[12] Email from Patricia Pilz, February 1 and 7, 2008.

Foundation design for each turbine tower would be determined based on site-specific geotechnical information and structural loading requirements of the selected turbine model. A generator step-up transformer would be installed on a separate foundation at the base of each wind turbine tower, except for turbine types that incorporate a step-up transformer within the nacelle (such as the Vestas V90).[13] A step-up transformer increases the output voltage of the wind turbine generator to the voltage of the power collection system. At the base of each tower would be a turbine pad area of approximately 1,187 square feet and an access road turn-out of approximately 495 square feet.[14] The pad area (or "skirt") would be covered with washed crushed rock (Condition 58).[15]

(c) Related or Supporting Facilities

The proposed facility would include the following related or supporting facilities:

- Power Collection System
- Collector Substations
- Meteorological towers
- Field workshops
- Control system
- Access roads
- Additional construction areas

Power Collection System

Up to 158 miles of 34.5-kilovolt (kV) collector lines would transport the power from each turbine to the collector substations.[16] Collector lines, typically, are made up of three individual conductors plus a ground or bonding cable. To the extent practicable, the collector system would be underground. Based on geotechnical conditions or other engineering considerations, segments of the collector system would be aboveground.[17] Aboveground segments would be installed on single-pole, cross-arm structures or understrung on the 230-kV transmission line support structures (described below), but the total length of aboveground segments installed on single-pole structures would not exceed 28 miles (Condition 79).[18]

Collector Substations and Interconnection

The proposed facility would include two collector substations, one in the southern project area and one in the northern project area. Each substation would be located on about 2.3 acres of land. Washed crushed rock would be used on substation yards to reduce electrocution risk.[19]

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[13] Email from Patricia Pilz, March 28, 2008.
[14] "Permanent facilities footprint" table, email from Carol Weisskopf, March 10, 2008.
[15] Washed crushed rock would be used instead of gravel to improve drainage near electrical equipment. Washed crushed rock is rock that has been crushed and sieved to a specified size and then washed to remove the fines. Fines, found in gravel, reduce permeability and impair drainage. Drainage is important in the vicinity of electrical equipment to reduce the chance of standing water and the risk of electrocution of maintenance personnel. The applicant proposes to use washed crushed rock on substation yards and turbine/transformer skirts. Email from Patricia Pilz, February 1, 2008.
[16] Email from Carol Weisskopf, March 27, 2008.
[17] "Segment" refers to overall length of the transmission line between two points and not to the length of individual circuits, conductors or wires in the transmission line between those points.
[18] App Supp, Amended Exhibit B, p. 7, and email from Carol Weisskopf, March 27, 2008.
[19] Email from Patricia Pilz, February 1, 2008.

Transformers at the substations would convert the 34.5-kV power from the collection system to 230-kV. Approximately 12.3 miles (but not more than 16 miles) of single-circuit, 230-kV transmission line would transmit electricity from the south substation to the north substation, and approximately 4 miles (but not more than 5 miles) of double-circuit, 230-kV transmission line between the north substation and the proposed interconnection site would carry the electricity generated by the project to the regional power grid. The 230-kV transmission lines would be mounted on H-type power poles.[20]

The power generated by the proposed SFWF would connect to the regional transmission grid through the BPA Slatt Switching Station located west of the northern project area.[21] The 230-kV transmission line from the northern substation would terminate within a new BPA interconnect facility, where the power would be stepped up to 500 kV. The interconnect facility would be designed, constructed, owned and maintained by BPA.[22] It would occupy approximately 6.6 acres of land owned by BPA.[23] The Council finds that the interconnect facility is not a related or supporting facility.

Meteorological Towers

The proposed facility would include six permanent meteorological (met) towers.[24] The met towers would be non-guyed steel towers approximately 72 to 80 meters in height. Each met tower would be mounted on a triangular base anchored to a 200-cubic-foot concrete pad buried about six feet below ground surface. The general location of the met towers would be as shown in the Typical Project Layout.

Field Workshops

The proposed facility would include two field workshops, one in the northern project area and one in the southern project area. At each workshop, water would be supplied by an on-site well and wastewater would be discharged to an on-site septic system. The field workshops would be metal-clad, insulated buildings with a 75-foot skirt of crushed stone. The field workshops would have an adjacent fenced area measuring approximately 75 feet by 200 feet. At each workshop, a 20,000-gallon water tank would be installed for storage of fire fighting and sanitary system back-up water. Including fenced areas, the field workshop in the northern project area would occupy about 1.6 acres, and the field workshop in the southern project area would occupy about 1.4 acres.

Control System

A fiber optic communications network would link the control panels within each wind turbine to one of two host computers (one located in each of the field workshops).[25] The Supervisory, Control and Data Acquisition (SCADA) systems at each field workshop would collect operating and performance data from the turbines and the facility's met towers. Up to 120 miles of communication lines would be installed, mostly underground.[26] Where underground, communications lines would be placed in the same trenches as the collector lines, and

[20] App Supp, Amended Exhibit B, p. 7.
[21] App Supp, Amended Exhibit C, Figure C-2a.
[22] App Supp, Exhibit B, response to RAI B14.
[23] Email from Douglas Corkran, BPA, August 9, 2007.
[24] App Supp, Amended Exhibit B, p. 6.
[25] App Supp, Amended Exhibit B, p. 8.
[26] Email from Carol Weisskopf, March 27, 2008.

aboveground communications lines would run on the same power poles as the collector lines. Separate communication lines would run underground to the met towers.

Access Roads

Approximately 62 miles (but not more than 70 miles) of new roads would be constructed to provide access to the turbine strings.[27] The roads would be 18 feet wide. In addition, segments of existing private ranch and farm roads, totaling approximately 31 miles (but not more than 40 miles), would be improved and widened to 18 feet.[28] The new roads and the improved existing roads would have a compacted base of native soil and a graveled surface to a depth of four to six inches (Condition 65).[29] The access roads would connect to graveled turbine turnouts about 27.5 feet long and 18 feet wide at the base of each turbine.

Additional Construction Areas

During construction, laydown and staging areas would be used to stage construction and store supplies and equipment. CSF proposes a laydown area of approximately 70,000 square feet in the northern project area and a laydown area of approximately 61,720 square feet in the southern project area.[30] The north and south field workshops would be built within or adjacent to these large laydown areas. In addition, there would be a laydown area (approximately 7,650 square feet) at the base of each turbine and a laydown area (approximately 1,585 square feet) at the base of each meteorological tower. During construction of the proposed facility, temporary crane paths ten feet in width would parallel all new and existing roads. The temporary laydown and staging areas and crane paths would be restored to their pre-construction conditions following construction (Condition 84).

2. Location of the Proposed Facility

The applicant provided information about the location of the proposed facility in Exhibit C of the application. The site is located in Morrow County and Gilliam County south of Interstate Highway 84 about 4 miles east of Arlington, Oregon, between State Highways 19 and 74. The northern and southern areas of the proposed site are linked by the Willow Creek Valley on the east and Eightmile and Fourmile Canyons in the center. The facility would be located entirely on private land subject to long-term wind energy leases that CSF has negotiated with the landowners.[31] There are about 21,919 acres within the site boundary.[32] CSF has provided a preliminary legal description of the site boundary.[33]

[27] App Supp, Amended Exhibit B, pp. 8-9, and email from Carol Weisskopf, March 10, 2008.
[28] The overall length of facility roads would not exceed 92.5 miles. Email from Carol Weisskopf, March 27, 2008.
[29] App Supp, Amended Exhibit B, p. 9
[30] "Temporary project facilities footprint, construction" table, App Supp, Exhibit C, Correspondence, email from Patricia Pilz, September 24, 2007.
[31] The application describes a segment of proposed aboveground 230-kV transmission line that would cross a parcel of public land managed by the BLM near the Oregon Trail interpretive wayside along Fourmile Canyon Road. To avoid locating the transmission line near the wayside, the applicant withdrew the Fourmile Canyon Road route and substituted an alternative proposed route for the transmission line (email from Patricia Pilz, March 18, 2008).
[32] Email from Carol Weisskopf, March 18, 2008.
[33] Amended response to RAI C11, email from Patricia Pilz, March 24, 2008.

3. The Site and Site Boundary

ORS 469.300 defines a "site" as "any proposed location of an energy facility and related or supporting facilities." OAR 345-001-0010(53) defines "site boundary" as "the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas and all corridors and micrositing corridors proposed by the applicant." The Typical Project Layout illustrates a possible configuration of the proposed facility components within the site boundary. Subject to the conditions of the site certificate, the applicant seeks the flexibility to determine the final locations of turbines and other facility components before construction, but after a site certificate has been issued. The flexibility to determine the final configuration of facility components after a site certificate has been issued is known as "micrositing" and has been allowed by the Council in previous site certificate proceedings. Factors affecting final turbine placement include the turbine type selected for the facility, site-specific geotechnical investigation, consideration of farm operations and other micrositing factors. Before beginning construction and after considering all micrositing factors, the certificate holder would provide to the Department a detailed map of the facility, showing the final locations where the certificate holder proposes to build facility components (Condition 29). Within 90 days after beginning operation of the facility, the certificate holder would submit a legal description of the facility site to the Department (Condition 2).

4. Construction Deadlines

OAR 345-027-0020(4) requires a certificate holder to begin and complete construction of a facility by the dates specified in the site certificate. The applicant believes that construction of the facility would be completed in approximately two years. The applicant has proposed to begin construction of the SFWF no later than three years after the effective date of the site certificate and to complete construction no later than six years after the effective date of the site certificate.[34] The Council incorporates these deadlines in Conditions 24 and 25.

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

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

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

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

[34] App Supp, Exhibit B, response to RAI B16 (Follow-Up) and email from Patricia Pilz, February 4, 2008.

1. General Standard of Review

OAR 345-022-0000

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

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

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

* * *

We address the requirements of OAR 345-022-0000 in the findings of fact, reasoning, recommended conditions and conclusions of law discussed in the sections that follow. Upon consideration of all of the evidence in the record, we state our general conclusion regarding the application in Section VIII at page 163.

2. Standards About the Applicant

(a) Organizational Expertise

OAR 345-022-0010

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

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

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

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

Findings of Fact

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

A. Applicant's Expertise

Caithness Energy, LLC (Caithness), the corporate parent of CSF, has experience in construction and operation of wind energy facilities. Caithness has engaged in the permitting, design and construction of energy facilities throughout the United States. These facilities are capable of producing, in the aggregate, over 2,000 megawatts of power and include the following: (1) three wind energy facilities in California ranging from 25 MW to 60 MW in size; (2) the 300-MW COSO geothermal project in California; (3) the 350-MW, natural-gas-fueled Caithness Long Island Energy Center which is currently under construction in Long Island, New York; and (4) 67 MW of wind re-powered projects in Tehachapi, California, that are scheduled for commercial operation in mid-2008. Caithness Operating Company, LLC, a subsidiary of Caithness, currently operates wind energy facilities capable of generating 220 MW.[35]

CSF has not identified specific personnel for management of the design, construction and operation of the proposed facility, but its affiliates have qualified and experienced employees.[36] Caithness has not received any regulatory citations in the course of constructing and operating wind energy facilities. CSF would hire qualified contractors with direct experience in wind energy facility construction to design and build the proposed facility (Condition 32). CSF does not propose to design, construct and operate the proposed facility in accordance with an ISO 9000 or ISO 14000 certified program.

The mitigation actions necessary to demonstrate compliance with Council standards are described in Sections IV and V below. Based on evidence provided by the applicant, including the past experience of Caithness with other wind projects and the qualifications and experience

[35] App Supp, Exhibit D, response to RAI D1.
[36] App Supp, Exhibit D, response to RAI D2.

of personnel upon whom CSF would rely, the Council finds that CSF could successfully complete the mitigation actions.

B. Third-Party Permits

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

Conclusions of Law

For the reasons discussed above and subject to the site certificate conditions discussed herein, the Council finds that CSF has demonstrated that it has the organizational expertise to construct and operate the proposed facility. The Council further finds that no third-party permits would be required for construction or operation of the proposed facility. The Council concludes that the applicant has met the Organizational Expertise Standard.

(b) Retirement and Financial Assurance

OAR 345-022-0050

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

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

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

Findings of Fact

A. Retirement

The wind facility is expected to have a useful life of at least 25 to 30 years. The facility might be "re-powered" in the future by upgrading the existing towers with more efficient turbines and by replacing other infrastructure and related equipment. If the facility were re-powered, it could have a useful life longer than 30 years.

OAR 345-022-0050(1) ensures that the facility site can be restored to a useful, non-hazardous condition at the end of the facility's useful life. For the purpose of the standard, a "useful, non-hazardous condition" is a condition consistent with the applicable local comprehensive land use plan and land use regulations. The proposed SFWF is located on land zoned Exclusive Farm Use. To satisfy the standard, CSF must show that the site can be restored to a non-hazardous condition suitable for agricultural use.

The certificate holder is obligated to retire the facility upon permanent cessation of construction or operation. Before restoring the site, the certificate holder must submit a final retirement plan for approval by the Council (Condition 9). The retirement plan must describe the activities necessary to restore the site to a useful, non-hazardous condition. After Council approval of the plan, the certificate holder would obtain the necessary authorization from the appropriate regulatory agencies to proceed with restoration of the site. In addition, Condition 8 requires the certificate holder to maintain a bond or letter of credit to ensure that funds would be available to the Council to restore the site if the certificate holder does not retire the facility as required by Condition 9.

Restoring the site to a useful, non-hazardous condition upon retirement would involve dismantling all aboveground structures. Nacelles and rotors would be removed, and the turbine towers would be dismantled. Pad-mounted transformers and related aboveground equipment would be removed. Concrete turbine tower and transformer pads and underground foundations would be removed to a minimum depth of three feet below grade. Crushed rock would be removed from adjacent turbine pad areas. The field workshops would be removed (or, at the request of the landowner, the buildings might be converted to farm use). All aboveground transmission lines, SCADA lines and support structures would be removed. Underground transmission lines and communication cables that are at least three feet below grade would be left in place. At a depth of three feet, underground components and foundations are not expected to interfere with farming practices.

All excavated areas would be backfilled with topsoil. The surface would be graded. The affected areas, including areas temporarily disturbed during site restoration activities, would be replanted with native plant seed mixes or agricultural crops, as appropriate, based on the use of surrounding lands. Demolition waste material would be transported for disposal at authorized sites.

For the purposes of the site restoration cost estimate, the Department assumes that facility access roads would be removed. Road areas would be restored with topsoil, graded and replanted with native plant seed mixes or agricultural crops, as appropriate. Landowners might request that the roads be left in place to serve as firebreaks, to reduce the potentially hazardous practice of operating vehicles over dry grasslands and to enhance the value of their agricultural property. Accordingly, access roads might be left in place based on landowner preference.

The proposed facility would not have any underground storage tanks or other on-site bulk storage of hazardous materials. Small quantities of lubricants, vehicle fuel and herbicides might be transported over and across the site during operation, and leaks, spills and improper handling of these materials could occur. Given the small amounts of such materials used on the site, significant soil contamination is unlikely.

The Council finds that the actions necessary to restore the site are feasible and that restoration of the site to a useful, non-hazardous condition could be achieved.

B. Estimated Cost of Site Restoration

OAR 345-022-0050(2) addresses the possibility that the certificate holder is unable or unwilling to restore the site upon permanent cessation of construction or operation of the facility. A bond or letter of credit provides a site restoration remedy to protect the State of Oregon and its citizens if the certificate holder fails to perform its obligation to restore the site under any circumstances. To provide a fund that is adequate for the State to pay site restoration costs if the certificate holder fails to perform its obligation, the Council assumes circumstances under which the restoration cost would be highest.

The applicant estimated the cost of site restoration to be $8,337,880.[37] The Department obtained an independent cost estimate, following the estimating procedure outlined in its draft "Facility Retirement Cost Estimating Guide." The estimate assumes a facility configuration that would result in the highest site restoration cost consistent with the maximum design flexibility

[37] App, Exhibit W, p. 1.

requested by the applicant (not the Typical Project Layout). The assumptions underlying this estimate are as follows:

- 303 Vestas V90 turbines, each weighing 393 U.S. tons (including the weight of steel in the towers, nacelles, internal ladders and platforms).
- Foundations for the Vestas V90 containing 54 cubic yards of concrete above three feet below grade (other turbine types may have up to 66 cubic yards of concrete).
- Vestas V90 step-up transformer incorporated within the nacelle (other turbine types may have a pad-mounted step-up transformer near the tower base).
- 28 miles of single-circuit aboveground 34.5-kV transmission line consisting of three wires and one fiber-optic cable mounted on single poles spaced at 150 feet apart.[38]
- 15 miles of double-circuit aboveground 34.5-kV transmission line consisting of six wires and one fiber-optic cable understrung on 230-kV H-type supports (two poles per support structure) spaced at 150 feet apart.
- 16 miles of single-circuit 230-kV transmission line and 5 miles of double-circuit 230-kV transmission line on H-type supports.
- 70 miles of new access roads.

Using these highest-cost assumptions, the Department estimated the site restoration cost as shown in Table 2.[39]

Table 2: Cost Estimate for Site Restoration

	Quantity	Unit Cost	Extension
Turbines			
Disconnect electrical and ready for disassembly (per tower)	303	$1,009	$305,727
Remove turbine hubs and blades (per tower)	303	$3,949	$1,196,547
Remove turbine nacelles and towers (per net ton of steel)	119,079	$72.81	$8,670,142
Remove and load pad-mounted transformers (per tower)	0	$2,319	$ 0
Remove tower foundations (per cubic yard of concrete)	16,362	$36.23	$592,795
Restore turbine turnouts (per tower)	303	$98	$29,694
Met Towers			
Dismantle and dispose of met towers (per tower)	6	$8,329	$49,974
Substations and Field Workshops			
Dismantle and dispose of substations (each)	2	$62,098	$124,196
Dismantle and dispose of north field workshop	1	$28,387	$28,387
Dismantle and dispose of south field workshop	1	$21,949	$21,949

[38] Email from Carol Weisskopf, March 27, 2008.

[39] The Facility Retirement Cost Estimating Guide computes the retirement and site restoration cost in terms of mid-2004 dollars. The computation has been adjusted to reflect preliminary 2007 dollars by application of a multiplier of 1.0927. The multiplier is generated by dividing preliminary 2007 annual Gross Domestic Product Implicit Price Deflator (GDP) of 119.6484 by the average of the Second Quarter 2004 GDP (109.185) and Third Quarter 2004 GDP (109.807).

Transmission Line[40]			
Remove 230-kV single-circuit transmission line (per mile)	16	$65,900	$1,054,400
Remove 230-kV double-circuit transmission line (per mile)	5	$66,420	$332,100
Remove 34.5-kV single-circuit transmission line (per mile)	28	$5,613	$157,164
Remove understrung 34.5-kV single-circuit transmission line (per mile)	0	$817	$ 0
Remove understrung 34.5-kV double-circuit transmission line (per mile)	15	$1,430	$21,450
Remove junction boxes & electrical to 4' below grade (each)	50	$1,362	$68,100
Access Roads			
Remove roads, grade and seed (per mile)	70	$18,895	$1,322,650
Restore Additional Areas Disturbed by Facility Removal			
Around turbine pads (per acre)	11.21	$5,760	$64,570
Around turbine turnouts (per acre)	1.91	$5,760	$11,002
Turbine disassembly crane and truck areas (per acre)	137.52	$5,760	$792,115
Turbine disassembly laydown area (per acre)	45.62	$2,861	$130,519
Around met towers (per acre)	0.22	$5,760	$1,267
Around substations (per acre)	0.90	$5,760	$5,184
Around north field workshop (per acre)	0.15	$5,760	$ 864
Around south field workshop (per acre)	0.14	$5,760	$ 806
Around 34.5-kV power line poles (per acre)	4.7	$2,861	$13,447
Around 230-kV power line supports (per acre)	7.0	$2,861	$20,027
Around access roads (per acre)	84.85	$5,760	$488,736
General Costs			
Permits, mobilization, engineering, overhead, utility disconnects (unit cost)	1	$458,113	$458,113
Subtotal			**$15,961,925**
Performance Bond		1%	$159,619
Gross Cost			**$16,121,544**
Administration and Project Management		10%	$1,612,154
Future Developments Contingency		10%	$1,612,154
Total Site Restoration Cost (rounded to nearest $1,000)			**$19,346,000**

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

OAR 345-022-0050(2) requires the Council to decide whether the applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition. Based on the estimate shown in Table 2, the Council finds that the value of the financial assurance bond or letter of credit for restoring the site of the proposed SFWF would not exceed $19.346 million in 2007 dollars adjusted annually as described in Condition 30.[41] This bond or letter of credit would remain in force until the certificate holder has fully restored the site.

CSF provided information about its financial capability in Exhibits D and M of the application. CSF proposes to provide a financial assurance bond or letter of credit in a form approved by the Council before beginning construction of the energy facility and to maintain that performance bond or letter of credit in effect until the facility is retired and the site has been restored.

CSF has provided a letter from JPMorgan Chase Bank, N.A. (Chase).[42] Chase states that "there is a reasonable likelihood that Chase would be inclined to issue" a letter of credit (LC) in

[40] Includes removal of aboveground SCADA lines.
[41] The adjustment calculation adjusts the gross cost according to the inflation rate.
[42] App Supp, Exhibit M, response to RAI M1.

an amount up to $20 million, if "the reimbursement obligations under the LC would be collateralized and documented in the same manner that Chase has previously issued letters of credit on behalf of other subsidiaries of Caithness Energy." The letter does not constitute a firm commitment from Chase to issue the letter of credit, but it is evidence that CSF could obtain the necessary letter of credit.

It is customary for a performance bond to contain provisions allowing the surety to complete construction of a project in order to reduce its potential liability. Oregon law and Council rules require a site certificate to construct or operate an energy facility. ORS 469.320(1); OAR 345-027-0100(1). Accordingly, when the certificate holder elects to use a bond to meet the financial assurance requirements and the surety retains the right to complete construction, operate or retire the energy facility, the Council requires the certificate holder to ensure that the surety has agreed to comply with all applicable statutes, Council rules and site certificate conditions. In addition, the Council requires that the surety seek Council approval before commencing construction, operation or retirement activities. These requirements are included in Condition 31.

Conclusions of Law

For the reasons discussed above and subject to the site certificate conditions described herein, the Council finds that the CSF site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility. The Council further finds that $19.346 million in 2007 dollars adjusted annually as described in Condition 30 is a reasonable estimate of the cost to restore the site to a useful, non-hazardous condition. The Council finds that CSF has demonstrated a reasonable likelihood of obtaining a bond or letter or credit, satisfactory to the Council, in an amount adequate to restore the site to a useful, non-hazardous condition. Based on these findings and the site certificate conditions described herein, the Council concludes that the applicant has met the Retirement and Financial Assurance Standard for the proposed SFWF.

3. Standards About the Impacts of Construction and Operation

(a) Land Use

OAR 345-022-0030

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

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

***

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

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

(B) For a proposed facility that does not comply with one or more of the applicable substantive criteria as described in section (3), the facility otherwise

complies with the statewide planning goals or an exception to any applicable statewide planning goal is justified under section (4); or

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

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

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

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

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

(c) The following standards are met:

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

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

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

* * *

Findings of Fact

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

The proposed facility would lie on land within the land use jurisdictions of Gilliam County and Morrow County. The energy facility and its related or supporting facilities, as well as staging areas needed during construction, would be built entirely on privately-owned land. All of the land within the site boundary is zoned Exclusive Farm Use (EFU).[43]

The Council must apply the Land Use Standard in conformance with the requirements of ORS 469.504. The Oregon Supreme Court recently held "under ORS 469.504(1)(b) and (5), the council may choose to determine compliance with statewide planning goals by evaluating a facility under paragraph (A) or (B) or (C), but … it may not combine elements or methods from more than one paragraph, except to the extent that the chosen paragraph itself permits."[44]

Under ORS 469.504(5), "If the special advisory group recommends applicable substantive criteria for an energy facility described in ORS 469.300 or a related or supporting facility that does not pass through more than one local government jurisdiction or more than three zones in any one jurisdiction, the council shall apply the criteria recommended by the special advisory group." The proposed SFWF is an energy facility as defined in ORS 469.300(11)(a)(J). The proposed facility site overlaps two local government jurisdictions (and the facility, therefore, may be said to "pass through" more than one local government jurisdiction). ORS 469.504(5) addresses certain facilities that "pass through" more than one local jurisdiction: "If the special advisory group recommends applicable substantive criteria *for an energy facility as defined in ORS 469.300(11)(a)(C) to (E) or a related or supporting facility that passes through more than one jurisdiction* or more than three zones in any one jurisdiction, the council shall review the recommended criteria and determine whether to evaluate the proposed facility against the applicable substantive criteria recommended by the special advisory group, against the statewide planning goals or against a combination of the applicable substantive criteria and statewide planning goals" (emphasis added). This provision applies to energy facilities defined in ORS 469.300(11)(a)(C) to (E) but does not apply to an energy facility as defined in ORS 469.300(11)(a)(J) (a wind energy facility).

The Council may find compliance with statewide planning goals under ORS 469.504(1)(b)(A) if the Council finds that the proposed facility "complies with applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted." In this case, both Gilliam County and Morrow County are "affected local governments" because parts of the proposed SFWF would lie within each county. As to those parts of the proposed facility that would lie within each county, the Council has considered whether the proposed facility complies with the applicable substantive criteria of the affected county.

If the Council finds that the proposed facility does not comply with one or more of the applicable substantive criteria, then the Council must proceed under ORS 469.504(1)(b)(B) and must determine whether the proposed facility "otherwise [complies] with the applicable statewide planning goals." In *Save Our Rural Oregon*, the Court held that "paragraph (B) necessarily requires an evaluation of the same applicable substantive criteria as paragraph (A) and, to the extent those criteria are not met, directs the council to consider statewide planning goals."

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[43] App, Exhibit K, p. 3.
[44] *Save Our Rural Oregon v Energy Facility Siting Council*, 339 Or 353 (2005).

ORS 469.504(1)(b)(C) is not available to the Council, because subsection (5) of the statute does not allow the Council to elect to apply the statewide planning goals directly when, as in this case, the special advisory group has recommended applicable substantive criteria for a proposed energy facility as defined in ORS 469.300(11)(a)(J).

The land use analysis begins with identification of the "applicable substantive criteria" recommended by the Special Advisory Group (SAG). On August 25, 2006, the Council appointed the Gilliam County Court and the Morrow County Court as the SAGs for this application. On February 20, 2007, in its Request for Comments on the Completeness of the Application, the Department requested that the SAGs identify the applicable substantive criteria in effect on the date CSF submitted the application (February 1, 2007).

For the reasons discussed below, the Council finds that the proposed facility does not comply with all of the applicable substantive criteria in Gilliam County or in Morrow County. The Council finds that Goal 3 (Agricultural Lands) is the applicable statewide planning goal. The Council finds that an exception to Goal 3 is justified, for the reasons discussed below at page 55.

A. Gilliam County's Applicable Substantive Criteria

On March 12, 2007, the Gilliam County Planning Director responded to the Department's request that the Gilliam County SAG identify applicable substantive criteria. The Planning Director identified Gilliam County Zoning and Land Development Ordinance (GCZO) Article 4 (zoning) and Article 7 (standards for Conditional Uses) as the applicable substantive criteria for the proposed facility.[45] In addition, the Planning Director submitted a copy of Gilliam County Planning Commission Order No. 2006-06 (GCPC Order), under which the Commission approved a Conditional Use Permit authorizing PPM Energy to construct the Pebble Springs Wind Energy Project (Pebble Springs) on EFU land. The order addressed the County's "Wind Power Generation Facility Siting Requirements" (included in GCZO Article 7) and other applicable sections of the GCZO. The Pebble Springs project would be located west of, and adjacent to, the SWFW northern project area.

GCZO Section 4.020(A): EFU Exclusive Farm Use

> *In an EFU Zone, the following regulations shall apply:*
>
> *A. High Value Farmland. Due to the limited amount of High Value Farmland in Gilliam County, the uses for High Value Farmland are not listed in this section. If a use permitted in Subsections 2 and 3 of this section is located on High Value Farmland, the requirements of this section and the requirements of OAR 660, Division 33, shall be used for the review.*

ORS 215.710(1) and OAR 660-033-0020(8) define "High Value Farmland" as land "in a tract composed predominantly of soils that are…[either irrigated or not irrigated and] classified prime, unique, Class I or II" by the Natural Resources Conservation Service (NRCS).[46] "Tract" means one or more contiguous lots or parcels in the same ownership.[47] There are pockets of "Kimberly fine sandy loam" (rated Class I when irrigated) and "Ritzville silt loam" (on 2 to 7

[45] Email from Susie Anderson, Gilliam County Planning Director, March 12, 2007.
[46] ORS 215.710(6) provides that the applicable "soil classes, soil ratings or other soil designations" are those of the NRCS "in its most recent publication for that class, rating or designation before November 4, 1993."
[47] OAR 660-033-0020(10).

percent slopes rated subclass IIe when irrigated), but there are no "tracts" that are composed predominantly of these soil types within the SFWF site boundary in Gilliam County.[48] The Council finds that the proposed SFWF is not located on high-value farmland in Gilliam County.

GCZO Section 4.020(D)(14): Conditional Uses Permitted

> *In an EFU Zone, the following regulations shall apply:*
> * * *
> *D. Conditional Uses Permitted. In the EFU Zone, the following uses and their accessory uses may be permitted if determined by the Planning Commission during a public hearing to satisfy the applicable criteria and procedures set forth in Section 7.040. The appropriate review criteria are identified for each use.*
> * * *
> *14. Commercial utility facilities for the purpose of generating power for public use by sale. A power generation facility not located on high-value farmland shall not preclude more than 20 acres from use as a commercial agricultural enterprise. A power generation facility located on high-value farmland shall not preclude more than 12 acres from use as a commercial agricultural enterprise. Approval of a use pursuant to this subsection is subject to the review criteria of Section 4.020.H, and any other applicable criteria or provisions of law.*

The proposed SFWF is a "commercial utility facility for the purpose of generating power for public use by sale." The SFWF includes a "power generation facility not located on high-value farmland." The area occupied by the power generation facility is shown in Table 3. The components of the proposed "power generation facility" in Gilliam County include wind turbines, collector and communication lines, meteorological towers, the northern field workshop and access roads.[49] The Council finds that the proposed SFWF would preclude more than 20 acres from use as a commercial agricultural enterprise in Gilliam County. The proposed facility, therefore, does not comply with GCZO Section 4.020(D)(14).

[48] App, Exhibit K, p. 6. App Supp, Exhibit I, response to RAI I1, I2 and I4. Soil capability ratings are based on NRCS Soil Survey of Gilliam County, Oregon (May 1984).

[49] The substation and aboveground transmission interconnection lines are considered to be "utility facilities necessary for public service." See discussion below at page 53.

Table 3: Area Occupied by the Power Generation Facility[50]

Structure	Gilliam County (acres)	Morrow County (acres)
Principal use		
Turbine towers, including pad areas and turnouts	9.0	2.7
Meteorological towers	< 0.1	< 0.1
Field workshop	1.6	1.4
Aboveground 34.5-kV collector line	0.1	< 0.1
Subtotal	**10.7**	**4.2**
Access roads	125.2	39.3
Total	**135.9**	**43.5**

In addition to imposing the acreage limitation, GCZO Section 4.020(D)(14) provides that approval of a commercial utility facility is subject to the review criteria of GCZO Section 4.020(H):

> *H. Specific Review Criteria. In the EFU Zone, certain uses are subject to specific criteria, in addition to any other applicable criteria. The specific provisions of this subsection apply only when referenced within the list of uses included in Subsections 4.020.B, C and D.*
>
> *1. The use may be approved only where the County finds that the use will not:*
> - *a. Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or*
> - *b. Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.*

These criteria are the same as the criteria in GCZO Section 7.020 (Q) and are discussed below at page 30.

GZCO Section 4.020(D) allows other uses associated with the SFWF on EFU land. "Wind power generation facilities" are allowable under Section 4.020 (D)(34).[51] Turbine access roads are "transportation improvements" that are allowable under Section 4.020 (D)(25), subject to the review criteria of Section 4.020 (H). Improvements to existing public roads are allowable under Section 4.020(D)(24), subject to the review criteria of Section 4.020(H).

GCZO Section 4.020(J): Property Development Standards

> *In an EFU Zone, the following regulations shall apply:*
> * * *
> *J. Property Development Standards. In the EFU Zone, the following standards apply to residential and nonresidential development.*
>
> *1. Building Height. No limitations.*

[50] Estimates based on App Supp, Exhibit K, response to RAI K1 (Follow-Up) and email from Carol Weisskopf, March 10, 2008, rounded to the nearest tenth of an acre.

[51] GCZO Section 7.020(T)(2) defines "wind power generation facilities" as "one or more wind turbines… and their related or supporting facilities."

2. Setbacks

a. The front and rear yard setbacks from the property line shall be 25 feet.

b. The side yard setbacks from the property line shall be 25 feet.

The Gilliam County Planning Commission approved construction of the Pebble Springs turbines, O&M building and substation subject to a condition of approval that requires a setback for turbine towers of the greater of 250 feet or the height of the tower and a setback of 50 feet for "a building or substation" from any road right-of-way, exterior lot line, occupied house, electrical substation, railroad right-of-way, or similar structure.

The Council has previously considered the question of safety setbacks for turbines ranging up to 492 feet in height. In the Final Order on Amendment #3 for the Klondike III Wind Project, the Council approved a turbine safety setback from public roads equal to 110-percent of the maximum blade tip height or 450 feet, whichever is greater, measured from the centerline of the turbine tower to the centerline of the road. Some Council members expressed concern that the setback distance might not be large enough and that the width of the public road right-of-way should be taken into account. In addition, for Klondike III, the Council approved a safety setback from residences of at least 1,250 feet from the centerline of the turbine tower to the center of the house, based on the certificate holder's statement that this distance would be acceptable and feasible given the expected facility layout.

The applicant proposes installation of turbines that could have a blade tip height of up to 150 meters (492 feet), depending on the turbine selected (Condition 26).[52] The applicant has proposed a safety setback of 110-percent of maximum blade tip height from all leased property boundaries, road rights-of-way edges and residences.[53] The standard public road right-of-way in Gilliam County is 60 feet in width.[54] Final turbine selection would determine the maximum blade tip height and the setback distance. For turbines having a maximum blade tip height of 150 meters, a setback of 110-percent of maximum blade tip height would be 165 meters (541 feet).

The California Wind Energy Collaborative (CWEC) prepared an interim project report for the California Energy Commission addressing setback requirements for wind turbines in California.[55] The report lists the safety setback ordinances from five counties in California. The ordinance setback distances from residences range from 1,000 feet to 4 times maximum blade tip height. One county's ordinance has no setback from roads; other counties have road setbacks ranging up to 3 times maximum blade tip height. The report notes that the county ordinances provide little explanation of the basis for the required setback distances and "there is no evidence that setbacks were based on formal analysis of rotor fragment hazard." The report reviews the available literature for blade failure data, the estimated probability of failure and aerodynamic modeling of the range of throw distance for turbine blades or blade fragments. The report finds, however, that there is no "useful" guidance available from the literature for applying setback distances and recommends further study.

[52] App Supp, Amended Exhibit B, p. 4, and email from Patricia Pilz, February 7, 2008.
[53] Email from Patricia Pilz, February 1, 2008.
[54] Email from Patricia Pilz, February 1, 2008.
[55] Larwood, Scott, and van Dam, C. P. (California Wind Energy Collaborative), *Permitting Setback Requirements for Wind Turbines in California*, California Energy Commission, PIER Renewable Energy Technologies (CEC-500-2005-184), November 2006.

An attachment to the CWEC report discusses actual turbine failure reports from Denmark and Germany. The data show that blade fragments are likely to be thrown farther from the turbine tower than whole blades.[56] For turbines larger than 1 MW, the maximum reported throw distance for a blade fragment is 300 meters (984 feet). The maximum throw distance for an entire blade is 150 meters (492 feet), but there is no data for turbines larger than 600 kW. The zone of risk for a turbine collapse is a distance equal to the maximum blade tip height.[57]

A recently-completed report commissioned by the Union of Nova Scotia Municipalities reviewed peer-reviewed journal articles and other sources regarding the impacts of wind energy generation and approaches to regulation.[58] The report noted that "there is no scientific or societal consensus on many aspects of wind development." Nevertheless, with regard to blade failure risk, the report suggested a safety setback distance of 2 to 3 times maximum blade tip height. This recommendation appeared to be based on consideration of the range setback regulations adopted by various Canadian municipalities.

Until more definitive turbine-failure data become available, the Council adopts safety setbacks based on the Council's own precedents, on ordinances from other jurisdictions that have addressed the issue and on the available turbine failure data discussed above. For public roads, the Council adopts a safety setback of 110-percent of maximum blade tip height, measured from the centerline of the turbine tower to the nearest edge of the public road right-of-way, assuming a minimum right-of-way width of 60 feet. For residences, the Council adopts a safety setback of one-quarter mile (1,320 feet or 402 meters).[59] The distance would be measured from the centerline of the turbine tower to the center of the house and would apply to residences existing at the time of facility construction. In addition, the Council adopts a setback requirement of 110-percent of maximum blade tip height from the centerline of the turbine to the nearest boundary of the certificate holder's lease area.[60] These safety setback distances would apply unless a greater setback distance is required under the County ordinances discussed below or is necessary for compliance with noise control regulations (discussed at page 130).

GCZO Section 7.020(T)(4)(d)(1), discussed below at page 34, requires that "no portion of the facility" be located within 3,520 feet of properties zoned for residential use. The application states that no portion of the proposed facility would be located within 3,520 feet of property zoned for residential use or designated in the Gilliam County Comprehensive Plan as a residential zone.[61] Based on the applicant's representation, the Council includes this restriction in the site certificate.

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[56] The throw distance for ice shedding from a turbine blade is assumed to be similar to the range of a blade fragment (CWEC report, Attachment 1, p. 2).
[57] CWEC report, Attachment 1, p. 19.
[58] Jaques Whitford Consultants, *Model Wind Turbine By-laws and Best Practices for Nova Scotia Municipalities*, January 2008.
[59] A quarter-mile safety setback (1,320 feet) provides a margin of safety beyond the maximum reported throw distance of 984 feet for a blade fragment, as discussed above. For comparison, the ordinances of Alameda County, Riverside County and Solano County (California) require a setback of 3 times maximum blade tip height, which would result in a setback distance of 1,476 feet, assuming a blade-tip height of 150 meters (the maximum that would be allowed under Condition 26).
[60] The lease-boundary setback requirement is based on the applicant's representation in the application and supporting record, in accordance with OAR 345-027-0020(10).
[61] App Supp, Exhibit K, response to RAI K1, p. 5.

The Council adopts Condition 40, which incorporates the setback distances discussed in this section. The recommended setback distances comply with GCZO Section 4.020(J).

GCZO Section 7.010(A)(1): General Approval Criteria and Conditions (1)

> *A conditional use listed in this ordinance shall be permitted, altered or denied in accordance with the standards and procedures of this ordinance and this article by action of the Planning Commission or Planning Director. In the case of a use existing prior to the effective date of this ordinance, and classified in this ordinance as a Conditional Use, a change in use or in lot area or an alteration of a Conditional Use, a change in use or in lot area or an alteration of structure shall conform with the requirements for a Conditional Use.*
>
> *A. General Approval Criteria and Conditions*
>
> *1. In addition to criteria, standards and conditions that may be set forth in a specific Zone, this Article, or other regulations applicable to a specific Conditional Use shall not be approved or permitted unless the following criteria are met. A Conditional Use may be approved on the Condition or Conditions that the applicant obtain and maintain compliance with other permits and approvals required.*
>
> *a. The proposed use shall be in compliance with the applicable Comprehensive Plan designation and policies.*

GCZO Section 7.010(A)(1) contains a list of criteria that must be met "in addition to the criteria, standards and conditions that may be set forth in a specific Zone, this Article, or other regulations applicable to a specific Conditional Use." For the reasons discussed below, the Council finds that the proposed SFWF would comply with Section 7.010(A)(1).

Subsection (a) requires compliance with "the applicable Comprehensive Plan designation and policies." In discussing Subsection (a), the Gilliam County Planning Commission did not specifically identify applicable Comprehensive Plan designation or policies but noted that a "commercial utility facility" is allowed in the EFU zone.[62] Under the heading "Comprehensive Plan and Zoning Ordinance," the GCPC Order quoted GCCP Part 3, Agricultural Land Use, Policy #1 as applicable to the decision on the Conditional Use Permit for Pebble Springs. Accordingly, the Council finds that the applicable Comprehensive Plan designation and policy for purposes of analyzing compliance with GCZO Section 7.010(A)(1)(a) is GCCP Part 3, Policy #1.[63] This policy commits the County "to maximize the preservation and protection of commercial agriculture in the County" but not to "exclude non-farm uses that are authorized by state statutes on Lands zoned as Exclusive Farm Use (EFU) and are otherwise consistent with the Plan." The uses associated with the proposed SFWF include the generating facility (authorized under ORS 215.283(2)(g)), the substations and interconnection line (authorized under ORS 215.283(1)(d)) and the access roads (authorized under ORS 215.283(3)).[64] These land uses are

[62] GCPC Order, Exhibit A, p. 3.

[63] Policy #1 states, in part: "It shall be the policy of Gilliam County to maximize the preservation and protection of commercial agriculture in the County, and to provide maximum incentives for such through the application of zoning in compliance with ORS 215 to all lands identified as "Agricultural Lands." However, this policy shall not be construed to, nor is it intended to, exclude non-farm uses that are authorized by the state statutes on Lands zoned as Exclusive Farm Use (EFU) and are otherwise consistent with the Plan."

[64] These statutes are discussed below, beginning at page 50.

authorized by statute on agricultural land and are otherwise consistent with the GCCP for the reasons discussed herein.

b. As applicable, sewage and/or solid waste disposal methods shall be provided in compliance with applicable local, State and Federal regulations.

Subsection (b) of the ordinance requires compliance with applicable government regulations for sewage and solid waste disposal. The applicant described the disposal of sewage and solid waste during construction and operation of the facility in Exhibit V. The certificate holder would dispose of solid waste at a licensed landfill facility. The certificate holder would dispose of sewage from the field workshops in licensed on-site septic systems. Due to the small volume of sewage, a Water Pollution Control Facility permit would not be required for the on-site septic systems. Mandatory condition OAR 345-027-0020(3) requires the certificate holder to construct and operate the facility in compliance with all applicable state and local laws and regulations (Condition 3). The Council has no jurisdiction to enforce federal permit requirements; however, the certificate holder would be subject to any permits required under federal law. The Council adopts Condition 27, which requires the certificate holder to obtain all necessary federal, state and local permits or approvals required for construction, operation and retirement of the facility. The Council adopts Condition 100, which requires the certificate holder to discharge sanitary wastewater generated at the field workshops to licensed on-site septic systems in compliance with county permit requirements. The Council adopts Conditions 101 and 102, which summarize the applicant's plans for solid waste management during facility construction and operation.

c. Proposal shall be found to be in compliance or conditioned upon compliance with applicable air and noise pollution standards.

Subsection (c) requires compliance with air and noise pollution standards. The proposed SFWF would not generate air pollution emissions. The proposed facility would comply with state noise control regulations for the reasons discussed below at page 130.

d. Required access shall be legally established, available, and adequate to serve the proposed use or provisions to provide such evident.

Subsection (d) requires adequate, legally established access to the proposed use. The facility would be built on private land. Access to the facility would be from existing County roads. The proposed facility does not include construction of any new public roads. The applicant has negotiated long-term leases with the landowners that would give the certificate holder a legal right of access.

e. Public services deemed necessary shall be available or provisions for such provided and no use shall be approved which is found to exceed the carrying capacities of affected public services unless there are provisions to bring such capacities up to the need.

Subsection (e) requires public services to be available and bars approval of a use that exceeds the carrying capacity of affected public services. Electricity needed during operation of the facility for typical office loads at the field workshops would be supplied and distributed internally by the facility itself. Public services necessary for the proposed facility include sewage disposal, water supply, storm water drainage, solid waste disposal, housing, transportation, police and fire protection, health care and schools. Conditions based on the requirements of the

Council's Public Services Standard, discussed below at page 122, address public services and the impact of the facility on the capacity of local providers to provide them. For the reasons discussed there, the public services necessary for the proposed SFWF are available and the proposed SFWF would not exceed the carrying capacities of the affected services.

f. Proposal shall be in compliance with the applicable standards and limitations of the primary and combining zone as may be applicable.

Subsection (f) requires compliance with applicable standards of the primary and combining zone. The standards applicable to the primary zone (EFU) are described and discussed herein. The proposed facility would lie entirely within land zoned EFU. There are no combining zones defined in the applicable substantive criteria identified by the SAG.

g. No use shall be approved which is found to have a significant adverse impact on resource-carrying capacities unless there are provisions for mitigating such impact.

Subsection (g) addresses resource carrying capacity. The proposed SFWF complies with this requirement, because its impacts on air quality, soils, water supplies and water bodies would not exceed resource carrying capacities of those resources. The proposed facility would have no air pollution emissions that would result in an adverse impact to air quality. We discuss impacts to soils at page 58. To avoid or reduce soil erosion, the certificate holder would comply with the requirements of the NPDES 1200-C stormwater permit and an Erosion and Sediment Control Plan during construction and would implement erosion control measures during operation (Conditions 73 and 77). The facility would use a significant amount of water during construction, but water use would not exceed the resource carrying capacity of the proposed water source. Water use during operation would be insignificant. We discuss the availability of sufficient water for construction and operation of the facility at page 138. Water would not be discharged to wetlands, lakes, rivers or streams, and there would be no adverse impact on water quality. Water used during operation at the field workshops would be disposed of in approved on-site septic systems and would not result in an adverse impact on water quality or affect any public sewer facilities (Condition 100).

