BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON

In the Matter of the Application for a Site Certificate for the Leaning Juniper II Wind Power Facility	))))	FINAL ORDER

The Oregon Energy Facility Siting Council

September 21, 2007

LEANING JUNIPER II WIND POWER FACILITY:

FINAL ORDER

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LIST OF ABBREVIATIONS

AINW	Archaeological Investigations Northwest, Inc.
APLIC	Avian Power Line Interaction Committee
App	Site Certificate Application as submitted on October 4, 2006
App Supp	Application Supplement as submitted on May 15, 2007
BLM	Bureau of Land Management
BMW	Blue Mountain Wildlife (wildlife rehabilitation center)
BPA	Bonneville Power Administration
Council	Energy Facility Siting Council
CRGNSA	Columbia River Gorge National Scenic Area
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"
FAA	Federal Aviation Administration
Figure C-3a	Revised Figure C-3a, dated February 21, 2007 (App Supp, Appendix C, Attachment 1)
GCCP	Gilliam County Comprehensive Plan
GCSR	Gilliam County Staff Report on the application for a Conditional Use Permit for the Leaning Juniper Wind Energy Project, January 20, 2005
GCZO	Gilliam County Zoning and Land Development Ordinance
kV	kilovolt or kilovolts
LCDC	Land Conservation and Development Commission
LJ1	Leaning Juniper Wind Power Facility Phase I (Leaning Juniper Wind Energy Project)
LJ2	Leaning Juniper Wind Power Facility Phase II
LJF	Leaning Juniper II Wind Power Facility
LJWP	Leaning Juniper Wind Power II LLC (the "applicant")
m	meters
met tower	meteorological tower
MW	megawatt or megawatts
NPDES	National Pollutant Discharge Elimination System
NRCS	US Department of Agriculture, Natural Resources Conservation Service
NWC	Northwest Wildlife Consultants, Inc.
O&M	Operations and maintenance
ODFW	Oregon Department of Fish and Wildlife

ODOT	Oregon Department of Transportation
Office	Oregon Department of Energy
ONHIC	Oregon Natural Heritage Information Center
RAI	Oregon Department of Energy request for additional information
SAG	Special Advisory Group (Gilliam County Court)
USFWS	U.S. Fish and Wildlife Service
WEST	Western EcoSystems Technology, Inc.
WGS	Washington ground squirrel
WMMP	Wildlife Monitoring and Mitigation Plan
WRD	Oregon Water Resources Department

LEANING JUNIPER II WIND POWER FACILITY:

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 near Arlington, Oregon. The applicant is Leaning Juniper Wind Power II LLC (LJWP), a wholly-owned subsidiary of PPM Energy, Inc. The applicant has named the proposed facility the "Leaning Juniper II Wind Power Facility" (LJF). The 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." 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).

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 that includes notice that the Council will conduct a contested case hearing on the application. The notice 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 that are applicable. ORS 469.370(7). Any party to a contested case proceeding may apply for rehearing within 30 days from the date the approval or rejection is served.

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(3).

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

II. PROCEDURAL HISTORY

1. Request for Expedited Review

On November 30, 2005, Leaning Juniper Wind Power LLC and Leaning Juniper Wind Power II LLC (wholly-owned subsidiaries of PPM Energy, Inc.) submitted to the Department a request for expedited review for a proposed facility, the "Leaning Juniper Wind Power Facility." They submitted a revised request on December 6, 2005. The proposed facility consisted of two phases, Leaning Juniper I (LJ1) and Leaning Juniper II (LJ2).

The first phase, LJ1, was a wind energy project with a peak generating capacity of 100.5 megawatts (MW). Gilliam County approved a Conditional Use Permit for the project on January 20, 2005.[1] Construction of the project began in early 2006. The second phase, LJ2, was to be an expansion of LJ1 that would increase the generating capacity of the facility to approximately 200 MW. The expanded facility would require a site certificate. Under ORS 469.300, a wind energy project becomes an "energy facility" and subject to the mandatory site

[1] Memorandum from Brent Lake, Acting Gilliam County Planning Director, January 24, 2005, regarding Conditional Use Permit 2004-05 (Leaning Juniper Wind Power Facility, Application for Site Certificate (January 2006), Attachment B-1).

certificate requirement when it has "an average electric generating capacity of 35 megawatts or more." ORS 469.300 defines the "average electric generating capacity" of a wind facility as "peak generating capacity" divided by 3.00. The expanded "Leaning Juniper Wind Power Facility" would have an average electric generating capacity of approximately 66.7 MW.

Because the average electric generating capacity of the proposed facility was below 100 MW, it was eligible for expedited processing under ORS 469.370(10). The Department reviewed the applicants' expedited review request for compliance with OAR 345-015-0300 and determined that the proposed facility satisfied the requirements for expedited review under that rule. The Department sent notification of its determination to the applicants on December 15, 2005.

2. Site Certificate Application

The applicants (Leaning Juniper Wind Power LLC and Leaning Juniper Wind Power II LLC) submitted an application for a site certificate on February 1, 2006. The application was distributed to the reviewing agencies in accordance with OAR 345-021-0050, and the Department requested comments from the agencies. The Department issued a project order on March 30, 2006.

The Department continued to review the application for completeness until May 22, 2006. On that date, PPM Energy notified the Department that a sale of LJ1 was under consideration and that, if the sale were to occur, Leaning Juniper Wind Power II LLC would amend the site certificate application to remove the LJ1 facilities from the application and include additional leased property and proposed turbines for LJ2. The Department then suspended its completeness review, pending receipt of an amended application or other notification from the applicant. On July 27, 2006, PPM Energy announced the sale of LJ1 to PacifiCorp.

On June 30, 2006, the Council appointed John W. Burgess as the Hearing Officer for the public hearing and contested case proceedings for the Leaning Juniper project.