The Council's standards address other natural resource consequences of the proposed SFWF facility. In our discussion of each of the standards, we identify the potential adverse impacts of the proposed facility and explain how those impacts would be mitigated. We discuss the potential impacts to protected areas at page 60; to scenic resources at page 64; to threatened and endangered species at page 88; to wildlife habitat at page 96; to ambient noise levels at page 130; and to waters of the State at page 136. The Council's Retirement and Financial Assurance Standard, discussed at page 13, addresses retirement of the proposed facility and restoration of the site to a useful, non-hazardous condition. For the reasons discussed in the sections cross-referenced above and subject to the mitigation addressed by the site certificate conditions described herein, the proposed SFWF would not have a significant adverse impact on resource carrying capacities.

h. No use shall be approved which is found to exceed the carrying capacities of affected public services and facilities.

Subsection (h) addresses carrying capacities of affected public services. This requirement is addressed under Subsection (e), discussed above. CSF's compliance with this requirement is

further supported by the findings under the Council's Public Services Standard, discussed below at page 122.

i. All required State and Federal permits or approvals have been obtained or will be as a condition of approval.

Subsection (i) requires the certificate holder to obtain all required State and Federal permits and approvals. The site certificate would require compliance with all applicable permit requirements of other state agencies (Condition 3). The Council has no jurisdiction to enforce federal permit requirements; however, the certificate holder would be subject to any permits required under federal law. The Council adopts Condition 27, which requires the certificate holder to obtain all necessary federal, state and local permits or approvals required for construction, operation and retirement of the facility.

GCZO Section 7.010(A)(2): General Approval Criteria and Conditions (2)

A conditional use listed in this ordinance shall be permitted, altered or denied in accordance with the standards and procedures of this ordinance and this article by action of the Planning Commission or Planning Director. In the case of a use existing prior to the effective date of this ordinance, and classified in this ordinance as a Conditional Use, a change in use or in lot area or an alteration of a Conditional Use, a change in use or in lot area or an alteration of structure shall conform with the requirements for a Conditional Use.

A. General Approval Criteria and Conditions

** * **

2. In addition to specific standards and/or conditions set forth by the applicable zone, this article or some other applicable regulations, other conditions may be imposed that are determined necessary to avoid a detrimental impact, and to otherwise protect the best interests of the surrounding area and the County as a whole. Such conditions may include, but are not limited to, the following:

a. Limiting the manner in which the use is conducted including restricting the time an activity may take place and restraints to minimize such environmental effects as noise, vibration, air pollution, glare and odor.
b. Establishing a special setback or other open space or lot area or dimension.
c. Limiting the height, size or location of a building or other structure.
d. Designating the size, number, improvements, location and nature of vehicle access points and parking or loading areas.
e. Limiting or otherwise designating the number, size, location, height, and lighting of signs and outdoor lighting.
f. Requiring diking, screening, fencing, landscaping or another facility to protect adjacent or nearby property and designating standards for its installation and maintenance.
g. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or other significant natural resources.
h. Limiting the term of the Conditional Use Permit to a specific time.
i. Requiring necessary on-site or off-site improvements and maintenance.
j. Requiring the holder of a Conditional Use Permit to obtain review, renewal, or reapplication approval of the permit in the event that there is an increase

in impact from the use on public facilities beyond that which was projected at the time of initial approval.

GCZO Section 7.010(A)(2) describes conditions that "may be imposed…[if] determined necessary to avoid a detrimental impact, and to otherwise protect the best interests of the surrounding area and the County as a whole." The ordinance lists discretionary conditions and does not contain substantive standards. The County recommended that the site certificate include conditions similar to the "Conditions of Approval" contained in the Pebble Springs CUP, if the Council approves a site certificate for the SFWF. After consultation with the Gilliam County Planning Director, the Department recommended conditions that incorporate the substance of the County's recommendations.

The Gilliam County Planning Commission imposed Conditions of Approval in the Pebble Springs CUP related to the subsections of GCZO Section 7.010(A)(2).[65] Table 4 lists the Pebble Springs CUP conditions that are related to this ordinance and additional CUP conditions imposed under GCZO Section 7.020(T)(4)(b). The table lists the site certificate conditions that are comparable.

Table 4: Gilliam County CUP Conditions

	Subject	**Pebble Springs CUP Conditions**	**Site Certificate Conditions**
7.010(A)(2) Subsection	**Conditions imposed under GCZO Section 7.010(A)(2)**		
(a)	noise air pollution (dust control) glare (lighting) construction schedule daylight hours TV/radio/microwave interference utility lines advertising visual impact	18 7 19 32 36 43 44 16 13	97 65, 75, 92 95 24, 25 96 not applicable 82 93 93, 94
(b)	setback	17	40
(c)	turbine specifications	27	26
(d)	highway access	37	27
(e)	signs, lighting	16, 19	93, 95
(f)	fencing, gates	15	42, 64
(g)	wildlife weed control riparian areas	10 11 12	83 through 92 38 73, 77, 86
(h)	periodic review	38[66]	20, 21
(i)	waste disposal weed control visual impact	26 11 13	101, 102 38 93, 94

[65] GCPC Order, Exhibit A, pp. 5-7.

[66] The County Condition of Approval includes authority for the County to conduct inspections for compliance with the conditions of approval. Under ORS 469.430, the Council has continuing authority to inspect (or direct the Department to inspect, or request another state agency or local government to inspect) the site at any time in order to ensure that the facility is being operated consistent with the terms and conditions of the site certificate. Accordingly, no site certificate condition is needed to provide this authority.

	fire protection dust control road repair	9 7 6	52 through 56 65, 75, 92 67
(j)	inspection, periodic review	33, 38	20, 21
	Additional conditions imposed under GCZO Section 7.020(T)(4)(b)		
	compliance with laws	1	3, 27
	Oregon Department of Aviation	2	3, 27
	leases and easements	3	3
	covenant not to sue	4	39
	cost reimbursement for CUP review	5	see footnote[67]
	erosion and sediment control	8	73
	tower access/safety	14	55, 61, 62
	hazardous substances	20	50,51
	pesticides/herbicides	21	50
	notification of accidents	22	71
	notice to FAA	23	57
	notice to adjacent residents	24	55
	conformance with site plan	25	2, 3, 26, 29, 41
	hardware control and safety	28	26, 60
	interconnection	29	27
	individual metering	30	60
	tower identification	31	41, 93
	notice of permit conditions	34	27, 33
	field contact representative	35	34
	facility enlargement/modification	39	1, 21, 26
	noncompliance/revocation	40	3[68]
	decommissioning	41	9, 16
	bond	42	8, 30
	archaeological discoveries	45	43 through 46
	coordination with cultural groups	46	43, 45
	assignment and binding	47	15
	avian impact monitoring	48	83
	City of Arlington Airport	49	not applicable

GCZO Section 7.020(Q): Conditional Uses in Exclusive Farm Use Zones

In addition to the standards of the zone in which the conditional use is located and the general standards of this ordinance, conditional uses shall meet the following standards:

* * *

Q. Conditional Uses in Exclusive Farm Use Zones

1. A Type I or Type II Conditional Use in an Exclusive Farm Use Zone may be approved only when the Planning Director or Hearings body finds that the use will not:

a. Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or

b. Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

[67] County fees are recoverable under ORS 469.360(1) and ORS 469.401(3) and (4).

[68] Mandatory Condition 3 requires compliance with all Council rules, including the rules in OAR Chapter 345, Division 29, which address the Council's authority to enforce the site certificate.

2. An applicant for a conditional use in the Exclusive Farm Use Zone may demonstrate that the standards for approval set forth in Subsection A of this section will be satisfied through the imposition of conditions. Any condition so imposed shall be clear and objective.

The uses associated with the SFWF include a power generation facility (allowable under GZCO Section 4.020(D)(14)), transportation improvements (allowable under Section 4.020(D)(25)) and utility facilities necessary for public service (allowable under Section 4.020(D)(29)). Each of these uses is a "Type II" conditional use on EFU land under the GCZO.[69]

Lands "devoted to farm use" within the analysis area are used for cultivation of wheat (in the southern project area) and for cattle and sheep grazing (in the northern project area). Within the analysis area (the area within the site boundary and one-half mile from the site boundary), approximately 35,129 acres in Gilliam County are "devoted to farm use."[70] There is no forest use within the analysis area. The proposed SFWF would occupy approximately 136 acres of this farm-use land, or less than one-half of one percent.

The County found that the uses associated with Pebble Springs would not force a significant change in accepted farm practices on surrounding lands and would not significantly increase the cost of farm practices.[71] The same types of uses are associated with the SFWF. The impact of the proposed SFWF would not force a significant change in accepted farm practices or significantly increase the cost of farm practices, for the reasons discussed below.

The certificate holder would locate facility components and temporary construction laydown and staging areas to minimize disturbance with farming operations (Condition 37). In accordance with GCZO Section 7.020(T)(4)(a)(5), the certificate holder would record a covenant not to sue with regard to generally accepted farming practices on adjacent farmland (Condition 39). Development of improved roads in the northern project area would provide better access for herders and water trucks, which might benefit management of grazing practices.

Construction and operation of the SFWF could cause changes in routes of access to fields and changes in the pattern of cultivation, seeding, fertilizing and harvesting near the SFWF turbines and access roads. In the southern project area, CSF, in consultation with the landowners, would lay out the facility components to minimize obstacles to farming in cultivated fields (facility components around which the farmer would have to plow, plant and harvest).[72] Condition 36 would require the certificate holder to consult with area landowners during construction and operation of the facility to determine further measures to reduce or avoid any adverse impacts to farm practices on surrounding lands and to avoid any increase in farming costs.

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[69] GCZO Section 4.020(D) describes uses permitted on EFU land "if determined by the Planning Commission during a public hearing to satisfy the applicable criteria and procedures set forth in Section 7.040." GCZO Section 7.040 describes the County review procedure for Type II conditional uses.

[70] The Department assumed that land "devoted to farm use" includes land that is currently cultivated or grazed, that previously was cultivated or that potentially could be used for grazing. This excludes land occupied by roads, farmhouses and other buildings, rock outcrops, bluffs, washes, Willow Creek and trees. Email from Patricia Pilz, January 28, 2008, and email from Carol Weisskopf, March 18, 2008.

[71] GCPC Order, Exhibit A, p. 8.

[72] App Supp, Exhibit K, response to RAI K1, p. 2.

Ground disturbance during construction and the creation of margin areas around access roads and turbine pads could allow weeds to spread into cultivated areas. The applicant proposes to implement a weed control plan consistent with the Gilliam County Weed Control Program.[73] Condition 38 would require the certificate holder to implement a weed control program, which would reduce the risk of weed infestation in cultivated land and the associated cost to the farmer for weed control.

Construction of the facility could adversely affect soil quality by erosion or compaction. Some farmland would be temporarily disturbed and unavailable for farming during construction. To avoid or reduce adverse impacts to soil quality, the applicant proposes to implement dust-control and erosion-control measures during construction and operation of the facility (Conditions 73 and 77).[74] To the extent practicable, the applicant proposes to reduce impact to soils by using areas that are already disturbed and reducing the area of new disturbance.[75] Construction vehicles would use previously disturbed areas including existing roadways and tracks (Conditions 74 and 76). The primary construction storage and laydown areas would be located within the footprint of the permanent field workshops. The width of new permanent roadways would be the minimum consistent with safe use.[76] Underground communication and electrical lines would be buried within the area disturbed by temporary road widening, and turbine foundations would abut roadways as closely as possible. Upon completion of construction, the certificate holder would restore temporarily disturbed areas to their pre-construction condition (Condition 84).

GCZO Section 7.020(T): Wind Power Generation Facility Siting Requirements

In addition to the standards of the zone in which the conditional use is located and the general standards of this ordinance, conditional uses shall meet the following standards:

** * **

T. Wind Power Generation Facility Siting Requirements

1. Purpose. The Gilliam County Facility Siting Requirements are intended to establish a local conditional use permitting process that is clear, timely, and predictable as well as encompasses important local issues such as the health, safety and welfare of citizens in Gilliam County.

2. Definitions

a. "Commercial Wind Power Generation." An activity carried out for monetary gain using one or more wind turbine generators that has a combined generating capacity greater than 1 MW.

b. "Decommissioning Fund." An adequate financial vehicle dedicated and maintained with appropriate yearly adjustments to assure the money to dismantle the Wind Power Generation Facility and to restore the site to a useful, nonhazardous condition.

[73] App Supp, Amended Exhibit P, p. 48.
[74] App Supp, Amended Exhibit P, pp. 54-55.
[75] App Supp, Exhibit I, responses to RAI I1 and I2.
[76] App Supp, Amended Exhibit P, p. 49.

c. "Wind Power Generation Facility." An energy facility that consists of one or more wind turbines or other such devices and their related or supporting facilities that produce electric power from wind and are:
(1) Connected to a common switching station; or
(2) Constructed, maintained, or operated as a group of devices.

3. Procedure. The procedure for taking action on the siting of a facility is a request for a conditional use. A public hearing pursuant to Article 7 shall be held to determine if the applicant meets the siting requirements for a Wind Power Generation Facility. The requirement for a hearing will not apply to proposed facilities for which EFSC is making the land use decision.

4. Wind Power Generation Facility Siting Requirements. The requirements set out in this section shall apply for the application and review of the siting of a Wind Power Generation Facility and the issuance of a Gilliam County Facility Conditional Use Permit.
a. The following information shall be provided as part of the application:[77]
* * *

Subsections 1, 2, 3 and 4(a) of Section 7.020(T) are definitional and procedural ordinances that do not contain substantive land use standards applicable to the proposed use.

b. Gilliam County may impose clear and objective conditions in accordance with the County Comprehensive Plan, County Development Code and State law, which Gilliam County considers necessary to protect the best interests of the surrounding area, or Gilliam County as a whole.

Section 7.020(T)(4)(b) gives the County discretion to impose "clear and objective conditions…necessary to protect the best interests of the surrounding area, or Gilliam County as a whole." After consultation with the Gilliam County Planning Director, the Department recommended conditions that incorporate the substance of the County's recommendations. Table 4 on page 29 lists the Pebble Springs CUP conditions and recommended SFWF site certificate conditions that are comparable.

c. Prior to commencement of any construction, all other necessary permits shall be obtained, e.g., Gilliam County Zoning Permit, road access and other permits from the Gilliam County Public Works Department, and from the Oregon Department of Transportation.

The Council adopts Condition 27, which would require the certificate holder to obtain all necessary federal, state and local permits or approvals required for construction.

d. The following requirements and restrictions apply to the siting of a facility:
(1) The Wind Power Generation Facility shall be on property zoned EFU, and no portion of the facility shall be within 3,520 feet of properties zoned residential use or designated on the Comprehensive Plan as residential. (For clarification purposes of this section, EFU Zones are not considered zoned for residential use.)

[77] The omitted subsections of GCZO Section 7.020(T)(4)(a) describe the contents of a CUP application for a wind power generating facility.

The proposed SFWF would be located entirely on land zoned EFU. Because the application includes the representation that no portion of the proposed facility is within 3,520 feet of properties zoned residential use or designated in the Comprehensive Plan as residential, the Council adopts Condition 40, which incorporates the setback of 3,520 feet required by Section 7.020(T)(4)(d)(1).[78]

> *(2) Reasonable efforts shall be made to blend the wind facility's towers with the natural surroundings in order to minimize impacts upon open space and the natural landscape.*

The Council finds that "reasonable efforts" to "blend the wind facility's towers with the natural surroundings" are measures that reduce the visual impact of the towers on the landscape while providing sufficient visibility of the facility for aviation safety and making effective use of the wind resource for power generation. The applicant proposes painting the towers "white/off white so as to minimize visual impacts."[79] In addition, the applicant proposes to "install only the external lighting required by the Federal Aviation Administration or Oregon Department of Transportation."[80] Guidance from the Federal Aviation Administration (FAA) recommends painting towers white or a slight shade from white for daytime visibility and recommends synchronized flashing lights on perimeter and interior turbines for nighttime visibility.[81] The Council adopts Condition 57, which requires pre-construction notification to the FAA, and Conditions 93 and 95, which address turbine towers colors and aviation warning lights. We address the proposed facility's visual impacts in the discussion of the Council's Scenic Resources Standard below at page 64 and Siting Standards for Wind Energy Facilities at page 79. For the reasons discussed above and subject to the site certificate conditions described herein, the Council finds that the SFWF would comply with Section 7.020(T)(4)(d)(2).

> *(3) Reasonable efforts shall be taken to protect and to preserve existing trees, vegetation, water resources, wildlife habitat or other significant natural resources.*

> *(4) The turbine towers shall be designed and constructed to discourage bird nesting and wildlife attraction.*

The proposed facility's effects on wildlife and wildlife habitat are addressed in the discussion of the Council's Threatened and Endangered Species Standard below at page 88 and Habitat Standard below at page 96. The potential impact on water resources is addressed in the discussion of the Ground Water Act below at page 138. The effect of the facility on wetlands and other waters of the state protected by the state's Removal/Fill Law is addressed below at page 136. For the reasons discussed in those sections, the Council finds that the SFWF would comply with Sections 7.020(T)(4)(d)(3) and (4).

[78] App Supp, Exhibit K, response to RAI K1, p. 5.
[79] App Supp, Exhibit K, response to RAI K1, p. 5.
[80] App, Exhibit BB, p. 2.
[81] James W. Patterson, Jr., *Development of Obstruction Lighting Standards for Wind Turbine Farms* (FAA, November 2005).

(5) The turbine towers shall be of a size and design to help reduce noise or other detrimental effects.

The proposed facility would comply with the state's Noise Control Regulations, which are discussed below at page 130. Other potential "detrimental effects" include public safety concerns, which are addressed in the discussion of the Council's Public Health and Safety Standards for Wind Energy Facilities below at page 78 and in the discussion of public safety issues beginning on page 138. Transmission line and electrical safety are addressed in the discussion of the Council's Siting Standards for Transmission Lines below at page 85. For the reasons discussed in those sections, the Council finds that the SFWF would comply with GCZO Section 7.020(T)(4)(d)(5).

(6) Private access roads shall be gated to protect the facility and property owners from illegal or unwarranted trespass, and illegal dumping and hunting.

The applicant proposes to install lockable gates at the substations. The facility would include new turbine string access roads, accessible from existing private ranch roads, which generally are not gated. The access roads in Gilliam County would be gated (Condition 42).[82] The Council finds that the SFWF would comply with Section 7.020(T)(4)(d)(6).

(7) Where practicable the electrical cable collector system shall be installed underground, at a minimum depth of 3 feet; elsewhere the cable collector system shall be installed to prevent adverse impacts on agriculture operations.

The applicant proposes that the collector lines would be installed a minimum of three feet below grade except where site-specific considerations require that segments of the collector system be installed aboveground.[83] The applicant proposes to locate aboveground segments of the collector system with ground clearances that would not interfere with movement of farm equipment and vehicles.[84] The Council finds that the SFWF would comply with Section 7.020(T)(4)(d)(7).

(8) Required permanent maintenance/operations buildings shall be located off-site in one of Gilliam County's appropriately zoned areas, except that such a building may be constructed on-site if:

(a) The building is designed and constructed generally consistent with the character of similar buildings used by commercial farmers or ranchers; and

(b) The building will be removed or converted to farm use upon decommissioning of the Wind Power Generation Facility consistent with the provisions of this section.

The applicant proposes to construct two on-site field workshops that would be designed and constructed to be generally consistent with the character of similar buildings used in the vicinity of the proposed facility.[85] Upon "decommissioning," site restoration would include

[82] Email from Patricia Pilz, January 28, 2008.
[83] App Supp, Amended Exhibit B, p. 7.
[84] App Supp, Exhibit K, response to RAI K1, p. 5.
[85] App Supp, Exhibit K, response to RAI K1, p. 6.

removal of the field workshops or conversion of the workshops to farm use with the consent of the affected landowners (see discussion of the Council's Retirement and Financial Assurance Standard above at page 13). The Council finds that the SFWF would comply with Section 7.020(T)(4)(d)(8).

> *(9) A Wind Power Generation Facility shall comply with the Specific Safety Standards for Wind Facilities delineated in OAR 345-024-0010 (as adopted at time of application).*

Compliance with the Council's Public Health and Safety Standards for Wind Energy Facilities (OAR 345-024-0010) is discussed below at page 78.

> *(10) To the extent feasible, the County will accept information presented by an application for an EFSC proceeding in the form and on the scheduled required by EFSC.*

This requirement is a procedural provision in the County ordinance. It is not a substantive land use standard applicable to the proposed facility.

> *5. Decommissioning/Dismantling Process. The applicant's dismantling of incomplete construction and/or decommissioning plan for the Wind Power Generation Facility shall include the following information*[86]
>
> * * *
>
> *g. For projects sited by EFSC, compliance with EFSC's financial assurance and decommissioning standards shall be deemed to be in compliance with the dismantling and decommissioning requirements of this Section 152.524.*[87]

The SFWF would comply with the Council's Financial Assurance Standard for the reasons discussed above at page 13. Compliance with the Council's standard satisfies the Gilliam County ordinance.

> *6. Wind Power Generation Facility Siting Subsequent Requirements*
>
> *a. A bond or letter of credit shall be established for the dismantling of uncompleted construction and/or decommissioning of the facility. (See §152.524.)*[87] *For projects being sited by the State of Oregon's Energy Facility Siting Council (EFSC), the bond or letter of credit required by EFSC will be deemed to meet this requirement.*

As required under OAR 345-027-0020(8), the certificate holder would provide financial assurance satisfactory to the Council for site restoration (Condition 8). The financial assurance required by the Council satisfies the Gilliam County ordinance.

> *b. The actual latitude and longitude location or Stateplane NAD 83(91) coordinates of each turbine tower, connecting lines, and transmission lines shall be provided to Gilliam County once commercial electrical production begins.*

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[86] Omitted subsections describe the required content of a decommissioning plan, including site restoration, the County bond requirement and arbitration.

[87] This cross-reference appears in an early draft of the Umatilla County wind ordinance, which Gilliam County apparently used as a model for drafting parts of GCZO Section 7.020(T). In context, this cross-reference refers to subsection (5) of Section 7.020(T).

c. A summary of as-built changes in the facility from the original plan, if any, shall be provided by the owner/operator.

The Council adopts Condition 41, which would require the certificate holder to provide the actual location of turbine towers, connecting lines and transmission lines and a summary of as-built changes as required by this County ordinance.

d.

(1) The Wind Power Generation Facility requirements shall be facility-specific, but can be amended as long as the facility does not exceed the boundaries of the Gilliam County Conditional Use Permit where the original facility was constructed.

(2) An amendment to the conditional use permit shall be required if proposed facility changes would:

(a) Increase the land area taken out of agricultural production by an additional 20 acres or more;

(b) Increase the land area taken out of agricultural production sufficiently to trigger taking a Goal 3 exception;

(c) Require an expansion of the established facility boundaries;

(d) Increase the number of towers;

(e) Increase generator output by more than 25 percent relative to the generation capacity authorized by the initial permit due to the repowering or upgrading of power generation capacity.

No amendment would be required if an expansion of power-generating capacity is due to technology upgrades installed within the existing boundaries of the established Wind Power Generation Facility. Notification by the facility owner/operator to the Gilliam County Planning Department of nonsignificant changes is encouraged, but not required. An amendment to a Site Certificate issued by EFSC will be governed by the rules for amendments established by EFSC.

GCZO Section 7.020(T)(6)(d) describes the County's procedure for amendment of a Conditional Use Permit. The ordinance does not describe substantive land use criteria applicable to siting the proposed facility.

e. Within 120 days after the end of each calendar year, the facility owner/operator shall provide Gilliam County an annual report including the following information:

(1) Energy production by month and year.

(2) Nonproprietary information about wind conditions (e.g., monthly averages, high wind events, bursts).

(3) A summary of changes to the facility that do not require facility requirement amendments.

(4) A summary of the avian monitoring program – bird injuries, casualties, positive impacts on area wildlife and any recommendations for changes in the monitoring program.

(5) Employment impacts to the community and Gilliam County during and after construction.

(6) Success or failures of weed control practices.

(7) Status of the decommissioning fund.

(8) Summary comments – any problems with the projects, any adjustments needed, or any suggestions.

The annual report requirement may be discontinued or required at a less frequent schedule by the County. The reporting requirement and/or reporting schedule shall be reviewed, and possibly altered, at the request of the facility owner/operator. (OPTION: For facilities under EFSC jurisdiction and for which an annual report is required, the annual report to EFSC satisfies this requirement.)

This ordinance requires an annual report to the County from the owner or operator of a County-permitted wind power generating facility but provides that the "annual report to EFSC" satisfies the County reporting requirement. As required under OAR 345-026-0080, the certificate holder would report to the Council every six months during construction and annually after beginning construction (Condition 21).

B. Morrow County's Applicable Substantive Criteria

On March 28, 2007, the Morrow County Court (the SAG for Morrow County) adopted Resolution R-6-2007 in response to the Department's request for applicable substantive criteria. The Resolution incorporated a letter from Lori Timmons, Morrow County Planning Department, containing comments on the completeness of the SFWF application.[88] The Resolution also incorporated the Morrow County Comprehensive Plan (MCCP) Agricultural Policies and Energy Conservation Policies and Morrow County Zoning Ordinance (MCZO) Articles 3 and 6.

The letter from Lori Timmons identified MCZO Article 3, Sections 3.010(D)(16), 3.010(D) and 3.010(I) and Article 6, Sections 6.020, 6.030, 6.040 and 6.050(O) as applicable substantive criteria. The letter identified MCCP Agricultural Policies 1 and 4 and Energy Conservation Policies 3, 9 and 10 as applicable substantive criteria. The letter also referred to a Conditional Use Permit (CUP-N-192) issued for the "Shepherds Flat Wind Farm."[89] The letter concluded that the applicant "has accurately and adequately met Morrow County's criteria based on the review of the Notice of Intent comments made by Planning Department staff and the responses from the Applicant and review of the site certificate."

In commenting on the completed application, the Morrow County Court included as a recommended condition that the certificate holder would be required to obtain a Zoning Permit from the County.[90] The Zoning Permit is described in MCZO Section 1.050. We have included a discussion of the ordinance and the land use findings related to the Zoning Permit below.

[88] Letter from Lori Timmons, Morrow County Planning Department, March 23, 2007.
[89] Documentation of CUP-N-192 received from Morrow County indicates that the Planning Commission approved a CUP for the proposed "Shepherds Ridge Wind Farm," a 100-MW project, on April 18, 2003.
[90] Letter from the Morrow County Court, January 9, 2008.

MCZO Section 1.050: Zoning Permit

> *Prior to the construction, reconstruction, alteration, or change of use of any structure or lot for which a zoning permit is required, a zoning permit for such construction, reconstruction, alteration or change of use shall be obtained from the secretary of the Planning Commission or authorized agent thereof. A zoning permit shall be void after six (6) months unless construction has commenced.*

Under MCZO Section 4.165(C), a "Site Plan Review" is required for all land use actions requiring a Zoning Permit. MCZO Section 4.165(D) sets out 13 review criteria. The Council makes the findings discussed below as to each of the review criteria.

1. *The lot area shall be adequate to meet the needs of the establishment.*

The proposed SFWF would be located on leased land and would not require new lots or parcels. The applicant has leased adequate area to meet the needs of the proposed facility.

2. *The proposed land use is permitted by the underlying land use district.*

The proposed SFWF is located entirely within an EFU zone. Under MCZO Section 3.010(D)(16), discussed below at page 41, a commercial utility facility is permitted conditional use in an EFU Zone.

3. *The land use, building/yard setback, lot area, lot dimension, density, lot coverage, building height and other applicable standards of the underlying land use district and any sub-district(s) are met.*

The Morrow County Court has identified the zoning ordinances that contain the applicable county standards. Compliance with the applicable standards is discussed herein.

4. *Development in flood plains shall comply with Section 3.100 Flood Hazard Overlay Zone of the Ordinance.*

No part of the area within the site boundary of the proposed SFWF lies within the County's Flood Hazard Overlay Zone. In particular, the site does not encroach upon any designated flood hazard areas along the Willow Creek drainage.[91]

5. *Development in hazard areas identified in the Morrow County Comprehensive Plan shall safely accommodate and not exacerbate the hazard and shall not create new hazards.*

The MCCP does not identify hazard areas in the county except for flood hazard areas, discussed above. Nevertheless, Morrow County has identified the middle region of the county as an area of moderate wildfire hazard.[92] The site of the proposed SFWF lies in the middle region. We discuss fire protection and fire safety conditions below at page 139.

[91] Email from Carla McLane, Morrow County Planning Director, March 12, 2008.
[92] Email from Carla McLane, Morrow County Planning Director, March 12, 2008.

6. Off-street parking and loading-unloading facilities shall be provided as required in Section 4.040 and 4.050 of the Morrow County Zoning Ordinance. Safe and convenient pedestrian access to off-street parking areas also shall be provided as applicable.

MCZO Section 4.040 lists minimum vehicle parking requirements for various types of land uses. MCZO Section 4.050 addresses off-street parking and loading areas for uses that receive and distribute materials and merchandise by trucks. A wind energy facility is not a use listed or described in these County ordinances. The proposed field workshop that would be located within the leased area in Morrow County would occupy approximately 1.4 acres and would include an adjacent fenced area measuring approximately 75 feet by 200 feet. This area would provide adequate parking and loading space for the anticipated needs of the use.

7. County transportation facilities shall be located, designed and constructed in accordance with the design and access standards in the Morrow County Transportation System Plan.

The applicant does not propose to construct or modify any public roads in Morrow County. Accordingly, the County road design and access standards do not apply.[93]

8. Site planning, including the siting of structures, roadways and utility easements, shall provide, wherever practicable, for the protection of trees eight inch caliper or greater measured four feet from ground level, with the exception of noxious or invasive species, such as Russian olive trees.

The certificate holder would not remove any trees that are more than three feet in height (Condition 89).

9. Development shall comply with Section 3.200 Significant Resources Overlay Zone or 3.300 Historic Buildings and Sites protecting inventoried significant natural and historic resources.

MCZO Section 3.200 applies to sites designated as Significant Resource sites on the Morrow County Comprehensive Plan Goal 5 resource map. No Significant Resource sites lie within the proposed Shepherds Flat site boundary.[94] MCZO Section 3.300 applies to alteration or demolition of any structure listed in the Comprehensive Plan inventory of significant historic resources. The proposed SFWF would not require the alteration or demolition of any historic structures.

10. The applicant shall determine if compliance is required with Oregon Water Resources Department water quantity and/or Oregon Department of Environmental Quality water quality designations.

Both the Oregon Water Resources Department and the Oregon Department of Environmental Quality are reviewing agencies and have received review copies of the complete site certificate application. Neither agency has expressed any concerns about compliance of the proposed SFWF with water quantity or water quality designations. Construction would be subject to an Erosion and Sediment Control Plan satisfactory to the Oregon Department of

[93] Email from Carla McLane, Morrow County Planning Director, March 12, 2008.
[94] Email from Carla McLane, Morrow County Planning Director, March 12, 2008.

Environmental Quality and as required under the National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge General Permit #1200-C (Condition 73). We address the water uses during construction and operation of the facility below at page 138.

> *11. The applicant shall determine if previous Code Enforcement violations have been cleared as applicable.*

This criterion does not relate directly to the site of the proposed facility. The Council makes no findings.

> *12. The applicant shall determine the method of disposal for solid waste, with staff providing information to the applicant about recycling opportunities.*

The applicant's plans for recycling and disposal of solid waste are addressed below in the discussion of the Council's Waste Minimization Standard at page 127.

> *13. The applicant shall obtain the necessary access permit through the Public Works Department as required by Morrow County Resolution R-29-2000.*

The certificate holder would be required to obtain all local permits necessary for construction, including access permits (Condition 27).

MCZO Section 3.010(D)(16): Conditional Uses Permitted

> *D. CONDITIONAL USES PERMITTED. In an EFU Zone, the following uses and their accessory uses are permitted subject to demonstration of compliance with the requirements of Article 6 of this ordinance and Section (G) below:*
>
> * * *
>
> *16. Commercial utility facilities for the purposes of generating power for public use by sale. A power generation facility shall not preclude more than 12 acres of high value farmland or 20 acres of other land from commercial use unless an exception is approved pursuant to OAR 660 Division 4.*

The components of the proposed SFWF that would be located in Morrow County include wind turbines, the southern substation and field workshop, collector and communication lines and access roads in the southern project area, as shown in Figures C-2e Amended through C-2g Amended of the Typical Project Layout. As discussed above at page 21, the proposed SFWF is a "commercial utility facility for the purpose of generating power for public use by sale" that includes a "power generation facility" not located on high-value farmland. MCZO Section 3.010(B)(3) refers to ORS 215.710 for the definition of "high value farmland" (see discussion above at page 20). There are pockets of "Kimberly fine sandy loam" (rated Class I when irrigated) and "Ritzville silt loam" (on 2 to 7 percent slopes rated subclass IIe when irrigated), but there are no "tracts" that are composed predominantly of these soil types within the SFWF site boundary in Morrow County.[95] The Council finds that the proposed SFWF is not located on high-value farmland in Morrow County.

The area occupied by the "power generation facility" in Morrow County is shown in Table 3 on page 22. The Council finds that the proposed SFWF would preclude more than 20

[95] App, Exhibit K, p. 6. App Supp, Exhibit I, response to RAI I2 and I4. Soil capability ratings are based on NRCS Soil Survey of Morrow County, Oregon (December 1983).

acres of "other land" from use as a commercial agricultural enterprise in Morrow County. The proposed facility, therefore, does not comply with MCZO Section 3.010(D)(16).

MCZO Section 3.010(D): Limitations on Conditional Uses[96]

> *D. LIMITATIONS ON CONDITIONAL USES In addition to the general standards and conditions that may be attached to the approval of a conditional use as provided by Article 6 of this ordinance, the following limitations shall apply to a Conditional Use in the EFU Zone:*
>
> *1. Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and*
>
> *2. Will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.*

This ordinance is substantially identical to GCZO Section 7.020(Q), discussed above at page 30. Within the analysis area (the area within the site boundary and one-half mile from the site boundary), approximately 10,184 acres in Morrow County are "devoted to farm use."[97] There is no forest use within the analysis area. The proposed SFWF would occupy approximately 46 acres of this farm-use land, or less than one-half of one percent.

For the same reasons as discussed with regard to the Gilliam County ordinance, and based on site certificate conditions 36, 37, 38, 73, 74, 76, 77 and 84, the Council finds that construction and operation of the SFWF in Morrow County would not force a significant change in accepted farm practices on surrounding lands devoted to farm use and would not significantly increase the cost of accepted farm practices on lands devoted to farm use.

MCZO Section 3.010(G): Dimensional Standards

> *G. Dimensional Standards. In an EFU Zone, the following dimensional standards shall apply:*
>
> *1. A lot or parcel of 160 acres or more shall be considered a farm unit.*
>
> *2. A lot or parcel of less than 160 acres may be approved as a farm unit pursuant to the Conditional Use Permit process and when found to comply with the Agricultural Lands policies of the Comprehensive Plan and the provisions of Section 5.120 of the Morrow County Subdivision Ordinance.*
>
> *3. The minimum average lot width shall be 150 feet with a minimum street frontage of 150 feet, excepting lots within an approved subdivision.*
>
> *4. The minimum average lot depth shall be 150 feet.*
>
> *5. Big Game Range Restrictions: In the case of Farm Use areas identified as Big Game Habitat no dwelling will be authorized where the overall density within a square mile exceeds one dwelling per 160 acres. Section 3.200 also applies to the siting of a dwelling on Big Game Habitat.*

[96] The text of MCZO Section 3.010 that was provided to the Department in the letter from Lori Timmons contains two subsections labeled "D." The text of the second subsection "D" is quoted in the letter and is shown above.
[97] Email from Patricia Pilz, January 28, 2008, and email from Carol Weisskopf, March 18, 2008.

6. New parcels for nonfarm uses only as authorized by ORS 215.263 may be created. Such new parcels shall be the minimum size needed to accommodate the use in a manner consistent with other provisions of law except as required for the nonfarm dwellings authorized by Section F. The creation of new lots or parcels for dwellings not in conjunction with farm use may be created pursuant to Section F and ORS 215.263(4). The county shall not approve a subdivision or series partition for a dwelling not provided in conjunction with farm use. The provisions of this subsection regarding a series partition apply only to applications for a land division submitted after July 1, 1997. For purposes of this subsection, "series partition" shall have the meaning given that term in ORS 92.305.

MCZO Section 3.010(D)("Conditional Uses Permitted") permits the conditional uses that are listed in the ordinance, subject to demonstration of compliance with "Section G." Section 3.010(G), quoted above, addresses dimensional standards for: new lots or parcels within the EFU Zone; restrictions on new dwellings within "Farm Use areas identified as Big Game Habitat"; and new parcels (subdivisions or partitions) for nonfarm uses. The proposed SFWF would be located on leased land and would not require new lots or parcels, and it would not include new dwellings. None of the subsections of the ordinance apply to the SFWF. The Morrow County Planning Commission did not discuss Section 3.010(G) in its findings on the Shepherds Ridge Wind Farm (CUP-N-192).

A related ordinance provision, MCZO Section 3.010(H), addresses the minimum yard setback requirements in an EFU Zone. The Morrow County SAG did not include MCZO Section 3.010(H) in the list of applicable substantive criteria.[98] Accordingly, under ORS 469.504, the Council does not apply this ordinance. Nevertheless, the setbacks that would be required under Condition 40 would exceed the setbacks contained in the ordinance for front yard, side yard and rear yard, which range from 20 to 100 feet (a 100-foot distance applies where the property line is adjacent to an "intensive agricultural use").

MCZO Section 3.010(I): Transportation Impacts

I. Transportation Impacts

1. Traffic Impact Analysis (TIA). In addition to the other standards and conditions set forth in this section, a TIA will be required for all projects generating more than 400 passenger car equivalent trips per day. Heavy vehicles – trucks, recreational vehicles and buses – will be defined as 2.2 passenger car equivalents. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and, mitigation of the impacts. If the corridor is a State Highway, use ODOT standards.

CSF estimated that traffic to and from the proposed facility site would amount to approximately 25 to 50 round trips daily during construction.[99] This estimate includes "heavy vehicles" and passenger cars. CSF estimates that the traffic impact during facility operation would be insignificant (up to four round trips daily) and would generally consist of passenger cars or pickup trucks with infrequent heavy vehicle trips. These estimates are for the SFWF as a

[98] Letter from Lori Timmons, Morrow County Planning Department, March 23, 2007.
[99] App, Exhibit U, p. 3.

whole, and the volume of daily traffic affecting Morrow County may reasonably be assumed to be substantially lower. The anticipated traffic generated by the proposed SFWF is below the threshold of "400 passenger car equivalent trips per day" that would trigger the Traffic Impact Analysis (TIA) described in the ordinance. The Council finds that a TIA would not be required for the proposed SFWF.

MCZO Section 6.020: General Criteria

> *GENERAL CRITERIA. In deciding whether or not a conditional use proposal shall be approved or denied, the Commission shall weigh the proposal's appropriateness and desirability, or the public convenience or necessity to be served against any adverse conditions that would result from authorizing the particular development at the location proposed and, to approve such use, shall find that the following criteria are either met or can be met by observance of conditions.*
>
> *A. The proposal will be consistent with the Comprehensive Plan and the objectives of the Zoning Ordinance and other applicable policies and regulations of the County.*

Under Section 6.020(A), the Council must decide whether the proposed SFWF is consistent with the MCCP and the objectives of the MCZO and "other applicable policies and regulations of the County." The SAG has identified the specific policies of the MCCP that are applicable substantive criteria. For the reasons discussed below, the Council finds that the proposed SFWF is consistent with the identified policies: Agricultural Policies 1 and 4 and Energy Conservation Policies 3, 9 and 10.

Agricultural Policy 1

> *It shall be the policy of Morrow County, Oregon, to preserve agricultural lands, to protect agriculture as its main economic enterprise, to balance economic and environmental considerations, to limit non-compatible nonagricultural development and to maintain a high level of livability in the County.*

The proposed use is an allowable use on agricultural lands, as provided under MCZO Section 3.010(D)(16), discussed above. Section 3.010(D) prohibits conditional uses that would "force a significant change" to accepted farm practices or "significantly increase the cost" of those practices. These ordinances address the balance between "agricultural" and "nonagricultural" development that is implied in Agricultural Policy 1, and the ordinances implement the County's policy to "protect agriculture." For the reasons discussed above at page 42 regarding the impact of the proposed SFWF on accepted farm practices, the Council finds that the proposed facility, subject to the site certificate conditions described herein, is compatible with agriculture and would protect agriculture as the main economic enterprise in Morrow County. The proposed SFWF would not exceed carrying capacities of natural resources or public facilities within the County and, therefore, would not have a significant adverse effect on "livability" in the County for the reasons discussed below at page 46 with regard to MCZO Section 6.020(C).

In the Shepherds Ridge Wind Farm CUP, the Morrow County Planning Commission addressed the compliance of the proposed project with Section 6.020(A).[100] The Commission found that the proposed wind farm was consistent with the purpose of the County's EFU Zone:

[100] CUP-N-192, p. 3.

Section 3.010(A) states that, "The purpose of the EFU Zone is to preserve and maintain agricultural lands for farm use consistent with historical, existing, and future needs, including economic needs that pertain to the production of agricultural products, and to permit the establishment of only those uses that are compatible with agricultural activities." The proposed wind farm supports this purpose.

The proposed SFWF would be larger than the Shepherds Ridge Wind Farm, which the County approved in 2003, but like Shepherds Ridge, the SFWF would provide an economic benefit to the landowners. The wind lease income to the landowners would support the viability of farm operations in the County, consistent with the purpose of the EFU Zone as expressed in Section 3.010(A).

Agricultural Policy 4

It shall be the policy of the County to develop and implement comprehensive and definitive criteria for the evaluation of all non-farm developments to ensure that all objectives and policies set forth herein are complied with to the maximum level possible.

The Morrow County SAG identified the applicable criteria for evaluation of the SFWF. The criteria are discussed herein. The Council finds that the proposed SFWF would comply with these criteria "to the maximum level possible," based on the findings and site certificate conditions described herein.

Energy Conservation Policy 3

Encourage development of solar and wind resources.

The proposed SFWF would be an energy facility using wind resources in Morrow County.

Energy Conservation Policy 9

The County will encourage the development of alternative energy sources in County industries and businesses.

The proposed SFWF would develop wind energy for the generation of electric power for public use. Wind energy is considered an "alternative energy source" because it is renewable and non-fossil based.[101]

Energy Conservation Policy 10

The County should encourage firms and agencies seeking to study these potential power sources to locate trial projects here, through a publicity campaign directed at interested institutions, business concerns and public agencies.

This policy addresses the desirability of trial projects that use alternative power sources. Although the proposed SFWF is not a "trial project," it represents a significant wind energy development that is consistent with the County's policy.

[101] The MCCP identifies wind power as an "alternate energy source" in its discussion of "Energy Developments & Potentials" on page 212.

B. If located within the Urban Growth Boundary of a city, that said city has had an opportunity to review and comment on the subject proposal.

The proposed SFWF would not be located within the Urban Growth Boundary of a city. Nevertheless, the Department has given notice of the proposed SFWF to all incorporated cities within the analysis area in Morrow County and the applicant has sent copies of the complete site certificate application to those cities. Incorporated cities within the analysis area for public services are considered "reviewing agencies" as defined by OAR 345-001-0010.[102] The Department has invited all reviewing agencies to comment on the application. The Department has not received any comment from any of the incorporated cities in Morrow County.

C. The proposal will not exceed carrying capacities of natural resources or public facilities.

The impacts of the proposed SFWF on air quality, soils, water supplies and water bodies would not exceed carrying capacities of those resources. For the reasons discussed below, the Council finds that the proposed SFWF would comply with Section 6.020(C).

The proposed facility would have no air pollution emissions that would result in an adverse impact to air quality. The certificate holder would implement best management practices to control any dust that is generated by construction activities (Condition 75). We discuss impacts to soils at page 58. To avoid or reduce soil erosion, the certificate holder would comply with the requirements of the NPDES 1200-C stormwater permit and an Erosion and Sediment Control Plan during construction and would implement erosion control measures during operation (Conditions 73 and 77). The facility would use a significant amount of water during construction, but water use would not exceed the resource carrying capacity of the proposed water source. Water use during operation would be insignificant. We discuss the availability of sufficient water for construction and operation of the facility at page 138. Water would not be discharged to wetlands, lakes, rivers or streams, and there would be no adverse impact on water quality. Water used during operation at the field workshops would be disposed of in approved on-site septic systems and would not result in an adverse impact on water quality or affect any public sewer facilities (Condition 100).

The Council's standards address other natural resource consequences of the proposed SFWF facility. In our discussion of each of the standards, we identify the potential adverse impacts of the proposed facility and explain how those impacts would be mitigated. We discuss the potential impacts to protected areas at page 60; to scenic resources at page 64; to threatened and endangered species at page 88; to wildlife habitat at page 96; to ambient noise levels at page 130; and to waters of the State at page 136. The Council's Retirement and Financial Assurance Standard, discussed at page 13, addresses retirement of the proposed facility and restoration of the site to a useful, non-hazardous condition.