On October 4, 2006, LJWP submitted a revised application to the Department. The revised application requests a site certificate for the proposed LJF, which would be located adjacent to LJ1 but would be designed, built and operated as an entirely separate facility. Copies of the revised application were distributed to the reviewing agencies in accordance with OAR 345-021-0050, and the Department requested comments. The Department issued an amended project order on November 21, 2006.

On May 1, 2007, the Department determined that the application was complete based on additional information submitted by the applicant. On May 15, as required under OAR 345-021-0055, the applicant submitted a supplement to the application. The Department filed the application as of that date. On May 24, 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.

On May 21, 2007, the Department mailed a notice of filing 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 required under OAR 345-015-0190. On May 27, the Department published public notice in the East Oregonian, a newspaper of general circulation available in the vicinity of the proposed facility.

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

1. Department of Environmental Quality (noting that a National Pollutant Discharge Elimination System (NPDES) permit is pending, but otherwise raising no concerns).[2]
2. Water Resources Department (noting that the City of Arlington may provide water for a use outside of their service boundary as long as the water is available within the terms and limits of its water rights).[3]
3. Department of State Lands (requesting additional information regarding delineation of wetlands and waters; noting that a Removal/Fill permit is needed and providing substantive comments).[4]
4. Oregon Department of Transportation (noting that the facility would not need an access permit).[5]
5. Office of State Fire Marshal (raising concern about the local fire authority lacking capability to perform high angle rescue).[6]
6. Oregon Department of Fish and Wildlife (recommending financial support for Blue Mountain Wildlife, recommending a raptor-nest buffer during construction, requesting a revised Incidental Take Permit application and recommending a pre-construction survey of the extent of the known Washington ground squirrel colony on the boundary closest to the construction zone).[7]

The Department did not receive any public comments in response to the notice of filing. In preparing the draft proposed order, the Department considered all agency comments received. The Department issued the Draft Proposed Order on July 18, 2007, and provided notice of a public hearing at least 20 days before the hearing date, as required under OAR 345-015-0220. The notice was published in the Condon *Times-Journal*, a newspaper of general circulation available in the vicinity of the proposed facility. The notice was mailed to persons on the Council's general mailing list, the special mailing list for the project and the updated list of property owners.

The Department held a public hearing on August 9, 2007, in Arlington. 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. There were no public comments given at the hearing. One comment letter was received in writing before the deadline for written comment on the record.

[2] Letter from Heidi Williams, DEQ, dated May 29, 2007.
[3] E-mail from Jerry Sauter, OWRD, dated June 7, 2007.
[4] E-mail from Anna Buckley, DSL, dated June 14, 2007; e-mail from Jess Jordan, DSL, dated June 22, 2007
[5] E-mail from Patrick Smith, ODOT, dated June 14, 2007.
[6] E-mail from Stacy Warner, OSFM, dated June 18, 2007.
[7] Letter from Rose Owens, ODFW, dated June 20, 2007.

The U.S. Fish and Wildlife Service (USFWS) submitted written comments in a letter dated August 9, 2007.[8] Copies of the letter were provided to each member of the Council.

The Department discussed the Draft Proposed Order at a meeting of the Council on August 17. The Department included a discussion of the concerns expressed in the USFWS comment letter, summarized below.

On August 21, the Department issued a Proposed Order and provided the contested case notice required under OAR 345-015-0230(3). The notice specified a deadline of September 5, 2007, for interested persons to request party status. No requests for party status were received by the deadline. On September 7, 2007, the Hearing Officer issued an Order concluding the contested case proceeding. The Council considered the Department's Proposed Order at a public meeting in Klamath Falls, Oregon, on September 21, 2007, and issued this Final Order.

USFWS Comment Letter

USFWS expressed concerns regarding 1) avian and bat mortalities from collision, 2) implementation of post-construction avian and bat fatality monitoring, and 3) development of an avian protection plan for existing and planned wind power facilities. The Department and the Council share the USFWS concerns about the potential impacts of wind facilities on avian and bat species. Beginning with the site certificate for the Stateline Wind Project issued in 2001, the Council has included site certificate conditions addressing mitigation for potential impacts to avian and bat species and requiring post-construction avian and bat fatality monitoring for every wind project within its jurisdiction.

The USFWS comment letter recommends "that the environmental impact analysis include a cumulative effects analysis that incorporates all the bird and bat survey data conducted for existing, planned and reasonably foreseeable future wind power projects in the same vicinity including projects in Klickitat County to the north and Wasco and Sherman Counties to the west." The Department is interested in the broader impact of wind energy development in the Columbia Plateau region of Washington and Oregon. The Department has initiated discussions with the Oregon Department of Fish and Wildlife (ODFW), USFWS, wind energy developers and interested organizations to address these regional concerns.

The site certificate process is standards-based process. The applicant has addressed cumulative impacts in the context of the Council's Siting Standards for Wind Energy Facilities, OAR 345-024-0015 (discussed below at page 67). In Table 8 herein, the Department has identified the potential for more than 3,000 MW of wind power development in the three-county area of Morrow, Gilliam and Sherman County. Within the whole Columbia Plateau region of Oregon and Washington, the Department has identified more than 5,400 MW of wind power development is proposed, under construction or operating. The proposed Leaning Juniper II facility (LJF) would have a peak generating capacity of 279 MW, which represents approximately 5 percent of the potential wind generation in the region identified by the Department.

The USFWS letter cites figures that are included in the Bonneville Power Administration's (BPA) Final Environmental Impact Statement (FEIS) for the Klondike

[8] Letter from Nancy Gilbert, USFWS Field Supervisor, August 9, 2007.

III/Biglow Canyon Wind Integration Project.[9] These figures estimate potential annual avian fatalities from wind projects in the region of up to 42 raptors and 3,480 passerines and potential annual bat fatalities of up to 4,350 bats. These figures were calculated based on the fatality monitoring conducted at five operating wind projects in the region, including the Stateline project, which has served as a model for fatality monitoring at subsequently approved projects in Oregon and Washington. The fatality rates were based on a survey methodology that assumes that all fatalities discovered within search plots were the result of collision with wind turbines; that is, there has been no adjustment for "background" fatalities resulting from natural causes (predation, disease) or other human activities (vehicle strikes, farming activities). Nevertheless, the BPA FEIS applied the fatality rates to 3,134 MW of existing or proposed wind projects and concluded, "the cumulative impacts to all bird species is expected to be moderate, and mortality rates are not expected to reduce the viability of any bird species populations in the region" (FEIS, p. 4-38). BPA noted that the only federally-protected species in the area surrounding the Klondike III and Biglow Canyon wind projects is the bald eagle and concluded, "any impacts to this species from turbine or transmission line impacts would be isolated and rare" (FEIS, p. 4-38). With regard to bats, BPA concluded that resident bat species "do not appear to be significantly affected and almost all mortality is observed during the fall migration period" (FEIS p. 4-39). The FEIS acknowledged, however, that "overall populations of bats in the region are not well documented, thus conclusions about population effects from turbine mortality would be speculative."

A more recent study conducted by Western EcoSystems Technology, Inc., (WEST) and submitted to the Council in the application for the Shepherds Flat Wind Farm, analyzed the estimated cumulative impacts on avian and bat species from six projects in the Columbia Plateau region in Oregon and Washington.[10] Based on fatality monitoring data, WEST estimated average annual fatality rates of 1.9 per MW for all birds as a group, 0.05 per MW for raptors and 1.43 per MW for bats. Although these rates would translate into a cumulative impact of thousands of avian and bat fatalities each year from the potential increase in wind energy facilities that might be built over the next five years, the impacts are divided across numerous species. Furthermore, the fatality estimates are based on data collected over all seasons of the year, not just the breeding season. Thus, the raw numbers of estimated bird and bat fatalities do not demonstrate the significance of impact to the breeding populations of any particular species.

WEST addressed the issue 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 in the Columbia Plateau region are of common passerines, and horned larks are the most common fatality. 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 and the proportion of horned lark fatalities within all bird fatalities, WEST estimated that there could be 2,715 horned lark fatalities per year from a potential 4,060 MW of regional wind energy development. WEST calculated that

[9] The BPA FEIS discussion of cumulative impacts to fish and wildlife was based on WEST, *Cumulative Impacts Analysis for Avian Resources from Proposed Wind Projects in Sherman County, Washington* (March 2006).
[10] WEST, *Avian and Bat Cumulative Impacts Analysis, Shepherds Flat Wind Project, Gilliam and Morrow Counties, Oregon* (March 2007).

one-quarter of that number (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 the breeding population of horned larks would be approximately 0.5 percent. WEST concluded that this would not be significant. Further, WEST concluded that the cumulative impacts on the breeding populations of less common species would be even lower and therefore insignificant.

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 the impact to breeding populations would be 0.26 percent for red-tails and 0.28 percent for American kestrels.

A similar analysis cannot be done for bats, because there is 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 fatalities reported at wind facilities in the eastern United States[11] (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[12] (2.1 per MW), WEST concluded "the significance of this impact on hoary and silver-haired bat populations is difficult to predict, as there is very little information available regarding the overall population size and distribution of bats potentially affected."

In addition to expressing a general concern about potential cumulative impacts, the USFWS comment letter included seven specific recommendations for mitigation and monitoring:

1. Consider an option to establish a wind energy mitigation fee system to develop a mitigation bank.

The Department has considered this and believes further discussion (within the context of the broader regional discussion that the Department has initiated) could address this idea. Such a system is not currently in place, however, and it is not an available option for mitigation for the potential impacts of the LJF. The Department recognizes that there are difficult issues that must be resolved to make this option workable. These issues include fair apportionment of the fees among all wind projects (most wind development in the region is not within Council jurisdiction); regulatory oversight to ensure that the funds are used for habitat protection and improvement; and the financial resources and administrative structure that would needed to sustain long-term management of the fund.

2. A formal long-term monitoring plan should be developed between USFWS, ODFW, PPM Energy and other appropriate parties to ensure that proposed

[11] Kunz et al., *Ecological Impacts of Wind Energy Development on Bats: Questions, Research Needs, and Hypotheses* (August 2007).
[12] WEST, *Stateline Wind Project Wildlife Monitoring Final Report, July 2001 - December 2003* (December 2004).

turbines do not "exacerbate cumulative adverse impacts on birds or bats along the Columbia River corridor."

The USFWS is proposing a "long-term monitoring plan" that does not necessarily involve the Council or the Department. This proposal is regional in scope, covering wind development in Oregon and Washington along the Columbia River corridor. The USFWS has the option of working directly with Oregon and Washington wildlife agencies and other parties that the USFWS deems appropriate together with wind developers in Oregon and Washington to discuss the scope and implementation of a long-term monitoring plan. The USFWS might consider including BPA in the discussion. In future site certificate proceedings, the Department would make site certificate recommendations to the Council after taking into account any long-term monitoring plans developed by the USFWS and those other parties.

3. PPM Energy should develop an Avian Protection Plan for existing and planned wind energy projects to reduce migratory bird impacts.

The Department understands that the USFWS has previously developed Avian Protection Plans to address potential adverse impacts of transmission lines on protected avian species. The USFWS can work directly with PPM Energy to develop such a plan for PPM Energy's wind power projects in Oregon and Washington. Implementation and oversight of such a plan is beyond the scope of a site certificate for the proposed LJF.

4. Bat surveys should be completed to determine from a regional perspective the potential risk to local populations of hoary bats and silver-haired bats.