In addition, the ordinance requires a finding that the proposed use would not exceed the carrying capacity of affected public facilities. Public services that the SFWF could potentially affect include sewage disposal, water supply, storm water drainage, solid waste disposal, housing, transportation, police and fire protection, health care and schools. Conditions based on the requirements of the Council's Public Services Standard, discussed below at page 122,

[102] Cities in Morrow County that have been identified as "reviewing agencies" include Boardman, Ione, Lexington, Heppner and Irrigon.

address these public services and the impact of the SFWF on the capacity of local public facilities. For the reasons discussed there, the Council finds that the public services necessary for the proposed SFWF would not exceed the carrying capacities of public facilities in Morrow County.

MCZO Section 6.030: General Conditions

GENERAL CONDITIONS. In addition to the standards and conditions set forth in a specific zone, this article, and other applicable regulations; in permitting a new conditional use or the alteration of an existing conditional use, the Commission may impose conditions which it finds necessary to avoid a detrimental impact and to otherwise protect the best interests of the surrounding area or the County as a whole. These conditions may include the following:

A. Limiting the manner in which the use is conducted including restricting the time an activity may take place and restraints to minimize such environmental effects as noise, vibration, air pollution, glare and odor.

B. Establishing a special yard or other open space or lot area or dimension.

C. Limiting the height, size or location of a building or other structure.

D. Designating the size, number, location and nature of vehicle access points.

1. Where access to a county road is needed, a permit from Morrow County Public Works department is required. Where access to a state highway is needed, a permit from ODOT is required.

2. In addition to the other standards and conditions set forth in this section, a TIA will be required for all projects generating more than 400 passenger car equivalent trips per day. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and mitigation of the impacts. If the corridor is a State Highway, use ODOT standards.

E. Increasing the amount of street dedication, roadway width or improvements within the street right-of-way.

1. It is the responsibility of the land owner to provide appropriate access for emergency vehicles at the time of development.

F. Designating the size, location, screening, drainage, surfacing or other improvement of a parking area or loading area.

G. Limiting or otherwise designating the number, size, location, height, and lighting of signs.

H. Limiting the location and intensity of outdoor lighting and requiring its shielding.

I. Requiring diking, screening, landscaping or another facility to protect adjacent or nearby property and designating standards for its installation and maintenance.

J. Designating the size, height, location and materials for a fence.

K. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or other significant natural resources.

L. Other conditions necessary to permit the development of the County in conformity with the intent and purpose of this Ordinance and the policies of the Comprehensive Plan.

MCZO Section 6.030 describes conditions that may be imposed "to avoid a detrimental impact and to otherwise protect the best interests of the surrounding area or the County as a whole." The section is a list of discretionary conditions and does not contain substantive standards. The Morrow County SAG recommended that the site certificate include conditions similar to the conditions of approval listed in the Shepherds Ridge Wind Farm CUP, if the Council approves a site certificate for the SFWF.[103] Table 5 lists the Shepherds Ridge CUP conditions and the site certificate conditions that are comparable.

Table 5: Morrow County CUP Conditions

	Subject	Shepherds Ridge CUP Conditions	Site Certificate Conditions
6.030 Subsection	**Conditions imposed under MCZO Section 6.030**		
A	noise dust control	1 2	97 65, 75, 92
C	FAA notification building permits	3 4	57 27
D	road crossing permits (access permits) road construction standards	5 7	27 65
E	impact to County roads emergency vehicle access	6 8	67 55, 56
G	signs	9	93
K	historical sites post-construction reclamation	10 11	43 through 46 11, 84
L	perform consistent with application decommissioning bond	13 14	3 8, 30

MCZO Section 6.040: Permit and Improvements Assurance

PERMIT AND IMPROVEMENTS ASSURANCE. The Commission may require an applicant to furnish the County with a performance bond or such other form of assurance that the Commission deems necessary to guarantee development in accordance with the standards established and the conditions attached in granting a conditional use permit.

This ordinance describes a performance bond or other assurance that the Planning Commission may require as a condition of approval of a CUP. The ordinance does not contain substantive standards for land use approval or for imposing the bond or other assurance by condition. The Morrow County Planning Commission addressed this ordinance in the findings

[103] Letter from Morrow County Court, January 9, 2008.

on the CUP for the Shepherds Ridge Wind Farm and stated: "the County needs to be assured that if the project should fail or other factors effect the continuation of the farm there is a means by which decommissioning and reclamation can be completed." The Commission imposed a CUP condition requiring the applicant to post a Reclamation Bond for the cost of removing the facility at the end of its useful life. The Council addresses site restoration in its Retirement and Financial Assurance Standard, discussed above at page 13. The Council requires a certificate holder to restore the facility site if the certificate holder permanently ceases construction or operation of the facility (Condition 9). In addition, the Council requires a certificate holder to provide financial assurance in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition (Conditions 8 and 30). The certificate holder must provide the financial assurance before beginning construction and must maintain the financial assurance for the life of the facility.

MCZO Section 6.050(O): Standards Governing Conditional Uses: Radio, Television Tower, Utility Station or Substation

> *STANDARDS GOVERNING CONDITIONAL USES. A conditional use shall comply with the standards of the zone in which it is located and with the standards set forth in this subsection.*
>
> ***
>
> *O. Radio, television tower, utility station or substation:*
>
> *1. In a residential zone, all equipment storage on the site may be required to be within an enclosed building.*
>
> *2. The use may be required to be fenced and provided with landscaping.*
>
> *3. The minimum lot size for a public utility facility may be waived on finding that the waiver will not result in noise or other detrimental effects to adjacent property.*
>
> *4. Transmission towers, hoses, overhead wires, plumbing stations, and similar gear shall be so located, designed and installed as to minimize their conflict with scenic values.*

Subsection (O)(1) does not apply because the proposed SFWF would not be located in a residential zone.

Subsection (O)(2) provides for a discretionary condition. The ordinance does not contain a substantive standard for imposing the fencing or landscaping requirement. In discussion this subsection in Shepherds Ridge CUP, the Morrow County Planning Commission cross-referenced its comments related to "fencing and landscaping.[104] In discussing MCZO Section 6.030(I), the Commission found that landscaping was not required "as the overall footprint for this project provides the necessary protection from nearby property," and in discussing Section 6.030(J) the Commission found that the project "will be fenced and gated at all points of public access."[105] Conditions 11 and 84 address the need for landscaping and restoring vegetation in areas temporarily disturbed during construction. CSF would enclose the proposed substations with fences and locked gates (Condition 64).

[104] CUP-N-192, p. 9.
[105] CUP-N-192, p. 6.

Subsection (O)(3) addresses the discretion to waive the minimum lot size for a public utility facility. The proposed SFWF would be built on leased land and would not require the creation of a new lot, and therefore this subsection does not apply. In the Shepherds Ridge CUP, the Morrow County Planning Commission found that the proposed Shepherds Ridge wind energy project was "not a public utility facility."[106] In the context of MCZO Section 6.050(O), a "public utility facility" refers to a "utility facility 'necessary' for public service" allowable in the EFU zone as provided in MCZO Section 3.010(D)(17). A "utility facility necessary for public service" is defined in Section 3.010(D)(17) to exclude "commercial utility facilities for the purpose of generating power for public use by sale." As discussed at page 53, the Council finds that the proposed SFWF substations and 230-kV transmission lines are "utility facilities necessary for public service." These components of the proposed SFWF would not require the creation of a new lot, and therefore Subsection 6.050(O)(3) does not apply.

Subsection (O)(4) requires that "transmission towers…overhead wires…and similar gear" be designed and installed "to minimize their conflict with scenic values." We discuss impacts to scenic resources at page 64. For the reasons discussed there, the Council finds that the proposed SFWF would not have a significant adverse impact on identified scenic resources. In the Shepherds Ridge CUP, the Planning Commission noted that Highway 74 is part of the Blue Mountain Scenic Byway and that wind turbines would be visible from the highway. To lessen visual impact, as a condition of approval for Shepherds Ridge, the Commission required "WTG units" (turbine, tower and rotor) to be "light grey or off-white in color" and prohibited logos or signs on the units. Turbines within the proposed SFWF would be visible from segments of the Blue Mountain Scenic Byway (Highway 74). The Council adopts Condition 93, which requires measures to reduce the visual impact of the facility.

C. Applicable Statewide Planning Goals

For the reasons discussed above, the proposed facility complies with the applicable substantive criteria recommended to the Council by Gilliam County and Morrow County, except GCZO Section 4.020(D)(14) and MCZO Section 3.010(D)(16), which limit the area that a "commercial utility facility" may occupy in an EFU zone (discussed above at pages 21 and 41). Because the facility does not comply with all applicable local land use criteria, the Council must determine, under ORS 469.504(1)(b)(B), whether the proposed facility "otherwise [complies] with the applicable statewide planning goals." For a use located within an EFU zone, the "applicable statewide planning goal" is Goal 3, which is the State's Agricultural Lands goal. As expressed in *Oregon's Statewide Planning Goals and Guidelines*, Goal 3 is:

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

Consistent with Goal 3, Gilliam County and Morrow County have designated EFU zones to preserve agricultural lands. Under Goal 3, non-farm uses are permitted within a farm use zone as provided under ORS 215.283. To find compliance with ORS 215.283, the Council must determine whether the proposed energy facility and its related or supporting facilities are uses

[106] CUP-N-192, p. 9.

that fit within the scope of the uses permitted on EFU land described in ORS 215.283(1), (2) or (3).

The Council finds that the principal use is a "commercial utility facility for the purpose of generating power for public use by sale" that is allowable under ORS 215.283(2)(g). The Council finds that the principal use includes the wind turbines, power collection system, meteorological towers, control system and field workshops. The other components of the SFWF (access roads, substations and 230-kV transmission lines) are allowable on EFU land under other sections of ORS 215.283. The substations function to step up the power generated by the SFWF turbines to accommodate interconnection with the BPA system and the regional power grid. The Council finds that the substations and transmission interconnection line are "utility facilities necessary for public service" that are allowable under ORS 215.283(1)(d) (see discussion at page 53). The Council finds that the access roads are allowable "transportation improvements" under ORS 215.283(3) (see discussion at page 52).

The Principal Use

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

For the reasons discussed below (in the section titled "The Access Roads"), the SFWF access roads are also subject to OAR 660-033-0130(5) and (22). Accordingly, the following discussion addresses both the principal use and the access roads.

OAR 660-033-0130(5)

> *(5) Approval requires review by the governing body or its designate under ORS 215.296. Uses may be approved only where such uses:*
>
> *(a) Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and*
>
> *(b) Will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.*

OAR 660-033-0130(5) cross-references ORS 215.296, which contains standards for approval for a use allowed under ORS 215.283(2) that are substantively identical to OAR 660-033-0130(5)(a) and (b). These same approval standards are incorporated in the Gilliam County and Morrow County zoning ordinances, GCZO Section 7.020(Q) and MCZO Section 3.010(D), discussed above at pages 30 and 42. In the discussion of the county ordinances above, the Council finds that the SFWF would not force a significant change in accepted farm practices on surrounding farmland and would not significantly increase the cost of accepted farm practices. Because the same approval standards are contained in the land use statute and LCDC rule, the Council finds that the principal use and access roads would comply with ORS 215.296 and OAR 660-033-0130(5).

OAR 660-033-0130(22)

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

The requirement that a "power generation facility shall not preclude more than 20 acres from use as a commercial agricultural enterprise" is substantively identical to the requirements in the Morrow County and Gilliam County zoning ordinances, GCZO Section 4.020(D)(14) and MCZO Section 3.010(D)(16), discussed above at pages 21 and 41, except that OAR 660-033-0130(22) does not apply separately to each county. As shown in Table 3 at page 22 above, the SFWF principal use and access roads would occupy more than 20 acres of non-high-value farmland in each county. The Council finds that the principal use and access roads would not comply with OAR 660-033-0130(22) because they would preclude more than 20 acres of non-high-value farmland from use "as a commercial agricultural enterprise." Based on this finding, the SFWF does not comply with the rules implementing Goal 3. We discuss an exception to Goal 3 below at page 55.

The Access Roads

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

> *(a) Adoption of an exception to the goal related to agricultural lands and to any other applicable goal with which the facility or improvement does not comply; or*
> *(b) ORS 215.296 for those uses identified by rule of the Land Conservation and Development Commission as provided in section 3, chapter 529, Oregon Laws 1993.*

The subparagraphs are conjoined by "or" and so either (a) or (b) applies. In this case, subparagraph (b) applies because the SFWF access roads are a use identified by the LCDC. OAR 660-033-0120 identifies uses authorized on agricultural lands. OAR 660-033-0120 (Table 1) lists "transportation improvements on rural lands allowed by OAR 660-012-0065" as a type "R" use ("use may be approved, after required review"). OAR 660-012-0065(2)(d) defines "accessory transportation improvements" as "transportation improvements that are incidental to a land use to provide safe and efficient access to the use."[107] The proposed SFWF access roads are "incidental" to the principal use and would provide safe and efficient access to the facility.

Under OAR 660-012-0065(3)(a), transportation improvements for a use that is conditionally allowed by ORS 215.283 are consistent with Goal 3, subject to the requirements of OAR 660-012-0065. The principal use (a commercial utility facility for the purpose of generating power for public use by sale) is conditionally allowed by ORS 215.283(2)(g). Accordingly, the access roads serving that use are consistent with Goal 3 subject to the requirements of OAR 660-012-0065. The requirements of OAR 660-012-0065(4) are applicable:

[107] OAR 660-012-0065(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 SFWF turbine string access roads are not "access roads" under this definition because they are not public roads.

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

The rule language applies specifically to accessory transportation improvements "required as a condition of development." Because the SFWF access roads are necessary for the operation and maintenance of the wind energy facility, they are a necessary condition of the development of the commercial utility facility. Accordingly, the access roads are subject to the standards and requirements applicable to the principal use. The standards and requirements applicable to the principal use are contained in OAR 660-033-0130(5) and (22). We have discussed the compliance of the access roads with these provisions in the preceding section ("The Principal Use") at page 51.

Substations and Interconnection Line

The proposed SFWF substations are necessary to convert the voltage from the 34.5-kV collector system to 230 kV so that electricity generated by the energy facility can be transmitted efficiently over the interconnection line to the BPA Slatt Switching Station and ultimately to public customers. The substations and the 230-kV interconnection lines are within the scope of ORS 215.283(1)(d), which allows "utility facilities necessary for public service" on EFU land subject to the provisions of ORS 215.275.

215.275 Utility facilities necessary for public service; criteria; mitigating impact of facility. *(1) A utility facility established under ORS 215.213 (1)(d) or 215.283 (1)(d) is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service.*

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

(a) Technical and engineering feasibility;

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

(c) Lack of available urban and nonresource lands;

(d) Availability of existing rights of way;

(e) Public health and safety; and

(f) Other requirements of state or federal agencies.

(3) Costs associated with any of the factors listed in subsection (2) of this section may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities. The Land Conservation and Development Commission shall determine by rule how land costs may be considered when evaluating the siting of utility facilities that are not substantially similar.

(4) The owner of a utility facility approved under ORS 215.213 (1)(d) or 215.283 (1)(d) shall be responsible for restoring, as nearly as possible, to its former condition

any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this section shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

(5) The governing body of the county or its designee shall impose clear and objective conditions on an application for utility facility siting under ORS 215.213 (1)(d) or 215.283 (1)(d) to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.

(6) The provisions of subsections (2) to (5) of this section do not apply to interstate natural gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission.

ORS 215.275(2) lists factors for deciding whether a utility facility is "necessary for public service." The proposed SFWF substations must be located in an EFU zone because there is no non-EFU land near the BPA Slatt Switching Station, where the SFWF power would be connected to the regional power grid. There are no reasonable alternatives to this location. At least three of the factors listed in ORS 215.275(2) apply. "Technical and engineering feasibility" requires that there be a substation and interconnecting transmission line to accommodate interconnection of the lower-voltage power generated by individual SFWF wind turbines with the BPA system. It is not feasible or technically possible to interconnect with the regional transmission grid without the substations and 230-kV transmission lines. Second, the proposed substations and interconnection lines are "locationally dependent." They must be located in proximity to the proposed wind turbines, because that is where the power would be generated. They must also be located near the BPA system so that the power can be transmitted to customers. Third, there are no "available urban and nonresource lands" on which to locate the substations and interconnection lines where they could serve their purpose. The facility site and the BPA Slatt Switching Station are located entirely on EFU land. For these reasons, location of the substations and interconnection lines on EFU land is "necessary for public service." The Council finds that the substations and interconnection lines are allowed under ORS 215.283(1)(d) subject to the other provisions of ORS 215.275.

ORS 215.275(4) requires that the owner of a utility facility approved under ORS 215.283(1)(d) be responsible for restoring agricultural land and associated improvements to their former condition if they are damaged or disturbed by the siting, maintenance, repair or reconstruction of the facility. The certificate holder would be responsible for restoring all areas temporarily disturbed during construction, maintenance or repair of the substations and 230-kV transmission lines (Conditions 11 and 84).

ORS 215.275(5) requires the imposition of "clear and objective conditions" on siting a utility facility under 215.283(1)(d) "to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands." These objectives are substantially identical to the approval standards incorporated in the Morrow County and Gilliam County zoning ordinances, GCZO Section

7.020(Q) and MCZO Section 3.010(D). The Council adopts site certificate conditions to "mitigate and minimize" the impacts of the proposed facility (including the substations and 230-kV transmission lines) on farm practices. The conditions are discussed above at pages 30 and 42.

D. Goal 3 Exception

As shown in Table 3 on page 22, the proposed principal use and access roads would "preclude more than 20 acres from use as a commercial agricultural enterprise." The proposed SFWF, therefore, would not comply with OAR 660-033-0130(22), which implements Goal 3. Therefore, to find compliance under ORS 469.504(1)(b)(B), the Council must decide whether an exception to Goal 3 is justified under ORS 469.504(2).

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

> *(2) The council may find goal compliance for a facility that does not otherwise comply with one or more statewide planning goals by taking an exception to the applicable goal. Notwithstanding the requirements of ORS 197.732, the statewide planning goal pertaining to the exception process or any rules of the Land Conservation and Development Commission pertaining to an exception process goal, the council may take an exception to a goal if the council finds:*
>
> * * *
>
> *(c) The following standards are met:*
>
> *(A) Reasons justify why the state policy embodied in the applicable goal should not apply;*
>
> *(B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the council applicable to the siting of the proposed facility; and*
>
> *(C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.*

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

Reasons Supporting an Exception

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

First, although the proposed principal use and access roads would occupy approximately 179 acres of EFU land, they would occupy less than one-half of one percent of the farmland adjacent to the facility in both counties.[108] Approximately 45,313 acres of land within the analysis area is devoted to farm use.[109] It is significant to note that the wind facility structures would not occupy a single, contiguous area within which no farming activities could occur.

[108] If the land occupied by the substations and 230-kV transmission lines are included, the entire facility would occupy approximately 184 acres, which is still less than 0.5% of the farmland devoted to farm use in the analysis area.

[109] Email from Patricia Pilz, January 28, 2008, and email from Carol Weisskopf, March 18, 2008.

Rather, the spacing of turbines and turbine strings would allow farm use to continue efficiently on most of the land currently used for grazing and cultivation of crops.

Second, facility access roads would be available to landowners for use in farm operations. Of the total land occupied by the facility, turbine towers, field workshops, meteorological towers and aboveground collector lines would occupy approximately 15 acres. Facility access roads would occupy approximately 165 acres but would be available to the landowners for farming or ranching uses. Facility access roads would be the minimum size necessary for safe operation (approximately 18 feet wide) and would be located to minimize conflict with farm uses on surrounding land (Condition 37).

Third, approval of the proposed SFWF furthers the state policy embodied in Goal 13 (Energy Conservation). The Guidelines for implementing Goal 13 direct that land use planning utilize renewable energy sources, including wind, "whenever possible." EFU land is particularly well suited to the utilization of wind energy, which requires open land with unobstructed access to consistently strong winds. The areas within Gilliam County and Morrow County that have sufficient open space and strong winds are within EFU zones.

Fourth, the use of farmland for the proposed location of the facility provides efficient access to BPA's regional transmission system. The facility is located adjacent to the BPA's Slatt Switching Station. The switching station provides direct access to BPA's existing transmission infrastructure.

Environmental, Economic, Social and Energy Consequences

The Council's standards address the environmental consequences of the proposed facility. In our discussion of each of the standards, we identify the potential adverse impacts of the proposed facility and explain how those impacts would be mitigated. We discuss impacts to soils at page 58; to protected areas at page 60; to scenic resources at page 64; to threatened and endangered species at page 88; to wildlife habitat at page 96; to ambient noise levels at page 130; to waters of the state at page 136; and to groundwater at page 138. The facility would have no emissions that would adversely affect air or water quality. Upon retirement of the facility, the site would be restored to a useful, non-hazardous condition (see discussion of the Council's Retirement and Financial Assurance Standard at page 13).

The proposed facility would have beneficial economic consequences and no significant adverse economic consequences. The facility would offer local employment opportunities by providing up to 250 jobs during construction and up to 25 jobs during operation.[110] Annual lease payments in the wind facility lease area would supplement landowner income from other farm operations without significantly reducing the land base available for farming practices. In

[110] App, Exhibit U, p. 2.

addition, the proposed facility would provide significant property tax revenue to Gilliam County and Morrow County.[111]

The SFWF would not have significant adverse social consequences. The proposed facility would not cause any significant adverse impact on the ability of communities in the local area to provide services such as housing, health care, schools, police and fire protection, water and sewer, solid waste management, transportation and traffic safety (see discussion of site certificate conditions related to the Council's Public Services Standard at page 122). The site certificate would include conditions to avoid adverse impact to historic, cultural and archaeological resources (see discussion at page 118). The proposed facility would have no adverse impact on important recreational opportunities in the local area (see discussion of the Council's Recreation Standard at page 76). We address public safety issues related to the proposed facility at page 78 (Public Health and Safety Standards for Wind Energy Facilities), page 85 (Siting Standards for Transmission Lines), page 115 (Structural Standard) and page 138 (Public Health and Safety). During construction and operation of the facility, the certificate holder would minimize the generation of solid waste and wastewater and would properly dispose or recycle waste materials (see discussion at page 127).

The energy consequences of the proposed facility would be the generation of up to approximately 303 MW of electricity (average electric generating capacity) that would become available to meet local and regional energy needs. The facility would satisfy its own on-site electrical loads by use of power generated by the facility. The proposed SFWF would generate electricity from a renewable source (wind), which furthers the State's energy policy "to develop permanently sustainable energy resources" (ORS 469.010).

In 2007, the Oregon Legislature enacted SB 838. This legislation established a "Renewable Portfolio Standard" (RPS) under which the State's largest utilities must provide 25 percent of their retail sales of electricity from renewable sources of energy by 2025. The Department estimates that the three largest utilities in the State must increase their supplies of renewable energy by 592 MW to meet the RPS interim goals for 2015 and by 1,114 MW to meet the 2025 goals. The generation of 303 MW of electricity from the proposed SFWF would be a significant new renewable energy source that might help Oregon utilities meet the RPS goals.

Compatibility with Other Adjacent Uses

Adjacent uses are primarily farming and grazing. The facility is compatible with these farm uses for the reasons discussed above at pages 30 and 42 in reference to Gilliam County and Morrow County zoning ordinances, GCZO Section 7.020(Q) and MCZO Section 3.010(D). The facility would not force a significant change in accepted farm practices on surrounding lands and would not significantly increase the costs of farm practices. The directly affected landowners are willing to enter into land leases to allow the facility to be built. In return, the landowners would

[111] The applicant has initiated discussions with Gilliam County and Morrow County about establishing a Strategic Investment Program (SIP) for the facility. Generally, the SIP would provide for a 15-year property tax exemption for the facility's assessed value in excess of $25 million, subject to an annual services fee of $500,000 in lieu of property taxes for those years. Under a SIP, for example, a project consisting of 303 2.3 MW turbines (696.9 MW total capacity) could generate average annual facility payments (property taxes plus services fee) of approximately $1 million during the SIP period. After the SIP period, the average annual property tax payments might amount to $18 million. Over the life of the facility, the applicant estimates that annual payments and fees would average $7,500 per MW per year, and the typical layout could provide average annual payments of $4 million to Gilliam County and $1.2 million to Morrow County. (Email from Patricia Pilz, February 4, 2008.)

receive annual lease payments. Lease payments would provide a stable, supplemental income source that would help maintain the land in farm use by increasing the economic viability of the landowners' farm operations.

Conclusions of Law

Based on the foregoing findings of fact, reasoning, proposed conditions and conclusions, the Council finds that the proposed facility complies with all applicable substantive criteria from Gilliam County and Morrow County except GCZO Section 4.020(D)(14) and MCZO Section 3.010(D)(16). Accordingly, the Council must proceed with the land use analysis under ORS 469.504(1)(b)(B). The Council finds that the proposed facility does not comply with OAR 660-033-0130(22) and therefore does not comply with the applicable statewide planning goal (Goal 3). The Council finds that an exception to Goal 3 is justified under ORS 469.504(2)(c). Based on these findings and the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Land Use Standard.

(b) Soil Protection

OAR 345-022-0022

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

Findings of Fact

CSF provided evidence regarding soil impacts in Exhibit I of the application. The analysis area for the Soil Protection standard is the area within the site boundary. Based on the Typical Project Layout, construction activities would occur on approximately 364 acres within the site boundary.[112] Of this total area, about 180 acres would be temporarily disturbed and 184 acres would be occupied by permanent facility structures and roads.

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

A. Impacts During Construction

Wind and water erosion is of concern during construction. Construction would include removal of surface vegetation, grading and leveling operations. Movement of construction cranes and other heavy equipment would temporarily increase the potential for soil erosion. Installation of underground communications and power collection systems would require trenching that could expose the affected areas to increased erosion risk.

[112] See Table 12 at page 101.

Heavy equipment movement, car and truck traffic and component laydown during construction could cause soil compaction and dust emissions. Soil compaction can reduce agricultural productivity or interfere with revegetation. Dust emissions can adversely affect air quality.

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

B. Impacts During Operation

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

C. Control and Impact Mitigation Measures

During construction of the facility, CSF would be subject to the requirements of the NPDES Storm Water Discharge General Permit #1200-C and associated Erosion and Sediment Control Plan (Condition 73). An Erosion and Sediment Control Plan describes best management practices for erosion and sediment control, spill prevention and response procedures, regular maintenance for vehicles and equipment, employee training on spill prevention, and proper disposal procedures. The certificate holder would implement best management practices to control any dust that is generated by construction activities, such as applying water to roads and disturbed soil areas (Condition 75).[113]

To protect existing plant cover during construction, the certificate holder would avoid scraping vegetation from areas of temporary disturbance. By crushing – rather than scraping – vegetation, the certificate holder would preserve viable rootstalks.[114] The certificate holder would implement revegetation of the temporarily disturbed areas upon completion of construction (Conditions 11 and 84). Measures would be taken to avoid accidental spills of hazardous materials and to remedy any spills that occur as discussed at page 128. During construction affecting cultivated land, CSF would consult with landowners and implement measures to avoid or reduce disruption of ongoing farming activities, including maintaining existing diversions and contour tillage patterns (Condition 36).[115] The certificate holder would minimize temporary disturbance by making use of previously disturbed areas, including roadways and tracks, and by crushing, rather than scraping, vegetation in areas of temporary disturbance (Condition 76). The applicant proposes to use washed crushed rock around turbine

[113] This condition was recommended by comments from DEQ (e-mail from Linda Hayes-Gorman, DEQ Air Quality Program, November 30, 2007). The applicant proposed using water for dust suppression during construction (App Supp, Exhibit I, responses to RAI I1 and I2.
[114] App Supp, Exhibit I, responses to RAI I1 and I2.
[115] App Supp, Exhibit I, response to RAI I2.

foundations and gravel on finished roadways to improve drainage and to minimize soil erosion in the permanent facility footprint.

Conclusions of Law

For the reasons discussed above, the Council finds that the design, construction, operation and retirement of the proposed facility, taking into account mitigation and subject to the site certificate conditions described herein, are not likely to result in a significant adverse impact to soils. Based on these findings and the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Soil Protection Standard.

(c) Protected Areas

OAR 345-022-0040

(1) Except as provided in sections (2) and (3), the Council shall not issue a site certificate for a proposed facility located in the areas listed below. To issue a site certificate for a proposed facility located outside the areas listed below, the Council must find that, taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed below. References in this rule to protected areas designated under federal or state statutes or regulations are to the designations in effect as of May 11, 2007:

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

(b) National monuments, including but not limited to John Day Fossil Bed National Monument, Newberry National Volcanic Monument and Oregon Caves National Monument;

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

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

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

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

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

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

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

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

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

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

(m) Agricultural experimental stations established by the College of Agriculture, Oregon State University, including but not limited to:
Coastal Oregon Marine Experiment Station, Astoria
Mid-Columbia Agriculture Research and Extension Center, Hood River
Agriculture Research and Extension Center, Hermiston
Columbia Basin Agriculture Research Center, Pendleton
Columbia Basin Agriculture Research Center, Moro
North Willamette Research and Extension Center, Aurora
East Oregon Agriculture Research Center, Union
Malheur Experiment Station, Ontario
Eastern Oregon Agriculture Research Center, Burns
Eastern Oregon Agriculture Research Center, Squaw Butte
Central Oregon Experiment Station, Madras
Central Oregon Experiment Station, Powell Butte
Central Oregon Experiment Station, Redmond
Central Station, Corvallis
Coastal Oregon Marine Experiment Station, Newport
Southern Oregon Experiment Station, Medford
Klamath Experiment Station, Klamath Falls;

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

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

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

Findings of Fact

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

The proposed facility would not be located within any protected area designated under OAR 345-022-0040(1). The applicant identified six protected areas within 20 miles of the proposed facility site.[116] Table 6 shows the six protected areas, a reference to the applicable subparagraph of OAR 345-022-0040(1), the approximate distance and direction of each protected area from the proposed facility site and the state in which each area is located.

Table 6: Protected Areas within 20 Miles

Protected Area	Rule Reference	Distance (Miles)	Direction from SFWF	State
Horn Butte Wildlife Area[117]	(o)	0[118]	E	Oregon
Willow Creek Wildlife Area	(p)	1.2	NE	Oregon
Umatilla National Wildlife Refuge	(d)	17.1	NE	Oregon
John Day State Scenic Waterway	(k)	17.7	W	Oregon
John Day Federal Wild and Scenic River	(k)	17.7	W	Oregon
John Day River Wildlife Refuge	(d)	18.7	W	Oregon

A. Noise

Four of the six protected areas are located at least 17 miles from the proposed facility site and, therefore, would be unaffected by noise generated at the SFWF during construction and operation. The Horn Butte Wildlife Area provides nesting habitat for long-billed curlews when they are present during the nesting season (approximately March 8 to June 15 each year). The long-billed curlew is a State Sensitive - Vulnerable species.[119] The certificate holder would avoid construction activity within 0.5 miles of long-billed curlew nesting habitat during the nesting season, including areas within the Horn Butte Wildlife Area (Condition 86).[120] Operational noise generated by the turbines is not expected to be a significant source of disturbance to nesting long-billed curlews or to other nesting avian species.

The Willow Creek Wildlife Area is a public viewing area for waterfowl, shorebirds and songbirds.[121] Game bird and big game hunting is allowed during authorized seasons.[122] The Willow Creek Wildlife Area is more than a mile from the site boundary and 260 feet below the site elevation, and therefore avian species using the Wildlife Area are unlikely to be affected by noise during construction or operation of the proposed facility.[123]

[116] App Supp, Exhibit L, response to RAI L1. In addition to the six protected areas shown in the table above, CSF identified the Oregon Trail Interpretive Center and the "J.S. Burres State Park," but neither of these are protected areas listed in OAR 345-022-0040. The JS Burres State Recreation Site is owned by the State of Oregon but managed by the BLM as the "Cottonwood Recreation Site." It is neither an Oregon State Park (OAR 345-022-0040(h)) nor a BLM protected area (OAR 345-022-0040(o)).
[117] The BLM has designated the 6,000-acre Horn Butte Wildlife Area as an "Area of Critical Environmental Concern" (ACEC) to protect nesting habitat for the long-billed curlew. *Two Rivers Resource Management Plan and Record of Decision* (June 1986), p. 28.
[118] The Horn Butte ACEC abuts the site boundary.
[119] See discussion at page 105 regarding State Sensitive species.
[120] App Supp, Exhibit L, response to RAI L3, p. 1.
[121] ODFW Visitors' Guide, www.dfw.state.or.us/resources/visitors/willow_creek_wildlife_area.asp (March 2008).
[122] ODFW, 2007-2008 Oregon Game Bird Regulations, p. 31.
[123] App Supp, RAC, response to RAI RAC1, p. 1.

Subsurface blasting might be needed during excavation for turbine foundations in some locations. In those instances, low-impact charges would be placed in holes drilled around the foundation perimeter and in the center of the foundation site. Because the explosion would be absorbed by the rock, the blasting would not generate high noise levels.[124] The applicant estimates that, at a distance of 100 yards, the sound would be barely audible.

The Council finds that noise during construction and operation of the proposed facility would not result in a significant adverse impact to any protected area.

B. Traffic

Construction-related traffic would access the site from Oregon Highway 19 after exiting I-84 at Arlington. The identified protected areas are not located on facility access routes. The Council finds that construction-related traffic would not result in traffic delays affecting access to protected areas and would not result in a significant adverse impact to any protected area.

During operation, the proposed facility would employ about 35 people.[125] Road use by employees and road use for deliveries and other facility-related purposes are not likely to produce a noticeable increase in local traffic volume. The Council finds that facility-related road use during operation of the proposed facility would not result in a significant adverse impact to any protected area.

C. Water Use and Wastewater Disposal

During construction of the proposed facility, the certificate holder would use about 100,000 gallons of water per day for dust suppression and road compaction.[126] The applicant estimates that this would result in total water consumption of approximately 70 million gallons during construction, based on worst-case assumptions. The City of Arlington has indicated that it could provide this amount of water to the project.[127] No water used on the site would be discharged into wetlands, lakes, rivers or streams.[128] There would be no impact on any protected area.

During operation of the proposed facility, the certificate holder would use water primarily for sanitary purposes at the two field workshops. Water for these purposes would be supplied from on-site wells. Sanitary wastewater would be discharged to on-site septic systems.

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

D. Visual Impacts

Wind energy facilities have no emissions to affect air quality or visibility during facility operation. During construction, dust suppression measures would reduce the potential for visible dust clouds. Wind turbine towers might be visible from some locations within protected areas. Even where the facility is visible, the distance from the viewpoint to the facility may reduce the

[124] App Supp, RAC, response to RAI RAC1, p. 1.
[125] App Supp, Exhibit U, response to RAI U3.
[126] App Supp, Exhibit O, response to RAI O2
[127] App Supp, Exhibit O, response to RAI O2 (Follow-Up).
[128] App Supp, Amended Exhibit P, p. 55.

visual impact of visible facility structures to a level at which the structures blend into the far background and the visual impression of the facility is not significant.

Three of the identified protected areas are associated with the John Day River and are more than 17 miles west of the SFWF site. The John Day Federal Wild and Scenic River and the John Day State Scenic Waterway are managed, in part, for outstanding scenic quality. The visual impact analysis, discussed below at page 65, shows that the proposed SFWF wind turbines would not be visible from viewpoints on the river. The John Day Wildlife Refuge is not managed for scenic views but is protected because it provides wildlife habitat. The Council finds that the SFWF would not have a significant adverse visual impact on the John Day Federal Wild and Scenic River, the John Day State Scenic Waterway or the John Day Wildlife Refuge.

The Willow Creek Wildlife Area and the Horn Butte Wildlife Area are within two miles of the proposed facility site. SFWF turbines would be visible from these areas.[129] Turbines might be visible from locations within the Umatilla National Wildlife Refuge but from a distance of more than 17 miles. These three protected areas are protected because they provide wildlife habitat. They are not protected or managed for scenic views. The Council finds that although parts of the SFWF might be visible from the Willow Creek Wildlife Area, the Horn Butte Wildlife Area and the Umatilla National Wildlife Refuge, the visual impact of the facility would not result in a significant adverse impact to any of these protected areas.

Conclusions of Law

For the reasons discussed above, the Council finds that the proposed facility is not located in any protected area listed in OAR 345-022-0040 and that the design, construction and operation of the proposed facility, taking into account mitigation and subject to the site certificate conditions described herein, are not likely to result in significant adverse impact to any protected area. Based on these findings and the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Protected Areas Standard.

(d) Scenic Resources

OAR 345-022-0080

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

***

Findings of Fact

CSF provided evidence about potential impacts to scenic resources in Exhibit R of the application. The analysis area for the Scenic Resources Standard is the area within the site

[129] See "Zone of Visual Influence" map, App Supp, Exhibit R, response to RAI R2.

boundary and 30 miles from the site boundary, including areas outside the state.[130] In applying this standard, the Council focuses on the effects of facility structures on scenic resources described in "local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area described in the project order."

The tallest components of the proposed SFWF are the turbine towers, and these structures are the visual elements of the facility most likely to be visible from a distance. Although the turbine towers for the proposed SFWF would range from 80 to 105 meters at hub height, the visual impact of the towers diminishes with distance.

A. Visual Features of the Site and the Proposed Facility

The proposed SFWF site consists of facility components spread out within an area of approximately 21,919 acres (about 34 square miles). Within the site boundary, CSF proposes to construct up to 303 wind turbine towers. The towers would have a maximum hub height of 105 meters (345 feet) and maximum blade tip height of 150 meters (492 feet). In addition, CSF proposes six meteorological towers up to 80 meters (263 feet) tall, aboveground transmission lines, two field workshops and two substations. Turbines would be arrayed in strings typically spaced about one-half mile apart. The wind turbine towers would be smooth, tubular steel structures painted a neutral white or off-white color, and other facility structures would be painted in a neutral color to blend with the surrounding landscape (Conditions 93 and 94). The certificate holder would design signs in accordance with applicable county ordinances and would not locate any facility sign along Highway 74 (Blue Mountain Scenic Byway). Facility lighting would be limited, but turbine tower lighting required by the FAA would be visible at night (Condition 95).

B. Effect on Identified Scenic Values

CSF commissioned a Zone of Visual Influence (ZVI) analysis using the WindPRO ZVI Calculation Model on areas within a 30-mile radius of the proposed facility site.[131] CSF used the analysis to determine whether any part of the proposed SFWF might be visible from important scenic viewpoints within the analysis area. For purposes of analysis, the applicant assumed that the tallest proposed turbines (with a hub height of 105 meters and maximum blade tip height of 150 meters) would be installed at the locations shown in the Typical Project Layout.

The ZVI analysis is a modeling analysis of line-of-sight visibility. The computer model does not account for screening from vegetation or structures that might block the line-of-sight between a viewpoint and the turbine towers. The model does not account for factors such as weather conditions, haze or background landscape that might obscure visibility. The analysis considers a turbine to be "visible" if any part of a turbine is within a line-of-sight, based on the maximum blade tip height. The results of the analysis are illustrated by a color-coded map, showing the approximate density of turbine towers visible from any angle in the landscape within 30 miles of the site boundary.[132]

[130] The 30-mile analysis area was specified by the Project Order, issued October 16, 2006, based on Council rules in effect at that time. The Council amended OAR 345-001-0010(57) in May 2007, reducing the "study area" for scenic resources to the area within the site boundary and the area within 10 miles from the site boundary.
[131] App Supp, Exhibit R, response to RAI R2 (Follow-Up).
[132] "Shepherds Flat ZVI" map (App Supp, Exhibit R, response to RAI R2).

To decide whether the proposed facility would comply with the Council's standard, the Council must first determine whether the applicable land use or land management plans for a particular area identify significant or important scenic resources and values. The Council must then decide whether the proposed facility could be visible from areas addressed by those plans and, if so, whether the visual impact of the proposed facility would result in significant adverse impact to the identified scenic resources and values. Based on the line-of-sight ZVI analysis, CSF determined that some portion of the proposed facility might be visible within the following managed areas:

Table 7: Land Management Areas

Area	**Management**	**Location**	**Distance from the SFWF site boundary** (miles)
Gilliam County	County	Oregon	a portion of the site lies within the county
Morrow County	County	Oregon	a portion of the site lies within the county
City of Boardman (Morrow County)	City	Oregon	15
Klickitat County	County	Washington	2
Benton County	County	Washington	10
Sherman County	County	Oregon	15
Yakima County	County	Washington	15
Umatilla County	County	Oregon	27
Oregon National Historic Trail	Federal	Oregon	the trail crosses a portion of the site
Horn Butte Wildlife Area	Federal	Oregon	the area abuts the northeast site boundary
John Day River	Federal/State	Oregon	17

Gilliam County, Oregon

The largest portion of the proposed facility is located within Gilliam County, and the proposed SFWF turbines would be visible from higher elevations at many locations in the County. The Gilliam County Comprehensive Plan (GCCP) is the applicable local land use plan for the County. The GCCP, Part 5, includes the following finding regarding the John Day River as a scenic resource:[133]

> 7. Portions of the John Day River from the Wheeler County line to Tumwater Falls have been classified as Scenic or Natural River areas by the State of Oregon under provisions of ORS 390.805 to 390.925. Also, within this area of the John Day River, from the mouth up river for about 84 miles to Thirtymile Creek, is the John Day State Wildlife Refuge which provides a resting area for ducks and geese and provides habitat for various raptor species and other wildlife. Land uses, including structures, are regulated within this area by the provisions of the Scenic Waterway designation. No additional regulations on behalf of the County are deemed necessary.

The visual impacts of the proposed facility on scenic values identified in the management plans for the John Day River area are described below at page 74.

[133] GCCP, p. 22.

The GCCP, Part 5, contains the following additional finding regarding the County's scenic resources: "The rock outcroppings marking the rim and walls of steep canyon slopes are an important characteristic of the county's landscape." The Council finds that the proposed facility is not likely to have a significant impact on viewing rock outcroppings in Gilliam County. The comprehensive plan for the City of Arlington, located in Gilliam County, does not identify any significant or important scenic resources.[134]

Morrow County, Oregon

A portion of the proposed facility is located within Morrow County. The proposed SFWF turbines would be visible from higher elevations at many locations in the county. The Morrow County Comprehensive Plan (MCCP) is the applicable local land use plan for the County. The "Natural Resources Element" of the MCCP addresses scenic resources and states that the County has not designated any significant scenic resources:[135]

> Scenic Views and Sites - 1B: Morrow County contains a variety of landscapes, many of which may be considered to be scenic. The County has not, however, designated any sites or areas as being particularly high in scenic-resource value.

The MCCP contains County policies related to natural resources, including General Policy "F" which states: "It shall be the policy of the County to conserve open space and protect natural and scenic resources." In response to a request from CSF, the Morrow County Planning Director noted that none of the Goal 5 policies have been codified into ordinance language.[136] The Director further noted that the MCCP has not been updated since the plan was acknowledged by the Land Conservation and Development Commission in 1986. The Director offered guidance for interpreting the policy language:

> There is a recognition locally that the Comprehensive Plan does not provide adequate guidance in most circumstances and can be construed to be opposed to development based on the policy statements. It is not the opinion of Planning staff that the policy statements regarding 'natural and scenic values' were intended to restrict development of wind farms. The same Goal 5 Analysis section speaks to natural resources and wind specifically encouraging the development of alternative energy sources. As the Planning Commission has evaluated various applications and Goal 5 has been reviewed from both perspectives a balance has been sought supporting development which [sic] trying to preserve those things that are special and unique to Morrow County.

The Director stated that the County has applied the Goal 5 policy statements "in reference to the Blue Mountain Scenic Byway which does travel along the border of the proposed Shepherd's Flat wind farm and sections of the Historic Oregon Trail." Overall, the Blue Mountain Scenic Byway is about 145 miles long. From the west, the Byway follows State Highway 74 from Heppner Junction off I-84 and runs south to Heppner, approximately 22 miles south of the SWFW site boundary. From Heppner, the Byway follows Forest Service Road 53 to the North Fork John Day Campground, near the town of Granite. For a distance of about 18 miles at its western end, the Byway runs within one-half mile to six miles from the eastern boundary of the proposed SFWF site. This stretch of the highway is known as "The Lowlands"

[134] Email from Patricia Pilz, February 15, 2008.
[135] MCCP, p. 120.
[136] Letter from Carla McLane, Planning Director, Morrow County, June 11, 2007 (App Supp, Exhibit R, attachment to response to RAI R3).

and, in the area of concern, is primarily valued for Willow Creek, near the town of Cecil.[137] Many of the proposed SFWF wind turbine towers would be visible along this section of the Byway. In approving the Shepherds Ridge CUP, the Morrow County Planning Commission noted that Highway 74 is part of the Blue Mountain Scenic Byway and that wind turbine towers would be visible from the highway. To lessen the visual impact, the Commission required the turbine towers to be "light grey or off-white in color" and prohibited logos or signs on the units. Consistent with the Commission's decision, the Council finds that the proposed facility would be visible from the Blue Mountain Scenic Byway but that the visual impact on scenic values would not be significant if reasonable measures are taken to reduce visual impact (Condition 93). No facility signs would be located on Highway 74.[138]

City of Boardman

The City of Boardman, Oregon, is within Morrow County and approximately 15 miles northeast of the proposed SFWF. The City of Boardman Comprehensive Plan is the applicable local land use plan for the City of Boardman. The Comprehensive Plan states that the City has "limited scenic views, none of which could be considered outstanding." The Council finds that the proposed SFWF would not result in a significant adverse impact to significant or important scenic values in the City of Boardman.