Based on the available data from bat fatality monitoring at wind facilities in the region, the impact on hoary bats and silver-haired bats appears to be low (see cumulative impacts discussion above). Nevertheless, the Department is aware that there are gaps in scientific information available regarding regional populations and distribution of these bat species, bat behavior and migratory patterns. Development of the scientific knowledge about individual species is appropriately carried out by the scientific community, colleges and universities, government wildlife agencies and organizations such as Bat Conservation International and the Bats and Wind Energy Cooperative. The Department believes that the research effort that would be needed to fill the regional knowledge gaps is beyond the scope of a site certificate for the proposed LJF.

5. Design future bat fatality search methodology to search a portion of the turbines each day rather than all turbines on one day, to balance variation in timing of fatalities.

Given the low rate of bat fatalities that appears to be characteristic of wind energy facilities in the Columbia Plateau region, the Department does not believe that changing the search methodology to a more rigorous protocol, as proposed by USFWS, is warranted. If fatality monitoring at the LJF (as described in Attachment A, the proposed Wildlife Monitoring and Mitigation Plan) shows that the threshold of concern for bat species is exceeded, the plan provides for additional mitigation or for additional, targeted data collection. The Department, in that case, would consider the search methodology suggested by the USFWS in making recommendations to the Council.

6. Design future searcher efficiency trials to avoid using small birds to represent bats.

The proposed Wildlife Monitoring and Mitigation Plan already requires the use of legally-obtained bat carcasses in the searcher efficiency trials when they are available (Attachment A, page A-4). If bat carcasses are not available, small brown bird carcasses must be used to simulate bats.

7. Consider support and contribution to Bat Conservation International or other bat conservation groups in the Pacific Northwest for research.

The Council has already imposed a site certificate requirement on PPM Energy to contribute $10,000 per year for three years to fund research toward better understanding of wind facility impacts to bats and to develop mitigation solutions (Second Amended Site Certificate for the Klondike III Wind Project, Condition 96). If fatality monitoring at the LJF (as described in Attachment A, the proposed Wildlife Monitoring and Mitigation Plan) shows that the threshold of concern for bat species is exceeded, the plan provides for mitigation, which might include additional contributions toward bat research. PPM Energy is one of the founders of the Bats and Wind Energy Cooperative and supports the work that Bat Conservation International is conducting.

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 LJF would consist of not more than 133 wind turbines. The peak generating capacity of the LJF would be up to 279 MW. The average generating capacity of the facility would be approximately 93 MW. Accordingly, the proposed facility is within the Council's jurisdiction and remains eligible for expedited review. The facility would be divided into two sections: (1) Leaning Juniper II North (LJ-North), having a peak generating capacity of up to 93 MW, and (2) Leaning Juniper II South (LJ-South), having a peak generating capacity of up to 186 MW.

(b) The Pebble Springs Wind Project

PPM Energy has received land use approval from Gilliam County for a separate wind energy project, the "Pebble Springs Wind Project," which would be located to the east of the proposed LJF site.[13] PPM submitted a Conditional Use Permit (CUP) application for the Pebble Springs project on July 28, 2006.[14] The components for LJ-North as described in the site certificate application are also described in the Pebble Springs CUP application. PPM wants the flexibility to decide later whether to construct and operate the LJ-North components

[13] The Gilliam County Planning Commission approved the Conditional Use Permit for the Pebble Springs Wind Project on October 31, 2006 (e-mail from Sara McMahon, November 1, 2006).

[14] PPM Energy requested Department concurrence that the Pebble Springs Wind Project would be a separate facility and not part of the Leaning Juniper project (letter from Andrew Linehan, March 23, 2006). The Department concurred based on the factors discussed by PPM Energy in the request letter (letter from Thomas Stoops, Energy Facility Siting Manager, March 31, 2006.

as part of the LJF (if the Council issues a site certificate) or as part of the Pebble Springs project (subject to County land use jurisdiction).

PPM will notify both Gilliam County and the Council before beginning construction of any LJ-North components and identify the authority under which it will build and operate those components. If the Council has issued a site certificate for the LJF and the certificate holder chooses to build and operate the LJ-North components as a part of the Pebble Springs Wind Project under the authority of a Gilliam County CUP, the LJF certificate holder would request an amendment of the site certificate to remove those components from the site certificate (Condition 24).[15]

(c) The Energy Facility (Wind Turbines)

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 wind turbines would be spaced approximately 350 to 850 feet apart (depending on turbine selection) in a series of turbine strings. Turbine strings would be oriented in a generally north-south alignment a half-mile or more apart.

LJ-North would consist of up to 40 turbines. LJ-South would consist of up to 93 turbines. The applicant requests flexibility to select the turbine type and manufacturer after a site certificate has been issued. The total number of turbines to be built and the facility generating capacity will depend on the turbines selected. The site certificate would limit the total number of turbines to 133 and the total peak generating capacity to 279 MW.

To define the range of turbine types that could be selected for use at the LJF, the applicant proposed a "maximum turbine number" layout of 133 GE 1.5-MW turbines. This layout is illustrated in Figure C-3a of the application.[16] Other turbine types could be selected, ranging up to 3.0-MW turbines. Figure C-3b of the application illustrates a possible 93-turbine layout if only 3.0-MW turbines were used.

The GE 1.5-MW turbines would have a rotor diameter of approximately 77 meters (253 feet). They would be mounted on tubular steel towers with a hub height of approximately 80 meters (262 feet). The site certificate would allow the certificate holder to select of other turbine types, not exceeding 3.0-MW turbines with a rotor diameter of approximately 100 meters (328 feet) and a tower hub-height of 100 meters.[17]

The proposed turbines would have active yaw control (designed to steer the turbine toward the wind) and active blade pitch control (designed to regulate wind rotor speed). The rotor spins in a clockwise direction under normal operating conditions when viewed from an upwind location. To protect turbine generator components at unusually high wind speeds, the turbines are designed so that the rotor stops turning at speeds exceeding approximately 56 miles-per-hour. The turbine generator produces electricity at 575 volts, which is converted to 34.5 kilovolts (kV) by a generator step-up transformer installed on a separate pad foundation

[15] In this document, all site certificate conditions are listed together in Section VI (Conditions Required by Council Rules) and Section VII (Specific Facility Conditions).
[16] References herein to "Figure C-3a" are to the revised figure submitted on February 22, 2007 (App Supp, Appendix C, Attachment 1).
[17] The applicant requests the flexibility to install a 100-meter rotor on an 80-meter (hub height) tower. E-mail from Sara Parsons, July 16, 2007.

at the base of the turbine tower. Tower access would be through a locked entry door at ground level. Inside the tower would be a controller cabinet at the base and an access ladder to the nacelle. The foundation design for each tower would be determined based on site-specific geotechnical information and structural loading requirements of the selected turbine.

(d) Related or Supporting Facilities

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

- Power collection system
- Substation and interconnection system
- Meteorological towers
- Operations and maintenance facility
- Control system
- Access roads
- Temporary construction areas

Power Collection System

A power collection system operating at 34.5 kV would carry the power from each turbine to the project substation. To the extent practicable, the collection system would be installed underground at a depth of at least three feet (Condition 78). Segments of the collector line might be constructed aboveground where necessary to cross streams, wetlands or canyons or because of other geotechnical considerations. Aboveground segments would be supported by H-frame or monopole support structures. Overhead collector lines would be constructed in accordance with the recommendations of the Avian Power Line Interaction Committee (APLIC) for raptor protection on power lines (including minimum conductor spacing and the use of anti-perch guards near turbines). Based on the maximum turbine number layout, the collector system would consist of approximately 33.2 miles of collector lines.[18] Not more than 30 percent of the collector system (3.3 miles in LJ-North and 6.6 miles in LJ-South) would be installed aboveground.

Substation and Interconnection System

A Leaning Juniper II project substation would be located adjacent to the BPA Jones Canyon Switching Station. The substation would be located on a 3.6-acre site within a graveled, fenced area. The substation would convert the voltage from the 34.5-kV collector system to 230 kV. An aboveground transmission line less than 400 feet in length would carry the power from the project to the BPA switching station and the existing McNary-Santiam 230-kV transmission line. The 230-kV line would be supported by two galvanized steel H-frame structures on concrete foundations.[19]

Meteorological Towers

The proposed LJ-North would have one meteorological (met) tower, and LJ-South would have three met towers. The met towers would be non-guyed steel towers approximately 80 meters in height constructed on a square pad foundation measuring approximately 28'x28' and extending approximately 3 feet below grade. The proposed locations of the met towers, based on the maximum turbine number layout, is shown in Figure C-3a. Under any turbine

[18] Response to request B7, App Supp, Exhibit B, p. B-4.
[19] App p. B-17.

layout, the met towers (as well as access roads and underground communication lines for the met towers) would be located within the micrositing areas that are shown on Figure C-3a.

Operations and Maintenance Facilities

The applicant proposed to construct either one or two operations and maintenance (O&M) buildings.[20] The O&M buildings would be 4,000 to 8,000-square-foot, one-story buildings. Each O&M building would be located on a 10-acre site. Proposed and alternate locations are shown on Figure C-3a. The O&M buildings would contain offices, control system equipment, bathroom and kitchen facilities, storage area and a garage for vehicle, turbine and equipment maintenance. There would be approximately 2.5 acres of fenced, graveled parking and storage area adjacent to each building. At each building, water would be supplied by an on-site well and wastewater would be discharged to an on-site septic system.

On-site power would be supplied by Pacific Power. The existing power line along Rattlesnake Road that currently serves the Leaning Juniper I O&M building would carry power for the LJ-North O&M building. Power for the LJ-South O&M building would be carried on a new 12-kV power line from existing power lines either along Blalock Canyon Road or along Rattlesnake Road. The new power line would be placed underground in the same trenches with the 34.5-kV collector lines or within the disturbed road shoulders. Depending on the final location of the LJ-South O&M building and the power line route selected, there would be between 1.8 miles and 6.6 miles of new underground power line.[21]

Control System

A fiber optic communications network would link the wind turbines to a central computer at the O&M buildings. A Supervisory, Control and Data Acquisition (SCADA) system would collect operating and performance data from each wind turbine and from the project as a whole and allow remote operation of the wind turbines. The SCADA software would be provided by the turbine manufacturer or a third-party SCADA vendor.

Access Roads

Approximately 7 miles of new gravel roads would be built for LJ-North and approximately 14 miles of new roads would be built for LJ-South.[22] The new roads would be up to 16 feet wide, and the total area of construction disturbance would be up to 35 feet wide.[23] Access roads would connect to graveled turbine turn-out (spur roads) and pad areas at the base of each wind turbine.

Some existing private roads would be improved by widening, grading and graveling. Typical existing roads are 8 to 12 feet wide. These roads would be widened up to 20 feet wide, and the total area of construction disturbance would be up to 35 feet wide. Existing cattle guards would be replaced with wider guards as necessary. Approximately 2.5 miles of existing road would be improved for LJ-North and approximately 4.5 miles of existing road would be improved for LJ-South.

[20] If the LJ-North components are built as part of the Pebble Springs project, there must be a separate O&M building for LJ-South.
[21] Response to request B6, App Supp, Exhibit B, p. B-4.
[22] App Table C-4.
[23] Response to request B5, App Supp, Exhibit B, p. B-3.