Klickitat County, Washington

Klickitat County lies north of the proposed SFWF site on the north side of the Columbia River. The proposed SFWF turbines would be visible from locations in eastern Klickitat County. The applicable local land use plan is the Klickitat County Comprehensive Plan. The comprehensive plan does not identify any scenic resources.[139] A portion of the Columbia River Gorge National Scenic Area lies within Klickitat County but more that 30 miles from the proposed SFWF site boundary. The Council finds that the proposed SFWF would not result in a significant adverse impact to any scenic resources within the Columbia River Gorge National Scenic area.

Benton County, Washington

Benton County lies to the northeast of the proposed SFWF site, approximately ten miles away at the nearest location. The applicable local land use plan is the Benton County Comprehensive Plan. The plan was updated in November 2007. The only scenic resource identified in the plan is Highway 14 which runs north along the Columbia River and which is designated as a Scenic Highway. Based on the applicant's ZVI analysis, large numbers of the proposed SFWF turbines would be visible from the highway. The Scenic Highway designation, however, applies to lands within the immediate highway frontage.[140] The nearest segments of Highway 14 in Benton County are at least five miles from the SFWF site. The Council finds that the proposed SFWF would not result in a significant adverse impact to the scenic resources identified in the Benton County Comprehensive Plan.

[137] "The Blue Mountain Scenic Byway" guide http://egov.oregon.gov/ODOT/HWY/SCENICBYWAYS/docs/driving_guide/blue_mountain.pdf (March 2008)
[138] Email from Patricia Pilz, February 5, 2008.
[139] Email from Curt Dreyer, Klickitat County Planning Director, December 19, 2007.
[140] Email from Susan Walker, Benton County Planning Department, February 15, 2008.

Sherman County, Oregon

Sherman County lies to the west of the proposed SFWF site. The nearest locations in Sherman County are at least 15 miles from the site. The Sherman County Comprehensive Plan (SCCP) is the applicable local land use plan for the County. SCCP Section XI, Finding XI, identifies "rock outcroppings, trees, the John Day River Canyon and the Deschutes River Canyon" as "important features of the County's landscape. The Finding also notes "scenic highway" designations by the Oregon Department of Transportation (ODOT). The related SCCP goal is Goal X: "Preserve the integrity of the Sherman County Landscape." The single policy under this goal is: "Trees should be considered an important feature of the landscape and therefore the County Court shall encourage the retention of this resource when practical."

The proposed SFWF would not require the removal of any trees in Sherman County. The visual impacts of the proposed facility on scenic values within the John Day River are described below at page 74. Although the SCCP identifies "I80N" (renumbered in 1980 as Interstate 84), US Highway 97 and Oregon Highways 206 and 216 as "scenic highways," ODOT lists only Highway 97 as a "scenic byway."[141]

Within the analysis area, Highway 97 is part of the Journey Through Time Tour Route managed by the ODOT. The Journey Through Time Tour Route is an Oregon Scenic Byway running from Baker City to Biggs. Although there are scenic areas along Highway 97, the Journey Through Time Tour Route Management Plan does not identify any significant or important scenic or aesthetic values in the analysis area. The goals of the management plan are primarily to create jobs and economic opportunities and to preserve the heritage and rural lifestyle of the communities along the route. The nearest segments of Highway 97 are close to Wasco and are about 30 miles from the SFWF site boundary.

The Council finds that the proposed SFWF would not result in a significant adverse impact to the scenic values identified in the SCCP.

Yakima County, Washington

Yakima County lies to the north of the proposed SFWF site. The proposed SFWF is approximately 20 miles from the nearest locations in Yakima County. Yakima County's *Plan 2015* is the applicable land use plan for the County. The Department reviewed the "Natural Setting" and "Parks and Open Space" elements of the plan. The Natural Setting element includes a "Visual" component (Goal NS 6), but does not identify any specific scenic resources or values as significant or important. The purpose statement for Goal NS 6 emphasizes "the importance of our urban and rural visual surroundings." Goal NS 6 and the first two related policies are as follows:[142]

> *GOAL NS 6: Protect property values by improving the appearance of the Yakima Valley.*
>
> *POLICIES:*
>
> *NS 6.1 Protect the natural, historic, and visual quality of remote areas.*

[141] ODOT website, http://egov.oregon.gov/ODOT/HWY/SCENICBYWAYS/proponets.shtml (March 2008)
[142] *Plan 2015* (May 1997; amended December 1998), p. I-22.

NS 6.2 Utilize programs that would enable open lands to remain in a natural state to maintain scenic beauty and aesthetic qualities.

The Parks and Open Space element indicates that the County includes "aesthetic value lands" within its definition of "open space lands," but the plan does not identify any specific aesthetic value lands. The relevant Parks and Open Space Goal (Goal POS 1) and the first related policy are as follows:[143]

GOAL POS 1: Encourage the retention of open space and development of recreational opportunities.

POLICIES:

POS 1.1 Include hazardous critical areas, ecological critical areas, long-term commercially significant resource lands, lands which shape urban form, aesthetic value lands, selected cultural resources (archaeological sites, historic landscapes, and traditional cultural properties) and urban reserve lands in the County's definition of open space lands.

The Parks and Open Space element identifies the Yakima River as a significant open space resource but does not specifically identify the land adjacent to the river corridor as "aesthetic value lands":[144]

> In the Yakima Valley, the most significant open space links between urban growth areas are the lands along the Yakima River and its tributaries. These areas include land that can be used for recreation, wildlife habitat, trails, and to connect communities.

The applicant's ZVI analysis reveals a line-of-sight to the SFWF turbines from locations within an area in southeastern Yakima County, Washington. Assuming for the purpose of analysis that the County would consider the Yakima River corridor as a significant or important visual resource, the ZVI analysis shows that the SFWF would not be visible from the Yakima River, and the river lies more than 30 miles from the SFWF site boundary. The Council finds that the proposed SFWF would not result in a significant adverse impact to significant or important scenic resources or values in Yakima County.

Umatilla County, Oregon

Umatilla County lies to the east of the proposed SFWF site. The nearest locations in Umatilla County are at least 25 miles from the site. The Umatilla County Comprehensive Plan (UCCP) is the applicable local land use plan for the County. The UCCP "Open Space, Scenic and Historic Areas, and Natural Resources" element notes that there are scenic resources within the County:[145]

> Outstanding Scenic Views and Sites
>
> There are areas and views which are commonly recognized as striking in their effect on those who experience them. Geological features, green vegetation, and water are major scenic features; human works and dry, shrubsteppe landscape are other attractions. So that areas do not lose their

[143] *Plan 2015* (May 1997; amended December 1998), p. I-89.
[144] *Plan 2015* (May 1997; amended December 1998), p. I-86.
[145] UCCP (1987, as amended), p. VIII-2.

eye-catching attributes, plans attempt to identify "commonly recognized" scenic features, and suggest uses for these areas that minimize conflicts with the valuable features.

The UCCP makes a general finding regarding scenic views and includes policies to protect them. The finding states: "Umatilla County has a number of outstanding scenic views and pleasant vistas."[146] The relevant policy language is as follows:

> 20. (a) Developments of potentially high visual impacts shall address and mitigate adverse visual effects in their permit application, as outlined in the Development Ordinance standards, (b) It is the position of the County that the Comprehensive Plan designations and zoning already limit scenic and aesthetic conflicts by limiting land uses or by mitigating conflicts through ordinance criteria. However, to address any specific, potential conflicts, the County shall insure special consideration of the following when reviewing a proposed change of land use:
>
> ***
>
> 8. Protection [of] vistas and other views which are important to be recognized because of their limited number and importance to the visual attractiveness of the area.
>
> (c) Publicly owned lands which provide outstanding scenic views shall be developed where appropriate.
>
> (d) The "Elephant Rock" site shall be studied to determine if there is any scenic significance.
>
> (e) The Wallula Gap has been recognized as a significant scenic (as well as historic and wildlife) area. The county shall enact special land use measures; i.e., overlay zone to protect and preserve this area (see Technical Report).

In Finding #21, the UCCP notes that there are no designated state or federal scenic waterways in Umatilla County. In addition, the UCCP includes additional scenic resource protection policies in the "Multiple Use Plan Policies" section:[147]

> Policy 34 - It shall be a policy of the county to thoroughly review development as it may affect historical and scenic values and resources.
>
> Policy 35 - The county will adopt regulations and provide encouragements that are reasonable and enforceable to protect historic, cultural and scenic resources.

Wallula Gap is a narrow segment of the Columbia River approximately 16 miles south of Pasco, Washington. Elephant Rock is a rock formation near the town of Gibbon on the northeast boundary of the Umatilla Indian Reservation. Both Wallula Gap and Elephant Rock are more than 30 miles from the proposed SFWF site in locations where the SFWF turbines would not be visible. The UCCP does not identify other scenic resources as important or significant. The Council finds that the proposed SFWF would not result in a significant adverse impact to significant or important scenic resources or values identified in the UCCP.

Oregon National Historic Trail

The Oregon National Historic Trail (ONHT) passes through six states and covers 2,130 miles. The applicable federal land management plan is the Comprehensive Management and Use Plan (CMP) adopted by the National Park Service in 1999.[148] As described in the CMP, the

[146] Finding #20, UCCP (1987, as amended), p. VIII-15.
[147] UCCP (1987, as amended), p. XVIII-221.
[148] The National Park Service website (December 2007) states that the document was "finalized" in 1999 (http://www.nps.gov/oreg/parkmgmt/planning.htm).

purposes of the ONHT are "to identify, preserve, and interpret the sites, route, and history of the Oregon Trail" and "to commemorate the westward movement of emigrants to the Oregon country as an important chapter of our national heritage." Accordingly, the federal land segments of the Oregon Trail are managed for their historical significance and not primarily as scenic resources. We discuss the potential impacts of the SFWF on historic remnants of the ONHT below at page 120.

The ONHT received federal designation as a "historic trail" in 1978 under the National Trails System Act.[149] Under the Act, the purpose of historic trail designation on federal lands is to protect the route and any associated "historic remnants and artifacts":[150]

> ***
> *National historic trails shall have as their purpose the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. Only those selected land and water based components of an historic trail which are on federally owned lands and which meet the national historic trail criteria established in this chapter are included as Federal protection components of a national historic trail….*

Under the Act, portions of the trail or locations along the trail may be identified as "high-potential" segments or sites. High-potential sites are historic sites that provide an opportunity to interpret the historic significance of the trail, and criteria for selection of a high potential historic site include "historic significance, presence of visible historic remnants, scenic quality, and relative freedom from intrusion."[151] The Act defines "high potential route segments" as segments of a trail that "afford high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route."

Within the analysis area, there are possibly six high-potential sites and one high-potential segment.[152] Listed by location from east to west, the high-potential areas are as follows:[153]

- Echo Complex (a campsite area at a crossing of the Umatilla River and the location of Fort Henrietta[154]): This location is approximately 30 miles from the site boundary and might be outside the analysis area. Based on the applicant's ZVI map and considering the distance from the SFWF site, it is unlikely that turbines would be visible from the Umatilla River crossing.
- Echo Meadows (noted for visible Oregon Trail ruts): This location is approximately 25 to 30 miles from the site boundary. The SFWF turbines would not have any adverse impact on views of visible ruts on the ground. Considering the distance from

[149] 16 USC 1244 (a)(3).
[150] 16 USC 1242 (a)(3).
[151] 16 USC 1251.
[152] CMP, p. 19. Accurate distances from the site boundary cannot be determined given the scale of the map shown in the CMP.
[153] Descriptions are based on information in the CMP, p. 287 and pp.306-308.
[154] This is the only "certified site" for the Oregon Trail. Trail segments and trail-related sites on non-federal lands are officially included as part of a designated national historic trail only if they are certified as protected segments by the Secretary of the Interior (CMP, p. 52).

the site, it is unlikely that the SFWF turbines would have any significant adverse impact on views away from the Echo Meadows site.

- Boardman Segment (a 12-mile segment from the eastern boundary of the Boardman Bombing Range to Immigrant Road, described as "an appealing landscape of rough sagebrush-covered desert"): This segment is mostly contained within the Boardman Bombing Range, which lies approximately 5 miles east of the proposed SFWF. Military use of the area restricts public access. The applicant's ZVI analysis indicates that a large number of turbine towers would likely be visible from points along this segment of the trail. Although turbine towers would likely be visible on the western horizon, views of sagebrush-covered desert would not be directly affected.

- Well Spring (described as a campsite and water source): This location is within the Boardman Segment and is approximately 10 miles east of the site boundary. The applicant's ZVI analysis indicates that a large number of turbine towers would likely be visible at this location. The visual features at this location include the remains of a stage station, a graveyard and trail ruts. The visibility of turbine towers on the western horizon would not directly interfere with views of these nearground historic features.

- Fourmile Canyon (noted for visible wagon ruts): This location is adjacent to Fourmile Canyon Road and is described in more detail below.[155]

- John Day River Crossing (noted for the McDonald Ford river crossing): This location is approximately 17 miles west of the site boundary. It is unlikely that turbine towers would be visible from the river crossing, based on the applicant's ZVI analysis.

- Biggs Junction (noted for the view of the Columbia River with Mt. Hood on the western horizon): This location is more than 30 miles from the site boundary. The applicant's ZVI analysis indicates that turbines would not be visible.

The Fourmile Canyon site is the only "high-potential" site that is near the proposed SFWF. The site lies on public land managed by the BLM. The CMP describes the Fourmile Canyon site as follows:[156]

> Over a mile of deep ruts can be found at a BLM interpretive site where the trail crossed Fourmile Canyon. Emigrants pressed on as rapidly as possible across this country because of dwindling supplies and their concern that winter would soon be upon them.

The management plan prepared for the site by the BLM Prineville District describes "visible, well defined ruts representing a segment of the Trail where immigrants were 'passing through' on their way to the next campsite."[157] The Prineville District plan notes that "much of the surrounding tableland between canyons is being cultivated." The BLM has erected an ONHT interpretive wayside at this location. Visitors to the BLM interpretive wayside look in a southwest direction to observe the visible ruts of the ONHT on the hillside approximately 100 meters away.

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[155] The BLM lists the Fourmile Canyon site and the John Day River Crossing (McDonald Ford) site as "Special Management Areas." These areas are managed to maintain and protect their "unusual qualities." *Two Rivers Resource Management Plan and Record of Decision* (June 1986), p. 28.
[156] CMP, p. 307.
[157] *Oregon Trail Management Plan*, Bureau of Land Management, Prineville District, September 1993, p. 3.

The applicant initially proposed to locate a 230-kV transmission line along Fourmile Canyon Road. The transmission line would have crossed BLM-managed property adjacent to the interpretive wayside. Several public comments on the application expressed a concern about the proposed transmission line and its potential visual impact on the setting of the BLM wayside.[158] In response to these comments, the applicant changed the proposed route of the 230-kV transmission line. As shown in the Typical Project Layout, the transmission line would lie on private land more than a mile away from the BLM wayside.

To protect the visual qualities of the Fourmile Canyon site, the Prineville District's management plan proposes a "protective corridor extending ¼ mile either side of the main trail ruts…dependent on the amount of public land surrounding the individual trail segments."[159] The proposed SFWF transmission line would lie well outside a ¼-mile trail corridor. The nearest proposed SFWF turbine location is on private land at least ½-mile to the southeast of the BLM wayside. The applicant's ZVI analysis indicates that a large number of SFWF turbine towers might be visible from the BLM wayside, depending on the direction of an observer's view; however, the majority of the proposed turbine locations are more than two miles away from the wayside. The Council finds that the important scenic value associated with the ONHT at the Fourmile Canyon site is the view of the visible remnants of the Oregon Trail and the immediate surroundings on public land. The Council finds that the proposed SFWF would not have a significant adverse effect on this scenic value.

Horn Butte Wildlife Area

The Horn Butte Wildlife Area abuts the SFWF site boundary in the northeast corner of the northern project area. The area is managed by the BLM, and the applicable federal management plan is the *Two Rivers Resource Management Plan and Record of Decision* (June 1986). The BLM has designated the Horn Butte Wildlife Area as an Area of Critical Environmental Concern.[160] Management of the area "will be designed to protect and preserve the important nesting habitat for the long billed curlew." The management plan does not identify any important scenic resources or values for this area.

John Day River

(a) Federal Management

A segment of the John Day River, stretching 147.5 miles from Service Creek in Wheeler County to Tumwater Falls at river mile 10 in Sherman County is designated as a "recreational river" under the federal Wild and Scenic Rivers Act. The act defines "recreational river areas" (as distinguished from "wild river areas" or "scenic river areas") as "rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."[161] The portion of the designated recreational river area that lies within the analysis area for the SFWF forms the border between Sherman County and Gilliam County. Management of the John Day corridor lands under BLM jurisdiction within these two counties is guided by the *Two Rivers*

[158] See Appendix D, comments of Christina Welch (BLM), John Chess (Oregon Historic Trails Advisory Council), Glenn Harrison (Oregon-California Trails Association) and Stafford Hazelett.
[159] *Oregon Trail Management Plan*, Bureau of Land Management, Prineville District, September 1993, p. 17.
[160] *Two Rivers Resource Management Plan and Record of Decision* (June 1986), p. 28.
[161] 16 USC 1273.

Resource Management Plan and Record of Decision (June 1986) as amended by the *Record of Decision John Day River Management Plan, Two Rivers, John Day and Baker Resource Management Plan Amendments* (February 2001).[162] The 1986 document identifies the John Day River Canyons as an "area of high visual and natural quality."[163] The 2001 document notes that the scenic value of National Wild and Scenic River (WSR) segments is protected on BLM-managed lands but not on private lands along any portion of the river: "Scenery was identified by Congress as an outstandingly remarkable value in all WSR segments…. In managing scenic qualities, including those of the John Day River, the BLM uses a Visual Resource Management (VRM) system to inventory and manage these values…. The BLM uses the VRM process to preserve scenic qualities on public lands, but has no control over development of private lands along any portion of the river."

(b) State Management

The segment of the John Day River that lies within the analysis area is also a State Scenic Waterway. The State Scenic Waterways Act provides for management of scenic waterways "in such manner as to protect and enhance the values which caused such scenic waterway to be included in the system," including giving "primary emphasis…to protecting the aesthetic, scenic, fish and wildlife, scientific and recreation features, based on the special attributes of each area."[164]

The administrative rules adopted by the Oregon Parks and Recreation Department for the management of State Scenic Waterways protect scenic values "seen from the waters" or "visible from the river." Lands beyond the boundaries of "related adjacent land" (defined as land within a quarter-mile of the riverbank), whether or not such land is visible from the river, is outside state management jurisdiction.[165]

(c) Visual Impact of the Facility

Under both the federal and state management plans, the protected scenic resources and values are scenic areas that lie within the boundaries of the management area, and the most important visual resources are views of adjacent lands that are visible from the river.

CSF states that the proposed facility would not be visible from scenic viewpoints on the John Day River. Some SFWF turbines might be visible from higher elevations along the rim of the river canyon, but the nearest turbines would be at least 17 miles away. The Council has found that the visual impact of wind turbines six miles from vantage points within the John Day River corridor would not be a significant adverse impact to the significant or important scenic values within the John Day River area.[166] The proposed SFWF turbines would be located farther from the river and would therefore have less visual impact. Considering the distance and the intervening features, the visual impact of the proposed facility would be a very small element within the landscape. The presence of wind turbines more than 17 miles away from the river would not interfere with views of the protected scenic resources. For these reasons, the Council finds that construction and operation of the facility would not be visible from locations on the

[162] *Record of Decision John Day River Management Plan, Two Rivers, John Day and Baker Resource Management Plan Amendments* (February 2001), p. vii.
[163] *Two Rivers Resource Management Plan and Record of Decision,* p. 26.
[164] ORS 390.845.
[165] OAR 736-040-0015.
[166] Final Order on the Application for the Leaning Juniper II Wind Power Facility, September 21, 2007.

John Day River and, where visible from vantage points at higher elevations on the canyon rim, would not result in significant adverse impact to the significant or important scenic resources and values within the John Day River area.

Conclusions of Law

For the reasons discussed above, the Council finds that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic resources and values identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area described in the project order. Based on these findings and subject to the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Scenic Resources Standard.

(e) Recreation

OAR 345-022-0100

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

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

(b) The degree of demand;

(c) Outstanding or unusual qualities;

(d) Availability or rareness;

(e) Irreplaceability or irretrievability of the opportunity.

* * *

Findings of Fact

A. Recreational Opportunities in the Analysis Area

CSF provided information about compliance with the Council's Recreation Standard in Exhibit T of the application. The analysis area for the Recreation Standard is the area within the site boundary and five miles from the site boundary. The following sections describe the recreational areas in the analysis area.

City Parks

Earl Snell City Park is a day use park in Arlington with a playground and access to the beach along the Columbia River. Alkali Park is an open grassy area in Arlington, and City Park is a small grassy area with playground equipment. The recreational opportunities provided by these parks have no outstanding or unusual qualities and are common and replaceable. Demand (usage) is low. The Council finds that the city parks in Arlington are not important recreational opportunities according to the factors listed in the Recreation Standard.

Port of Arlington

The Port of Arlington includes a public marina and boat launch, a day use area and a recreational vehicle park. The beach access is used for boating, swimming and wind surfing. Demand is moderate. The recreational opportunities at the Port have no outstanding or unusual qualities and are common and replaceable. The Council finds that the recreational facilities at the Port of Arlington are not important recreational opportunities according to the factors listed in the Recreation Standard.

China Creek Golf Course, Arlington, Oregon

China Creek Golf Course is a nine-hole golf course located south of Arlington. It has no special designation or any outstanding, unusual or rare qualities. The recreational opportunity is common and replaceable. The Council finds that China Creek Golf Course is not an important recreational opportunity according to the factors listed in the Recreation Standard.

Columbia River RV Resort, Arlington, Oregon

Columbia River RV Resort is a private campground offering facilities to overnight campers in recreational vehicles. It has no special designation or any outstanding, unusual or rare qualities and is similar to other RV facilities along Interstate 84. The Council finds that Columbia River RV Resort is not an important recreational opportunity according to the factors listed in the Recreation Standard.

Willow Creek Wildlife Area, Morrow County, Oregon

Willow Creek Wildlife Area is a 2,722-acre wildlife area visited by wildlife enthusiasts, hunters and fishers. The Wildlife Area is managed by ODFW. Its recreational opportunities are similar to other sites that are available for wildlife viewing, fishing and hunting. The Council finds that Willow Creek Wildlife Area is not an important recreational opportunity according to the factors listed in the Recreation Standard.

Roosevelt Park, Roosevelt, Washington

Roosevelt Park, owned by the U. S. Army Corps of Engineers, offers access to the Columbia River from Washington State Highway 14. The park is used by water sports enthusiasts but has no special designation or any outstanding, usual or rare qualities. The Council finds that Roosevelt Park is not an important recreational opportunity according to the factors listed in the Recreation Standard.

B. Potential Impact on Important Recreational Opportunities

Based on the analysis above, the Council finds that the design, construction and operation of the proposed facility would have no direct effect on any important recreation opportunities in the analysis area.

Conclusions of Law

For the reasons discussed above, the Council finds that the design, construction and operation of the proposed facility are not likely to result in a significant adverse impact to any important recreational opportunities in the analysis area. The Council concludes that the proposed facility complies with the Recreation Standard.

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

OAR 345-024-0010

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

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

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

Findings of Fact

The applicant addressed the Public Health and Safety Standards for Wind Energy Facilities in Exhibit BB of the application. Because the proposed facility would be located on private property, public access would be limited. The Council adopts the safety setbacks described in Condition 40. The basis for the safety setback distances is discussed above at page 22.

Turbine blade tips would be a minimum of approximately 25 meters (82 feet) above ground at the closest point of rotation, depending on the turbine type selected (Condition 26). Towers would be smooth steel structures with no exterior ladders or access to the turbine blades. Tower entry doors would be locked (Condition 61). There would be no public access to the nacelles or turbine tower interiors or to the electrical equipment contained therein. For turbine types having pad-mounted step-up transformers, the transformers would be located within locked cabinets at the base of each tower (Condition 63).

Based on site-specific geotechnical investigation, towers and tower foundations, as well as aboveground transmission line support structures, would be designed to avoid dangers to human safety presented by seismic hazards (Conditions 12 and 47). During construction, the certificate holder would follow manufacturer's recommended handling instructions and procedures to prevent damage to towers or blades that could lead to failure (Condition 59).

During operation, the certificate holder would have a safety-monitoring program and would inspect turbine blades on a regular basis for signs of wear (Condition 62). All turbines would have self-monitoring devices, linked to sensors at the field workshops to alert operators to potentially dangerous conditions (Condition 60).

Electric transformers and other equipment associated with the two proposed substations would be enclosed with fencing and locked gates and otherwise be made inaccessible to the public (Condition 64). Warning signs would be posted as required by law for the safety of the public (Condition 93).

Conclusions of Law

The Council finds that CSF can design, construct and operate the facility to exclude members of the public from close proximity to the turbine blades and electrical equipment. The Council further finds that CSF can design, construct and operate the facility to preclude structural failure of the tower or blades that could endanger the public safety and to have

adequate safety devices and testing procedures designed to warn of impending failure and to minimize the consequences of such failure. Based on these findings and subject to the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Public Health and Safety Standards for Wind Energy Facilities.

(g) Siting Standards for Wind Energy Facilities

OAR 345-024-0015

To issue a site certificate for a proposed wind energy facility, the Council must find that the applicant can design and construct the facility to reduce cumulative adverse environmental effects in the vicinity by practicable measures including, but not limited to, the following:

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

(2) Using underground transmission lines and combining transmission routes.

(3) Connecting the facility to existing substations, or if new substations are needed, minimizing the number of new substations.

(4) Designing the facility to reduce the risk of injury to raptors or other vulnerable wildlife in areas near turbines or electrical equipment.

(5) Designing the components of the facility to minimize adverse visual features.

(6) Using the minimum lighting necessary for safety and security purposes and using techniques to prevent casting glare from the site, except as otherwise required by the Federal Aviation Administration or the Oregon Department of Aviation.

Findings of Fact

The applicant addressed the Siting Standards for Wind Energy Facilities in Exhibits P and BB of the application.

A. Cumulative Impacts Analysis

The proposed SFWF (up to 303 turbines) would be located in Gilliam County and Morrow County. Table 8 is a list of wind energy facilities that are operating, approved or proposed in the Columbia Plateau Region of Oregon and Washington.[167]

Table 8: Wind Energy Projects in the Columbia Plateau Region

Project	County	Turbines	MW (capacity)	Status
Projects under Oregon Energy Facility Siting Council Jurisdiction:				
Stateline Wind Project (Stateline 1 and 2)	Umatilla	186	123	operating
Stateline Wind Project (Stateline 3)	Umatilla	279	184	approved; no construction
Shepherds Flat	Gilliam/Morrow	303	909	under Council review

[167] Based on information available to the Department as of March 2008.

Leaning Juniper II	Gilliam	133	279	approved; no construction
Klondike III - Phase 1	Sherman	123	219	operating
Klondike III - Phase 2	Sherman	85	156	approved; no construction
Biglow Canyon	Sherman	225	450	phase 1 under construction
Golden Hills	Sherman	267	400	under Council review
Cascade Wind	Wasco	40	60	under Council review
Subtotal (EFSC)		**1,574**	**2,780**	
Other Wind Power Projects in Oregon:				
Elkhorn	Union	61	101	operating
Vansycle Ridge	Umatilla	38	25	operating
Combine Hills (Phase 1)	Umatilla	41	41	operating
Combine Hills (Phase 2)	Umatilla	63	63	county-approved; no construction
Echo Windfarm	Umatilla/ Morrow	41	64	county-approved; no construction
Threemile Wind	Morrow	9	15	county-approved; no construction
Willow Creek	Gilliam/Morrow	48	72	county-approved; under construction
Pebble Springs	Gilliam	103	103	county-approved; under construction
Mar-Lu	Gilliam	3	5	county-approved; no construction
Leaning Juniper I	Gilliam	67	101	operating
Condon Wind Energy	Gilliam	83	50	operating
Rattlesnake Road	Gilliam	63	104	county-approved; no construction
Klondike I and II	Sherman	66	99	operating
Oregon Trail Wind Farm	Sherman	5	10	county-approved; no construction
Sherman County Wind Farm	Sherman	5	10	proposed
Hay Canyon	Sherman	69	104	proposed
Subtotal (Other Oregon)		**765**	**967**	
Wind Power Projects in Washington:				
Stateline Wind Project (Washington side)	Walla Walla	268	177	operating
Hopkins Ridge	Columbia	83	149	operating
Marengo I	Columbia	78	140	operating
Marengo II	Columbia	39	70	county-approved; no construction
Nine Canyon (I and II)	Benton	49	64	operating
Nine Canyon (Phase III)	Benton	14	32	under construction
Wild Horse	Kittitas	127	229	operating
Kittitas Valley Wind	Kittitas	65	130	under review
Desert Claim Wind	Kittitas	90	180	under review

Big Horn	Klickitat	133	200	operating
White Creek	Klickitat	89	205	operating
Windy Point	Klickitat	97	243	county-approved; under construction
Goodnoe East	Klickitat	94	94	county-approved; no construction
Miller Ranch Wind Energy	Klickitat	49	98	under review
Subtotal (Washington)		**1,275**	**2,011**	
Subtotal (non-EFSC)		**2,040**	**2,978**	
Total (all facilities)		**3,681**	**5,758**	

Operating facilities in the region amount to a cumulative total of approximately 1,923 MW of wind energy generation (1,492 turbines). Approximately 3,835 MW of additional wind energy generation have been approved or proposed. Altogether, more than 3,600 wind turbines could be operating within the region within the next five years.

The application includes a study conducted by Western EcoSystems Technology, Inc., (WEST) that analyzed the estimated cumulative impacts on avian and bat species from six wind energy projects in the Columbia Plateau region in Oregon and Washington.[168] Based on fatality monitoring data from the six wind projects, WEST calculated mean annual fatality rates of 1.9 per MW for all birds as a group, 0.05 per MW for all raptors and 1.43 per MW for all bats.

Using the mean fatality rate of 1.9 per MW for all birds as a group, operation of the proposed SFWF could result in an estimated 1,727 avian fatalities per year, if the facility were built out to the maximum generating capacity of 909 MW. Likewise, facility operation could result in 46 raptor fatalities and 1,300 bat fatalities.

The potential increase in regional wind generation capacity over the next five years could have a cumulative impact of thousands of avian and bat fatalities each year, assuming the fatality rates calculated by WEST hold true throughout the Columbia Plateau. It is important to note, however, that the estimated fatalities are divided across numerous species and that common species, such as horned lark, would account for most fatalities. It is also important to consider that the estimated mean fatality rates have been calculated from data collected over all seasons of the year and that the rates of fatalities during the breeding season for any species population would be lower than the mean annual rates. The cumulative fatality numbers are a conservative estimate derived by multiplying the mean annual fatality rates by the anticipated wind energy generating capacity.[169] The resulting numbers of estimated bird and bat fatalities are not sufficient to demonstrate a significant adverse impact to the continuing viability of populations of any species.

[168] WEST, *Avian and Bat Cumulative Impacts Analysis, Shepherds Flat Wind Project, Gilliam and Morrow Counties, Oregon,* March 2007 (App Supp, Exhibit P, Attachment P-6).

[169] The standard fatality monitoring protocol requires that all fatalities found in the search area be attributed to the wind facility unless there is evidence of a different cause of death. It is likely that some of the fatalities included in the fatality rate calculation resulted from other causes such as predation, disease or other causes not related to the wind facility. The estimated fatality rates are not adjusted for such background mortality, and the use of these rates to calculate cumulative impacts tends to over-estimate actual fatalities from collision with wind turbines.

WEST addressed the question of significance by comparing the fatality estimates with data from the USGS Breeding Bird Survey (BBS) using horned larks as an example. The majority of avian deaths reported in the wind facility monitoring data from the Columbia Plateau region are of common passerines, and horned larks are the most common fatality (more than 35 percent of all fatalities). WEST considered the cumulative impacts from an estimated 4,060 MW of wind power facilities (proposed, under construction or operating) within 100 kilometers of the Shepherds Flat site. Applying the average annual regional fatality rates (described above) and the proportion of horned lark fatalities within all bird fatalities, WEST estimated that there could be 2,715 horned lark fatalities per year in the region resulting from wind energy development. WEST calculated that one-quarter of the annual fatalities (or 679 fatalities) would occur during the breeding season. Using the BBS data, WEST estimated a breeding population of 127,500 horned larks in the Columbia Plateau. Thus, the cumulative impact of wind development on horned larks would be the loss of approximately 0.5 percent of the breeding population. WEST concluded that this would not be significant. If the regional development of wind energy generation ranges up to 5,700 MW, as reflected in Table 8, the WEST analysis would estimate 3,811 horned lark fatalities per year, or 953 fatalities during the breeding season. This represents approximately 0.7 percent of the breeding population.

The data on less common avian species show lower numbers of fatalities compared to horned lark fatalities. Based on this data, WEST concluded that the cumulative impacts on the breeding populations of less common avian species would be lower than for horned larks and therefore unlikely to have significant adverse population effects.[170]

WEST performed a similar analysis of the potential cumulative impact on raptors. Fatalities of red-tailed hawks and American kestrels account for more than 69 percent of all raptor fatalities recorded at the regional wind projects studied. WEST estimated that the cumulative impact of wind development on red-tailed hawks would be the loss of approximately 0.26 percent of the breeding population in the region; the cumulative impact on American kestrels would be the loss of approximately 0.28 percent of the breeding population. If the future development of wind energy generation ranges up to 5,700 MW in the Columbia Plateau, the corresponding estimated cumulative impact would be approximately 0.4 percent of the regional breeding population of red-tailed hawks and approximately 0.4 percent of the regional breeding population of American kestrels.

A similar analysis cannot be done for bats, because there are no breeding population survey data available. Based on reported fatality monitoring at six wind facilities in the region, the most common fatalities are of silver-haired bats (48 percent) and hoary bats (46 percent). These species generally occupy forested habitat, which is rare in the Columbia Plateau region. The observed bat fatalities occur primarily during the fall migration period for these species. Although a fatality rate of 1.43 per MW is very low compared to bat fatality rates reported at wind facilities in the eastern United States[171] (ranging from 15.3 to 41.1 per MW) and is below the average bat fatality rate for new generation projects in the United States[172] (2.1 per MW), WEST concluded "the significance of this impact on hoary and silver-haired bat populations is

[170] App Supp, Exhibit P, Attachment P-6, p. 16.
[171] Kunz et al., *Ecological Impacts of Wind Energy Development on Bats: Questions, Research Needs, and Hypotheses* (August 2007).
[172] WEST and Northwest Wildlife Consultants, Inc., *Stateline Wind Project Wildlife Monitoring Final Report, July 2001 - December 2003* (December 2004).

difficult to predict, as there is very little information available regarding the overall population size and distribution of bats potentially affected."

To provide context for the potential cumulative effects of wind development, the Department asked the applicant to identify any studies that compared the wildlife and habitat impacts of wind facilities with the impacts of other types of generation facilities. In response, the applicant cited a 2005 study by the Ontario Power Authority that compared a wide range of environmental impacts from different generation technologies.[173] Although this study did not directly address wildlife impacts, it concluded that wind power has a relatively small "environmental footprint" compared to thermal generating technologies fueled by coal, natural gas or nuclear energy. The study ranked generation technologies by their environmental impacts in five broad categories: air impacts, land impacts, water impacts, waste generation and sustainability (a measure of natural resource depletion).

The applicant cited a 1996 study published by World Wildlife Fund Canada and the Fatal Light Awareness Program that addressed avian fatalities from collision of migrating birds with human-built structures.[174] The study focused on tall buildings in urban settings and the threats to migratory birds posed by windows (which are believed to be practically invisible to birds) and night-time lighting (once attracted to a beam of light, birds are reluctant to fly out of the lighted area into the dark and may die from exhaustion). The study noted "it is difficult to determine an exact numerical figure for the proportion of overall migration mortality incurred by human-built structures" but cited studies estimating the number birds killed from daytime window collisions ranging from 100 million to 1 billion per year. The study includes an appendix listing references to 180 documented avian collision incidents, including collisions with power plant stacks, television transmission towers, lighted buildings and other human-built structures. The report noted, however, that "most of this information consists of sporadic reports of kills rather than organized and coordinated monitoring."

In a 2002 publication, the USFWS estimated that "tens of thousands" of birds die annually from collisions with transmission lines, as many as 976 million birds die from collisions with windows in buildings, four to five million from collisions with communication towers and 60 million from collisions with automobiles.[175] In sharp contrast, the USFWS estimated 33,000 annual avian fatalities from collisions with wind turbines.

In a 2001 study, WEST conducted an extensive review of the scientific literature addressing avian collisions with human-made structures, including vehicles, buildings, transmission lines, communication towers and wind turbines.[176] WEST found that the estimated annual number of birds killed due to collisions ranges from 100 million to "well over 1 billion." The WEST study did not address other human-induced causes of avian fatalities, such as pesticide use, oil spills and electrocution. WEST concluded that "wind turbines constitute 0.01 percent to 0.02 percent (1 out of every 10,000 to 2 out of every 10,000) of annual avian collision

[173] See applicant's discussion of Ontario Power Authority, *Methods to Assess the Impacts on the Natural Environment of Generation Options*, September 2005 (App Supp, Exhibit P, response to RAI P12).
[174] *Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds*, September 1996.
[175] USFWS, *Migratory Bird Mortality* (fact sheet), January 2002.
[176] Erickson et al., *Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States*, August 2001 (National Wind Coordinating Committee publication).

fatalities." In comparison, collisions with buildings comprise 25-percent to 50-percent of collision fatalities (based on a "low range" estimate of 98 million bird deaths annually) and collisions with vehicles comprise 15-percent to 30-percent of collision fatalities (based on a "low range" estimate of 60 million bird deaths annually). Fatalities from collisions with transmission lines could range up to 174 million birds per year, although an accurate estimate is impossible due to minimal monitoring efforts on a large-scale basis. Conservative estimates of avian fatalities attributable to collisions with communication towers and associated support wires range from 4 million to 5 million per year. The Council has not required certificate holders to conduct avian and bat fatality studies at non-wind energy facilities in Oregon. There are no comparable data assessing the cumulative impact on avian and bat mortality from coal and natural gas-fired power plants or from transmission lines in the state.

B. Access Roads

CSF considered and analyzed the potential adverse environmental impacts of the proposed SFWF access roads. The construction of new roads would be limited to locations within the site boundary. In addition, improvements would be made to some existing roads, including grading and graveling. Road construction and improvement would not significantly affect any wetlands, other waters of the state, or fish and wildlife habitat (see discussion of wildlife habitat impacts below at page 96).

C. Transmission Lines and Substations

In the Typical Project Layout, a 4-mile 230-kV transmission line would connect the substation in the northern project area to the BPA Slatt Switching Station west of the northern project area. A 12.3-mile 230-kV transmission line would connect the substation in the southern project area to the substation in the northern project area. This route would avoid the impacts of having a separate transmission corridor directly from the southern substation to the Slatt Switching Station. Most of the 34.5-kV collector system would be installed underground (see description at page 7 above), but up to 28 miles of collector line could be installed aboveground on single-pole structures where necessary due to terrain or geotechnical constraints. In addition, up to 15 miles of collector line segments could be understrung on the 230-kV transmission line support structures.[177] By understringing the 34.5-kV lines, the certificate holder would design the SFWF to reduce the cumulative impacts of the aboveground transmission system and reduce the disturbance of habitat that would otherwise be caused by trenching to install these collector segments underground.

The certificate holder would locate the facility substations and field workshops in Category 4, 5 or 6 habitat (Condition 86).[178] This restriction would reduce the cumulative adverse environmental effects on higher-value wildlife habitat.

D. Wildlife Protection

The facility would be designed to reduce the risk of injury to raptors or other vulnerable wildlife in areas near turbines or electrical equipment. The creation of artificial habitat for raptors or raptor prey would be avoided. For turbine types having pad-mounted step-up transformers, the transformer cabinets at each turbine would be designed to avoid use by raptors

[177] Email from Carol Weisskopf, March 27, 2008.
[178] App Supp, Exhibit P, response to RAI P14, p. 2.

or prey species as artificial habitat (Condition 63). Turbine pad areas would be covered with washed crushed rock to reduce the potential for erosion and weed infestation (Condition 58). The turbines would be mounted on smooth tubular towers rather than lattice towers to avoid creating perching opportunities (Condition 91). All transmission support structures would be designed according to guidelines recommended by the Avian Power Line Interaction Committee (APLIC) to reduce risks to raptors from electrocution and wire-strikes (Condition 90).[179] Meteorological towers would be freestanding, non-guyed pole structures 72 to 80 meters (236 to 263 feet) tall.

E. Visual Features

The certificate holder would mitigate the visual impact of facility structures to the extent practicable. The wind turbines would be mounted on tubular steel towers, and the towers would be uniformly painted in a matte-finish, neutral white or off-white color (Condition 93). No advertising signs would be posted at the facility. There would be no signs at the facility except signs required by law or necessary for health and safety purposes and a sign at each field workshop identifying the facility.[180] The certificate holder would design signs in accordance with applicable county ordinances and would not locate any facility sign along Highway 74 (Blue Mountain Scenic Byway). Unobtrusive turbine manufacturers' logos would be allowed on turbine nacelles. Turbine numbers (but no other markings) would be painted on each tower. The field workshops would be designed to be consistent with the character of buildings used by local farmers and ranchers and would be painted to blend with the surrounding landscape (Condition 94).

F. Lighting

Turbines would have the minimum lighting required by the FAA or conforming to FAA guidelines (Condition 95). The field workshops could have low impact (focused downward) exterior lighting for safety and security purposes.

Conclusions of Law

For the reasons discussed above, the Council finds that the proposed design and construction of the SFWF would reduce cumulative adverse environmental effects in the vicinity by practicable measures in accordance with the requirements of OAR 345-024-0015. Based on these findings and subject to the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Council's Siting Standards for Wind Energy Facilities.

(h) Siting Standards for Transmission Lines

OAR 345-024-0090

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

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

[179] App Supp, Exhibit P, response to RAI P15.
[180] Email from Patricia Pilz, February 1, 2008.

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

Findings of Fact

The applicant provided information on the Siting Standards for Transmission Lines in Exhibit AA of the application. These standards address safety hazards associated with electric fields around transmission lines.[181] Section (1) of OAR 345-024-0090 sets a limit for electric fields from transmission lines of not more than 9 kV per meter at one meter above the ground surface in areas that are accessible to the public. Section (2) requires measures to reduce the risk of induced current.

In the Typical Project Layout, there would be approximately 16.3 miles of aboveground 230-kV transmission lines, including approximately 4 miles of double-circuit lines running from the north substation to the BPA Slatt Switching Station and approximately 12.3 miles of single-circuit line running from the south substation to the north substation.[182] In addition, the Typical Project Layout includes approximately 96.1 miles of 34.5-kV transmission line (collector lines) runs to transport power from each turbine to the substations. Aboveground collector lines would include segments of single-circuit or double-circuit line (Condition 79). In the Typical Project Layout, approximately 63.5 miles of collector lines would be underground; about 23.5 miles would be aboveground single-circuit line mounted on medium voltage power poles; about 6.2 miles would be aboveground single-circuit line understrung on the 230-kV high-voltage power poles; and about 2.8 miles would be aboveground double-circuit line understrung on the 230-kV high-voltage power poles.[183] All aboveground 34.5-kV transmission lines would have a minimum clearance of 20 feet from the ground, and all aboveground 230-kV transmission lines would have a minimum clearance of 24 feet from the ground (Condition 81).[184]

A. Electric Field Estimates

Aboveground 230-kV Transmission Line

The applicant's estimate for the maximum electric field strength below an aboveground, single-circuit 230-kV line is 4.373 kV per meter at one meter above ground.[185] The electric field strength is highest close to the centerline and decreases to 0.209 kV per meter at 100 feet from the centerline. For double-circuit 230-kV lines, the phasing of the circuits can be arranged so that the resulting electric field strength is somewhat less than for a single-circuit line.[186]

[181] Magnetic field effects are addressed below at page 139.
[182] Email from Carol Weisskopf, March 11, 2008.
[183] Email from Carol Weisskopf, March 11, 2008.
[184] App Supp, Exhibit AA, email from Patricia Pilz, November 7, 2007, and email from Carol Weisskopf, March 11, 2008.
[185] MSE Power Systems Inc., *Shepherd's Flats Wind Project, 230KV / 35kV Typical Electric and Magnetic Field Calculations*, October 31, 2007 (App Supp, Exhibit AA, email from Patricia Pilz, November 7, 2007).
[186] Email from Patricia Pilz, March 31, 2008. For a general discussion of electric and magnetic fields generated by transmission lines, see BPA, *Klondike III/Biglow Canyon Wind Integration Project, Final Environmental Impact Statement*, September 2006, Appendix C.

Aboveground 230-kV Transmission Line Understrung With 34.5-kV Transmission Line

For a 230-kV line understrung with a single-circuit 34.5-kV line, the applicant's estimate for the maximum electric field strength is 1.74 kV per meter at one meter above ground (decreasing to 0.21 kV per meter at 100 feet from the centerline). As with the double-circuit 230-kV lines, double-circuit 34.5-kV conductors can be arranged to reduce the electric field.

Aboveground 34.5-kV Transmission Line

The applicant's estimate for the maximum electric field strength below a single-circuit 34.5-kV line installed on single-pole structures is 0.283 kV per meter at one meter above ground (decreasing to 0.01 kV per meter at 100 feet from the centerline).

Underground 34.5-kV Transmission Line

There would be no measurable electric field at the surface of the ground above the underground transmission lines, because the electric field is contained within the insulation of the cable.[187] Further, because there would be no electric field at the surface above them, the underground transmission lines would not pose a potential hazard from induced voltage.