Additional Construction Areas

During construction, laydown and staging areas would be used to stage construction and store supplies and equipment. LJWP proposes a 2-acre area near each turbine string and several centrally-located 5-acre areas. These areas would have a crushed gravel surface. Additional laydown area would be needed at each tower site and at locations near collector line construction. These temporary laydown and staging areas would be restored to their pre-construction conditions after facility construction is completed. Construction of LJ-North would occupy approximately 160 acres of laydown and staging area, and construction of LJ-South would occupy approximately 367 acres.[24]

Crane paths would be used to move construction cranes between turbine strings for LJ-North. Crane paths would disturb approximately 12 acres of land most of which lies within the LJ-North lease area (a small portion of the disturbed area lies within the LJ-South lease area).

2. Location of the Proposed Facility

The applicant provided information about the location of the proposed facility in Exhibit C of the application. The proposed facility site lies southwest of Arlington, in Gilliam County, Oregon. The Arlington city limit boundary is adjacent to the LJ-North lease boundary.[25] The property is located in Townships 2 and 3 North and Ranges 20 and 21 East.

LJWP has negotiated long-term wind energy leases with the landowners. All of the turbines for LJ-South would be located on land owned by Waste Management Disposal Services of Oregon, Inc. This land serves as a buffer around the landfill and as a source of soil and rock for use as cover within the landfill. Portions of the land are used for cultivation of winter wheat or for cattle grazing. All of the turbines for LJ-North would be located on land belonging to a single landowner. The land is used for farming and cattle grazing. The leased area comprises 8,565 acres. In addition, LJWP has negotiated easements for components of the LJF that would be built outside the lease area, including collector lines and access roads.

Figure C-3a illustrates the "maximum turbine number" layout of 133 GE 1.5-MW turbines. The figure does not represent a final turbine layout; rather, the applicant has prepared Figure C-3a to show a configuration of facility components that would have the greatest area of permanent and temporary construction impact. Figure C-3a is incorporated herein by this reference. Based on the maximum turbine number layout shown in Figure C-3a, the facility would have a permanent footprint of approximately 64 acres and would disturb an additional 699 acres during construction, as shown in Table 1.[26]

[24] Revised Table C-5, response to request B1, RAI #2, submitted February 27, 2007.
[25] Response to request C1, RAI#1, submitted December 20, 2006.
[26] Areas calculated based on "worst-case" habitat impact shown in revised Table P-10B (App Supp, Appendix B, Attachment 1) and revised Table P-15B (App Supp, Appendix C, Attachment 3). See Table 11 herein.

Table 1: Area Affected by the Proposed Facility (Acres)

	LJ-North	LJ-South	LJF (combined)
Permanent footprint	20.6	43.6	64.2
Construction disturbance	208.8	489.8	698.6
Total area affected ("worst case")	229.4	533.4	762.8

3. The Site and Site Boundary

LJWP requests the flexibility to determine the final turbine locations for the proposed facility before construction, based on the turbine type selected for the facility, geotechnical considerations, consideration of farming operations, reducing impacts on high-value habitat and other micrositing factors. The Council approves a site certificate that allows micrositing of turbines and related facilities within the "corridors" requested by the applicant.[27]

For the purpose of analysis of the site certificate application, the "site boundary" encloses the area within the micrositing corridors described in this section. The site certificate would not allow permanent facilities or temporary construction disturbance outside of the site boundary. Attachment D, incorporated herein by this reference, contains detailed descriptions of the proposed micrositing corridors for turbine strings, roads, collector cables and crane paths and micrositing easements for areas outside the LJF lease boundary. These micrositing areas are illustrated in Figure C-3a.

Within 90 days after beginning operation of the facility, the certificate holder would determine the final turbine locations and submit a legal description of the site to the Department (Condition 2). ORS 469.300 defines a "site" as "any proposed location of an energy facility and related or supporting facilities." The final site of the proposed LJF would include the area within the turbine string micrositing corridors identified in Table 1 of Attachment D and the following component areas (to the extent not included within the turbine string micrositing areas):

- Four meteorological towers, access road and underground data lines from these towers – The site includes the area within 30 feet of the tower locations and the centerline of access roads and underground meteorological tower data lines.
- Collector transmission lines – The site includes the area within 50 feet of the centerline of all underground and aboveground collector lines.
- Access roads – The site includes the area within 50 feet of the centerline of all turbine string access roads.
- LJ II Substation – The site includes a 3.6-acre substation area.
- O&M facility – The site includes two 2.5-acre O&M building areas and the area within 30 feet of the power lines that provide electric service to the O&M buildings.

[27] Although these areas are generally referred to as "corridors," they are in some cases rectangles or irregularly-shaped polygons.

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. LJWP has proposed to begin construction of the LJF no later than three years after the effective date of the site certificate. LJWP has proposed to complete construction no later than four years after the effective date of the site certificate.[28] The Council incorporates these deadlines in Conditions 25 and 26.

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

The Council must decide whether the proposed LJF 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).

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

[28] Response to Request B9, RAI #1 and #2.

public interest. In resolving the conflict, the council cannot waive any applicable state statute.

* * *

We address the requirements of OAR 345-022-0000 in the findings of fact, reasoning, conditions and conclusions of law discussed in the sections that follow. Upon consideration of all of the evidence in the record, we state our general conclusion regarding the application in Section VIII at page 151.

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

PPM Energy, Inc. (PPM), an Oregon corporation, is the parent company of the applicant, Leaning Juniper Wind Power II LLC.[29]

PPM is a wholly-owned direct subsidiary of ScottishPower Holdings, Inc. (SPHI), a Delaware corporation with general offices located in Portland, Oregon. SPHI is a wholly-owned direct subsidiary of ScottishPower NA 2 Limited, a wholly-owned direct subsidiary of Scottish Power PLC. Scottish Power PLC is owned by Iberdrola SA, a Spanish electric company.[30]

PPM would provide the organizational, managerial and technical expertise to construct and operate the proposed LJF. PPM is an integrated, non-utility energy company that owns, controls, manages or operates nearly 1,605 MW of wind power generation facilities in the United States. PPM is the owner and operator of the Klondike I and Klondike II wind projects in Sherman County, Oregon, and is the parent company of Klondike Wind Power III LLC, which holds a site certificate for the Klondike III Wind Project. PPM owns and operates wind power facilities in Oregon, Washington, California, Colorado, Minnesota, Iowa, Kansas and New York. In addition, PPM successfully developed and constructed the Klamath Cogeneration Project and operates that facility for the City of Klamath Falls subject to a site certificate. The Council has approved site certificates for the Klamath Generation Facility and the Klamath Generation Peakers, developed by other PPM subsidiaries. Neither PPM nor the applicant have received regulatory citations in connection with the construction or operation of energy facilities. PPM has developed and implemented mitigation measures for wildlife-related impacts at the Shiloh Wind Project in California and the Big Horn Wind Project in Washington.

PPM's key personnel for the development, construction and operation of the proposed energy facility have experience in power project engineering, design, development, construction and operation.[31] The applicant has not yet selected a prime contractor to construct the facility. The Council adopts Condition 32, which requires the certificate holder to hire qualified contractors to design and build the LJF.

The applicant relies on mitigation to demonstrate compliance with Council standards. The mitigation actions necessary to demonstrate compliance with these standards are described in the site certificate conditions in Sections VI and VII below. The Council finds that the applicant could successfully complete the mitigation actions, based on evidence provided including experience with other projects and the qualifications and experience of personnel upon whom the applicant would rely.

[29] Leaning Juniper Wind Power II LLC is limited liability company organized under Oregon law. (App Attachment A-1).
[30] Memorandum from Erin Toelke, June 26, 2007.
[31] A listing of key personnel responsible for the proposed LJF with their qualifications is included in the site certificate application and is incorporated herein by this reference (App pages D-2 through D-5).

B. Third-Party Permits

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

Conclusions of Law

Based on the findings discussed above, the Council finds that LJWP, subject to the site certificate conditions, 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

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

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 LJF is located entirely on land zoned Exclusive Farm Use. To satisfy the standard, the applicant must show that the site can be restored a non-hazardous condition suitable for agricultural use.

The certificate holder is obligated under OAR 345-027-0020 to retire the facility upon permanent cessation of construction or operation (Condition 9). Before restoring the site, the certificate holder must submit a final retirement plan for approval by the Council. 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, the certificate holder is obligated 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 (Condition 8).

The applicant provided information about site restoration in Exhibit W of the application. Restoring the LJF site to a useful, non-hazardous condition upon retirement

would involve dismantling all aboveground structures, including the wind turbines, met towers, transmission lines, O&M building and substation, removing foundations and grading and replanting the affected area. Nacelles and rotors would be removed, and the turbine towers would be dismantled. Pad-mounted transformers and related aboveground equipment would be removed. Gravel would be removed from adjacent turbine pad areas. Concrete turbine and transformer pads and underground foundations would be removed to a minimum depth of three feet below grade. At a depth of three feet, buried materials are not expected to interfere with farming practices. Aboveground transmission 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. All excavated areas would be filled with topsoil. The surface would be graded as appropriate for agricultural or resource uses. 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 and the desires of the landowners.

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. Alternatively, access roads on private property might be left in place based on landowner preference.

Demolition waste material would be disposed at authorized sites. 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.[32] Given the small amounts of such materials used on the site, soil contamination is unlikely.[33]

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 at any time. 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 of Oregon 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 greatest.

The applicant estimated the cost of site restoration for LJ-North to be $697,126 (2006 dollars, 4th quarter) and the cost of site restoration for LJ-South to be $1,161,576 (2006 dollars, 4th quarter). The combined site restoration cost (LJ-North and LJ-South) would be $1,858,702, according to the applicant's estimate. The applicant based these estimates on the following assumptions:

[32] Tables G-1 and G-2 in the application list the hazardous materials that would be used on-site (App pp. G-2 to G-4).

[33] Because of the low probability of soil contamination, we have not included an additional cost for site remediation in the estimate of site restoration costs below.

- The highest site restoration cost would result if larger turbines are built (comparing Vestas 3.0-MW turbines to GE 1.5-MW turbines).
- The scrap value of the turbines could be used to reduce the net restoration cost. LJWP estimated combined scrap value to be $4,671,066.
- A 10-percent contingency would be sufficient to cover all costs above the estimate for the restoration work.

The Department independently calculated retirement cost estimates in 2006 dollars, based on the estimating procedure outlined in its draft "Facility Retirement Cost Estimating Guide." By comparing the retirement cost estimates for a facility designed for 133 GE 1.5-MW turbines (Table 2) with the cost estimates for a facility designed for 93 Vestas 3.0-MW turbines (Table 3), the Department determined that the highest restoration cost would result if the greater number of turbines were built. The higher-cost estimate is shown in Table 2. The Council finds that the estimated cost of site restoration for the LJF, under the highest-cost configuration, would be $8,847,000 in 2006 dollars.

Table 2: Estimate of Site Restoration Costs (1.5-MW turbines)

Cost Estimate Component	Quantity	Unit Cost	Extension
Turbines			
Disconnect electrical, ready for disassembly (per turbine)	133	$979	$130,207
Remove turbine blades, hubs and nacelles (per turbine)	133	$5,207	$692,531
Remove turbine towers (per net ton of steel)	29,260	$67	$1,960,420
Remove and load pad transformers (per turbine)	133	$2,250	$299,250
Foundation and transformer pad removal (per cubic yard)	5,187	$32	$165,984
Restore turbine pads and turnouts (per turbine)	133	$1,297	$172,501
Met Towers			
Dismantle and dispose of met towers (per tower)	4	$9,637	$38,548
Substation and O&M Building			
Dismantle and dispose of substation	1	$133,607	$133,607
Dismantle and dispose of O&M building	2	$58,945	$117,890
Transmission Line			
Remove aboveground 34.5-kV collector system (per mile)	9.9	$3,390	$33,561
Remove 230-kV transmission line (per mile)	0.227	$48,520	$3,639
Junction boxes - remove electrical to 4' below grade (each)	12	$1,322	$15,864
Access Roads			
Road removal, grading and seeding (per mile)	21.44	$74,486	$1,596,980
Temporary Areas			
Restore area disturbed during restoration work (per acre)	538.44	$2,775	$1,494,171
General Costs			
Permits, mobilization, engineering, overhead			$444,403
Subtotal			$7,299,556
Performance Bond		1%	$72,996
Gross Cost			$7,372,552
Administration and Project Management Costs		10%	$737,255
Future Developments Contingency		10%	$737,255
Total Site Restoration Cost			$8,847,062
Total Site Restoration Cost (rounded to nearest $1,000)			**$8,847,000**