B. Induced Current

The magnetic and electric fields around alternating current transmission lines can induce a current in nearby objects, such as ungrounded fences. If proper precautions are not taken, induced current can result in a voltage shock when a person or animal touches the object, which allows a current to flow to the ground. Grounding of potentially charged structures minimizes the danger by providing an alternative path for the electric current. Passing current through the grounding wire minimizes the current that would otherwise flow through a person or animal that comes in contact with the object.

The certificate holder would provide appropriate grounding of fences that are parallel to the transmission line. The applicant identified a 2-mile-long section of fencing in the northern project area on the west side of Eightmile Canyon that parallels a proposed transmission line. The certificate holder would ground this section of fencing to minimize induced voltage effects (Condition 80). In addition, the certificate holder would implement appropriate measures within the facility site to minimize the risk of electric shock (Condition 17).

Conclusions of Law

The Council finds that CSF can design, construct and operate the proposed transmission lines so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public. The Council further finds that CSF can design, construct and operate the proposed transmission lines so that induced currents resulting from the transmission lines and related or supporting facilities will be as low as reasonably achievable. Based on these findings and subject to the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Siting Standards for Transmission Lines.

[187] App Supp, Exhibit AA, email from Patricia Pilz, November 7, 2007.

4. Standards to Protect Wildlife

(a) Threatened and Endangered Species

OAR 345-022-0070

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

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

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

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

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

Findings of Fact

CSF provided information about compliance with the Council's Threatened and Endangered Species Standard in Exhibit Q of the application. The analysis area for threatened or endangered plant[188] and wildlife[189] species is the area within the site boundary and 5 miles from the site boundary. The site boundary straddles the county line between Gilliam County and Morrow County in Oregon. Klickitat County, Washington, lies north of the facility site across

[188] ORS 564.100 defines "endangered" and "threatened" plant species as follows:

"Endangered species" means:

(a) Any native plant species determined by the department to be in danger of extinction throughout any significant portion of its range.

(b) Any native plant species listed as an endangered species pursuant to the federal Endangered Species Act of 1973 (P.L. 93-205, 16 U.S.C. 1531 et seq.), as amended.

"Threatened species" means:

(a) Any native plant species the director determines by a finding of fact is likely to become an endangered species within the foreseeable future throughout any significant portion of its range.

(b) Any native plant species listed as a threatened species pursuant to the federal Endangered Species Act of 1973 (P.L. 93-205, 16 U.S.C. 1531 et seq.), as amended.

[189] ORS 496.004 defines "endangered" and "threatened" wildlife species as follows:

"Endangered species" means:

(a) Any native wildlife species determined by the commission to be in danger of extinction throughout any significant portion of its range within this state.

(b) Any native wildlife species listed as an endangered species pursuant to the federal Endangered Species Act of 1973 (P.L. 93-205, 16 U.S.C. 1531), as amended.

"Threatened species" means:

(a) Any native wildlife species the commission determines is likely to become an endangered species within the foreseeable future throughout any significant portion of its range within this state.

(b) Any native wildlife species listed as a threatened species pursuant to the federal Endangered Species Act of 1973 (P.L. 93-205, 16 U.S.C. 1531), as amended.

the Columbia River. The analysis area lies within the Columbia Plateau Ecoregion of Oregon and Washington.[190]

A. Plant Species

CSF consulted with the U.S. Fish and Wildlife Service (USFWS) to identify federally listed threatened, endangered or candidate plant species and species of concern in the analysis area. CSF reviewed data from the Oregon Department of Agriculture (ODA) Plant Division and the Oregon Natural Heritage Information Center (ONHIC) to identify State-listed threatened, endangered or candidate plant species (rare plant species).[191] During on-site surveys to evaluate wildlife habitat, the applicant assessed the vegetative characteristics at nine locations in the north project area.[192] In addition, during surveys for the delineation of waters of the state in 2007, vegetation cover was measured at 37 representative sample plots distributed throughout the project area.[193] No rare plant species were observed during the surveys.

Five State-listed plant species or candidate species currently exist or historically occurred within the Columbia Plateau Ecoregion in Gilliam or Morrow County. These species are shown in Table 9. Only one of the rare plant species – sessile mousetail – exists within the analysis area in Oregon, according to current distribution records.

Table 9: Protected and Candidate Plant Species

Species	Federal Status	State Status
Laurence's milk-vetch (*Astragalus collinus* var. laurentii)	Species of Concern	Threatened
Dwarf evening-primrose (*camissonia pygmaea)*	Species of Concern	Candidate
Disappearing monkey flower (*Mimulus evanescens*)	Species of Concern	Candidate
Hepatic monkeyflower (*mimulus jungermannioides*)	none	Candidate
Sessile mousetail (*Myosurus sessilis*)	none	Candidate

Laurence's milkvetch is a State-listed Threatened species, and it is a federal Species of Concern. Suitable habitat for Laurence's milkvetch includes basaltic grassland, sagebrush desert and dry slopes. This species is not likely to occur within the site boundary, because its range lies at higher elevations. In Oregon, the species is found at elevations above 1,970 feet, which is beyond the highest elevation of the SFWF site (approximately 1,050 feet).[194] Recent known

[190] The "Columbia Plateau Ecoregion" is defined in ODFW, *Conservation Strategy for Oregon*, September 2005. This region is also known as the "Columbia Basin Ecoregion," as defined in ONHIC, *Rare, Threatened and Endangered Species of Oregon*, March 2007.
[191] A "candidate species" is "any plant species designated for study by the director [of the Oregon Department of Agriculture] whose numbers are believed low or declining, or whose habitat is sufficiently threatened and declining in quantity and quality, so as to potentially qualify for listing as a threatened or endangered species in the foreseeable future." OAR 603-073-0002.
[192] App, Exhibit P, Attachment P-4.
[193] MB&G Inc., *Wetlands/Waters Delineation Report for Shepherds Flat Wind Farm Project, Gilliam and Morrow Counties, Oregon*, June 8, 2007, p. 15 (App Supp, Exhibit J, Attachment J-1).
[194] App Supp, Exhibit Q, response to RAI Q1.

occurrences of Laurence's milkvetch are outside of the analysis area, south and east of the facility site.[195]

Although the historic distribution of dwarf evening-primrose (State Candidate) includes Gilliam County, the applicant found no records of current detections of the species in Morrow or Gilliam counties. Suitable habitat includes sagebrush uplands in open areas of loose, rubbly substrate.

The applicant found no records of current detections of disappearing monkeyflower (State Candidate) in Morrow or Gilliam counties. The historic distribution of the species includes Gilliam County. The plant grows in sagebrush-juniper plant associations, and requires seeps, riparian habitat or seasonally moist areas.

The historic and current distribution of hepatic monkeyflower (State Candidate) includes Gilliam County, but the closest recently reported occurrence of the plant was in the Umatilla River Canyon, outside of the analysis area.[196] The plant grows on wet seep areas in steep basalt canyon walls, and could occur in suitable habitat within the analysis area, such as the cliff faces along the Columbia River. Facility construction activity would not affect suitable habitat for the species.

The historic and current distribution of sessile mousetail (State Candidate) includes Gilliam County. The plant grows in alkaline vernal pools, and could occur in suitable habitat within the site boundary. The applicant has not found any suitable habitat within the site boundary.[197] Recent observations have been southwest of Arlington, outside of the site boundary but within the analysis area.

Potential Impacts and Mitigation

The Council's standard addresses plant species that ODA has listed as Threatened or Endangered. Only one such species has the potential to occur within the analysis area for the proposed SFWF. Laurence's milkvetch, a Threatened species, is found in basaltic grassland, sagebrush desert and dry slopes above 1,970 feet. There is no suitable habitat within the site boundary. ODA has not adopted a protection and conservation program for the species in the area. The Council finds that the design, construction and operation of the proposed facility are not likely to cause a significant reduction in the likelihood of survival or recovery of Laurence's milkvetch. Suitable habitats for disappearing monkeyflower, hepatic monkeyflower and sessile mousetail are in seeps, riparian areas or vernal pools. The applicant proposes to avoid disturbance of these habitats (Condition 86).

B. Fish and Wildlife Species

CSF requested database information from the USFWS and the ONHIC on the potential for occurrence of Threatened, Endangered and Sensitive wildlife species within the analysis area.[198] In addition, CSF conducted a literature search and consulted with ODFW regarding species distribution and habitat requirements. Based on the literature review and consultations,

[195] App, Exhibit Q, p. 4; App Supp, Amended Exhibit P, p.16.
[196] App, Exhibit Q, p. 4.
[197] App, Exhibit Q, p. 5.
[198] A "sensitive species" is a wildlife species, subspecies or population that is "subject to a decline in number of sufficient magnitude to qualify their listing as Threatened due to loss in quantity or quality of habitat or other factors." OAR 635-100-0001. See further discussion at page 105.

CSF identified the Threatened or Endangered species that have the potential to exist in the analysis area. These species are listed in Table 10.[199]

Table 10: Protected and Candidate Fish and Wildlife Species

Species	Federal Status	State Status
Birds		
Greater Sage-Grouse (*centrocercus urophasianus*)	Candidate	State Sensitive - Vulnerable[200]
Bald Eagle (*Haliaeetus leucocephalus*)	none[201]	Threatened
Mammals		
Canada Lynx (*Lynx Canadensis*)	Threatened	none
Gray Wolf (*Canis lupus*)	Endangered	Endangered
Grizzly Bear (*Ursus arctos horribilis*)	Threatened	none
Washington ground squirrel (*Spermophilus washingtoni*)	Candidate	Endangered
Fish		
Chinook Salmon[202] (*oncorhynchus tshawytscha*)	Threatened	Threatened
Steelhead (*oncorhynchus mykiss*)	Threatened	State Sensitive - Vulnerable[203]
Sockeye Salmon (*oncorhynchus nerka*)	Endangered[204]	none

In addition to the literature and database research, the applicant conducted two years of on-site wildlife observations in the facility area between 2002 and 2004. Northwest Wildlife Consultants performed the initial surveys in 2002. Energy Northwest Environmental Services (ENES) surveyed the area from winter 2002 through fall 2004, interpreted the data and prepared a report.[205] On-site observations included surveys of avian use, raptor nesting and breeding bird surveys and surveys for signs of burrowing owl and Washington ground squirrel (WGS)

[199] The applicant included the American peregrine falcon (*falco peregrinus anatum*), formerly a State-listed endangered species. It was removed from the State list on April 13, 2007. The species is not federally-listed.
[200] Listed for the Columbia Basin, East Cascades and Blue Mountains physiographic province (*Oregon Department of Fish and Wildlife Sensitive Species*, December 1997).
[201] The bald eagle was a federally-listed threatened species until the USFWS removed it from the list on June 28, 2007. The bald eagle continues to be protected under the Bald Eagle Protection Act and the Migratory Bird Treaty Act.
[202] Populations listed: Snake River, fall run; Snake River, spring/summer run.
[203] All groups east of the Cascades (*Oregon Department of Fish and Wildlife Sensitive Species*, December 1997).
[204] Not listed in Oregon; Idaho stock listed Endangered wherever found.
[205] Energy Northwest Environmental Services, *Wildlife Assessment for the Shepherds Flat Wind Farm*, November 2006 (App, Exhibit P, Attachment P-1).

activities. Incidental observations of avian and mammal species were recorded. The applicant conducted on-site surveys for WGS and burrowing owls in May 2007 and March 2008.[206]

Greater Sage-Grouse

The greater sage-grouse is not listed in Oregon as either Threatened or Endangered and therefore is not subject to the Council's Threatened and Endangered Species Standard. ODFW lists the sage grouse as a Sensitive - Vulnerable species in the Columbia Basin physiographic province. The historic distribution of the greater sage-grouse includes Gilliam County. The applicant found no record of current detections in either Morrow or Gilliam counties. There were no observations of this species recorded during the on-site wildlife surveys.[207] The analysis area may include the southern reaches of the current greater sage-grouse range in Klickitat County. Suitable habitat for the species includes foothills, plains and mountain slopes where sagebrush is present. Little suitable habitat exists within the site boundary.

Bald eagle

The bald eagle is a State-listed Threatened species. Bald eagles winter along the Columbia River north of the project area. The eagles concentrate their foraging and roosting in areas along or close to the Columbia River, but they scavenge on carrion and small mammals in the upland areas. Only one observation was recorded during the on-site wildlife surveys.[208] The critical nesting period for the bald eagle is from January 1 to August 15. The bald eagle wintering period is from November 15 to March 15. Wintering bald eagles favor undisturbed areas where food is abundant. Wintering bald eagles may roost communally at night near major foraging areas, typically in isolated areas within old growth stands. Bald eagles usually forage in large open areas with a wide visual field and suitable perch trees near the food source. The northern bald eagle is generally associated with freshwater, estuarine and marine ecosystems that provide abundant prey and suitable habitat.

Canada Lynx

The Canada lynx is not listed in Oregon, but it is a federally-listed Threatened species. The Canada lynx is extremely rare or non-existent within Oregon.[209] The historic distribution of the Canada lynx includes Morrow County, but there are no current recorded detections in either Morrow or Gilliam counties and the species was not observed during on-site wildlife surveys.[210] Most current sightings of the Canada lynx have been in the Cascade Range or the Blue Mountains. Preferred habitats for the Canada lynx are coniferous or mixed forests, which are not present within the site boundary.

[206] Weisskopf et al., *Shepherds Flat Washington Ground Squirrel and Burrowing Owl Surveys*, May 27, 2007 (App Supp, Exhibit P, Attachment P-5a), and *Addendum to the Surveys for Washington Ground Squirrels and Burrowing Owls at the Shepherds Flat Wind Farm*, March 17, 2008 (email from Patricia Pilz, March 17, 2008).
[207] App, Exhibit P, Attachment P-1, Table 2, pp. 13-14.
[208] App, Exhibit P, Attachment P-1, p. 9.
[209] ONHIC, *Rare, Threatened and Endangered Species of Oregon*, March 2007, p. 18.
[210] App, Exhibit Q, p. 7.

Gray Wolf

The gray wolf is a State-listed Endangered species.[211] The species is believed to have been present historically within Gilliam County and Morrow County, but now appears to be absent from Oregon.[212] The species was not observed during on-site wildlife surveys.

Grizzly Bear

The grizzly bear is not listed in Oregon, but it is a federally-listed Threatened species. The species is believed to be non-existent within Oregon.[213] The historic distribution of the grizzly bear includes Gilliam County and Morrow County, but there are no recent recorded detections of grizzly bears in Oregon. No bears were observed during on-site wildlife surveys.

Washington Ground Squirrel

The WGS is a State-listed Endangered species and a federal Candidate species. Historically, this species was abundant in sagebrush and native bunchgrass habitat throughout the Columbia plateau, including Gilliam County and Morrow County. The current range of the WGS is unknown but is generally thought to be greatly reduced from the historic range, largely due to agricultural and grazing activities and other development that have fragmented and disturbed native vegetation. The squirrel occupies burrow systems requiring deep soils with high silt content. In Oregon, these conditions are predominantly found in Warden soils.[214]

Suitable deep soil is present in the southern project area. Except in areas too steep to cultivate, the deeper soils in the southern project area are cultivated for dryland wheat, making these areas unavailable for WGS habitat. Soil depth in the northern project area is generally too shallow to provide suitable habitat.

WGS occur within the analysis area.[215] The on-site wildlife surveys in 2002-2004 found no signs of WGS activity within the area searched. An ENES field biologist observed a WGS colony (reference site) off-site but near the SFWF site boundary.[216] In 2007, the applicant conducted a systematic survey for WGS.[217] The survey included all areas of suitable soil for WGS burrows within the site boundary and a 1,000-foot buffer outside the site boundary (a total area of approximately 26 square miles). The surveyors identified five WGS sites in addition to the reference site. Four of the five sites, as well as the reference site, are outside the site boundary. All but one of the sites (including the reference site) lie well outside the site boundary and outside the 1,000-foot buffer area. These sites were not within the survey area and were observed incidentally. The surveyors found one WGS colony complex in the survey area, consisting of three areas of burrow entrances. Only one of the burrow entrance areas lies within

[211] On February 21, 2008, the USFWS announced the de-listing of gray wolves within the northern Rocky Mountain wolf Distinct Population Segment (DPS). The DPS includes the eastern third of Oregon (east of Highway 395). Gray wolves outside the DPS would continue to be federally-listed as endangered.
[212] There have been a few confirmed sightings of wolves in Oregon. Before 1946, the State paid a bounty to eliminate wolves, which were considered a threat to livestock (http://www.dfw.state.or.us/wolves/ (March 2008)).
[213] ONHIC, *Rare, Threatened and Endangered Species of Oregon*, March 2007, p. 19.
[214] App, Exhibit Q, p.8.
[215] The analysis area includes areas within the site boundary for the Leaning Juniper II Wind Power Facility where WGS colonies have been observed. Final Order on the Application for the Leaning Juniper II Wind Power Facility, pp. 78-79.
[216] The reference site is located approximately 2,700 feet from the nearest site boundary, east of the southern project area (App Supp, Exhibit P, Attachment P-5a, p. 4).
[217] App Supp, Exhibit P, Attachment P-5a.

the site boundary, and the larger portion of the complex lies outside the site boundary. The surveyors observed two individuals and fewer than ten burrow entrances within the site boundary.

In March 2008, the applicant withdrew a transmission line corridor along Fourmile Canyon Road and proposed a substitute corridor on land not previously surveyed for WGS. The applicant conducted a supplemental survey within a search area that included the proposed corridor plus a 1,000-foot buffer outside the site boundary.[218] The supplemental survey followed the same protocol as the 2007 survey described above. No WGS or WGS burrows were observed.

Fish Species

The three fish species shown in Table 10 are anadromous species that travel the Columbia River north of the facility site within the analysis area. The fish may be present in Morrow and Gilliam Counties, but there are no perennial streams within the site boundary that can support these species. Facility construction would not consume water from any streams that function as habitat for these species.

Potential Impacts and Mitigation

The Council's standard addresses wildlife species that the Oregon Fish and Wildlife Commission has listed as Threatened or Endangered. The potential occurrence of such species within the analysis area for the SFWF includes two Endangered species (gray wolf and WGS) and two Threatened species (bald eagle and chinook salmon). Although the Council's standard does not directly address federally-listed Threatened or Endangered species, certificate holders must comply with all applicable federal laws, including laws protecting those species. For the reasons discussed below, the Council finds that the design, construction and operation of the proposed facility are not likely to cause a significant reduction in the likelihood of survival or recovery of any State-listed Threatened or Endangered species.

Gray Wolf

Currently, there is no plan to experimentally reintroduce the species to Oregon, but there has been evidence of natural dispersion of the species into the state from neighboring lands in Idaho (outside the analysis area).[219] The SFWF is unlikely to have any adverse effect on the likelihood of survival or recovery of the gray wolf due to the absence of the species from the area within the site boundary.

Washington Ground Squirrel

WGS are known to be present at one location within the site boundary. After completing the 2007 survey, the applicant mapped the sage-shrub-steppe habitat in the vicinity of the observed WGS burrow entrance area within the site boundary as Category 1 habitat.[220] The applicant mapped adjacent grassland habitat as Category 2. The certificate holder proposes to avoid any temporary or permanent disturbance to the Category 1 or 2 WGS habitat during construction or operation of the proposed SFWF.[221] In addition, the certificate holder proposes to

[218] *Addendum to the Surveys for Washington Ground Squirrels and Burrowing Owls at the Shepherds Flat Wind Farm*, March 17, 2008, Fig. 1 (email from Patricia Pilz, March 17, 2008).
[219] ODFW, *Oregon Wolf Conservation and Management Plan*, December 2005.
[220] App Supp, Exhibit P, Attachment P-5a, p. 4 and Fig. 3.
[221] App Supp, Amended Exhibit P, p. 41.

avoid construction within 1,000 feet of Category 2 WGS habitat (creating a buffer of 1,300 to 1,700 feet from the Category 1 WGS habitat) when the squirrels are active (generally between early March and the end of May).[222] The Council adopts Condition 86, which incorporates these restrictions.

In addition, the certificate holder would assess the status of the WGS colony within the site boundary beginning in the first WGS activity period after the effective date of the site certificate and annually thereafter through the second year after the facility becomes commercially operational. The WGS assessment is described in the Wildlife Monitoring and Mitigation Plan (WMMP) incorporated herein (Attachment A). Condition 83 would require the certificate holder to implement the WMMP.

Soil conditions and physical constraints from current land uses make it unlikely that the existing WGS colony will expand farther into the SFWF site. The Category 2 WGS area is bordered by an area of shallow rocky loam to the west, by a wheat field to the north and by a farm road.[223]

Bald Eagle

Bald eagles forage and roost along the Columbia River. Eagles are unlikely to forage often within the site boundary due to the lack of suitable perch trees. There have been few sightings and no fatalities of bald eagles at wind energy facilities in the region.[224] The certificate holder would mitigate the risk to bald eagles from wire strikes and electrocution by placing most of the facility collector lines underground. All aboveground transmission line structures would be designed in accordance with the APLIC guidelines to reduce the risks of wire strikes and electrocution (Condition 90). Met towers would be non-guyed structures to eliminate the risk of avian collision with guy-wires, and turbine towers would be smooth tubular structures rather than lattice towers to avoid creating perching opportunities (Condition 91). For turbine types having pad-mounted step-up transformers, the transformer cabinets at each turbine would be designed to avoid creation of artificial habitat for raptor prey (Condition 63). As described in the WMMP, the certificate holder would conduct standardized fatality searches of turbine tower areas and ongoing monitoring of all facility structures. The certificate holder would report any bald eagle fatalities attributable to collision with wind turbines or other facility structures. Under the WMMP, the Council may require additional mitigation if the fatality rate for raptor species exceeds a level of concern. Based on the limited use of the facility site by bald eagles and considering the mitigation measures that the certificate holder would implement, the Council finds that the proposed SFWF is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

Chinook Salmon

There is no suitable habitat for chinook salmon within the site boundary. The water used for construction of the facility would not be taken from streams affecting habitat for the species. Storm water drainage during construction would be subject to the NPDES Storm Water Discharge General Permit #1200-C to avoid adverse impact to streams (Condition 73). The

[222] The buffer area is shown in ODFW-4 Figure 1 (App Supp, RAC, response to ODFW Comments received August 24, 2007, Attachment ODFW-4 Figure 1).
[223] App Supp, Exhibit P, Attachment P-5a, p. 4 and Fig. 3.
[224] App, Exhibit Q, p. 15.

certificate holder would implement erosion and sediment control measures during facility operation (Condition 77). Sanitary wastewater would be disposed of in portable toilets during construction and in on-site septic systems during operation (Conditions 99 and 100).

Conclusions of Law

For the reasons discussed above, the Council finds that the design, construction, operation and retirement of the proposed facility do not have the potential to significantly reduce the likelihood of the survival or recovery of any Threatened or Endangered plant or wildlife species listed under Oregon law. Based on these findings and subject to the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Threatened and Endangered Species Standard.

(b) Fish and Wildlife Habitat

OAR 345-022-0060

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

Findings of Fact

A. Mitigation Goals and Standards

In OAR 635-415-0025, ODFW has defined six categories of habitat in order of value to wildlife. The rule establishes mitigation goals and corresponding implementation standards for each habitat category. The habitat definitions are as follows.[225]

"Habitat Category 1" is irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.

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

"Habitat Category 2" is essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.

If impacts are unavoidable, the mitigation goal for Category 2 habitat is no net loss of either habitat quantity or quality *and* provision of a net benefit of habitat quantity or quality. The Council interprets this to mean that both habitat quantity and quality must be preserved and either habitat quantity or habitat quality must be improved. To achieve this goal, impacts must be avoided or unavoidable impacts must be mitigated through "reliable in-kind, in-proximity"

[225] 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."

habitat mitigation to achieve no net loss of either pre-development habitat quantity or quality.[226] In addition, a net benefit of habitat quantity or quality must be provided.

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

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

> *"Habitat Category 4" is important habitat for fish and wildlife species.*

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

> *"Habitat Category 5" is habitat for fish and wildlife having high potential to become either essential or important habitat.*

The mitigation goal for Category 5 habitat is to provide a "net benefit in habitat quantity or quality." ODFW interprets the "net benefit" goal in the context of Category 5 as requiring "some improvement in habitat quantity or quality." To clarify the "net benefit" goal, ODFW has advised: "The improvement in habitat quantity or quality achieved need not rise to the level of improvement required to meet a goal of 'no net loss' (i.e. the level required or recommended in the Mitigation Policy for Habitat Categories 2, 3, and 4."[227] The goal is achieved by avoidance of impacts or by mitigation of unavoidable impacts through "actions that contribute to essential or important habitat."

> *"Habitat Category 6" is habitat that has low potential to become essential or important habitat for fish and wildlife.*

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

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[226] OAR 635-415-0005 defines "in-kind habitat mitigation" as habitat mitigation measures that "recreate similar habitat structure and function to that existing prior to the development action." OAR 635-415-0005 defines "in-proximity habitat mitigation" as follows: "habitat mitigation measures undertaken within or in proximity to areas affected by a development action. For the purposes of this policy, 'in proximity to' means within the same home range, or watershed (depending on the species or population being considered) whichever will have the highest likelihood of benefiting fish and wildlife populations directly affected by the development." OAR 635-415-0005 defines "reliable method" as "a mitigation method that has been tested in areas with site factors similar to those affected by a development action and the area in which the mitigation action is being proposed and that has been found (e.g., through field trials, demonstration projects or scientific studies) to produce the habitat effects required to meet the mitigation goal for that action."

[227] Letter from Jon Germond, ODFW, January 24, 2008.

B. Baseline Surveys

The applicant based the habitat analysis, in part, on an on-site survey conducted in the northern project area by ENES and Dr. Steven Link of Environmental Solutions in late 2002.[228] This survey assessed vegetative characteristics in nine survey locations considered representative of the general area. In addition, during surveys for the delineation of waters of the state in 2007, vegetation cover was measured at 37 representative sample plots distributed throughout the project area.[229]

The applicant used aerial photographs taken in 2003, data from the on-site vegetation surveys described above and information on soil types to assess habitat categories within the site boundary. This assessment was done in consultation with the ENES biologists who performed the wildlife surveys and participated in the vegetation surveys.

The applicant gathered information from USFWS, ODFW, the ODA Plant Division and the ONHIC to identify plant and wildlife species listed or considered as special status species within the site boundary.

The applicant conducted two years of on-site wildlife observations in the facility area between 2002 and 2004. Northwest Wildlife Consultants performed the initial surveys in 2002. ENES surveyed the area from winter 2002 through fall 2004, interpreted the data and prepared a report.[230] Observations included surveys of avian use, raptor nesting and breeding bird surveys and surveys for signs of burrowing owl and WGS. The surveys included: 1) avian use point counts throughout the proposed facility site, 2) examination of suitable habitat and structures for raptor nests and 3) a breeding bird survey (primarily passerine species). Incidental observations of avian and mammal species were recorded, including incidental observations made while surveyors were in transit to and from the site and between survey plots. Point count data were analyzed and tabulated for the proposed facility site as a whole and separately for the north and south portions of the site. Summaries for each bird group were prepared showing mean use, composition (the mean use of the group divided by the total mean use of all groups) and the percent of surveys in which a member of a bird group was observed.[231]

In spring of 2007, the applicant conducted a study for WGS and burrowing owls and a study for loggerhead shrikes, sage sparrows and grasshopper sparrows.[232] For the WGS, burrowing owl, loggerhead shrike and sage sparrow studies, surveyors walked transects within the site boundary approximately 200 feet apart in all areas of suitable habitat. The WGS and burrowing owl surveys included the area within a 1,000-foot search buffer adjacent to the site boundary. Surveys for the grasshopper sparrow combined transect searches and sample plots

[228] Link et al., *Vegetative Characteristics of the Shepherds Flat Wind Farm*, January 2003 (App, Exhibit P, Attachment P-4).
[229] MB&G Inc., *Wetlands/Waters Delineation Report for Shepherds Flat Wind Farm Project, Gilliam and Morrow Counties, Oregon*, June 8, 2007, p. 15 (App Supp, Exhibit J, Attachment J-1).
[230] Energy Northwest Environmental Services, *Wildlife Assessment for the Shepherds Flat Wind Farm*, November 2006 (App, Exhibit P, Attachment P-1).
[231] App Supp, Amended Exhibit P, pp. 13-14.
[232] Weisskopf et al., *Shepherds Flat Washington Ground Squirrel and Burrowing Owl Surveys*, May 27, 2007 (App Supp, Exhibit P, Attachment P-5a) and Weisskopf et al., *Surveys for Three Oregon Avian Species of Concern on the Shepherds Flat Wind Farm Site*, June 13, 2007 (App Supp, Exhibit P, Attachment P-5b).

distributed throughout suitable habitats within the site boundary. During these surveys, incidental observations of white-tailed jackrabbits and active raptor nests were recorded and mapped.[233]

The applicant conducted a supplemental wildlife survey in March 2008. The search area focused on the proposed substitute transmission line corridor and followed the same protocol as the 2007 survey described above. There were no observations of WGS, burrowing owls or white-tailed jackrabbits.[234]

Based on the combined results of avian surveys, 80 different species of birds were observed on or near the facility site.[235] Passerines (songbirds) were the most common species observed and had the highest use in all seasons. The 2002-2004 raptor nest survey identified ten active raptor nests within the site boundary and a 2-mile buffer, including six red-tailed hawk nests.[236] Most of the nest sites are outside the site boundary.[237] Four occupied burrowing owl burrows were located in the 2007 survey; one in the northern project area and three in the southern project area.[238] Three active raptor nests were found incidentally during the 2007 WGS and burrowing owl surveys.[239]

C. Habitat in the Analysis Area

CSF provided information about compliance with the Habitat Standard in Amended Exhibit P of the application. The analysis area for potential fish and wildlife habitat impacts is the area within 1,000 feet from all project components.[240]

Estimates of the Area Affected

To allow for facility micrositing while ensuring that the certificate holder could mitigate for the habitat impacts of any micrositing configuration, the Department asked the applicant to determine the habitat impacts of the proposed SFWF based on a "worst case" analysis. The applicant created a "worst-case layout" by arranging the proposed facility components to maximize impacts on higher-value habitat (generally, Categories 1 through 4). The applicant excluded habitat categorized as Category 1 or Category 2 from the worst-case layout because the applicant proposes to avoid impacts to Category 1 or 2 habitat in the final configuration of the facility.[241] Based on the applicant's worst-case layout, the maximum areas of permanent and temporary habitat impacts are shown in Table 11.[242] Table 11 also shows the total acres of each habitat subtype within the site boundary.

[233] App Supp, Amended Exhibit P, p. 15.
[234] *Addendum to the Surveys for Washington Ground Squirrels and Burrowing Owls at the Shepherds Flat Wind Farm*, March 17, 2008 (email from Patricia Pilz, March 17, 2008).
[235] App Supp, Amended Exhibit P, p. 26 and Table P-3.
[236] App Supp, Amended Exhibit P, p. 32.
[237] App Supp, Amended Exhibit P, Figure P-5.
[238] App Supp, Exhibit P, Attachment P-5a, p. 5.
[239] App Supp, Exhibit P, Attachment P-5a, p. 5.
[240] Shepherds Flat Wind Farm Project Order, October 16, 2006, p. 11.
[241] App Supp, Amended Exhibit P, pp. 40-42.
[242] Based on Table P-6a, as amended 3/26/08 (email from Patricia Pilz, March 26, 2008).

Table 11: Worst-Case Habitat Impacts

Category and Habitat Description	Habitat Subtype	Temporary Impact (Acres)	Permanent Impact (Acres)	Acres Within the Site Boundary
Category 1				
Raptor nests	RN	0	0	0.532
Washington ground squirrel habitat	WGS	0	0	0.849
Subtotal		**0**	**0**	**1.381**
Category 2				
Grassland	GL	0	0	17.142
Raptor nests	RN	0	0	0.757
Shrub-steppe – sage	SS-S	0	0	50.797
Washington ground squirrel habitat	WGS	0	0	18.346
Wetland-wash	WL-W	0	0	3.89
Subtotal		**0**	**0**	**90.932**
Category 3				
Curlew habitat	CUR	93.512	102.992	6,433.141
Grassland	GL	14.142	14.211	730.313
Shrub-steppe – purshia	SS-P	0	0	4.291
Shrub-steppe – rabbitbrush	SS-R	4.069	4.197	124.501
Shrub-steppe – sage	SS-S	3.276	2.94	174.579
Subtotal		**114.999**	**124.34**	**7,466.825**
Category 4				
Grassland	GL	15.429	21.459	5,857.351
Previously cultivated	PC	8.538	12.18	523.814
Rock and soil	RS	0.118	0.15	146.031
Subtotal		**24.085**	**33.789**	**6,527.196**
Category 5				
Dryland wheat	DW	8.892	12.171	6,623.242
Previously cultivated	PC	0.695	0.946	603.482
Shrub-steppe – broom snakeweed	SS-B	0	0	261.516
Subtotal		**9.587**	**13.117**	**7,488.24**
Category 6				
Animal facility	AF	0.356	0.381	73.757
Road and parking	RP	1.218	1.629	229.79
Structures	ST	0	0	40.431
Subtotal		**1.574**	**2.01**	**343.978**
Total Area		**150.245**	**173.256**	**21,918.55**

Table 11 provides a basis for determining the maximum size of the habitat mitigation area that would be needed for the permanent and temporal impacts of the proposed facility on wildlife habitat. To mitigate for permanent impacts on Category 3 and Category 4 habitat, the ODFW mitigation goals require that there be no "net loss" of habitat quantity or quality. Although the actual permanent and temporary impacts of the proposed facility would not be determined until the final design layout is known, the estimates of worst-case impacts on high-value habitat shape the upper bounds of the quantity and quality of mitigation acres that would be required. For example, Table 11 shows that mitigation for permanent impacts on Category 3 and Category 4 habitat would require, at most, the replacement of approximately 158 acres.

In the worst-case layout, 74 percent of the permanent and temporary impacts would be on Category 3 habitat. It is likely that the final design of the facility would have less impact on Category 3 habitat than estimated under the worst-case assumptions. The applicant estimated the habitat impacts of the Typical Project Layout, as shown in Table 12.[243]

Table 12: Typical Project Layout Habitat Impacts

Category and Habitat Description	**Habitat Subtype**	**Temporary Impact** (Acres)	**Permanent Impact** (Acres)
Category 1			
Raptor nests	RN	0	0
Washington ground squirrel habitat	WGS	0	0
Subtotal		**0**	**0**
Category 2			
Grassland	GL	0	0
Raptor nests	RN	0	0
Shrub-steppe – sage	SS-S	0	0
Washington ground squirrel habitat	WGS	0	0
Wetland-wash	WL-W	0	0
Subtotal		**0**	**0**
Category 3			
Curlew habitat	CUR	44.283	40.454
Grassland	GL	5.227	5.572
Shrub-steppe – purshia	SS-P	0	0
Shrub-steppe – rabbitbrush	SS-R	1.293	1.345
Shrub-steppe – sage	SS-S	1.528	1.795
Subtotal		**52.331**	**49.166**

[243] Based on Table P-6a, as amended 3/26/08 (email from Patricia Pilz, March 26, 2008).

Category 4			
Grassland	GL	55.6	52.715
Previously cultivated	PC	2.365	2.884
Rock and soil	RS	0.567	0.373
Subtotal		**58.532**	**55.972**
Category 5			
Dryland wheat	DW	55.802	63.093
Previously cultivated	PC	8.422	11.174
Shrub-steppe – broom snakeweed	SS-B	3.159	2.59
Subtotal		**67.383**	**76.857**
Category 6			
Animal facility	AF	0.41	0.29
Road and parking	RP	01.575	1.593
Structures	ST	0.176	0.311
Subtotal		**2.161**	**2.194**
Total Area		**180.407**	**184.189**

Compared to the worst-case layout, the Typical Project Layout has less impact on Category 3 habitat and more impact on lower-value habitat. As shown in Table 12, 72 percent of the permanent and temporary impacts would be on Category 4, 5 and 6 habitat. Table 12 shows an estimated 180 acres of temporary impacts, which is a larger area than shown in Table 11 due to the concentration of components within higher-value habitat areas under the worst-case layout.

Description of Habitat in the Analysis Area

Category 1 Habitat

Category 1 habitat in the analysis area includes natural or man-made features that contain active or inactive raptor nests or that have the potential to support raptor nests. Such features include trees, burrowing owl burrows, basalt escarpments and raptor nests on the ground, in barns or on power poles or other man-made structures. There are a few scattered trees in the analysis area, but there are no areas that could be described as woodlands. In addition, the applicant mapped an identified WGS burrow complex and the adjacent area of suitable soil and shrub-steppe vegetation as Category 1 habitat.

Category 2 Habitat

Category 2 habitat in the analysis area includes natural features that have the potential to be useful for raptor nesting, grassland and sage shrub-steppe habitat in good condition and a buffer area around the identified Category 1 WGS habitat. The Category 2 grassland consists of approximately 17 acres in the northern project area adjacent to Rhea Road identified by ODFW personnel during a site visit in October 2007.[244] Because this classification was made from a vehicle, no quantitative vegetation assessment was performed. The area contains perennial bunchgrass and non-native plant species. In addition, the applicant identified a small area (less

[244] Email from Patricia Pilz, March 27, 2008.

than a half-acre) of Category 2 grassland within the 230-kV transmission line corridor between the southern project area and the northern project area. The Category 2 WGS habitat is a buffer area consisting of grassland with scattered sage and rabbitbrush shrubs. The grassland might otherwise be considered Category 4 based on its vegetation characteristics, if it did not provide a buffer around the Category 1 WGS habitat. The Category 2 shrub-steppe habitat contains areas of good-quality sage, as well as rabbitbrush and purshia. The understory consists of patches of bare ground, native bunchgrass and some cheatgrass and redstem storksbill. These areas are connected to sage stands outside of the analysis area. Loggerhead shrikes, sage sparrows, sagebrush lizards and white-tailed jackrabbit can use this habitat. It is essential habitat for wildlife foraging, nesting and cover and is limited but replaceable within the site and within the physiographic province.

The applicant also rated "wetland-wash" areas as Category 2. This subtype label is misleading because none of the mapped areas are "wetlands" as defined by the Department of State Lands.[245] We have retained the label to be consistent with the application information. The washes in these areas contain water during brief periods following heavy rain. Basalt makes up portions of the wash banks, and the vegetation in the washes and in areas immediately adjacent to them includes big sage, native bunchgrasses and annual weeds. The habitat is relatively undisturbed compared to surrounding areas that are cultivated or grazed. The washes can provide sheltering and resting habitat for reptiles and mammals. Where these areas are used as linkages between larger native habitats by reptiles and small mammals, the habitat within them may be considered essential and limited within the site.

Category 3 Habitat

Category 3 habitat within the analysis area includes areas of long-billed curlew nesting activity, grasslands and shrub-steppe habitat. Category 3 curlew habitat is located on Hurlburt Flats in the northern project area.[246] Plant cover ranges from 50 to 100 percent. Approximately half of the vegetation consists of native species, including Sandberg's bluegrass and bluebunch wheatgrass. The area includes scattered basalt outcrops. The applicant assessed the habitat as essential for long-billed curlew but not limited within the site or physiographic province.

Category 3 grassland habitat consists of healthy grass stands with a significant proportion of native species and few areas of disturbed soil. Most of the Category 3 grassland habitat is found in the northern project area where the soils are shallow. Native species are primarily Sandberg's bluegrass, slender phlox and bluebunch wheatgrass. Bare soil averages less than 10 percent. Alien species (including cheatgrass, spring-whitlow grass, clasping pepperweed and redstem storksbill) generally cover up to 25 percent of the area with thicker patches in some areas. Common ground-nesting grassland birds are widespread. The applicant assessed this habitat as essential for grassland species but not limited.

Category 3 shrub-steppe habitat consists of sparse and widely scattered sage stands, one area of moderate to large purshia and areas where gray rabbitbrush is the predominant shrub, accompanied by sage in some locations. These areas have an understory similar to Category 2 shrub-steppe habitat but with less bare ground and a higher proportion of alien species. The shrub-steppe sage areas have lower value for sage or shrub-obligate species than Category 2

[245] See discussion at page 136.
[246] App Supp, Amended Exhibit P, Figure P-10a.

shrub-steppe sage areas. Category 3 shrub-steppe habitat is suitable for white-tailed jackrabbit and other mammals, shrub or ground-nesting avian species and reptiles. The applicant assessed this habitat as important and limited but not essential.

Category 4 Habitat

Category 4 habitat within the analysis area includes grassland with a high proportion of alien species, previously-cultivated areas seeded to bunchgrass and areas of exposed rock, sand or soil. Category 4 grassland is generally in poorer condition than Category 3 grassland and has a lower proportion of native species. Alien species provide 40 percent to 90 percent of the vegetative cover. The habitat is characterized by poor or shallow soil or evidence of heavy grazing, fire, soil disturbance by livestock or vehicles and herbicide overspray. This habitat may be important for grassland species, but it is not limited.

Previously-cultivated areas rated by the applicant as Category 4 are areas that have been seeded with bunchgrass species or that have been out of cultivation long enough to contain fewer weeds. The habitat is used by grassland birds and may be used by white-tailed jackrabbits and burrowing owls. It is important, but not limited, habitat.

Exposed rock, sand and soil areas are characterized by the lack of vegetation. Nevertheless, some areas may be appropriate for bank swallows or burrowing owls as well as mice, marmots, rabbits, gophers, badgers and reptiles. The habitat is important but not limited.

Category 5 Habitat

Category 5 habitat within the analysis area includes dryland wheat fields and previously-cultivated areas containing a mixture of alien and native grasses and weeds. The applicant rated shrub-steppe areas as Category 5 where broom snakeweed is the dominant shrub species. The habitat is marginal for use by wildlife because the shrubs are too small or too densely packed. Bare soil, Sandberg's bluegrass, bluebunch wheatgrass and cheatgrass occupy the small spaces between shrubs. Broom snakeweed is a poor forage plant but may provide food for seed-eating species. It is used by butterflies and bees and provides cover for small, burrowing mammals. This habitat is not essential or important, but it has potential for conversion to higher-value sage shrub-steppe habitat.

Previously-cultivated areas rated as Category 5 contain a mixture of cheatgrass, tumbleweed (Russian thistle, *Salsola kali*) and tumble-mustard (*Sisymbrium altissimum*). This habitat is of limited value to grassland bird species. Burrowing owls, white-tailed jackrabbits and small mammals may use the habitat. The habitat is not essential or important but has potential for habitat enhancement.

Category 5 dryland wheat habitat is a source of raptor prey in the fall. In a sample area, 80 percent of the land was bare ground. In some locations, vegetation consists of tumbleweed (Russian thistle, *Salsola kali*) and tumble-mustard (*Sisymbrium altissimum*).[247] This habitat is not essential or important and has limited potential for habitat enhancement, given its value as farmland.

[247] Weed cover on the fields classified as Category 5 dryland wheat varies, depending on whether the field fallow or planted to wheat, how recently it has been cultivated and whether herbicide has been applied. Portions of wheat fields, particularly at field edge, can have high weed cover. Email from Patricia Pilz, January 28, 2008.

Category 6 Habitat

Habitat that the applicant rated as Category 6 includes animal facility areas (used for feeding, confining or transporting livestock), roads, parking areas, ranch and farm buildings and yards. Vegetation is largely absent in animal facility areas. These are areas where animal traffic and disturbance has caused soil loss. Other than the water that may be provided for livestock in these locations, the habitat has limited value to any wildlife species and little habitat enhancement potential. The applicant rated other areas as Category 6 due to the presence of structures, driveways, paved or unpaved roads, equipment storage areas, junk piles and farmyards.

D. Sensitive Species in the Analysis Area

In addition to listing species as Threatened or Endangered (discussed above in Section IV.4.(a)), ODFW has established a list of "Sensitive Species." Under OAR 635-100-0040, a wildlife species is eligible to be included on the sensitive species list if "its numbers are declining at a rate such that it may become eligible for listing as a threatened species" or if "its habitat is threatened or declining in quantity or quality such that it may become eligible for listing as a threatened species." There are four categories of State-sensitive species: "Critical" (species for which listing as Threatened or Endangered is pending or may be appropriate if immediate conservation actions are not taken), "Vulnerable" (species for which listing as Threatened or Endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protective measures and monitoring), "Peripheral or Naturally Rare" (peripheral species are species whose Oregon populations are on the edge of their range; naturally rare species have had low population numbers historically in Oregon because of naturally limiting factors) and "Undetermined Status" (scientific study is needed to determine if the species is susceptible to population decline and qualified for Threatened, Endangered, Sensitive - Critical or Sensitive - Vulnerable status).

Table 13 lists State sensitive species observed within or near the lease boundaries during the avian point-counts or other wildlife surveys described above at page 98.[248]

[248] Golden eagles were observed during the baseline wildlife assessment (App Supp, Amended Exhibit P, p. 21; App, Exhibit P, Attachment P-1). The golden eagle is a federal "Bird of Conservation Concern" but the species is not listed as Threatened, Endangered or Sensitive in Oregon.

Table 13: State-Sensitive Species Observed

Species	Federal Status	State Status
Birds		
Burrowing owl *(Speotyto cunicularia)*	Species of Concern (SoC) and Birds of Conservation Concern (BCC)	Sensitive - Critical (SC)
Ferruginous hawk *(Buteo regalis)*	SoC and BCC	SC
Lewis' woodpecker *(Melanerpes lewis)*	SoC	SC
Sage sparrow *(Amphispiza belli)*	none	SC
Grasshopper Sparrow *(Ammodramus savannarum)*	none	Sensitive - Vulnerable (SV)
Loggerhead shrike *(Lanius ludovicianus)*	BCC	SV
Long-billed curlew *(Numenius americanus)*	none	SV
Swainson's hawk *(Buteo swainsoni)*	BCC	SV
Bank swallow *(Riparia riparia)*	none	Sensitive - Undetermined Status (SU)
Mammals		
White-tailed jackrabbit *(Lepus townsendii)*	none	SU

Other State-Sensitive species that might occur within the site boundary are the western toad (SV species; may occur around Willow Creek or in Eightmile Canyon), painted turtle (SC species; may occur around Willow Creek), Barrow's goldeneye (breeding population is an SU species; this bird may be an extremely rare visitor to the site) and western small-footed myotis (SU species; this bat may be present during migration).

E. Potential Habitat Impacts

Construction

Construction of the proposed SFWS would result in permanent loss of wildlife habitat (during the life of the facility) for the area that facility components would occupy. At most, as shown in Table 11, there would be a permanent loss of approximately 158 acres of habitat rated as "important" or "essential" to wildlife species (Categories 1 through 4). Based on the applicant's Typical Project Layout (Table 12), there would be a permanent loss of approximately 105 acres of such habitat. Permanent loss of Category 5 habitat (mostly dryland wheat) would range from approximately 13 acres to 77 acres, and loss of Category 6 habitat would amount to approximately 2 acres. Altogether, the permanent footprint of facility components in the Typical Project Layout would occupy approximately 184 acres of habitat in all categories within a micrositing area of 21,919 acres, or less than one percent of the habitat within the site boundary.

The temporary use of laydown areas during construction, widening of roads, trenching for underground collector lines and other ground-disturbing construction activities would result in temporary impacts. In the Typical Project Layout, these temporary impacts would affect

approximately 111 acres of Category 4 or better habitat, ranging up to 139 acres in the worst-case estimate. Temporary disturbance of Category 5 habitat (mostly cultivated fields) would range from approximately 10 acres to 67 acres.

Some areas of temporary disturbance would be heavily affected by construction, resulting in loss of vegetation and heavy soil compaction. In other areas, the construction impacts would be lighter, resulting in crushed (but viable) vegetation and less soil compaction. Although the certificate holder would be required to restore the areas of temporary disturbance, the habitat would be in a degraded condition for the period after completion of construction activities until restoration success is achieved. The Department refers to this period as a "temporal impact" on habitat quality resulting from facility construction.

In addition to direct habitat disturbance, potential impacts to wildlife include wildlife fatalities or injuries as a result of incidental strikes by construction equipment. Because large construction equipment, such as cranes, would be stationary for much of the time or would move slowly across the site, there is likely to be a low risk of avian and bat fatalities from such equipment. There could be an increased risk of avian fatalities from destruction of nest sites for ground-nesting species, such as long-billed curlews, grasshopper sparrows and burrowing owls, unless these areas are avoided during construction. Construction would increase the volume of truck and small vehicle traffic on roads throughout the site, increasing the risk that vehicles could strike wildlife resulting in injuries or death. Construction activity and noise could cause wildlife to avoid nearby habitat areas and could affect breeding and fledging success.

If construction activities are scheduled to occur during the sensitive breeding season for raptors, construction noise and human activity near active nests could adversely affect raptor nesting or fledging success. The baseline raptor nesting surveys in 2003 identified ten active and five inactive nests within the site boundary and a two-mile buffer.[249] Three active nests were discovered incidentally during the 2007 surveys.[250] Raptor nest density in the survey area for the proposed SFWF is approximately 0.11 active nests per square mile.[251] The raptor nest density in the SFWF area is low compared to other wind project areas in the region (averaging 0.18 nests per square mile).[252] Given the lower density of raptor nests in the SFWF area, the potential adverse impact of the SFWF on raptor nesting success is expected to be lower than average for wind facilities the region.

The baseline surveys identified one WGS area in the southern project area.[253] Construction activities within or near the WGS colony could adversely affect WGS if construction occurs during the spring season when WGS are active.

Operation

Operation of the proposed SFWF could have an adverse impact on avian and bat species. Resident birds flying within the site and migrating birds and bats flying through the area could be

[249] App, Exhibit P, Attachment P-1, p. 7.
[250] App Supp, Exhibit P, Attachment P-5a, p. 5.
[251] The calculation is based on the active nests identified in 2003 and assumes that the three active nests discovered in 2007 were also active in 2003. The stated raptor nest density, therefore, may overstate the actual density of active raptor nests in the survey area (App Supp, Exhibit P, e-mail from Carol Weisskopf, October 25, 2007).
[252] Northwest Wildlife Consultants and WEST, Inc, *Wildlife Baseline Study for the Leaning Juniper Wind Power Project*, November 3, 2005, Table 13.
[253] App Supp, Exhibit P, Attachment P-5a, p. 3 and Fig. 3.

injured or killed by collisions with the wind turbine towers or blades. Guy-wires that are sometimes used to support met towers are a potential flight obstacle and source of injury to avian species. Electrocution due to contact with inappropriately designed aboveground transmission lines could affect certain avian species. Potential avian and bat injuries or fatalities due to interaction with wind turbines, guy-wires and transmission lines (or with vehicles or other equipment) may be viewed as an indirect impact on the quality of the surrounding habitat. Other potential impacts include abandonment of habitat near wind turbines due to disturbance caused by turbine operation, noise and facility maintenance activities. Disturbance could cause displacement of wildlife from nesting, burrowing, breeding or foraging sites. Facility operation is expected to have a lower than average adverse impact on raptor nesting success due to the lower density of raptor nests in the SFWF area, discussed above.

The applicant's cumulative impacts analysis (discussed above at page 79) estimated turbine-related avian and bat fatality rates based on data collected at six wind energy facilities in the Columbia Plateau region in Oregon and Washington. Estimates of the fatalities anticipated to occur at the proposed SFWF may be made by applying the average fatality rates from the cumulative impacts analysis to the maximum SFWF build-out of 909 MW of generating capacity. Based on this method of calculation, the anticipated fatalities from operation of the facility could include approximately 1,700 fatalities per year for all bird species (including 45 raptor fatalities) and 1,300 fatalities per year for all bat species.

F. Mitigation and Monitoring

ODFW Mitigation Standards

In OAR 635-415-0025, ODFW has established the following levels of mitigation for each habitat category:

Table 14: ODFW Mitigation Standards

Habitat Category	Mitigation
Category 1	Avoid impact.
Category 2	"In-kind, in-proximity" habitat mitigation to achieve no net loss of either habitat quantity or quality and provision of a net benefit of habitat quantity or quality.
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 5	A net benefit in habitat quantity or quality through actions that contribute to essential or important habitat.
Category 6	Minimize direct habitat loss and avoid impacts to off-site habitat.

The Council has previously approved site certificates for wind energy facilities before the final layout has been decided and the actual habitat impacts are known. This practice has enabled the wind energy industry to obtain construction financing before the final micrositing and design engineering decisions are made. Micrositing considerations include the size of the turbine selected and available for the project, optimization of capture of the wind energy resource, geotechnical factors, avoidance of higher-value wildlife habitat and reduction of adverse impacts on accepted farm practices in the area. The Council follows the same practice for the proposed SFWF. Under recommended Condition 29, the certificate holder would provide to the

Department a description of the final proposed layout and an assessment of the affected habitat before beginning construction. The actual habitat impacts would be determined according to the final layout of the facility components.

Avoidance

The ODFW goals and standards in OAR 635-415-0025 indicate a preference for avoidance of impacts on habitat in Categories 1 through 5. CSF has avoided impact on certain areas of high-value habitat by re-drawing the site boundary to exclude areas that had been within the site boundary as described in the Notice of Intent. Specifically, CSF has excluded the areas containing Willow Creek, the floor of Willow Creek Valley and areas east of Willow Creek.[254] Altogether, the applicant reduced the area within the site boundary by 10,181 acres.[255]

CSF has proposed to avoid certain areas of high-value wildlife habitat within the site boundary as described in the application. In particular, the certificate holder would avoid permanent and temporary disturbance to all Category 1 and Category 2 habitat (Condition 86).[256]

There would be no disturbance of raptor nesting structures that contain occupied nests (Condition 86).[257] Before beginning any construction activities during the nesting season, the certificate holder would survey the area within a half-mile of the construction area. If active raptor nests are found, the certificate holder would not engage in construction activity within a half-mile buffer around the nest site during the sensitive breeding period or until the young have fledged (Condition 88). In addition, the certificate holder would avoid removal of any trees greater than three feet in height (Condition 89), because such trees might be suitable for construction of raptor nests. CSF proposes to avoid all faces of bluffs or rock outcroppings and trees or other structures containing active or inactive raptor nests.[258] Cliff rim or bluff edge features occur along the northern site boundary above the Columbia River and at three locations along the eastern site boundary above Willow Creek.[259] Raptors soaring along bluffs concentrate in a fairly narrow band along the edge.[260] The certificate holder would avoid placing turbines within 250 feet of bluff edges (Condition 87).

Because the certificate holder would avoid impacts to Category 1 and Category 2 habitat, there would be no impact on WGS habitat subtypes. In addition, the certificate holder would avoid construction within a 1,000-foot buffer area around the Category 2 WGS habitat (resulting in a buffer of 1,300 to 1,700 feet from the Category 1 WGS habitat) during the period when WGS are active (Condition 86).[261]

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[254] App Supp, Amended Exhibit P, p. 39.
[255] Compare Notice of Intent, Exhibit B, p. 1, and Table P-6a, as amended 3/17/08 (email from Carol Weisskopf, March 18, 2008).
[256] App Supp, Amended Exhibit P, pp. 40 - 42.
[257] App Supp, Amended Exhibit P, p. 41.
[258] Email from Patricia Pilz, February 4, 2008.
[259] App Supp, Amended Exhibit P, p. 53, and email from Patricia Pilz, March 24, 2008. The three bluff edge areas along the eastern site boundary are shown on Figures P-7a Amended, P-9a Amended, ODFW Figure 2 Amended and ODFW Figure 5 Amended (March 27, 2008).
[260] See Johnson et al., *Wildlife Monitoring Studies for the Seawest Windpower Project Carbon County, Wyoming*, August 9, 2000, p. ii.
[261] App Supp, Amended Exhibit P, p. 41, and letter from Patricia Pilz (responding to comments from The Nature Conservancy), January 31, 2008.

Condition 86 would ensure that there would be no disturbance of Category 2 shrub-steppe sage habitat or areas of Category 2 wetlands-dry wash habitat. Where construction vehicles need to cross the dry wash areas, the existing roads would be used. The certificate holder would avoid placement of any aboveground transmission line support structures within the dry wash areas and would not trench these areas for underground lines.

There are no wetlands within the site boundary. CSF proposes to avoid disturbance of water sources for wildlife, including perennial and intermittent streams, stock ponds and watering stations (Condition 86).[262]

CSF proposes to avoid impact to long-billed curlews (and other ground-nesting species in the area) by avoiding construction activities within 0.5 miles of Category 3 curlew nesting habitat during the nesting season (approximately March 8 through mid-June).[263] The applicant also would avoid disturbance during the nesting season within 0.5 miles of the Horn Butte Wildlife Area, which the BLM has designated as an ACEC for long-billed curlew nesting habitat.[264] This restriction is incorporated in Condition 86.

CSF proposes to locate the facility substations and field workshops in Category 4, 5 or 6 habitat.[265] This restriction is incorporated in Condition 86. Locating these components in lower-value habitat would reduce the impacts to Category 3 habitat. These components would occupy approximately 7.6 acres of the SFWF footprint.

Mitigation of Permanent Impacts

The proposed SFWF would have no impact on Category 1 or Category 2 habitats (Condition 86). The permanent footprint of the proposed facility would affect habitat in Categories 3, 4, 5 and 6. Category 3 and Category 4 habitats are considered "essential" or "important" wildlife habitats, and the ODFW mitigation standard is "no net loss." Category 5 habitat has "high potential to become either essential or important habitat," and the ODFW mitigation standard is a "net benefit in habitat quality or quantity." Category 6 habitat has low potential to become essential or important wildlife habitat, and the ODFW mitigation goal is to minimize impacts.

The Department asked ODFW for guidance on acceptable mitigation to achieve the Category 5 "net benefit" goal. In response, ODFW recommended that the certificate holder be required to "enhance" ½ acre of mitigation area for every acre of Category 5 impact:[266]

> The net benefit goal recognizes that Category 5 habitats are generally in a "degraded" state, but have high restoration potential. As such, fish and wildlife species would not benefit much from mitigation taking place on Category 5 habitat designed to achieve a "no net loss" standard (as applied to Category 4 habitats). The intent then is to encourage mitigation that takes advantage of the high restoration potential of Category 5 habitat sites, so that mitigation actions contribute to improving habitat conditions. The Mitigation Policy is silent on the types of mitigation approaches that are acceptable. Mitigation can be in-kind or out-of-kind, in-proximity or out-of-proximity. The Mitigation Policy provides flexibility for Category 5 habitats as long as it achieves a net benefit.

[262] App Supp, Amended Exhibit P, p. 39, and email from Patricia Pilz, January 28, 2008.
[263] App Supp, Amended Exhibit P, p. 42, and email from Patricia Pilz, February 6, 2008.
[264] Email from Patricia Pilz, February 6, 2008.
[265] App Supp, Exhibit P, response to RAI P14, p. 2.
[266] Email from Jon Germond, February 26, 2008.

In order to achieve a net benefit from mitigation for Category 5 habitat impacts, ODFW recommends that for every acre of impacted Category 5 habitat, the applicant enhance at least ½ acre of Category 3, 4, or 5 habitat.

The Department asked ODFW whether a financial contribution to a wildlife or wildlife-habitat related organization could be an alternative means of mitigation for impacts to Category 5 habitat. ODFW advised that a financial contribution might be acceptable, if the certificate holder could provide assurance that the use of the funds would result in an on-the-ground habitat benefit.

The proposed SFWF would occupy a small amount of Category 6 habitat (approximately 2 acres). No further mitigation for Category 6 habitat impacts is proposed.

CSF proposes to establish a habitat mitigation area to address the permanent impacts to habitat in Categories 3, 4 and 5. The mitigation area would replace wildlife habitat lost due to construction of permanent facility components within the facility site. The mitigation area would include one acre for every acre of permanent impact to Category 3 and 4 habitat and ½ acre for every acre of permanent impact to Category 5 habitat. The actual size of the mitigation area would depend on the final design configuration of the facility as determined before construction begins. In the application, CSF has identified a 435-acre parcel where habitat protection and enhancement are feasible and sufficient land area is available for mitigation, based on the worst-case estimates of impact as shown in Table 11.

Habitat Mitigation Plan

The applicant has identified a parcel of land (approximately 435 acres) that could be used for habitat mitigation.[267] ODFW has agreed that the parcel is suitable.[268] The proposed mitigation area is "in proximity," as defined in OAR 635-415-0005, and lies generally to the south of the proposed facility site.

The applicant conducted a preliminary habitat assessment of the parcel during a reconnaissance visit in October 2007. An extensive WGS colony was observed within the parcel north of Ely Canyon Road. The applicant rated the colony area and the nearby sage areas south of the road as Category 1 habitat. Surrounding deep soil areas, which might support WGS, were designated as Category 2. Willow Creek (considered Category 1 habitat due to the scarcity of water in the region) crosses the easternmost edge of the parcel. A riparian area near Willow Creek and a dry wash along Ely Canyon were rated as Category 2. The Ely Canyon Creek wash contains a large number of sage shrubs in good condition; most of this habitat lies within the Category 2 WGS area. Two partially overgrown ranch roads (mapped as Category 6) lead north and south from Ely Canyon Road near the Willow Creek Valley.

The vegetation north of the Ely Canyon Road is largely grassland with few shrubs. The applicant's preliminary assessment rated this grassland as mostly Category 3 due to the presence of native bunchgrasses and the relatively low level of weeds and alien species, although some areas could be considered better (Category 2) or worse (Category 4). Portions of the ravines leading into Ely Canyon may contain a sufficient number of shrubs to be categorized as shrub

[267] Email from Patricia Pilz, October 23, 2007 (App Supp, RAC, response to ODFW comments of October 17, 2007). The applicant provided a revised description of the proposed habitat mitigation parcel, changing the dryland wheat area to Category 5 (email from Patricia Pilz, February 6, 2008).
[268] Email from Rose Owens, ODFW, October 29, 2007.

steppe upon later assessment. The northern section of the parcel contains two previously-cultivated areas rated as Category 5 and a smaller area rated Category 4. A transmission line passes across the parcel north of Ely Canyon Road.

On the south side of Ely Canyon Road, there are areas of native grassland habitat similar to the grassland areas to the north. The applicant rated these areas as Category 3 grassland. The southern portion of the parcel also contains a large previously-cultivated area with a mixture of native and alien perennial grasses, cheatgrass and tumble mustard. The applicant rated this previously-cultivated area as Category 4 habitat (although a substantial amount of Category 3 habitat might be present). Along the southern boundary of the parcel, there is a small section of dryland wheat currently in cultivation (Category 5).

Some cattle grazing occurs within the parcel along the bottom of Ely Canyon. The current property owners to do not use the land for livestock grazing. The area is unfenced rangeland, and grazing may occur when neighboring livestock enter the property. The condition of the vegetation indicates that grazing is infrequent and the stocking level has been low. The parcel is not fenced, although old fence posts still remain, indicating that portions of the area have been fenced in the past.

Based on the applicant's preliminary assessment, approximately 57-percent of the habitat within the parcel (250 acres) is Category 3 quality or better; 31-percent (135 acres) is Category 4; 11-percent (48 acres) is Category 5; and less than one-percent (2 acres) is Category 6.

Condition 85 would require the certificate holder to protect and enhance the mitigation area as described in the Habitat Mitigation Plan (Attachment C), incorporated herein. ODFW has reviewed and approved the plan.[269] Before beginning construction, the certificate holder would calculate the size of the mitigation area according to the final design configuration of the facility and the estimated areas of habitat affected in each ODFW category. The certificate holder would acquire the legal right to create, enhance, maintain and protect a suitable habitat mitigation area for the life of the facility.

The purpose of the Habitat Mitigation Plan is to enhance and protect the habitat quality of the mitigation area by implementing the actions described in the plan. The certificate holder would monitor the mitigation area to assess progress toward meeting success criteria. The plan describes monitoring and reporting procedures and the criteria for evaluating the success of habitat mitigation.

Mitigation of Temporary Impacts

CSF proposes to avoid any impact to Category 1 and Category 2 habitat during construction (Condition 86). In addition, CSF proposes to avoid all mapped areas of Category 3 shrub-steppe sage habitat that are smaller than 5 acres (11 patches), one mapped area of Category 3 shrub-steppe purshia habitat and one mapped area of Category 3 shrub-steppe rabbitbrush (Condition 86).[270]

CSF proposes to minimize temporary impacts in construction areas by avoiding surface grading, by installing underground collector lines within the areas disturbed for temporary road

[269] Email from Steve Cherry, ODFW, March 8, 2008.

[270] App Supp, Amended Exhibit P, pp. 43-44. Locations of the sage, purshia and rabbitbrush exclusion areas are described in an attachment to an e-mail message from Carol Weisskopf, March 28, 2008.

widening and by crushing (rather than clearing) vegetation to allow for re-emergence of perennial species. Condition 84 would require the certificate holder to restore vegetation in temporarily disturbed areas according to the Revegetation Plan (Attachment B) incorporated herein. ODFW has reviewed and approved the plan.[271]

With the restoration measures required under the Revegetation Plan, CSF estimates that it would take up to five years to restore heavily affected Category 3 and Category 4 grassland and previously cultivated areas to pre-disturbance quality.[272] Restoration of shrub-steppe habitat is expected to take longer. Restoration of mature large sage shrubs could take ten to 30 years, restoration of purshia could take 20 years and restoration of rabbitbrush could take five years. To address the temporal loss of sage shrub-steppe habitat quality during the recovery period, CSF proposes to increase the size of the habitat mitigation area described above by ½ acre for every acre of Category 3 or 4 sage shrub-steppe sage and purshia habitat affected during construction.

With restoration measures required under the Revegetation Plan, restoration of Category 5 shrub-steppe broom snakeweed habitat is expected to take one or two years.[273] Category 5 dryland wheat areas that are temporarily disturbed are expected to recover through normal farming activities in less than one year.[274] Restoration of previously cultivated areas rated as Category 5 is expected to take up to two years with the restoration measures described in the Revegetation Plan.

Wildlife Monitoring and Mitigation Plan

A common element of the ODFW mitigation goals and standards is the protection of habitat quality as well as quantity. The proposed habitat mitigation area would address the permanent impacts of the SFWF on wildlife habitat by measures that would achieve the ODFW goals of no net loss of Category 3 and 4 habitat quantity or quality and a "net benefit" for permanent impacts to Category 5 habitat. To further address the issue of habitat quality and ensure that facility operation complies with the Council standard, the certificate holder would conduct wildlife monitoring during operation of the proposed facility (Condition 83). ODFW has reviewed and approved the WMMP.[275] The overall objectives for wildlife monitoring are:

- To determine whether the operation of the facility causes significant fatalities of birds and bats.
- To determine whether the operation of the facility results in a reduction of nesting activity or nesting success of raptor species.
- To assess the status of the Washington ground squirrel (WGS) colony located within the site boundary.
- To determine whether the operation of the facility results in a significant loss of habitat quality.

The WMMP incorporated herein describes wildlife monitoring components, statistical analysis and data reporting that the certificate holder would implement during operation of the proposed facility. The requirement of monitoring during the operation of the SFWF is a necessary part of finding compliance with the Fish and Wildlife Habitat Standard. Adequate

[271] Email from Steve Cherry, February 25, 2008.
[272] App Supp, Amended Exhibit P, pp. 42 - 44.
[273] App Supp, Amended Exhibit P, p. 46.
[274] App Supp, Amended Exhibit P, p. 45.
[275] Email from Steve Cherry, February 25, 2008.

monitoring provides data necessary to evaluate the impacts of facility operation on nearby wildlife habitat. Under the terms of the WMMP, the Department may require the certificate holder to implement additional monitoring or mitigation, subject to approval by the Council, if the monitoring results show significant fatalities of avian or bat species, adverse impact to raptor nesting or other significant loss of habitat quality.

Other Related Conditions

The Council adopts conditions that would further mitigate the impacts of the proposed facility on wildlife and wildlife habitat. The certificate holder would microsite turbines in conformance with the industry's best practices, including setting turbines back from the edges of cliffs or bluffs, avoiding saddles or topographic features that constrict avian flightpaths and avoiding steep slopes (Condition 87).[276] To avoid possible avian collisions with guy-wires, the facility met towers would be non-guyed structures (Condition 91).[277] The certificate holder would avoid locating aboveground transmission lines across narrow saddles, ravines and similar features to reduce the risk of avian wire-strikes in those locations, and where such crossings cannot be avoided, the certificate holder would install avian line-markers to make the lines more visible to avian species (Condition 91).[278] The certificate holder would design all aboveground transmission lines according to APLIC guidelines (Condition 90).[279] The certificate holder would instruct construction and operations personnel to observe caution when driving through the facility area and to maintain safe driving speeds (Condition 92).[280] The certificate holder would implement a plan for fire protection and response and instruct personnel on fire safety (Conditions 52, 53, 54 and 56).[281] The certificate holder would construct facility components to occupy the minimum area needed for safe operation (Condition 37). During construction, the certificate holder would use existing unimproved roads to the extent practicable, and finished facility roads would be as narrow as possible while allowing for safe travel (Conditions 37 and 74).[282] The certificate holder would implement an Erosion and Sediment Control Plan during construction (Condition 73) and would monitor and control erosion during operation (Condition 77).[283] The certificate holder would control noxious weeds on-site during construction and operation (Condition 38).[284]

G. General Findings of Consistency with ODFW Goals and Standards

Design

When completed, the proposed facility would occupy a permanent footprint of approximately 184 acres based on the Typical Project Layout. There would be no impact on Category 1 or Category 2 habitat. The certificate holder would provide mitigation for the permanent loss of wildlife habitat by protection and enhancement of a habitat mitigation area in accordance with the Habitat Mitigation Plan approved by the Council (Condition 85). The plan would provide acre-for-acre replacement habitat for the on-site permanent loss of Category 3 and

[276] App Supp, Amended Exhibit P, p. 52-53.
[277] App Supp, Amended Exhibit P, p. 51.
[278] App Supp, Amended Exhibit P, p. 54.
[279] App Supp, Amended Exhibit P, p. 51.
[280] App Supp, Amended Exhibit P, p. 54.
[281] App Supp, Amended Exhibit P, p. 55.
[282] App Supp, Amended Exhibit P, p. 49.
[283] App Supp, Amended Exhibit P, p. 54-55.
[284] App Supp, Amended Exhibit P, p. 48.

4 habitat and a contribution to essential or important habitat to mitigate for the facility's impacts on Category 5 habitat. The proposed facility would be designed to minimize Category 6 habitat loss. Accordingly, the Council finds that the design of the proposed SFWF is consistent with ODFW's habitat mitigation goals and standards (OAR 635-415-0025).

Construction

Construction of the facility would affect the permanent footprint area plus additional area of temporary disturbance outside the footprint. The area of temporary impacts would be approximately 180 acres based on the Typical Project Layout. Upon completion of construction, the certificate holder would restore these areas in accordance with the Revegetation Plan approved by the Council (Condition 84). Considering that it could take ten years or more to achieve revegetation success of Category 3 and Category 4 shrub-steppe habitat, the certificate holder would provide mitigation for temporal habitat impact by increasing the size of the habitat mitigation area.

There would be no construction impacts on Category 1 or Category 2 habitat. Impacts to streams and wetlands would be avoided. The certificate holder would avoid construction activities in certain high-value habitat areas (Condition 86). The Council finds that construction would be carried out in a manner consistent with OAR 635-415-0025.

Operation

During operation, the certificate holder would implement monitoring for wildlife impacts in accordance with the WMMP approved by the Council (Condition 83). If analysis of monitoring data indicates significant unanticipated impacts, the Council may require additional monitoring or mitigation. The Council finds that operation of the facility would be consistent with OAR 635-415-0025.

Conclusions of Law

For the reasons discussed above, the Council finds that the design, construction and operation of the proposed facility would be consistent with ODFW's habitat mitigation goals and standards (OAR 635-415-0025). Based on these findings and subject to the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Council's Fish and Wildlife Habitat Standard.

5. Standards Not Applicable to Site Certificate Eligibility

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

(a) Structural Standard

OAR 345-022-0020

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

(a) The applicant, through appropriate site-specific study, has adequately characterized the site as to Maximum Considered Earthquake Ground Motion identified at International Building Code (2003 Edition) Section 1615 and maximum probable ground motion, taking into account ground failure and amplification for the site specific soil profile under the maximum credible and maximum probable seismic events; and

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

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

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

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

* * *

Proposed Conditions

CSF provided information regarding the seismic characteristics of the site and possible seismic and geological hazards in Exhibit H of the application. The analysis area for the Structural Standard is the area within the site boundary. The proposed facility site is located in western Morrow County and eastern Gilliam County, near Arlington, Oregon. Site topography is characterized by gently rolling uplands rising from Eightmile Canyon and Fourmile Canyon. Willow Creek lies along the eastern edge of the proposed site.

The application contains a seismic hazard assessment prepared by the applicant's geotechnical consultants, Shannon & Wilson, Inc. (SWI).[285] According to the SWI report, there are three broad sources of potential seismic hazards in the analysis area: mega-thrust earthquakes at the interface between the Juan de Fuca and North American plates in the Cascadia Subduction Zone (CSZ), deep, subcrustal intraslab earthquakes in the CSZ and shallow, crustal fault earthquakes.

Under OAR 345-021-0010 (1)(h)(F), the Council asks applicants to identify earthquake sources capable of generating median peak ground accelerations greater than 0.05g on rock at the site.[286] SWI reported that no CSZ mega-thrust earthquakes have occurred during historical times

[285] *Seismic Hazard Assessment, Shepherd Flats Wind Project: Arlington Oregon*, September 2007 (App Supp, Exhibit H, response to RAI H5), hereinafter referred to as the "SWI Assessment."

[286] Earthquake magnitude is measured in moment magnitude ("Mw"). The amount of seismic force is given in "g," a unit of force equal to the force exerted by gravity, which indicates the force to which a body is subjected when it is accelerated.

(170 years) but that ruptures of this zone could result in a magnitude 9 earthquake with an average recurrence interval of 400 to 600 years. SWI estimated the closest distance between the facility site and the rupture surface would be 290 kilometers (km). A magnitude 9 earthquake at a distance of 290 km could produce mean peak ground acceleration of 0.05g at the site.

SWI reported that the largest deep, subcrustal intraslab earthquakes in the analysis area are estimated to be about magnitude 7.5. The estimated mean peak ground acceleration on rock at the site for a magnitude 7.5 earthquake at a distance of 290 km is approximately 0.01g. SWI evaluated this hazard as insignificant. SWI mapped crustal faults within 200 km of the site and identified 11 faults capable of producing peak ground accelerations greater than 0.05g on rock at the site.

SWI calculated maximum credible earthquake (MCE) ground motion for the 11 crustal faults and for a magnitude 9 mega-thrust earthquake at a distance of 290 km and presented the results in comparison with the 2006 International Building Code (IBC) design response spectrum.[287] SWI also characterized the site as to the maximum probable earthquake.[288] SWI noted that the MCE spectrum for the CSZ mega-thrust event described in the report exceeds the IBC design spectrum and recommended that the applicant consider modifying the design spectrum to match the CSZ mega-thrust values. SWI also noted that the MCE spectra for two of the crustal sources significantly exceeded the IBC design spectrum, but further noted that the estimated earthquake recurrence interval was well in excess of the 2,500-year return period explicit in the 2006 IBC code.

Based on its preliminary borings, SWI found that silt over very dense gravel underlies the proposed site. Groundwater is relatively deep and below the silt. SWI found a relatively low landslide hazard, based on a review of USGS topographical maps, aerial photographs, geologic maps and logs of limited subsurface explorations. SWI concluded that the site has low potential for earthquake-induced geologic hazards of fault rupture, settlement, water waves or liquefaction and associated effects.

SWI consulted with the Oregon Department of Geology and Mineral Industries (DOGAMI) regarding site characterization requirements and subsurface investigation. The applicant submitted a geotechnical exploration plan that outlines site-specific subsurface investigations that would be performed before beginning construction.[289] Condition 47 would require the certificate holder to perform appropriate site-specific geotechnical investigation before beginning construction to evaluate the subsurface and foundation support conditions at the locations of the turbine towers and other significant facility structures. Council rules include mandatory conditions regarding geotechnical investigation and protection of the public from seismic hazards (Conditions 12, 13 and 14). All components of the SFWF would be designed to meet or exceed the minimum standards required by the 2003 International Building Code (Condition 48). The facility would be designed and built to avoid dangers to human safety presented by non-seismic hazards (Condition 49).

[287] SWI Assessment, Figure 6 (App Supp, Exhibit H, response to RAI H5)
[288] SWI Assessment, Figure 7 (App Supp, Exhibit H, response to RAI H5)
[289] *Geotechnical Engineering Study Exploration Plan, Shepherds Flat Wind Project, Arlington, Oregon,* May 23, 2007 (App Supp, Exhibit H, response to RAI H1).

(b) Historic, Cultural and Archaeological Resources

OAR 345-022-0090

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

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

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

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

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

* * *

Proposed Conditions

CSF provided information regarding historic, cultural and archaeological resources in Exhibit S of the application. The analysis area for potential impacts to these resources is the area within the site boundary. The facility would be built entirely on private lands.

A. Surveys of the Site

On behalf of CSF, Archaeological Investigations Northwest, Inc. (AINW) conducted a comprehensive review of archaeological records maintained by the Oregon State Historic Preservation Office (SHPO) relevant to the proposed site of the SFWF.[290] AINW found that there have been only three previous archaeological or cultural resource surveys conducted within the proposed site boundary or its immediate vicinity, aside from archaeological research along the Columbia River, and that there have been no previous surveys within the southern project area. There are no resources within the facility site that are currently listed on the National Register of Historic Places (NRHP).[291] One known archaeological site, consisting of extensive lithic scatter with surface artifacts, is located within the facility site in the northern project area. AINW determined that the most likely locations for detection of archaeological deposits would be within canyon bottoms and terraces in the lower portions of the walls of Willow Creek Valley, Eightmile Canyon and Fourmile Canyon. Tribal land use patterns in the upland areas of the facility site may have been limited to occasional travel between rivers, hunting and plant collection. AINW mapped areas within the proposed facility site having a high-to-moderate potential for tribal archaeological resources.

During September, October and November 2007, AINW conducted a field survey for archaeological objects (objects that are at least 75 years old) in conformance with SHPO

[290] AINW, *A Cultural Resources Overview of the Proposed Shepherds Flat Wind Farm Project, Gilliam and Morrow Counties, Oregon*, Report No. 1651, March 2006 (App, Exhibit S, Attachment S).
[291] App, Exhibit S, p. 2.

standards and guidelines.[292] The archaeological survey focused on the Area of Potential Effects (APE) for archaeological resources, defined as the area potentially subject to direct impacts or ground disturbances related to construction, operation and retirement of the proposed facility.[293] The APE for archaeological resources included 100-meter (328-foot) wide corridors for the proposed turbine strings (based on the Typical Project Layout) and 40-meter (131-foot) wide corridors for proposed collector lines and proposed new or improved access roads. The APE for archaeological resources also included the actual design footprints of proposed substation sites and construction areas. The total area for the archaeological APE and archaeological resource survey was approximately 3,196 acres.

In addition, AINW conducted an on-site survey for historic-period architectural resources (buildings, structures and districts) older than 45 years. The APE for the historic-period built environment included the entire analysis area.

AINW identified 71 previously undocumented archaeological resources consisting of 36 stacked rock feature sites, 22 historic-period archaeological isolates (locations with less than 10 historic-period artifacts), 6 prehistoric isolates (locations with less than 10 prehistoric artifacts), 5 historic-period archaeological sites (locations with 10 or more historic-period artifacts or a historic-period archaeological feature) and 2 prehistoric archaeological sites (locations with 10 or more artifacts or a prehistoric archaeological feature).[294] AINW identified 12 historic-period resources of the built environment, including a bridge, a lambing shed and corral, three windmills, three homestead or ranch complexes, Telegraph Road, the ONHT and the town of Cecil (consisting of more than 40 structures).

Based on preliminary evaluation, AINW recommended that 43 of the 71 archaeological resources be treated as "possibly eligible" for listing in the NRHP.[295] Most of the archaeological resources recommended as possibly eligible for NRHP listing (36 identified resources) consist of stacked rock features (alignments and piles of rocks). These rock features might have been associated with historic-period ranching, sheep herding, goose hunting or possibly with prehistoric activities, but it is difficult to determine the age and function of the features. Two of the archaeological resources identified by AINW are prehistoric lithic scatters, indicative of tool-making activities. The remaining five identified archaeological resources are historic-period sites, consisting of two historic refuse scatters, one homestead site, one site consisting of five concrete platforms (for aviation radio beacons) with an associated historic refuse scatter and one pit feature with associated historic period debris. AINW made no formal recommendation for NRHP listing of any of the 43 archaeological resources.

AINW noted that various segments and features of the ONHT are listed in the NRHP, but that none of the listed locations are within the SFWF site boundary. The segments of the ONHT that lie within the SFWF site boundary are discussed separately below. AINW did not identify or recommend any particular features of the ONHT within the site boundary for NRHP listing.

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[292] A summary report of the survey results is contained in App Supp, Exhibit S, Attachment S-3. In addition, the applicant submitted a technical report that is withheld from public disclosure under ORS 192.502(4) or ORS 192.501(11). AINW, *Cultural Resource Survey for the Proposed Shepherds Flat Wind Farm Project, Gilliam and Morrow Counties, Oregon*, Report No. 2071, February 4, 2008.

[293] App Supp, Exhibit S, Attachment S-3, p. S-1.

[294] App Supp, Exhibit S, Attachment S-3, p. S-1 and Table S1.

[295] App Supp, Exhibit S, Attachment S-3, p. S-2. AINW considered the remaining 28 resources unlikely to be eligible for HRHP listing.

AINW recommended that the still-operating lambing shed and corral be considered eligible for NRHP listing due to their "distinctive design and construction" and association with the "Krebs Bros. Company" sheep ranching operations.[296] In addition, AINW recommended that the town of Cecil be considered eligible for NRHP listing, because of its association with the Oregon Trail and with the development of the sheep ranching industry. AINW considered the remaining nine historic-period built-environment resources ineligible for NRHP listing. The SHPO reviewed the documentation submitted by AINW regarding the historic-period resources and concurred with AINW's recommendations regarding NRHP eligibility.[297]

In March 2008, AINW conducted a supplemental survey in those areas proposed for use in the construction of the 230-kV transmission line and access road outside of the previously surveyed portions of the Shepherds Flat project area.[298] AINW did not find any prehistoric or historic-period cultural resources or any physical remnants of the Oregon Trail in the supplemental survey area. AINW recommended no additional work in the area.

B. Oregon Trail Alignments

The general route of the Oregon Trail had been used by fur trappers, missionaries and explorers beginning in about 1812, but the largest migrations along the Oregon Trail occurred between 1841 and 1866.[299] The 2,000-mile trip west from Independence, Missouri, took about five months to complete. The advent of railroads in the Pacific Northwest in the late 1860s made the long journey by wagon unnecessary. Throughout the decades of its use, the route of the Oregon Trail changed as old alignments became impassable and new alignments were found.

The alignment of the Oregon Trail is a subject of historical conjecture. At least four presumed alignments have been mapped within the analysis area: a route based on 1867 General Land Office maps (GLO route), a route mapped by Gregory Franzwa in 1990 (Franzwa route), a route shown on a 1959 Oregon State Highway Department map (ODOT route) and a route shown on USGS topographic maps (USGS route).[300] The GLO route crosses the site boundary approximately ¼ mile west of Cecil and the Franzwa, ODOT and USGS routes loop to the north (outside the site boundary).[301] The GLO route traverses approximately ¼ mile within the site boundary (in cultivated land) and then exits the site. To the west, all of the mapped routes cross the site boundary approximately one mile west of Cecil. The routes traverse approximately ½ mile within the site boundary, crossing one proposed turbine string within cultivated land. The routes then exit the site. The GLO route lies along what is now Fairview Lane for approximately two miles until intersecting with Fourmile Canyon Road. The ODOT route angles to the northwest up to a mile north of Fairview Lane. The Franzwa and USGS routes split into two alignments in this area, with one alignment following the GLO route and another alignment running to the northwest (following a path similar to the ODOT route). The four routes come together again after crossing Fourmile Canyon Road.[302] The Oregon National Historic Trail (ONHT) is defined as the route "as depicted on maps identified as 'Primary Route of the Oregon

[296] App Supp, Exhibit S, Attachment S-3, p. S-3.
[297] Stephen Poyser, SHPO, Section 106 Documentation Forms, March 4, 2008.
[298] AINW, *Cultural Resource Survey For The Proposed Shepherds Flat Wind Farm Project, Gilliam And Morrow Counties, Oregon, Addendum One: Supplemental Survey Area*, April 3, 2008.
[299] App Supp, Exhibit S, Attachment S-2, pp. 2-3.
[300] App Supp, Exhibit S, Attachment S-2, p. 4.
[301] App Supp, Exhibit S, response to RAI S3, Figure S-1.
[302] App Supp, Exhibit S, Attachment S-2, Figure 1.

Trail 1841–1848', in the Department of the Interior's Oregon Trail study report dated April 1977."[303]

AINW conducted a study of areas where previously mapped alignments of the Oregon Trail intersect the project area.[304] The study included literature research and a field survey of approximately 131 acres within the project area to locate any physical remnants of the Oregon Trail within the SFWF site boundary. The study focused on three areas of high potential for containing remnants of the Oregon Trail: the "Fourmile Canyon Section" (along Fourmile Canyon Road north of the intersection with Fairview Lane), a "Central Section" (within the southern project area) and an "Eastern Section" (on a ridge at the eastern edge of the southern project area).[305]

At the time of the survey, the area within the site boundary included a proposed transmission line corridor along Fourmile Canyon Road. The applicant subsequently withdrew the Fourmile Canyon route and substituted a different route for the transmission line; therefore, the "Fourmile Canyon Section" would no longer be within the proposed site boundary.[306] Nevertheless, within the Fourmile Canyon Section, AINW found one visible remnant of the Oregon Trail parallel to Fourmile Canyon Road on the southwest side of the road. The remnant runs approximately 268 meters within the survey area and continues outside the survey area approximately 250 meters to the northwest toward the vicinity of the BLM interpretive wayside. AINW found no trail-related artifacts within or around this trail remnant.[307]

Most of the surveyed area within the Central Section is cultivated land where no remnants of the trail are visible, but there is one uncultivated area in steeper terrain. AINW identified one visible trail remnant in the uncultivated area. The remnant runs approximately 70 meters in an east-west orientation. AINW found no trail-related artifacts within or around the trail remnant. The remnant shows signs of recent use as a two-track road.

The majority of the Eastern Section is cultivated land. AINW found no evidence of trail remnants during the survey of the Eastern Section.[308] AINW considered it likely that the map showing a trail alignment through this section is inaccurate because three other mapped trail alignments follow a more accessible course along a major drainage west and north of the surveyed area (outside the site boundary).

C. Mitigation

AINW recommended that the applicant "take all reasonable measures to avoid physical damage or ground-disturbing activity in the vicinity of resources recommended as eligible or possibly eligible for listing in the NRHP."[309] This recommendation applies to the 43 "possibly eligible" features described above at page 119. AINW recommended avoidance areas that would

[303] 16 USC 1244 (a)(3).
[304] AINW, *A Cultural Resource Survey of the Proposed Shepherds Flat Wind Farm Project, Gilliam and Morrow Counties, Oregon: Oregon Trail*, Report No. 2012, October 8, 2007 (App Supp, Exhibit S, Attachment S-2).
[305] App Supp, Exhibit S, Attachment S-2, Figures 2 and 3.
[306] Email from Patricia Pilz, March 18, 2008.
[307] Another segment of Oregon Trail wagon ruts is visible approximately 100 meters west of the BLM interpretive wayside.
[308] A segment of wagon ruts is visible east of Highway 74 at a location north of Immigrant Lane that lies outside the site boundary.
[309] App Supp, Exhibit S, Attachment S-3, p. S-6.

include the defined resource boundaries and a 30-meter buffer area around the resource boundaries. If disturbance to any of the identified resources is unavoidable, AINW recommends consultation with SHPO, the appropriate tribes and the Department to determine whether further study, field documentation or other treatment is needed. In addition, AINW recommended "appropriate mitigation measures, including pre-construction photo-documentation" for "indirect" effects (for example, visual impacts) of the proposed SFWF on resources recommended as eligible for listing in the NRHP.

AINW recommended that CSF avoid locating SFWF components or temporary disturbance areas on the identified visible remnants of the Oregon Trail. In addition, AINW recommended avoidance of disturbance of undeveloped land (lands that do not contain modern roads, cultivated fields or other modern elements of the landscape) where there are existing Oregon-California Trails Association markers of the conjectural trail alignment. AINW noted that there are existing transmission lines visible from the trail segment in the Central Section.

Based on the AINW recommendations, the applicant proposed that:[310]

- The certificate holder would avoid disturbance within a 30-meter buffer around the two prehistoric archaeological sites and five historic-period archaeological sites identified by AINW as "possibly eligible" for listing in the NRHP.
- The certificate holder would avoid disturbance of the 36 stacked rock features identified by AINW as "possibly eligible" for listing in the NRHP and would, to the extent practicable, maintain a 30-meter no-construction buffer around these features. If a 30-meter buffer cannot be maintained, the certificate holder would consult with SHPO and the Department "to find a mutually agreeable solution."
- No project facilities, access roads or work areas would be sited on the identified rutted remnants of the Oregon Trail.
- No project facilities, access roads or work areas would be sited on undeveloped land where the trail alignment is marked by existing Oregon-California Trail Association markers.
- The certificate holder would provide to SHPO pre-construction photographic documentation of the presumed Oregon Trail alignments within the site boundary.

The Council adopts Conditions 43, 44, 45 and 46. These conditions incorporate the applicant's proposed mitigation measures and address the possibility that previously undetected archaeological or cultural resources might be found during construction of the proposed facility.

(c) Public Services

OAR 345-022-0110

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

[310] App Supp, Exhibit S, response to RAI S4, and email from Patricia Pilz, February 28 and March 2, 2008.

management, housing, traffic safety, police and fire protection, health care and schools.

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

* * *

Proposed Conditions

CSF provided information in Exhibit U about the potential impacts of the facility on public services. The analysis area for public services is the area within the site boundary and 30 miles from the site boundary, including area within the State of Washington. The analysis area includes significant portions of Gilliam County and Morrow County in Oregon and portions of Klickitat, Benton and Yakima Counties in Washington. CSF identified 11 Oregon cities within the analysis area that could be affected by construction and operation of the proposed facility: Arlington, Boardman, Condon, Heppner, Ione, Irrigon, Lexington, Moro, Rufus, Umatilla and Wasco.

A. Sewage, Storm Water and Solid Waste

During construction of SFWF, the impact on sewers and sewage treatment would be minimal. The Council adopts Condition 99 to require that the certificate holder provide and maintain portable toilets for on-site sewage handling during construction. Storm water drainage during construction would be subject to the NPDES Storm Water Discharge General Permit #1200-C, which would ensure appropriate on-site handling of storm water. There are no local storm sewers serving the site. During operation, sewage from the field workshops would be disposed of in on-site septic systems. The certificate holder would use appropriate measures to avoid or reduce erosion from storm water run-off during operation of the facility, and, as noted above, there are no local storm sewers that would be affected. Solid waste generated during construction and operation would be recycled to the extent practical. The certificate holder would use licensed waste-hauling services or would remove non-recyclable solid waste to the local landfill using its own personnel and equipment.[311] A further discussion of waste management follows below at page 127.

B. Water

CSF estimates that water use during construction of the SFWF would be up to 70 million gallons overall.[312] Water would be used primarily for dust control and road compaction. CSF anticipates that water would come from the City of Arlington. To show that adequate water is available in the area, CSF provided a letter from attorneys for the City of Arlington, indicating that the city could supply water in sufficient quantity for facility construction.[313]

During operation, less than 5,000 gallons of water per day would be needed for incidental uses at the field workshops. This water would come from new on-site wells. The facility's use of

[311] App Supp, Exhibit U, response to RAI U3 (Follow-Up), and email from Patricia Pilz, February 1, 2008.
[312] App Supp, Exhibit O, response to RAI O2.
[313] App Supp, Exhibit O, response to RAI O2 (Follow-Up).

water during operation, therefore, would have no impact on municipal water systems. The small volume of water needed for the field workshops is not likely to have an impact on other wells that serve local landowners. The Council adopts Condition 78 to require that the certificate holder limit its use of well-water to no more than 5,000 gallons per day.

C. Housing

The applicant estimates that construction of the SFWF would employ a maximum of 250 resident and transient workers.[314] Construction of the facility is expected to take approximately two years.[315] Based on a conservative assumption that up to 70 percent of the construction workforce would come from outside the area, as many as 175 workers might come from outside the analysis area. Due to proximity, CSF believes that most workers would seek lodging in Arlington and Boardman, Oregon. Based on 2000 U. S. Census Bureau data included in the application, it appears that sufficient housing units would be available in the cities of Arlington and Boardman to house most of the workers and that the remaining workforce could find available housing in other cities within 30 miles of the proposed facility site.

CSF estimates that, during operation, the SFWF would employ approximately 35 people.[316] It is likely that current residents within the analysis area would take some of the jobs and that the number of new workers moving into the area would have an insignificant impact on available housing units.

D. Police and Fire Protection

Local police service is provided by most of the incorporated cities in the analysis area. CSF would seek police service from the Gilliam County and Morrow County Sheriff's Departments. CSF consulted with the Gilliam County and Morrow County Sheriffs' Offices about their ability to provide police service during construction and operation of the proposed facility. The Gilliam County Sheriff indicated that the SFWF would not have an adverse effect on the ability to provide police services but recommended training of private security personnel and communication between on-site security personnel and the Sheriff's Office.[317] According to the Morrow County Sheriff, because the facility would be located at the far end of the Sheriff's Office patrol area and because the Office has limited resources, response to calls for service at the facility could affect its ability to respond to other citizens' calls for service.[318] He recommended on-site security and suggested a partnership with the Sheriff's Office or a financial contribution from the certificate holder.

Both sheriffs emphasized the importance of on-site security and establishing a line of communication between their offices and on-site security personnel during construction and operation of the proposed facility. The applicant proposes to employ private on-site security during construction and operation of the SFWF and to "establish good communications between on-site security personnel and local law enforcement."[319] The Council adopts Condition 70 that

[314] App, Exhibit U, p. 2.
[315] App Supp, Exhibit B, response to RAI B16 (Follow-Up).
[316] App Supp, Exhibit U, response to RAI U3.
[317] Letter from Sheriff Gary Bettencourt (App Supp, Exhibit U, response to RAI U3 (Follow-Up)).
[318] Letter from Sheriff Ken Matlack (App Supp, Exhibit U, response to RAI U3 (Follow-Up)).
[319] App Supp, Exhibit U, response to RAI U3, p. 5, and response to RAI U3 (Follow-Up).

would require the certificate holder to implement on-site security and establish communication with the local law enforcement authorities.

The North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District provide primary fire response for the area in which the proposed SFWF would be located. The applicant noted that wildfires, and occasionally arson fires, are a "regular occurrence" in the northern project area and suggested that the ability of local fire protection agencies to respond to fires might be enhanced for the following reasons: (1) the facility would include new roads that could act as fire breaks, (2) SFWF personnel would be available to assist in fire-fighting, (3) earthmoving equipment would be available on site, (4) water trucks would be available on site, and (5) two 20,000-gallon water tanks would be installed at the SFWF field workshop locations.[320] The Ione Rural Fire Protection District agrees that the facility water tanks and access roads would be useful in the event of a wildfire.[321] The North Gilliam County Rural Fire Protection District agrees that fire response might be enhanced for the reasons given but has advised the applicant that the District requires volunteers to have wildland firefighting classes before participating with the fire department. The District, further, noted that its volunteers have not been trained in high-angle and confined space rescue. The District stated that personnel in fire departments throughout Gilliam County would welcome the chance to become certified in these procedures and suggested that the "wind farm companies coming into Gilliam County" might fund the training and tools required for high angle and confined space rescue operations. The applicant is "enthusiastic" about the District's interest in this training and would participate in organizing the training after the SFWF becomes operational.[322]

The applicant proposes to provide time off for appropriate firefighting training as a way to encourage facility employees to become members of local fire departments.[323] The applicant proposes to work with other wind facility operators in the area to sponsor high angle rescue and confined space training for firefighters. The Council adopts Condition 53 that would require the certificate holder to encourage employees to become members of local fire departments. Measures to reduce fire risk during construction and operation and proposed site certificate conditions are discussed further at page 139.

E. Health Care

Conditions 68 and 69 would require the certificate holder to implement on-site health and safety plans during construction and operation of the facility. The hospitals and clinics nearest the proposed facility are the Mid-Columbia Medical Center in The Dalles, Pioneer Memorial Hospital in Heppner, the Moro Medical Clinic in Moro and the Umatilla Medical Clinic in Umatilla. The numbers of construction workers temporarily locating in the area and the small number of employees expected to move into the area to fill permanent jobs during operation of the proposed facility are not likely to adversely affect the ability of these providers to deliver health services.

[320] App Supp, Exhibit U, response to RAI U3, pp. 5-6.
[321] Response from Virgil Morgan, Fire Chief, Ione Rural Fire Protection District, attached to email from Patricia Pilz, January 28, 2008.
[322] Email from Patricia Pilz, January 28, 2008.
[323] App Supp, Exhibit U, response to RAI U3 (Follow-Up).

F. Schools

In Oregon, 19 schools are located in the analysis area. In Washington, one elementary school is located in the analysis area. The schools nearest the proposed facility are located in Arlington, Boardman and Ione. Construction workers who are not already living in the analysis area are not likely to move their families to the area for the temporary duration of the work. The impact of facility construction, therefore, is not likely to be significant. During operation of the proposed facility, workers hired from outside the analysis area might add a few new households with school-age children to the area, but this increase in school-age population is unlikely to have an adverse effect on local schools.

G. Traffic Safety

CSF estimates that construction, delivery and personal vehicles will make approximately 25 to 50 round trips daily to the site during construction of the proposed facility. Oversized trucks would be needed for transport of turbine tower sections, nacelles, blades and large construction equipment, such as cranes and bulldozers. Most heavy equipment would be delivered via I-84, and most delivery vehicles would exit I-84 at Arlington and proceed south to the project area on Highway 19. Traffic in Arlington might be disrupted, particularly during the delivery of towers and rotors. During construction, there could be increased truck traffic around the I-84 exit at Boardman, located approximately 25 miles east of the site, but it is unlikely to have a significant adverse effect on traffic safety.[324]

County roads within and around the site would be used heavily during facility construction. Damage to county roads could have an adverse effect on traffic safety. Correspondence from Gilliam County indicates that the certificate holder would be required to execute a road agreement and would be held responsible for damage to Gilliam County roads resulting from construction and operation of the proposed facility.[325] Correspondence from Burke O'Brien, the Morrow County Public Works Director, indicates that the certificate holder would be held responsible for operating "in a safe and legal manner."[326] O'Brien suggested that certain conditions included in the CUP for the Shepherds Ridge Wind Farm (CUP-N-192) be applied to the proposed SFWF. The suggested requirements are as follows:

- Controlling dust by use of a dust inhibitor, routine use of water or applying gravel to the road surface (CUP Condition #2).
- Obtaining any access permits required to cross county roads (CUP Condition #5).
- Posting bonds with Morrow County to ensure funds are available to repair and maintain roads affected by the proposed facility (CUP Condition #6).
- Building project roads to a Rural Access II Road Standard (CUP Condition #7).

Morrow County's Rural Access II Road Standard applies to public roads in the county and requires a 20-foot roadway width. None of the proposed access roads for the SFWF would be public roads. The applicant proposes that the facility access roads be finished to a width of 18 feet to minimize disturbance with farming practices and reduce habitat impacts. The Morrow

[324] App Supp, Exhibit U, response to RAI U3, p. 4.
[325] App Supp, Exhibit U, response to RAI U3 (Follow-Up).
[326] Letter from Burke O'Brien, Morrow County Public Works Director, October 4, 2007 (App Supp, Exhibit U, response to RAI U3 (Follow-Up)).

County Planning Director has confirmed that the Rural Access II Road Standard would not apply to the proposed SFWF roads.[327] Access permits would be required for those locations where the private roads intersect with public roads, and those access locations would be subject to County construction standards.

The applicant proposes to comply with the terms of the Gilliam County road agreement and to accept the conditions recommended by Morrow County Public Works, except for compliance with the Rural Access II Road Standard, as discussed above.[328] The applicant proposes to address possible traffic disruption in Arlington due to construction deliveries by providing advance notice to appropriate authorities and local residents and by employing flaggers at affected intersections.[329] The Council adopts the following conditions:

- Condition 27 would require the certificate holder to obtain all necessary local construction permits (including any necessary county road access permits)
- Condition 65 would require the certificate holder to construct access roads with a finished width of approximately 18 feet, a compacted base of native soil and a gravel surface to a depth of four to six inches.
- Condition 66 would require the certificate holder to provide advance notice of construction deliveries that could adversely affect traffic in Arlington and to employ flaggers to direct traffic.
- Condition 67 would require the certificate holder to cooperate with the Gilliam County Road Department and the Morrow County Road Departments to ensure repair of any county roads damaged by facility construction traffic and, if required by Morrow County or Gilliam County, to post bonds for road repair and maintenance.
- Condition 75 would require the certificate holder to implement best management practices to control any dust generated by construction activities.

During operation, the anticipated permanent staff of up to 35 employees would not significantly increase traffic in the analysis area. The use of area highways and local roads by employees during operation is not likely to result in a significant adverse impact on traffic safety.

(d) Waste Minimization

OAR 345-022-0120

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

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

[327] Email from Carla McLane, Morrow County Planning Director, March 28, 2008.
[328] App Supp, Exhibit U, response to RAI U3 (Follow-Up).
[329] App Supp, Exhibit U, response to RAI U3, p. 4.

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

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

* * *

Proposed Conditions

CSF provided information about waste minimization in Exhibit V of the site certificate application. The exhibit included the applicant's plans for solid waste and wastewater management during construction and operation of the proposed facility. The accumulation, storage, disposal and transportation of waste generated by construction and operation of the proposed facility are not likely to have an adverse impact on surrounding and adjacent areas. Most waste would be removed from the site and reused, recycled or disposed of at an appropriate facility. Water used on site during construction for dust suppression and road compaction would evaporate or infiltrate into the ground. Water used during operation would be discharged to on-site septic systems. Water would not be discharged to wetlands, lakes, rivers or streams during construction or operation of the proposed facility.

A. Solid Waste

Solid waste generated during construction would consist primarily of concrete waste from turbine and transformer pad construction, wood waste from concrete foundation forms and scraps of wire and cable from trimming of connections.[330] Other construction wastes could include erosion control materials (such as straw bales and silt fencing), waste bolts and nuts from component assembly and packaging materials for turbine parts and other electrical equipment.

To the extent practicable, CSF proposes to use concrete tailings and excavated soil as fill on the facility site. Other solid waste materials would be removed from each area of the site as construction is completed in the area. Solid waste would be recycled to the extent practicable, and the remainder would be transported to the local landfill. The Council adopts Condition 101, which summarizes the applicant's solid waste management plan during construction.

During operation, small quantities of office waste, such as paper, food packaging and scraps, would be generated at the field workshops. In addition, repair or replacement of electrical or turbine equipment could generate solid waste materials. Waste from the field workshops and other solid waste generated on site would be recycled to the extent practicable. The certificate holder would transport non-recyclable wastes to a local landfill.[331] The Council adopts Condition 102, which summarizes the applicant's solid waste management plan during operation.

B. Hazardous Materials

CSF described hazardous materials that could be used on the project site during construction or operation in Exhibit G of the site certificate application. Such materials could

[330] App, Exhibit V, p. 2.
[331] App Supp, Exhibit U, response to RAI U3 (Follow-Up).

include lubricating oils, cleaners and herbicides. As much as 200 gallons of hydraulic and lubricating fluids may be required for each turbine, depending on the turbine type selected. Turbine nacelles are designed with spill control reservoirs to contain spills and prevent contamination of the facility site. Used oil and hydraulic fluid would be recycled.[332] Hazardous wastes, such as oily rags or similar wastes related to turbine lubrication and other maintenance, would be generated during construction and operation. No diesel fuel or gasoline would be stored on-site during construction.[333] The certificate holder would contract with a fueling service to refuel equipment that cannot be refueled off-site. The applicant would use and dispose of hazardous materials in a manner that is protective of human health and the environment and would comply with all applicable local, state, and federal environmental laws and regulations. If accidental spills of hazardous materials were to occur, the spill would be cleaned up immediately upon discovery.[334] Contaminated soil or other materials would be disposed of and treated according to applicable regulations. The Council adopts Condition 50, which addresses proper handling of hazardous materials, and Condition 51, which addresses preparation for, and response to, spills and accidental releases of hazardous materials.

C. Wastewater

During construction, water loss will occur primarily through evaporation from wetted road surfaces and from drying concrete. Concrete delivery trucks would be rinsed at the time of pour, and the rinse water would be discharged into the foundation hole (truck wash-down would be completed off-site at the concrete batch plant).[335] No water used on the site would be discharged into wetlands, streams or other waterways.

Portable toilets would be provided for on-site sewage handling during construction.[336] The Council adopts Condition 99, which would require that a licensed contractor pump and clean portable toilets and dispose of the wastewater off-site.

During operation, sewage from the field workshops would be discharged to on-site septic systems.[337] The Council adopts Condition 100, which would require CSF to discharge sanitary wastewater generated at the field workshops to licensed on-site septic systems in compliance with county permit requirements.

V. OTHER APPLICABLE REGULATORY REQUIREMENTS: FINDINGS AND CONCLUSIONS

1. Requirements under Council Jurisdiction

Under ORS 469.503(3) and under the Council's General Standard of Review (OAR 345-022-0000), the Council must determine whether the proposed facility complies with "all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility." Applicable Oregon statutes and administrative rules that are not otherwise addressed in Section V of this order include the noise

[332] App, Exhibit V, p. 2.
[333] App Supp, Exhibit G, response to RAI G3.
[334] App Supp, Exhibit V, response to RAI V2.
[335] App Supp, Exhibit V, response to RAI V3.
[336] App, Exhibit V, p. 2, and App Supp, Exhibit V, response to RAI V2.
[337] App Supp, Exhibit V, response to RAI V1.

control regulations adopted by the Environmental Quality Commission, the Division of State Lands' regulations for removal or fill of material affecting waters of the state, the Water Resources Department's (WRD) regulations for appropriating ground water and the Council's statutory authority to consider protection of public health and safety.

(a) Noise Control Regulations

The applicable noise control regulations are as follows:

OAR 340-035-0035

Noise Control Regulations for Industry and Commerce

(1) Standards and Regulations:

* * *

(b) New Noise Sources:

* * *

(B) New Sources Located on Previously Unused Site:

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

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

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

(I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level.

(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with windspeed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits

specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

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

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

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

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

* * *

Findings of Fact

A. Applicable Regulations

The applicant addressed compliance with the noise regulations adopted by the Oregon Department of Environmental Quality (DEQ) in Exhibit X of the application. The proposed facility would be a “new industrial or commercial noise source” under OAR 340-035-0035

because construction of the facility would begin after January 1, 1975.[338] The noise control regulations impose different limits on new noise sources constructed on a "previously used industrial or commercial site" compared to the limits imposed on new sources constructed on a "previously unused industrial or commercial site." A site is considered a "previously unused industrial or commercial site" if the site has not been in an industrial or commercial use at any time during the 20 years preceding the construction of a new noise source on the site.[339] According to the applicant, all the equipment associated with the proposed SFWF would be located on property that has not been used for industrial or commercial operations during the past 20 years. The SFWF should be considered a "new industrial noise source" located on a "previously unused industrial or commercial site." Therefore, the noise generated by the proposed project must comply with OAR 340-035-0035 (1)(b)(B).

OAR 340-035-0035 (1)(b)(B) requires that the noise generated by a new wind energy facility located on a previously unused site must comply with two tests. Facility-generated noise must not increase the ambient hourly L_{10} or L_{50} noise levels at any noise sensitive receiver by more than 10 decibels (dBA) when turbines are operating "between cut-in speed and the wind speed corresponding to the maximum sound power level."[340] This requirement is known as the "ambient degradation" test. To show that a proposed facility complies with this test, the applicant may use an assumed ambient hourly L_{50} noise level of 26 dBA; otherwise, the applicant must measure the actual ambient hourly noise levels at the receiver in accordance with the procedures specified in the regulation. OAR 340-035-0035 (1)(b)(B)(iii)(III) relieves the applicant from having to show compliance with the ambient degradation test "if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located" (a "noise waiver").

The potential "waiver" of the ambient degradation test does not relieve the wind facility from compliance with the second test imposed under OAR 340-035-0035 (1)(b)(B). A new wind energy facility located on a previously unused site must not radiate sound levels to any noise sensitive receiver exceeding the noise limits specified in Table 8 of the regulation. This is known as the "Table 8" or "maximum allowable" test. Table 8 provides the following limits:

[338] OAR 340-035-0015(33) defines "new industrial or commercial noise source."
[339] OAR 340-035-0015(47) defines "previously unused industrial or commercial site."
[340] In this discussion, "dBA" refers to sound levels in decibels as measured on a sound level meter using the A-weighted filter network, which corresponds closely to the frequency response of the human ear. 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 the proposed SFWF. We refer to these as the "noise sensitive receivers."

Statistical Noise Limits for Industrial and Commercial Sources		
Statistical Descriptor	**Maximum Permissible Statistical Noise Levels (dBA)**	
	Daytime (7:00 AM - 10:00 PM)	**Nighttime (10:00 PM - 7:00 AM)**
L_{50}	55	50
L_{10}	60	55
L_1	75	60
The hourly L_{50}, L_{10} and L_1 noise levels are defined as the noise levels equaled or exceeded 50 percent, 10 percent and 1 percent of the hour, respectively.		

Because the proposed energy facility would operate on a 24-hour basis, the noise radiating from the facility must not exceed the maximum allowable nighttime noise limits (10:00 PM to 7:00 AM). To comply with the "maximum allowable" test, the noise radiating from the SFWF must not exceed an hourly L_{50} noise level of 50 dBA at any noise sensitive receiver. For the purpose of assessing whether the 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."

B. Construction Noise

OAR 340-035-0035(5)(g) specifically exempts noise caused by construction activities. Construction of the proposed SFWF 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 receivers. Nevertheless, to mitigate noise impacts at local residences, the Council adopts Condition 96, which would require the certificate holder to confine the noisiest construction activities to daylight hours.

C. Compliance with the Regulations

The applicant has elected to use the assumed ambient hourly L_{50} noise level of 26 dBA for the background ambient noise level rather than to conduct noise measurements at the noise sensitive receivers in the vicinity of the project. Accordingly, to show compliance with the ambient degradation test, the noise generated by the operation of the proposed SFWF wind turbines between cut-in wind speed and maximum sound power level wind speed must not cause the hourly L_{50} noise level at any noise sensitive receiver to exceed 36 dBA.

The applicant is proposing a wind energy facility that will contain up to 303 wind turbines. The applicant provided sound power level and octave band data for four turbine types that might be selected for use in the proposed SFWF: the GE Energy 1.5-MW, the Siemens SWT-93 2.3-MW, the Clipper Liberty 2.5-MW and the Vestas V90 3.0-MW.[341] The applicant requests flexibility to use any combination of turbine types, subject to the restrictions described in Condition 26. The final selection of turbine types used in the project would be based on the availability and cost of the turbines and on the constraints placed on the project by the site certificate. In addition, the applicant requests the design flexibility to locate the turbines anywhere within the proposed site boundary, subject to the conditions of the site certificate. For the purpose of showing that the proposed facility can comply with the noise regulations, the

[341] App Supp, Amended Exhibit B, pp. 4-5.

Department asked the applicant to submit data that demonstrates that there is at least one layout of wind turbines on the site that would comply with the regulations (a "default layout").

The applicant submitted a default layout of turbines within the site boundary that includes 280 Siemens SWT-93 turbines in the northern project area and 23 Vestas V90 turbines in the southern project area.[342] To support the conclusion that the default layout would be in compliance with the noise regulations, the applicant retained an acoustical consultant, Mr. Bruce Walker, Ph.D. of Channel Island Acoustics, to calculate the predicted sound pressure level at each noise sensitive receiver.[343] The Department consulted with Mr. Kerrie Standlee of Daly Standlee and Associates to review and confirm Walker's findings.

The equations used in Walker's program were classical sound propagation equations that account for distance attenuation, atmospheric attenuation, ground attenuation and terrain attenuation. In predicting the maximum noise levels at the 31 noise sensitive receivers, Walker included distance attenuation and atmospheric attenuation associated with conditions of 50 degrees F (10 degrees C) and 70 percent relative humidity. The final calculations did not include factors for ground attenuation or terrain attenuation. The predicted noise levels would likely have been lower if factors for ground attenuation and terrain attenuation had been included. The predicted noise levels, therefore, are conservative predictions of what the actual noise effects would be.

Octave band sound power level reference data supplied by the turbine manufacturer (data for wind blowing at 8 meters per second, 10 meters off the ground) were used in predicting the maximum noise levels at the 31 noise sensitive receivers. The octave band data were increased so that the resulting overall A-weighted sound power level reference data was 2 dB higher than the overall maximum sound power level warranted by the manufacturer. This adjustment was applied to account for the amount of uncertainty associated with the manufacturer's warranted data. Accordingly, the applicant assumed that the Siemens turbines had a maximum A-weighted sound power level output of 109.0 dBA and the Vestas turbines had a maximum A-weighted sound power level output of 111.3 dBA.

In addition to calculating the noise generated by the wind turbines, the applicant calculated and included the noise that would radiate to each receiver from the power transformers located at the two proposed substations. The applicant used a maximum A-weighted sound power level of 105 dBA for each of four transformers expected at the north substation and 101 dBA for the single transformer expected at the south substation.

In presenting the results of the analysis, the applicant provided three tables showing the noise level contributed by 303 turbines and five transformers. One table presented the predicted turbine-generated sound pressure levels reaching 10 receivers (Receivers 1 through 10) located near the northern project area.[344] Another table presented predicted turbine-generated sound

[342] App Supp, Exhibit X, email from Patricia Pilz, November 12, 2007, Figure RAI#3 X1a revision 3 and Figure RAI#3 X1b revision 3.

[343] Walker used an in-house, Matlab-based, computer program to predict the noise levels at 31 noise sensitive receivers located around the project site. He located the turbines and the noise sensitive receivers on a 501 by 501 grid and then used tied the grid to his computer program to calculate the total sound pressure level at each receiver contributed by all turbines (email from Kerrie Standlee, January 9, 2008).

[344] App Supp, Exhibit X, email from Patricia Pilz, November 12, 2007, table entitled "North turbine noise analysis using A-weighted octave band data."

pressure levels reaching 21 residences (Receivers 11 through 31) near the southern project area.[345] The third table presented the predicted transformer-generated sound pressure levels reaching each of the 31 receivers investigated around the site.[346] Each table included the total sound pressure level expected at the receiver and the sound pressure level contributed by each source included in the calculation. In addition, as a visual aid, the applicant presented Figure RAI#3 X1c to show the 5-dB interval noise contours between 30 dBA and 55 dBA around the northern project area.[347] Based on data from the applicant's tables, the maximum predicted noise levels generated by the SFWF are as shown in Table 15 below. Data shown in boldface exceed the 36-dBA ambient degradation limit.

Table 15: Predicted Noise Levels

Receiver	Predicted Maximum Hourly L_{50} Noise Level (dBA)	Receiver	Predicted Maximum Hourly L_{50} Noise Level (dBA)
R1	32	R17	32
R2	29	R18	34
R3	34	R19	**40**
R4	30	R20	34
R5	33	R21	29
R6	35	R22	29
R7	35	R23	26
R8	36	R24	23
R9	36	R25	22
R10	35	R26	30
R11	**39**	R27	32
R12	**39**	R28	29
R13	35	R29	31
R14	**39**	R30	21
R15	36	R31	19
R16	**39**		

As seen from the data in Table 15, the noise levels at all receivers are predicted to comply with the 50-dBA maximum allowable test. At five receivers (R11, R12, R14, R16 and R19), operation of the proposed facility could increase the ambient statistical noise level by more than 10 dBA above the assumed background L_{50} ambient noise level of 26 dBA. At these properties, the ambient degradation limit would be exceeded. The proposed facility would comply with the applicable noise regulations if it were constructed according to the default layout (using the turbine types analyzed above) and if the certificate holder had acquired noise waivers from the owners of properties R11, R12, R14, R16 and R19. The applicant has discussed the potential noise impacts with the owners of these properties but prefers to negotiate any necessary waivers after the final facility layout has been determined. The Department asked the applicant to

[345] App Supp, Exhibit X, email from Patricia Pilz, November 12, 2007, table entitled "South turbine noise analysis using A-weighted octave band data."
[346] App Supp, Exhibit X, email from Patricia Pilz, November 12, 2007, table entitled "Transformer sound levels using 105 dB(A) for each north transformer and 101 dB(A) for the south transformer."
[347] App Supp, Exhibit X, email from Patricia Pilz, November 12, 2007, Figure RAI#3 X1c. The applicant did not provide a similar contour map for the southern project area.

identify which turbines would be eliminated from the default layout to ensure compliance with the ambient degradation limit. The applicant identified twelve turbines within the southern project area that would need to be eliminated.[348] The Department's consultant, Kerrie Standlee, reviewed the data and confirmed that removal of the twelve identified turbines would bring the facility-generated noise levels into compliance with the ambient noise degradation limit of 36 dBA at Receivers R11, R12, R14, R16 and R19.[349] The Council finds that the proposed SFWF would comply with the applicable noise regulations in OAR 340-035-0035 if the facility were built according to the default layout described herein and if the twelve identified turbines were eliminated from that layout.

To ensure that the facility as built would comply with the noise control regulations, the Council adopts Condition 97. This condition would require the certificate holder to provide information about the turbines selected and about the final design layout to the Department before beginning construction. The condition requires the certificate holder to demonstrate to the satisfaction of the Department that the facility as built according to the final design layout would comply with the applicable noise control regulations.

Under OAR 340-035-0035 (4)(a), DEQ has authority to require the owner of an operating noise source to monitor and record the statistical noise levels upon written notification. In the event of a complaint regarding noise levels during operation of the SFWF, the Council has the authority to act in the place of DEQ to enforce this provision to verify that the certificate holder is operating the facility in compliance with the noise control regulations. Under Condition 3, the certificate holder would be required to operate the facility in accordance with all applicable state laws and administrative rules. The Council adopts Condition 98, which would require the certificate holder to notify the Department of any complaints received about noise from the facility as well as the actions taken to address them.

Conclusions of Law

Based on the findings and site certificate conditions discussed above, the Council finds that the proposed facility would comply with the applicable State noise control regulations.

(b) Removal-Fill Law

The Oregon Removal-Fill Law (ORS 196.800 through 990) and regulations (OAR 141-085-0005 through 141-085-0090) adopted by the Department of State Lands (DSL) require a permit if 50 cubic yards or more of material is removed, filled or altered within any "waters of the state" at the proposed site.[350] The Council must determine whether a permit is needed. The U.S. Army Corps of Engineers administers Section 404 of the Clean Water Act, which regulates the discharge of fill into waters of the United States (including wetlands). A Nationwide or Individual fill permit may be required.

[348] Email from Patricia Pilz, January 28, 2008. The twelve turbines are numbered 283, 284, 291 through 294, 296 through 299, 301 and 302 in the application (App Supp, Exhibit X, Correspondence, email from Patricia Pilz, November 12, 2007).
[349] Email from Kerrie Standlee, January 31, 2008.
[350] OAR 141-085-0010(225) defines "Waters of this State." The term includes wetlands and certain other water bodies.

Findings of Fact

CSF provided information about wetlands and other waters of the state in Exhibit J of the application. The analysis area for Exhibit J is the area within the site boundary. A delineation report on the wetlands and waters within the analysis area was prepared for CSF by Mason, Bruce & Girard, Inc. (MB&G).[351] The report was submitted to DSL for review and DSL concurred in the delineation and conclusions.[352]

MB&G evaluated the site for presence of federal or State jurisdictional waters using high-resolution aerial photographs, USGS topographic maps and U.S. Census Bureau stream data. MB&G reviewed NRCS soil surveys for Gilliam County and Morrow County to determine whether hydric soil types exist within the analysis area.[353] MB&G reviewed USFWS National Wetland Inventory (NWI) maps to identify mapped wetlands and other water features. After identifying potential wetlands and waters based on mapping and photographic evidence, MB&G conducted on-site delineation surveys on March 13-16 and April 23-24, 2007, following the procedures in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Arid West Interim Regional Supplement* (2006).

MB&G did not find any wetlands within the analysis area.[354] MG&B investigated two potential wetlands identified on NWI mapping in the northern project area and found that the wetland features were not present on the ground. MB&G documented 40 primary water features (drainages) within the analysis area. All of the drainages were determined to be ephemeral. These drainages include Eightmile Creek and Fourmile Creek (neither of which contained water at the time of the field survey). The other identified drainages are tributaries to Willow Creek, Fourmile Creek and Eightmile Creek. According to the concurrence letter from DSL, only Eightmile Creek is jurisdictional and subject to the Removal-Fill Law.

In March 2008, MG&B conducted an on-site survey for wetlands and waters within the replacement corridor for the 230-kV transmission line between the southern and northern project areas. Based on the survey, preliminary findings indicate that that there are no potential waters of the state in the new area, other than Eightmile Creek (discussed below). Concurrence by DSL is anticipated, pending submittal of a formal delineation report.[355]

CSF proposes to cross Eightmile Creek with aboveground transmission lines. No transmission line support poles would be located within the creek or a 10-foot buffer.[356] No new roads would be built in the area of Eightmile Creek. The Council adopts Condition 72 to incorporate the applicant's proposed avoidance of Eightmile Creek.

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[351] *Wetlands/Waters Delineation Report for Shepherds Flat Wind Farm Project, Gilliam and Morrow Counties, Oregon*, June 8, 2007 (App Supp, Exhibit J, Attachment J1).
[352] Letter from Jess Jordan, DSL, February 19, 2008.
[353] OAR 141-085-0010 defines "hydric soil" as "a soil that is formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part." The presence of hydric soil is an indicator of a wetland.
[354] App Supp, Exhibit J, Attachment J1, p. 16.
[355] Email from Jess Jordan, DSL, March 31, 2008.
[356] A removal-fill permit is required for cumulative fill or excavation of 50 cubic yards or more below the ordinary high water line of a waterway. Letter from Jess Jordan, DSL, February 19, 2008.

Conclusions of Law

Based on the findings discussed above and the site certificate conditions described herein, the Council concludes that the proposed facility would not need a Removal-Fill Permit.

(c) Ground Water Act

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

Findings of Fact

The construction and operation of the proposed CSF would not require a new water right. During construction, an average of 100,000 gallons of water would be used per construction day primarily for dust suppression, road compaction and concrete mixing.[357] CSF estimates that up to 70 million gallons would be needed to complete construction, assuming a worst-case schedule of 200 use-days per year and a 3.5-year construction period.[358] CSF has provided a letter from the City of Arlington indicating that the city is willing to supply sufficient water to meet construction needs.[359] The Oregon Water Resources Department has reviewed the application and has confirmed that there is "no issue" regarding the source of water during construction as long as the City has water available within the limits of its existing water rights.[360]

During operation, water would be used for domestic purposes at the field workshops. This water would come from new on-site wells, one at each field workshop (Condition 78). Water use during operation would not exceed 5,000 gallons per day.[361] ORS 537.545(1)(f) provides that a new water right is not required for industrial and commercial uses of up to 5,000 gallons per day.

Conclusions of Law

Based on the findings discussed above and the site certificate conditions described herein, the Council concludes that the proposed use of ground water for the construction and operation of the proposed SFWF complies with the Ground Water Act of 1955 and the rules of the Water Resources Department.

(d) Public Health and Safety

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

[357] App, Exhibit O, p. 2.
[358] App Supp, Exhibit O, response to RAI O2.
[359] App Supp, Exhibit O, response to RAI O2 (Follow-Up).
[360] Letter from Jerry Sauter, WRD, December 12, 2007.
[361] App Supp, Exhibit O, response to RAI O1.

Findings of Fact

We discuss the Council's Public Health and Safety Standards for wind energy facilities above at page 78. In this section below, we discuss the issues of fire protection, magnetic fields, coordination with the Oregon Public Utility Commission and the Boardman Military Operating Area.

A. Fire Protection

We discuss comments from the local fire control authorities (North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District) above at page 124. Based on consultation with local fire control authorities, the certificate holder would develop and implement fire management plans during construction and operation of the SFWF (Condition 55). The plans would include measures to reduce the risk of wildfire and to respond appropriately to any fires that occur on the facility site. The certificate holder would ensure that construction vehicles and equipment are operated on graveled areas to the extent possible and that open flames, such as cutting torches, are kept away from dry grass areas.

Turbine towers and pad-mounted transformers would be constructed on concrete foundations. There would be a minimum of 10 feet of non-flammable ground cover surrounding each tower foundation (Condition 58). The turbines would have automatic equipment protection features that would shut down the turbine if a malfunction occurs and reduce the chance of a mechanical problem causing a fire (Condition 60). Service vehicles used for regular maintenance or construction at the site and the field workshops would be equipped with shovels and portable fire extinguishers of a 4A5OBC or equivalent rating (Condition 54).

During operation, all on-site employees would receive annual fire prevention and response training by qualified instructors or members of local fire departments (Condition 53). Employees would be instructed to keep vehicles on roads and off dry grassland, except when off-road operation is required for emergency purposes.

When operation of the facility begins, the certificate holder would provide to the North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District copies of the approved site plan indicating the identification number assigned to each turbine and the location of all facility structures. During operation, the certificate holder would make sure that appropriate District and Fire Department personnel have an up-to-date list of the names and telephone numbers of facility personnel available to respond on a 24-hour basis in case of an emergency on the facility site (Condition 56).

B. Magnetic Fields

The proposed SFWF includes aboveground 230-kV transmission lines. A single-circuit 230-kV line would run from the south substation to the north substation. A double-circuit 230-kV line would run from the north substation to the BPA Slatt Switching Station. In addition, the proposed facility would have a power collection system consisting of 34.5-kV transmission lines to transport the power from each turbine to the substations (described above at page 7). Most of the collector lines would be underground, but up to 28 miles of aboveground, single-circuit segments could be installed on single-pole structures. In addition, some segments of the aboveground collector system could be understrung on the support structures for the 230-kV transmission lines. All aboveground 34.5-kV transmission lines would have a minimum

clearance of 20 feet from the ground, and all aboveground 230-kV transmission lines would have a minimum clearance of 24 feet from the ground (Condition 81).

Electric transmission lines create both electric and magnetic fields. The electric fields associated with the proposed transmission lines are addressed above at page 85, and for the reasons discussed there, the proposed transmission lines would not exceed the Council's electric field standard of 9 kV per meter at one meter above the ground surface in areas accessible to the public.

The strength of a magnetic field is a function of the current (amperage) in the electric transmission line: the higher the current, the greater the strength of the magnetic field. The magnetic field strength decreases as the distance from the conductor increases. The strength of a magnetic field fluctuates hourly and daily with changes in the amount of current in the transmission line. Magnetic field strength is measured in units of milligauss (mG).[362]

The application includes data on estimated magnetic field strength surrounding different transmission line configurations proposed for the SFWF (230-kV, 34.5-kV and 230-kV understrung with 34.5-kV).[363] For double-circuit runs, the phasing of circuits can be arranged to reduce the magnetic field compared to a single-circuit run. The magnetic field strength is at its maximum directly below the transmission line, and field strength diminishes with distance from the centerline. Based on the analysis provided by the applicant, the predicted maximum field strength would be greatest (374.27 mG) directly below the 230-kV lines that are understrung with 34.5-kV lines. For this configuration, the magnetic field strength diminishes to 0.55 mG at a distance of 200 feet from the centerline. The stand-alone 230-kV lines have a predicted magnetic field strength of 339.9 mG directly below the lines, diminishing to 5.39 mG at a distance of 200 feet from the centerline. The predicted maximum field strength below the 34.5-kV (stand-alone) lines is 128.85 mG, diminishing to 1.38 mG at a distance of 200 feet from the centerline.

The Council has previously considered whether exposure to magnetic fields causes health risks.[364] This issue has been the subject of considerable scientific research and discussion. The applicant cited a 2007 monograph published by the World Health Organization (WHO) that contains a review of the scientific literature on the biological effects of exposure to electric and magnetic fields.[365] In summarizing the risk to health from exposure to magnetic fields in the power-frequency range (50 or 60 hertz), the WHO monograph concluded that epidemiological studies demonstrate an association between chronic exposure to low-intensity magnetic fields (3 to 4 mG) and childhood leukemia. The evidence, however, is not strong enough to be considered causal. The scientific evidence linking magnetic field exposure with other diseases is much weaker. Based on its review in other cases, the Council has found that the credible evidence of a health risk from low levels of exposure to magnetic fields is inconclusive. The Council finds that the evidence summarized in the WHO monograph does not alter the Council's previous findings. The Council has not found sufficient information upon which to set health-based limits for exposure to magnetic fields. Nevertheless, given the uncertainty about possible health consequences, the Council has encouraged applicants to propose low-cost ways to reduce or

[362] In some research reports, magnetic fields are measured in units of microtesla. One microtesla is equal to 10 mG.
[363] App Supp, Exhibit AA, email from Patricia Pilz, November 7, 2007.
[364] Final Order for the Klamath Generation Facility, September 2005.
[365] The Internet link to the monograph is http://www.who.int/peh-emf/publications/elf_ehc/en/index.html. Email from Patricia Pilz, January 28, 2008.

manage public exposure to magnetic fields from transmission lines under the Council's jurisdiction. This approach is sometimes referred to as "prudent avoidance."

CSF proposes to avoid locating any transmission lines within 200 feet of any residence.[366] CSF proposes to construct aboveground transmission lines with a minimum clearance that is 10-percent higher than the modeled clearance.[367] The Council adopts Condition 81 to reduce public exposure to magnetic fields.

C. Coordination with the PUC

The Oregon Public Utility Commission Safety and Reliability Section (PUC) has requested that the Council ensure that certificate holders coordinate with PUC staff on the design and specifications of electrical transmission lines and the natural gas pipelines. The PUC has explained that others in the past have made inadvertent, but costly, mistakes in the design and specifications of power lines and pipelines that could have easily been corrected early if the developer had consulted with the PUC staff responsible for the safety codes and standards. The certificate holder would be required to coordinate the design of electric transmission lines with the PUC (Condition 82).

D. Boardman Military Operating Area

The Boardman Military Operating Area (BMOA) lies to the east of the proposed SFWF. The airspace over parts of the SFWF site has been used in the past by the Navy for military aircraft training routes approaching the BMOA. The applicant and the Department have consulted with Mr. Richard Melaas, Community Planning Liaison Officer for the Whidbey Island Naval Air Station regarding the proposed wind turbine towers and future military training flights in the area. Mr. Melaas has indicated that the location of training routes can be shifted (within limits) to avoid turbine locations.[368] The applicant has agreed to provide the proposed final project layout to Mr. Melaas before construction and to work with the Navy to accommodate the Navy's interest in safe aviation training routes, which may include adjusting turbine locations where feasible.

The FAA is the responsible government agency for determining whether any turbine tower presents a hazard to aviation, including military aviation. Condition 57 requires the certificate holder to submit a Notice of Proposed Construction or Alteration to the FAA when the final design configuration of the facility is known. The notice identifies the proposed final location of each turbine and met tower. After receiving the notice, the FAA conducts a flight path review to determine whether the proposed turbine locations would interfere with public or private air traffic. If the FAA finds that a proposed turbine would not present a safety hazard, the FAA issues a "Determination of No Hazard to Air Navigation" letter. The certificate holder must receive the FAA determination before beginning construction of each turbine.

Conclusions of Law

Based on the findings above and the site certificate conditions described herein, the Council concludes that the siting, construction and operation of the proposed SFWF facilities are consistent with protection of public health and safety.

[366] App Supp, Exhibit AA, response to RAI AA1 (Follow-Up).
[367] App Supp, Exhibit AA, email from Patricia Pilz, November 7, 2007, attachment "ExAA Electrical.doc".
[368] Email from Patricia Pilz, December 12, 2007.

2. Summary of Monitoring Requirements

This section summarizes site certificate requirements for monitoring that would apply to the proposed facility. Condition 19 requires the certificate holder to have specific monitoring programs for impacts to resources protected by Council standards and to resources addressed by other applicable statutes, administrative rules and local ordinances. The certificate holder's monitoring programs should include the requirements listed below and any other monitoring necessary to comply with site certificate conditions.

1) Cultural Resources: The certificate holder must monitor construction activities to ensure that construction personnel cease all ground-disturbing activities in the immediate area if any archaeological or cultural resources are found (Condition 45).

2) Operational Safety: The certificate holder must have an operational safety monitoring program, including inspection of turbine blades on a regular basis for signs of wear (Condition 62).

3) Fire Control: The certificate holder must have a fire safety plan during construction and operation of the facility, including monitoring the site to minimize the risk of fire and to respond appropriately to any fires that occur on the site (Condition 55).

4) Hazardous Materials: The certificate holder must monitor the use of hazardous materials to ensure protection of public health, safety and the environment (Condition 50).

5) Soil Impacts: The certificate holder must implement an Erosion and Sediment Control Plan during construction to minimize adverse impacts to soils (Condition 73) and must monitor the facility site during operation to maintain or repair erosion control measures (Condition 77).

6) Post-Construction Revegetation: The certificate holder must restore areas temporarily disturbed during construction as described in the Revegetation Plan, including monitoring of the revegetated areas to ensure that success criteria are met (Condition 84).

7) Weed Control: The certificate holder must monitor the facility site during construction and operation to control the spread of noxious weeds (Condition 38).

8) Raptor nest avoidance: The certificate holder must monitor raptor nest locations during construction to comply with restriction of construction activity within 0.5 miles of active nests (Condition 88).

9) Wildlife Monitoring: The certificate holder must monitor the facility site for impacts to avian and bat species in accordance with a Wildlife Monitoring and Mitigation Plan (Condition 83).

10) Washington ground squirrel: For that portion of a WGS colony that lies within the site boundary, the certificate holder must monitor the status of WGS activity as described in the Wildlife Monitoring and Mitigation Plan (Condition 83).

11) Habitat Mitigation: The certificate holder must monitor the habitat mitigation area to ensure that success criteria are met and maintained for the life of the facility (Condition 85).

3. Requirements That Are Not Under Council Jurisdiction

(a) Federally-Delegated Programs

Under ORS 469.503(3), the Council does not have jurisdiction for determining compliance with statutes and rules for which the federal government has delegated the decision on compliance to a state agency other than the Council. Nevertheless, the Council may rely on the determinations of compliance and the conditions in the federally-delegated permits issued by these state agencies in deciding whether the proposed facility meets other standards and requirements under its jurisdiction.

(b) Requirements That Do Not Relate to Siting

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

VI. CONDITIONS REQUIRED BY COUNCIL RULES

This section lists conditions to be included in the site certificate as specifically required by OAR 345-027-0020 (Mandatory Conditions in Site Certificates), OAR 345-027-0023 (Site Specific Conditions), OAR 345-027-0028 (Monitoring Conditions) and in OAR Chapter 345, Division 26 (Construction and Operation Rules for Facilities). These conditions should be read together with the specific facility conditions listed in Section VII to ensure compliance with the siting standards of OAR Chapter 345, Divisions 22 and 24, and to protect the public health and safety. References in preceding sections to specific conditions are included for convenience only. Such references do not relieve the certificate holder from the obligation to comply with all site certificate conditions.

In addition to all other conditions stated in this order, the site certificate holder is subject to all conditions and requirements contained in the rules of the Council and in local ordinances and state law in effect on the date the certificate is executed. Under ORS 469.401(2), upon a clear showing of a significant threat to the public health, safety or the environment that requires application of later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules.

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

1 OAR 345-027-0020(1): The Council shall not change the conditions of the site certificate except as provided for in OAR Chapter 345, Division 27.

2 OAR 345-027-0020(2): The certificate holder shall submit a legal description of the site to the Department of Energy within 90 days after beginning operation of the facility. The legal description required by this rule means a description of metes and bounds or a description

of the site by reference to a map and geographic data that clearly and specifically identifies the outer boundaries that contain all parts of the facility.

3 OAR 345-027-0020(3): The certificate holder shall design, construct, operate and retire the facility:

(a) Substantially as described in the site certificate;

(b) In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the site certificate is issued; and

(c) In compliance with all applicable permit requirements of other state agencies.

4 OAR 345-027-0020(4): The certificate holder shall begin and complete construction of the facility by the dates specified in the site certificate. (*See Conditions 24 and 25.*)

5 OAR 345-027-0020(5): Except as necessary for the initial survey or as otherwise allowed for wind energy facilities, transmission lines or pipelines under this section, the certificate holder shall not begin construction, as defined in OAR 345-001-0010, or create a clearing on any part of the site until the certificate holder has construction rights on all parts of the site. For the purpose of this rule, "construction rights" means the legal right to engage in construction activities. For wind energy facilities, transmission lines or pipelines, if the certificate holder does not have construction rights on all parts of the site, the certificate holder may nevertheless begin construction, as defined in OAR 345-001-0010, or create a clearing on a part of the site if the certificate holder has construction rights on that part of the site and:

(a) The certificate holder would construct and operate part of the facility on that part of the site even if a change in the planned route of the transmission line or pipeline occurs during the certificate holder's negotiations to acquire construction rights on another part of the site; or

(b) The certificate holder would construct and operate part of a wind energy facility on that part of the site even if other parts of the facility were modified by amendment of the site certificate or were not built.

6 OAR 345-027-0020(6): If the Council requires mitigation based on an affirmative finding under any standards of Division 22 or Division 24 of this chapter, the certificate holder shall consult with affected state agencies and local governments designated by the Council and shall develop specific mitigation plans consistent with Council findings under the relevant standards. The certificate holder must submit the mitigation plans to the Office and receive Office approval before beginning construction or, as appropriate, operation of the facility.

7 OAR 345-027-0020(7): The certificate holder shall prevent the development of any conditions on the site that would preclude restoration of the site to a useful, non-hazardous condition to the extent that prevention of such site conditions is within the control of the certificate holder.

8 OAR 345-027-0020(8): Before beginning construction of the facility, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit, in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition. The certificate holder shall maintain a bond or letter of credit in effect at all times until the facility has been retired. The Council may specify different amounts for the

bond or letter of credit during construction and during operation of the facility. (*See Condition 30*)

9 OAR 345-027-0020(9): The certificate holder shall retire the facility if the certificate holder permanently ceases construction or operation of the facility. The certificate holder shall retire the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110. The certificate holder shall pay the actual cost to restore the site to a useful, non-hazardous condition at the time of retirement, notwithstanding the Council's approval in the site certificate of an estimated amount required to restore the site.

10 OAR 345-027-0020(10): The Council shall include as conditions in the site certificate all representations in the site certificate application and supporting record the Council deems to be binding commitments made by the applicant.

11 OAR 345-027-0020(11): Upon completion of construction, the certificate holder shall restore vegetation to the extent practicable and shall landscape all areas disturbed by construction in a manner compatible with the surroundings and proposed use. Upon completion of construction, the certificate holder shall remove all temporary structures not required for facility operation and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility.

12 OAR 345-027-0020(12): The certificate holder shall design, engineer and construct the facility to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from all maximum probable seismic events. As used in this rule "seismic hazard" includes ground shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement and subsidence.

13 OAR 345-027-0020(13): The certificate holder shall notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the application for a site certificate. After the Department receives the notice, the Council may require the certificate holder to consult with the Department of Geology and Mineral Industries and the Building Codes Division and to propose mitigation actions.

14 OAR 345-027-0020(14): The certificate holder shall notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site.

15 OAR 345-027-0020(15): Before any transfer of ownership of the facility or ownership of the site certificate holder, the certificate holder shall inform the Department of the proposed new owners. The requirements of OAR 345-027-0100 apply to any transfer of ownership that requires a transfer of the site certificate.

16 OAR 345-027-0020(16): If the Council finds that the certificate holder has permanently ceased construction or operation of the facility without retiring the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110, the Council shall notify the certificate holder and request that the certificate holder submit a proposed final retirement plan to the Office within a reasonable time not to exceed 90 days. If the certificate holder does not submit a proposed final retirement plan by the specified

date, the Council may direct the Department to prepare a proposed final retirement plan for the Council's approval. Upon the Council's approval of the final retirement plan, the Council may draw on the bond or letter of credit described in OAR 345-027-0020(8) to restore the site to a useful, non-hazardous condition according to the final retirement plan, in addition to any penalties the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall pay any additional cost necessary to restore the site to a useful, non-hazardous condition. After completion of site restoration, the Council shall issue an order to terminate the site certificate if the Council finds that the facility has been retired according to the approved final retirement plan.

17 OAR 345-027-0023(4): If the facility includes any transmission line under Council jurisdiction:

(a) The certificate holder shall design, construct and operate the transmission line in accordance with the requirements of the National Electrical Safety Code (American National Standards Institute, Section C2, 1997 Edition); and

(b) The certificate holder shall develop and implement a program that provides reasonable assurance that all fences, gates, cattle guards, trailers, or other objects or structures of a permanent nature that could become inadvertently charged with electricity are grounded or bonded throughout the life of the line.

18 OAR 345-027-0023(5): If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a pipeline or transmission line, the Council shall specify an approved corridor in the site certificate and shall allow the certificate holder to construct the pipeline or transmission line anywhere within the corridor, subject to the conditions of the site certificate. If the applicant has analyzed more than one corridor in its application for a site certificate, the Council may, subject to the Council's standards, approve more than one corridor.

19 OAR 345-027-0028: The following general monitoring conditions apply:

(a) The certificate holder shall consult with affected state agencies, local governments and tribes and shall develop specific monitoring programs for impacts to resources protected by the standards of divisions 22 and 24 of OAR Chapter 345 and resources addressed by applicable statutes, administrative rules and local ordinances. The certificate holder must submit the monitoring programs to the Department of Energy and receive Department approval before beginning construction or, as appropriate, operation of the facility.

(b) The certificate holder shall implement the approved monitoring programs described in OAR 345-027-0028(1) and monitoring programs required by permitting agencies and local governments.

(c) For each monitoring program described in OAR 345-027-0028(1) and (2), the certificate holder shall have quality assurance measures approved by the Department before beginning construction or, as appropriate, before beginning commercial operation.

(d) If the certificate holder becomes aware of a significant environmental change or impact attributable to the facility, the certificate holder shall, as soon as possible, submit a written report to the Department describing the impact on the facility and any affected site certificate conditions.

20 OAR 345-026-0048: Following receipt of the site certificate or an amended site certificate, the certificate holder shall implement a plan that verifies compliance with all site certificate terms and conditions and applicable statutes and rules. As a part of the compliance plan, to verify compliance with the requirement to begin construction by the date specified in the site certificate, the certificate holder shall report promptly to the Department of Energy when construction begins. Construction is defined in OAR 345-001-0010. In reporting the beginning of construction, the certificate holder shall describe all work on the site performed before beginning construction, including work performed before the Council issued the site certificate, and shall state the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor. The certificate holder shall document the compliance plan and maintain it for inspection by the Department or the Council.

21 OAR 345-026-0080: The certificate holder shall report according to the following requirements:

(a) General reporting obligation for energy facilities under construction or operating:

(i) Within six months after beginning construction, and every six months thereafter during construction of the energy facility and related or supporting facilities, the certificate holder shall submit a semiannual construction progress report to the Department of Energy. In each construction progress report, the certificate holder shall describe any significant changes to major milestones for construction. The certificate holder shall include such information related to construction as specified in the site certificate. When the reporting date coincides, the certificate holder may include the construction progress report within the annual report described in OAR 345-026-0080.

(ii) By April 30 of each year after beginning construction, the certificate holder shall submit an annual report to the Department addressing the subjects listed in OAR 345-026-0080. The Council Secretary and the certificate holder may, by mutual agreement, change the reporting date.

(iii) To the extent that information required by OAR 345-026-0080 is contained in reports the certificate holder submits to other state, federal or local agencies, the certificate holder may submit excerpts from such other reports to satisfy this rule. The Council reserves the right to request full copies of such excerpted reports.

(b) In the annual report, the certificate holder shall include the following information for the calendar year preceding the date of the report:

(i) Facility Status: An overview of site conditions, the status of facilities under construction, and a summary of the operating experience of facilities that are in operation. In this section of the annual report, the certificate holder shall describe any unusual events, such as earthquakes, extraordinary windstorms, major accidents or the like that occurred during the year and that had a significant adverse impact on the facility.

(ii) Reliability and Efficiency of Power Production: For electric power plants, the plant availability and capacity factors for the reporting year. The certificate holder shall describe any equipment failures or plant breakdowns that had a significant impact on those factors and shall describe any actions taken to prevent the recurrence of such problems.

(iii) Fuel Use: For thermal power plants:

(A) The efficiency with which the power plant converts fuel into electric energy. If the fuel chargeable to power heat rate was evaluated when the facility was sited, the

certificate holder shall calculate efficiency using the same formula and assumptions, but using actual data; and

(B) The facility's annual hours of operation by fuel type and, every five years after beginning operation, a summary of the annual hours of operation by fuel type as described in OAR 345-024-0590(5).

(iv) Status of Surety Information: Documentation demonstrating that bonds or letters of credit as described in the site certificate are in full force and effect and will remain in full force and effect for the term of the next reporting period.

(v) Monitoring Report: A list and description of all significant monitoring and mitigation activities performed during the previous year in accordance with site certificate terms and conditions, a summary of the results of those activities and a discussion of any significant changes to any monitoring or mitigation program, including the reason for any such changes.

(vi) Compliance Report: A description of all instances of noncompliance with a site certificate condition. For ease of review, the certificate holder shall, in this section of the report, use numbered subparagraphs corresponding to the applicable sections of the site certificate.

(vii) Facility Modification Report: A summary of changes to the facility that the certificate holder has determined do not require a site certificate amendment in accordance with OAR 345-027-0050.

(viii) Nongenerating Facility Carbon Dioxide Emissions: For nongenerating facilities that emit carbon dioxide, a report of the annual fuel use by fuel type and annual hours of operation of the carbon dioxide emitting equipment as described in OAR 345-024-0630(4).

22 OAR 345-026-0105: The certificate holder and the Department of Energy shall exchange copies of all correspondence or summaries of correspondence related to compliance with statutes, rules and local ordinances on which the Council determined compliance, except for material withheld from public disclosure under state or federal law or under Council rules. The certificate holder may submit abstracts of reports in place of full reports; however, the certificate holder shall provide full copies of abstracted reports and any summarized correspondence at the request of the Department.

23 OAR 345-026-0170: The certificate holder shall notify the Department of Energy within 72 hours of any occurrence involving the facility if:

(a) There is an attempt by anyone to interfere with its safe operation;

(b) A natural event such as an earthquake, flood, tsunami or tornado, or a human-caused event such as a fire or explosion affects or threatens to affect the public health and safety or the environment; or

(c) There is any fatal injury at the facility.

VII. SPECIFIC FACILITY CONDITIONS

The conditions listed in this section include conditions based on representations in the site certificate application and supporting record. The Council deems these representations to be binding commitments made by the applicant. These conditions are required under OAR 345-027-0020(10). The certificate holder must comply with these conditions in addition to the conditions listed in Section VI. This section includes other specific facility conditions the Council finds

necessary to ensure compliance with the siting standards of OAR Chapter 345, Divisions 22 and 24, and to protect the public health and safety.

1. Certificate Administration Conditions

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

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

26 The certificate holder shall construct a facility substantially as described in the site certificate and may select turbines of any type, subject to the following restrictions and compliance with all other site certificate conditions. Before beginning construction, the certificate holder shall provide to the Department a description of the turbine types selected for the facility demonstrating compliance with this condition.

(a) The total number of turbines at the facility must not exceed 303 turbines.

(b) The combined peak generating capacity of the facility must not exceed 909 megawatts.

(c) The turbine hub height must not exceed 105 meters and the maximum blade tip height must not exceed 150 meters.

(d) The minimum blade tip clearance must be 25 meters above ground.

(e) The maximum volume of concrete above three feet below grade in the turbine foundations must not exceed 66 cubic yards.

(f) The maximum combined weight of metals in the tower (including ladders and platforms) and nacelle must not exceed 393 U.S. tons per turbine.

(g) The certificate holder shall request an amendment of the site certificate to increase the combined peak generating capacity of the facility beyond 909 megawatts, to increase the number of wind turbines to more than 303 wind turbines or to install wind turbines with a hub height greater than 105 meters, a blade tip height greater than 150 meters or a blade tip clearance less than 25 meters above ground.

27 The certificate holder shall obtain all necessary federal, state and local permits or approvals required for construction, operation and retirement of the facility or ensure that its contractors obtain the necessary federal, state and local permits or approvals.

28 Before beginning construction, the certificate holder shall notify the Department in advance of any work on the site that does not meet the definition of "construction" in ORS 469.300, excluding surveying, exploration or other activities to define or characterize the site, and

shall provide to the Department a description of the work and evidence that its value is less than $250,000.

29 Before beginning construction and after considering all micrositing factors, the certificate holder shall provide to the Department, to the Oregon Department of Fish and Wildlife (ODFW) and to the Planning Directors of Morrow County and Gilliam County detailed maps of the facility site, showing the final locations where the certificate holder proposes to build facility components, and a table showing the acres of temporary and permanent habitat impact by habitat category and subtype, similar to Table 12 in the Final Order on the Application. The detailed maps of the facility site shall indicate the habitat categories of all areas that would be affected during construction (similar to the maps labeled "ODFW-2" in the site certificate application). In classifying the affected habitat into habitat categories, the certificate holder shall consult with the ODFW. The certificate holder shall not begin ground disturbance in an affected area until the habitat assessment has been approved by the Department. The Department may employ a qualified contractor to confirm the habitat assessment by on-site inspection.

30 Before beginning construction, the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit in the amount described herein naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The initial bond or letter of credit amount is either $19.346 million (in 2007 dollars), to be adjusted to the date of issuance as described in (b), or the amount determined as described in (a). The certificate holder shall adjust the amount of the bond or letter of credit on an annual basis thereafter as described in (b).

(a) The certificate holder may adjust the amount of the bond or letter of credit based on the final design configuration of the facility and turbine types selected by applying the unit costs and general costs illustrated in Table 2 in the Final Order on the Application and calculating the financial assurance amount as described in that order, adjusted to the date of issuance as described in (b) and subject to approval by the Department.

(b) The certificate holder shall adjust the amount of the bond or letter of credit, using the following calculation and subject to approval by the Department:

(i) Adjust the Subtotal component of the bond or letter of credit amount (expressed in 2007 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency (the "Index") and using the annual average index value for 2007 dollars and the quarterly index value for the date of issuance of the new bond or letter of credit. If at any time the Index is no longer published, the Council shall select a comparable calculation to adjust 2007 dollars to present value.

(ii) Add 1 percent of the adjusted Subtotal (i) for the adjusted performance bond amount to determine the adjusted Gross Cost.

(iii) Add 10 percent of the adjusted Gross Cost (ii) for the adjusted administration and project management costs and 10 percent of the adjusted Gross Cost (ii) for the adjusted future developments contingency.

(iv) Add the adjusted Gross Cost (ii) to the sum of the percentages (iii) and round the resulting total to the nearest $1,000 to determine the adjusted financial assurance amount.

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

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

(e) The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under Condition 21.

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

31 If the certificate holder elects to use a bond to meet the requirements of Condition 30, the certificate holder shall ensure that the surety is obligated to comply with the requirements of applicable statutes, Council rules and this site certificate when the surety exercises any legal or contractual right it may have to assume construction, operation or retirement of the energy facility. The certificate holder shall also ensure that the surety is obligated to notify the Council that it is exercising such rights and to obtain any Council approvals required by applicable statutes, Council rules and this site certificate before the surety commences any activity to complete construction, operate or retire the energy facility.

32 Before beginning construction, the certificate holder shall notify the Department of the identity and qualifications of the major design, engineering and construction contractor(s) for the facility. The certificate holder shall select contractors that have substantial experience in the design, engineering and construction of similar facilities. The certificate holder shall report to the Department any change of major contractors.

33 The certificate holder shall contractually require all construction contractors and subcontractors involved in the construction of the facility to comply with all applicable laws and regulations and with the terms and conditions of the site certificate. Such contractual provisions shall not operate to relieve the certificate holder of responsibility under the site certificate.

34 During construction, the certificate holder shall have a full-time, on-site assistant construction manager who is qualified in environmental compliance to ensure compliance with all site certificate conditions. The certificate holder shall notify the Department of the name, telephone number and e-mail address of this person.

35 Within 72 hours after discovery of conditions or circumstances that may violate the terms or conditions of the site certificate, the certificate holder shall report the conditions or circumstances to the Department.

2. Land Use Conditions

36 The certificate holder shall consult with area landowners and lessees during construction and operation of the facility and shall implement measures to reduce or avoid any adverse impacts to farm practices on surrounding lands and to avoid any increase in farming costs.

37 The certificate holder shall design and construct the facility using the minimum land area necessary for safe construction and operation. The certificate holder shall locate access roads and temporary construction laydown and staging areas to minimize disturbance with farming practices and, wherever feasible, shall place turbines and transmission interconnection lines along the margins of cultivated areas to reduce the potential for conflict with farm operations.

38 During construction and operation of the facility, the certificate holder shall implement a plan to control the introduction and spread of noxious weeds. The certificate shall develop the weed control plan consistent with the Gilliam County and Morrow County Weed Control Programs.

39 Before beginning construction of the facility, the certificate holder shall record in the real property records of Gilliam County a Covenant Not to Sue with regard to generally accepted farming practices on adjacent farmland consistent with Gilliam County Zoning Ordinance 7.020(T)(4)(a)(5).

40 The certificate holder shall construct all facility components in compliance with the following setback requirements:

(a) All facility components must be at least 3,520 feet from the property line of properties zoned residential use or designated in the Gilliam County Comprehensive Plan as residential.

(b) Where (a) does not apply, the certificate holder shall maintain a minimum distance of 110-percent of maximum blade tip height, measured from the centerline of the turbine tower to the nearest edge of any public road right-of-way. The certificate holder shall assume a minimum right-of-way width of 60 feet.

(c) Where (a) does not apply, the certificate holder shall maintain a minimum distance of 1,320 feet, measured from the centerline of the turbine tower to the center of the nearest residence existing at the time of tower construction.

(d) Where (a) does not apply, the certificate holder shall maintain a minimum distance of 110-percent of maximum blade tip height, measured from the centerline of the turbine tower to the nearest boundary of the certificate holder's lease area.

41 Within 90 days after beginning operation, the certificate holder shall provide to the Department and to the Planning Directors of Gilliam County and Morrow County the actual latitude and longitude location or Stateplane NAD 83(91) coordinates of each turbine tower, connecting lines and transmission lines. In addition, the certificate holder shall provide to the Department and to the Planning Directors of Gilliam County and Morrow County, a summary of as-built changes in the facility compared to the original plan, if any.

42 The certificate holder shall install gates on all private facility access roads in Gilliam County, in accordance with Gilliam County Zoning Ordinance Section 7.020(T)(4)(d)(6).

3. Cultural Resource Conditions

43 Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility and areas that would be temporarily disturbed during construction. In addition, the certificate holder shall comply with the following requirements:

(a) The certificate holder shall avoid disturbance within a 30-meter buffer around the two prehistoric archaeological sites and five historic-period archaeological sites identified by AINW as "possibly eligible" for listing in the National Register of Historic Places (NRHP) as described in the Final Order on the Application.

(b) The certificate holder shall avoid disturbance of the 36 stacked rock features identified by AINW as "possibly eligible" for listing in the NRHP as described in the Final Order on the Application and shall, to the extent practicable, maintain a 30-meter no-

construction buffer around these features. If a 30-meter buffer cannot be maintained, the certificate holder shall consult with the State Historic Preservation Office (SHPO) and the Department to determine appropriate action to preserve or document the feature.

(c) The certificate holder shall label "no entry" areas around all identified historic, cultural or archaeological resource sites on construction maps and drawings, and if construction activities will occur within 200 feet of an identified site, the certificate holder shall flag a 30-meter buffer around the site.

(d) The certificate holder shall hire qualified personnel to conduct pre-construction field investigation for historic, cultural or archaeological resources in any areas of potential construction disturbance that AINW did not previously survey.

(e) The certificate holder shall provide written reports of the field investigation required under (d) to the Department and to the SHPO. If any historic, cultural or archaeological resources are found that the SHPO determines to be significant, the certificate holder shall consult with the Department and the SHPO to develop plan to avoid disturbance of the resources during construction and operation of the facility. The certificate holder shall instruct all construction personnel to avoid areas where the resources were found and shall implement other appropriate measures to protect the resources.

44 The certificate holder shall ensure that a qualified archeologist, as defined in OAR 736-051-0070, instructs construction personnel in the identification of cultural materials and avoidance of accidental damage to identified resource sites.

45 The certificate holder shall ensure that construction personnel cease all ground-disturbing activities in the immediate area if any archaeological or cultural resources are found during construction of the facility until a qualified archeologist can evaluate the significance of the find. The certificate holder shall notify the Department and the State Historic Preservation Office (SHPO) of the find. If the SHPO determines that the resource is significant, the certificate holder shall make recommendations to the Council for mitigation, including avoidance, field documentation and data recovery, in consultation with the Department, SHPO, interested tribes and other appropriate parties. The certificate holder shall not restart work in the affected area until the certificate holder has demonstrated to the Department and the SHPO that it has complied with archaeological resource protection regulations.

46 In reference to the presumed alignments of the Oregon Trail described in the Final Order on the Application, the certificate holder shall comply with the following requirements:

(a) The certificate holder shall not locate facility components on visible remnants of the Oregon Trail and shall avoid any construction disturbance to those remnants.

(b) The certificate holder shall not locate facility components on undeveloped land where the trail alignment was marked by existing Oregon-California Trail Association markers as described in the October 2007 Archaeological Investigations Northwest, Inc. report (No. 2012) on the Oregon Trail.

(c) Before beginning construction, the certificate holder shall provide to the State Historic Preservation Office (SHPO) and to the Department photographic documentation of the presumed Oregon Trail alignments within the site boundary.

(d) The certificate holder shall ensure that construction personnel proceed carefully in the vicinity of the presumed alignments of the Oregon Trail. If any intact physical evidence of the trail is discovered, the certificate holder shall avoid any disturbance to the intact segments, by redesign, re-engineering or restricting the area of construction activity. The

certificate holder shall promptly notify the SHPO and the Department of the discovery. The certificate holder shall consult with the SHPO and the Department to determine appropriate mitigation measures.

4. Geotechnical Conditions

47 Before beginning construction, the certificate holder shall conduct a site-specific geotechnical investigation and shall report its findings to the Oregon Department of Geology & Mineral Industries (DOGAMI) and the Department. The certificate holder shall conduct the geotechnical investigation after consultation with DOGAMI and in general accordance with DOGAMI open file report 00-04 "Guidelines for Engineering Geologic Reports and Site-Specific Seismic Hazard Reports."

48 The certificate holder shall design and construct the facility in accordance with requirements set forth by the State of Oregon's Building Code Division and any other applicable codes and design procedures. The certificate holder shall design facility structures to meet or exceed the minimum standards required by the 2003 International Building Code.

49 The certificate holder shall design, engineer and construct the facility to avoid dangers to human safety presented by non-seismic hazards. As used in this condition, "non-seismic hazards" include settlement, landslides, flooding and erosion.

5. Hazardous Materials, Fire Protection & Public Safety Conditions

50 The certificate holder shall handle hazardous materials used on the site in a manner that protects public health, safety and the environment and shall comply with all applicable local, state and federal environmental laws and regulations. The certificate holder shall not store diesel fuel or gasoline on the facility site.

51 If a spill or release of hazardous material occurs during construction or operation of the facility, the certificate holder shall notify the Department within 72 hours and shall clean up the spill or release and dispose of any contaminated soil or other materials according to applicable regulations. The certificate holder shall make sure that spill kits containing items such as absorbent pads are located on equipment and at the field workshops. The certificate holder shall instruct employees about proper handling, storage and cleanup of hazardous materials.

52 During construction, the certificate holder shall ensure that construction personnel are trained in fire prevention and response, that construction vehicles and equipment are operated on graveled areas to the extent possible and that open flames, such as cutting torches, are kept away from dry grass areas.

53 During operation, the certificate holder shall ensure that all on-site employees receive annual fire prevention and response training, including tower rescue training, by qualified instructors or members of the local fire districts. The certificate holder shall ensure that all employees are instructed to keep vehicles on roads and off dry grassland, except when off-road operation is required for emergency purposes. The certificate holder shall encourage employees to become volunteer members of local fire departments and shall facilitate appropriate training.

54 During construction and operation of the facility, the certificate holder shall ensure that the field workshops and all service vehicles are equipped with shovels and portable fire extinguishers of a 4A5OBC or equivalent rating.

55 During construction and operation of the facility, the certificate holder shall develop and implement fire safety plans in consultation with the local fire protection agencies (the North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District) to minimize the risk of fire and to respond appropriately to any fires that occur on the facility site. In developing the fire safety plans, the certificate holder shall take into account the dry nature of the region and shall address risks on a seasonal basis. The certificate holder shall meet annually with local fire protection agency personnel to discuss emergency planning and shall invite local fire protection agency personnel to observe any emergency drill or tower rescue training conducted at the facility.

56 Upon the beginning of operation of the facility, the certificate holder shall provide a site plan to the local fire protection agencies (the North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District). The certificate holder shall indicate on the site plan the identification number assigned to each turbine and the location of all facility structures and shall provide an updated site plan if additional turbines or other structures are later added to the facility. During operation, the certificate holder shall ensure that appropriate fire protection agency personnel have an up-to-date list of the names and telephone numbers of facility personnel available to respond on a 24-hour basis in case of an emergency on the facility site.

57 Before beginning construction, the certificate holder shall submit a Notice of Proposed Construction or Alteration to the Federal Aviation Administration (FAA) identifying the proposed final locations of turbine towers and meteorological towers. The certificate holder shall notify the Department of the FAA's response as soon as it has been received.

58 The certificate holder shall construct turbines on concrete foundations and shall surround the base of each tower with a ten-foot pad area of washed crushed rock on all sides. The certificate holder shall cover turbine pad areas with non-erosive, non-flammable material as soon as possible following exposure during construction and shall maintain the pad area covering during operation of the facility.

59 The certificate holder shall follow manufacturers' recommended handling instructions and procedures to prevent damage to turbine or turbine tower components that could lead to failure.

60 The certificate holder shall install and maintain self-monitoring devices on each turbine, connected to a fault annunciation panel or supervisory control and data acquisition (SCADA) system at the field workshops to alert operators to potentially dangerous conditions. The certificate holder shall maintain automatic equipment protection features in each turbine that would shut down the turbine and reduce the chance of a mechanical problem causing a fire.

61 The certificate holder shall construct turbine towers with no exterior ladders or access to the turbine blades and shall install locked tower access doors. The certificate holder shall keep tower access doors locked at all times except when authorized personnel are present.

62 The certificate holder shall have an operational safety-monitoring program and shall inspect all turbine and turbine tower components on a regular basis. The certificate holder shall maintain or repair turbine and turbine tower components as necessary to protect public safety.

63 For turbine types having pad-mounted step-up transformers, the certificate holder shall install the transformers at the base of each tower in locked cabinets designed to protect the public from electrical hazards and to avoid creation of artificial habitat for raptor prey.

64 To protect the public from electrical hazards, the certificate holder shall enclose the facility substations with appropriate fencing and locked gates.

65 The certificate holder shall construct access roads with a finished width of approximately 18 feet, a compacted base of native soil and a gravel surface to a depth of four to six inches.

66 During construction, the certificate holder shall implement measures to reduce traffic impacts, including:

(a) Providing notice to the City of Arlington Road Department, the Gilliam County Road Department and the Gilliam County Sheriff's Office in advance of deliveries that could cause traffic disruption in Arlington.

(b) Providing notice to the residents of Arlington in advance of deliveries that could cause traffic disruption.

(c) Requiring flaggers to be at appropriate locations at appropriate times during construction to direct traffic.

67 The certificate holder shall cooperate with the Gilliam County Road Department and the Morrow County Public Works Department to ensure that any unusual damage or wear to county roads that is caused by construction of the facility is repaired by the certificate holder. Upon completion of construction, the certificate holder shall restore county roads to pre-construction condition or better, to the satisfaction of the applicable county departments. If required by Morrow County or Gilliam County, the certificate holder shall post bonds to ensure funds are available to repair and maintain roads affected by the proposed facility.

68 During construction, the certificate holder shall require that all on-site construction contractors develop and implement a site health and safety plan that informs workers and others on-site what to do in case of an emergency and that includes the locations of fire extinguishers and nearby hospitals, important telephone numbers and first aid techniques. The certificate holder shall ensure that construction contractors have personnel on-site who are trained and equipped for tower rescue and who are first aid and CPR certified.

69 During operation, the certificate holder shall develop and implement a site health and safety plan that informs employees and others on-site what to do in case of an emergency and that includes the locations of fire extinguishers and nearby hospitals, important telephone numbers and first aid techniques.

70 During construction and operation of the facility, the certificate holder shall provide for on-site security and shall establish good communications between on-site security personnel and local law enforcement agencies (Gilliam County Sheriff and Morrow County Sheriff). During operation, the certificate holder shall ensure that appropriate law enforcement agency personnel have an up-to-date list of the names and telephone numbers of facility

personnel available to respond on a 24-hour basis in case of an emergency on the facility site.

71 The certificate holder shall notify the Department and the Planning Directors of Gilliam County and Morrow County within 72 hours of any accidents including mechanical failures on the site associated with construction or operation of the facility that may result in public health and safety concerns.

6. Water, Soils, Streams & Wetlands Conditions

72 The certificate holder shall not build any roads or construct transmission line support poles within Eightmile Creek or within a 10-foot buffer from the ordinary high water line of the creek.

73 The certificate holder shall conduct all construction work in compliance with an Erosion and Sediment Control Plan (ESCP) satisfactory to the Oregon Department of Environmental Quality and as required under the National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge General Permit #1200-C. The certificate holder shall include in the ESCP any procedures necessary to meet local erosion and sediment control requirements or storm water management requirements.

74 During construction, the certificate holder shall limit truck traffic to designated existing and improved road surfaces to avoid soil compaction, to the extent practicable.

75 During construction, the certificate holder shall implement best management practices to control any dust generated by construction activities, such as applying water to roads and disturbed soil areas.

76 During construction, the certificate holder shall reduce temporary disturbance impacts by making use of previously disturbed areas, including roadways and tracks, and by preserving vegetation rootstalks by crushing, rather than scraping, vegetation in areas of temporary disturbance.

77 During facility operation, the certificate holder shall routinely inspect and maintain all roads, pads and trenched areas and, as necessary, maintain or repair erosion and sediment control measures. The certificate holder shall restore areas that are temporarily disturbed during facility maintenance or repair activities to pre-disturbance condition or better.

78 During facility operation, the certificate holder shall obtain water for on-site uses from two wells, one at each field workshop, subject to compliance with applicable permit requirements. The certificate holder shall not use more than a combined total of 5,000 gallons of water per day from the facility's on-site wells.

7. Transmission Line & EMF Conditions

79 The certificate holder shall install the 34.5-kV collector system underground to the extent practicable. The certificate holder shall install underground lines at a minimum depth of three feet. Based on geotechnical conditions or other engineering considerations, the certificate holder may install segments of the collector system aboveground on single-pole, cross-arm structures or understrung on the 230-kV transmission line support structures, but the total length of aboveground segments installed on single-pole structures must not exceed 28 miles.

80 The certificate holder shall ground appropriate sections of fencing that parallel transmission lines to reduce the risk of shock from induced voltage. In particular, the certificate holder shall ground appropriate sections of fencing located in the northern project area on the west side of Eightmile Canyon if the certificate holder builds a parallel transmission line in that location that could induce a voltage on the fence.

81 The certificate holder shall take reasonable steps to reduce or manage human exposure to electromagnetic fields, including but not limited to:

(a) Constructing all aboveground transmission lines at least 200 feet from any residence or other occupied structure, measured from the centerline of the transmission line.

(b) Constructing all aboveground 34.5-kV transmission lines with a minimum clearance of 20 feet from the ground.

(c) Constructing all aboveground 230-kV transmission lines with a minimum clearance of 24 feet from the ground.

(d) Fencing the areas near the facility substations to ensure that substation equipment is not accessible to the public.

(e) Providing to landowners a map of underground and overhead transmission lines on their property and advising landowners of possible health risks.

(f) Designing and maintaining all transmission lines so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public.

82 In advance of, and during, preparation of detailed design drawings and specifications for 230-kV and 34.5-kV transmission lines, the certificate holder shall consult with the Utility Safety and Reliability Section of the Oregon Public Utility Commission to ensure that the designs and specifications are consistent with applicable codes and standards.

8. Plants, Wildlife & Habitat Protection Conditions

83 The certificate holder shall conduct wildlife monitoring as described in the Wildlife Monitoring and Mitigation Plan that is incorporated in the Final Order on the Application as Attachment A and as amended from time to time.

84 The certificate holder shall restore areas disturbed by facility construction but not occupied by permanent facility structures according to the methods and monitoring procedures described in the Revegetation Plan that is incorporated in the Final Order on the Application as Attachment B and as amended from time to time.

85 The certificate holder shall acquire the legal right to create, enhance, maintain and protect a habitat mitigation area as long as the site certificate is in effect by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the Department. Within the habitat mitigation area, the certificate holder shall improve the habitat quality as described in the Habitat Mitigation Plan that is incorporated in the Final Order on the Application as Attachment C and as amended from time to time.

86 The certificate holder shall avoid permanent and temporary disturbance to the areas described in (a) through (g) and, during the times indicated, shall avoid construction disturbance in the areas described in (h) and (i). The certificate holder shall flag these areas

for the duration of construction activities nearby and shall ensure that construction personnel avoid disturbance of the areas. The avoidance areas are:

(a) All Category 1 and Category 2 habitat.

(b) Areas of Category 3 shrub-steppe habitat as described in the Final Order on the Application, Section IV.4.(b)F, footnote number 270, including eleven small areas of sage shrub-steppe habitat, one small area of purshia shrub-steppe habitat and one small area of shrub-steppe rabbitbrush habitat.

(c) All seeps, riparian areas and vernal pools.

(d) All water sources for wildlife, including perennial and intermittent streams, stock ponds and watering stations.

(e) All faces of bluffs or rock outcroppings.

(f) All trees or other structures that contain active raptor nests.

(g) For facility substations and field workshops, all Category 3 habitat.

(h) The area within 1,000 feet of Category 2 Washington ground squirrel (WGS) habitat during the period in which the squirrels are active. To determine when the WGS are active, the certificate holder shall hire a qualified independent professional biologist to monitor the on-site colony within the Category 1 WGS habitat area described in the Final Order on the Application. The biologist shall begin monitoring the colony on January 15 if construction activity is occurring within 0.5 miles of the Category 2 WGS habitat at that time. Otherwise, the biologist shall begin monitoring upon the start of construction activity within 0.5 miles of the Category 2 WGS habitat at any time between January 15 and June 30. The biologist shall conduct weekly monitoring to detect signs of WGS activity. If signs of WGS activity are observed, the certificate holder shall halt construction activities within the avoidance area and shall notify the Department. The certificate holder shall flag the avoidance area and ensure that construction personnel avoid disturbance of the area until the biologist has determined that the WGS are no longer active. While the WGS are active, the biologist may suspend weekly monitoring until May 1. The certificate holder may resume construction activities within the avoidance area when the WGS are no longer active, as determined by the absence of WGS activity during three consecutive weeks of monitoring by the biologist.

(i) The area within 0.5 miles of Category 3 curlew nesting habitat and the area within 0.5 miles the BLM Horn Butte Wildlife Area during the nesting season (March 8 through June 15). Before beginning construction, the certificate holder shall provide to the Department a map showing these avoidance areas relative to areas of potential construction disturbance. The certificate holder may engage in construction activities in these areas at times other than the nesting season.

87 The certificate holder shall microsite the facility in conformance with the industry's best practices. The certificate holder shall follow the recommendations of a qualified wildlife biologist to avoid building turbine towers in the following locations:

(a) Areas of increased risk to avian species due to constricted flight paths, such as narrow ridge saddles and gaps between hilltops.

(b) Areas on slopes greater than 20 percent.

(c) Areas within a 250-foot setback from the bluff edge along the north site boundary.

(d) Areas within a 250-foot setback from bluff edges along the eastern site boundary above the Willow Creek Valley.

88 During construction, the certificate holder shall avoid construction activities in areas around active nests of the following species during the sensitive period, as provided in this condition:

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

The certificate holder shall conduct pre-construction surveys, using a protocol approved by the Oregon Department of Fish and Wildlife (ODFW) to determine whether there are any active nests of these species within 0.5 miles of any areas that would be disturbed during construction. The certificate holder shall search the scheduled construction areas and all areas within 0.5 miles of the construction areas. If a nest is occupied by any of these species after the beginning of the sensitive period, the certificate holder will flag the boundaries of a 0.5-mile buffer area around the nest and shall instruct construction personnel to avoid disturbance of the area. The certificate holder shall hire a qualified independent professional biologist to observe the active nest sites during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with this condition. If the biologist observes nest site abandonment or other adverse impact to nesting activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of the Department, unless the adverse impact is clearly shown to have a cause other than construction activity. The certificate holder may begin or resume construction activities within a buffer area before the ending day of the sensitive period if any known nest site is not occupied by the early release date. If a nest site is occupied, then the certificate holder may begin or resume construction before the ending day of the sensitive period with the approval of ODFW, after the young are fledged. The certificate holder shall use a protocol approved by ODFW to determine when the young are fledged (the young are independent of the core nest site).

89 The certificate holder shall not remove any trees that are greater than three feet in height.

90 The certificate holder shall design all aboveground transmission line support structures following the most current suggested practices for avian protection on power lines published by the Avian Power Line Interaction Committee.

91 The certificate holder shall reduce the risk of injuries to avian species by:

(a) Installing turbine towers that are smooth steel structures that lack features that would allow avian perching.

(b) Installing meteorological towers that are non-guyed structures to eliminate the risk of avian collision with guy-wires.

(c) Avoiding installation of aboveground transmission lines across narrow saddles, ravines and similar features and, where such crossings cannot be avoided, installing line-markers to make the lines more visible to avian species.

92 The certificate holder shall impose and enforce construction and operation speed limits of 5 miles per hour on roads within 1,000 feet of Category 2 WGS habitat and 20 miles per hour on all other facility roads and shall ensure that all construction and operations personnel are instructed on the importance of cautious driving practices while on facility roads.

9. Visual Effects Conditions

93 To reduce the visual impact of the facility, the certificate holder shall:

(a) Mount nacelles on smooth, steel structures, painted uniformly in a matte-finish, neutral white color.

(b) Paint substation structures in a neutral color to blend with the surrounding landscape.

(c) Not allow any advertising to be used on any part of the facility.

(d) Use only those signs required for facility safety, required by law or otherwise required by this site certificate, except that the certificate holder may erect a sign to identify the facility near each field workshop, may paint turbine numbers on each tower and may allow unobtrusive manufacturers' logos on turbine nacelles.

(e) Not locate any facility signs along Highway 74.

(f) Design signs in accordance with Gilliam County Zoning Ordinance Section 8.030 and Morrow County Zoning Ordinance Section 4.070, as applicable.

(g) Maintain any signs allowed under this condition in good repair.

94 The certificate holder shall design and construct the field workshops to be generally consistent with the character of similar buildings used by commercial farmers or ranchers in the area and shall paint the buildings in a neutral color to blend with the surrounding landscape.

95 The certificate holder shall not use exterior nighttime lighting except:

(a) The minimum turbine tower lighting required or recommended by the Federal Aviation Administration.

(b) Security lighting at the field workshops and substations, provided that such lighting is shielded or downward-directed to reduce glare.

(c) Minimum lighting necessary for repairs or emergencies.

10. Noise Control Conditions

96 To reduce noise impacts at nearby residences, the certificate holder shall:

(a) Confine the noisiest operation of heavy construction equipment to the daylight hours.

(b) Require contractors to install and maintain exhaust mufflers on all combustion engine-powered equipment; and

(c) Establish a complaint response system at the construction manager's office to address noise complaints.

97 Before beginning construction, the certificate holder shall provide to the Department:

(a) Information that identifies the final design locations of all turbines to be built at the facility.

(b) The maximum sound power level for the substation transformers and the maximum sound power level and octave band data for the turbines selected for the facility based on manufacturers' warranties or confirmed by other means acceptable to the Department.

(c) The results of noise analysis of the facility to be built according to the final design performed in a manner consistent with the requirements of OAR 340-035-0035 (1)(b)(B)(iii)(IV) and (VI) demonstrating to the satisfaction of the Department that the total noise generated by the facility (including the noise from turbines and substation transformers) would meet the ambient degradation test and maximum allowable test at the appropriate measurement point for all potentially-affected noise sensitive properties.

(d) For each noise-sensitive property where the certificate holder relies on a noise waiver to demonstrate compliance in accordance with OAR 340-035-0035 (1)(b)(B)(iii)(III), a copy of the a legally effective easement or real covenant pursuant to which the owner of the property authorizes the certificate holder's operation of the facility to increase ambient statistical noise levels L_{10} and L_{50} by more than 10 dBA at the appropriate measurement point. The legally-effective easement or real covenant must: include a legal description of the burdened property (the noise sensitive property); be recorded in the real property records of the county; expressly benefit the certificate holder; expressly run with the land and bind all future owners, lessees or holders of any interest in the burdened property; and not be subject to revocation without the certificate holder's written approval.

98 During operation, the certificate holder shall maintain a complaint response system to address noise complaints. The certificate holder shall promptly notify the Department of any complaints received regarding facility noise and of any actions taken by the certificate holder to address those complaints. In response to a complaint from the owner of a noise sensitive property regarding noise levels during operation of the SFWF, the Council may require the certificate holder to monitor and record the statistical noise levels to verify that the certificate holder is operating the facility in compliance with the noise control regulations.

11. Waste Management Conditions

99 The certificate holder shall provide portable toilets for on-site sewage handling during construction and shall ensure that they are pumped and cleaned regularly by a licensed contractor who is qualified to pump and clean portable toilet facilities.

100 During operation, the certificate holder shall discharge sanitary wastewater generated at the field workshops to licensed on-site septic systems in compliance with county permit requirements. The certificate holder shall design each septic system for a discharge capacity of less than 2,500 gallons per day.

101 The certificate holder shall implement a waste management plan during construction that includes but is not limited to the following measures:

(a) Recycling steel and other metal scrap.

(b) Recycling wood waste.

(c) Recycling packaging wastes such as paper and cardboard.

(d) Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler or by using facility equipment and personnel to haul the waste.

(e) Segregating all hazardous wastes such as used oil, oily rags and oil-absorbent materials, mercury-containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.

(f) Discharging all concrete truck rinse water into foundation holes and completing truck wash-down off-site.

102 The certificate holder shall implement a waste management plan during operation that includes but is not limited to the following measures:

(a) Training employees to minimize and recycle solid waste.

(b) Recycling paper products, metals, glass and plastics.

Attachments

Attachment A: Wildlife Monitoring and Mitigation Plan

Attachment B: Revegetation Plan

Attachment C: Habitat Enhancement Plan

Attachment D: Application Comments and Department Responses

Attachment E: Draft Proposed Order Comments and Department Responses

Notice of the Right to Appeal

You have the right to appeal this order to the Oregon Supreme Court pursuant to ORS 469.403. To appeal you must file a petition for judicial review with the Supreme Court within 60 days from the day this order was served on you. If this order was personally delivered to you, the date of service is the date you received this order. If this order was mailed to you, the date of service is the date it was mailed, not the day you received it. If you do not file a petition for judicial review within the 60-day time period, you lose your right to appeal.

(c) Recycling used oil and hydraulic fluid.

(d) Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler or by using facility equipment and personnel to haul the waste.

(e) Segregating all hazardous, non-recyclable wastes such as used oil, oily rags and oil-absorbent materials, mercury-containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.

VIII. GENERAL CONCLUSION

The applicant has submitted an application to construct a wind energy facility consisting of up to 303 wind turbines having a combined peak electric generating capacity of not more than 909 megawatts. The Council adopts the site certificate the conditions listed in Sections VI and VII of this Final Order. The Council finds that a preponderance of evidence on the record supports the following conclusions:

1. The proposed SFWF complies with the requirements of the Oregon Energy Facility Siting statutes, ORS 469.300 to 469.520.
2. The proposed SFWF complies with the standards adopted by the Council pursuant to ORS 469.501.
3. The proposed SFWF complies with the statewide planning goals adopted by the Land Conservation and Development Commission.
4. The proposed SFWF complies with all other Oregon statutes and administrative rules identified in the project order as applicable to the issuance of a site certificate for the proposed facility.

Based on the findings of fact, reasoning, site certificate conditions and conclusions of law discussed in this Final Order, the Council concludes that the applicant has satisfied the requirements for issuance of a site certificate for the proposed SFWF, subject to the conditions stated herein.

IX. ORDER

The Council grants issuance of a site certificate, subject to the terms and conditions set forth above, to Caithness Shepherds Flat, LLC for the proposed Shepherds Flat Wind Farm.

Issued this 25 day of July, 2008.

THE OREGON ENERGY FACILITY SITING COUNCIL

By: Robert Shiprack

Robert Shiprack, Chair
Oregon Energy Facility Siting Council