Table 3: Estimate of Site Restoration Costs (3.0-MW turbines)

Cost Estimate Component	Quantity	Unit Cost	Extension
Turbines			
Disconnect electrical, ready for disassembly (per turbine)	93	$1,023	$95,139
Remove turbine blades, hubs and nacelles (per turbine)	93	$5,207	$484,251
Remove turbine towers (per net ton of steel)	32,364	$67	$2,168,388
Remove and load pad transformers (per turbine)	93	$2,250	$209,250
Foundation and transformer pad removal (per cubic yard)	5,022	$32	$160,704
Restore turbine pads and turnouts (per turbine)	93	$1,297	$120,621
Met Towers			
Dismantle and dispose of met towers (per tower)	4	$9,637	$38,548
Substation and O&M Building			
Dismantle and dispose of substation	1	$133,607	$133,607
Dismantle and dispose of O&M building	2	$58,945	$117,890
Transmission Line			
Remove aboveground 34.5-kV collector system (per mile)	9.9	$3,390	$33,561
Remove 230-kV transmission line (per mile)	0.227	$48,520	$3,639
Junction boxes - remove electrical to 4' below grade (each)	12	$1,322	$15,864
Access Roads			
Road removal, grading and seeding (per mile)	21.44	$74,486	$1,596,980
Temporary Areas			
Restore area disturbed during restoration work (per acre)	391.52	$2,775	$1,086,468
General Costs			
Permits, mobilization, engineering, overhead			$444,403
Subtotal			$6,709,313
Performance Bond		1%	$67,093
Gross Cost			$6,776,406
Administration and Project Management Costs		10%	$677,641
Future Developments Contingency		10%	$677,641
Total Site Restoration Cost			$8,131,688
Total Site Restoration Cost (rounded to nearest $1,000)			**$8,132,000**

Scrap Value

For some (but not all) facilities that have site certificates, the Council has allowed a "credit" for scrap value, resulting in a financial assurance amount that is significantly lower than the estimated cost of site restoration. The approval of credit for scrap value has been based on the understanding that the State would have an enforceable claim to the scrap value unencumbered by the claims of creditors or other third parties. The Department has advised the Council that there is a significant risk that the scrap or salvage value might be inaccessible and unavailable to the State.[34] No information has been brought forward that would give the Council adequate assurance that the State would have a legal right to recover the scrap value

[34] The Council discussed this issue at a meeting on February 2, 2007.

and apply those funds to the cost of site restoration if the Council were ever required to restore a facility site under OAR 345-027-0020(16). Accordingly, the Department has not assumed any deduction for scrap value in this case.

General Costs and Performance Bond

The Department's estimate includes the general costs that the demolition contractor would likely charge for any permits needed to perform the site restoration work and for engineering costs, mobilization costs and overhead. In addition, the contractor would pass through the cost of a "Performance and Payment Bond." This bond ensures that the demolition and site restoration work would be completed in accordance with the contract. If the demolition contractor fails to complete the work or pay the workers, the issuer of the bond would step in to fulfill the contractor's obligations under the demolition contract. The Department estimates that this bond would add 1-percent to the overall contract cost.

Administration and Project Management

Administrative and management expenses include the direct costs borne by the State in the course of managing site restoration. The Department's estimate adds 10-percent of the gross cost to cover these expenses, which might include the following:

- Preparation and Council approval of a retirement plan.
- Obtaining legal permission from the certificate holder, landowners and public entities (possibly including a bankruptcy court) to proceed with demolition of the facility and restoration of the site.
- Legal expenses for protecting the State's interests before the bankruptcy court.
- Obtaining access to the proceeds of the bond or letter of credit.
- Ensuring that facility equipment and systems are shut down and secured to prevent hazards, damage and degradation before a demolition contractor begins work.
- Preparing specifications, bid documents and contracts for demolition work.
- Managing the bidding process.
- Negotiation of contracts.
- Supervising the site to provide security.
- Monitoring performance of the site restoration work, payment approval, management of change orders and dealing with any problems that may arise during contractor's work.

Uncertainty

The Department's estimate adds 10-percent of the gross cost for a "Future Developments Contingency." This contingency amount is included to account for uncertainty in the decommissioning cost estimate. The site restoration estimate is similar to preliminary engineering estimates (which often are considered to have an accuracy range of plus-or-minus 20 percent). If site restoration becomes necessary, it might be many years in the future. Other factors contribute to uncertainty; for example, different environmental standards or other legal requirements might be in place in the future, new disposal sites might need to be found for demolition debris, and the cost of labor and equipment available might increase at a rate exceeding the standard inflation adjustment.

In a recent decision on Amendment #2 for the Biglow Canyon Wind Farm, the Council approved a reduced future developments contingency adder of 10-percent of the gross cost. The Council justified a 10-percent adder (compared to 20-percent for other facilities) in consideration of reduced risk. Because the "fuel" for a wind facility is both renewable and available at the location of the generator, wind facilities have no exposure to the cost and supply uncertainties of a fuel market and are not dependent on a fuel delivery system. No pipelines or other infrastructure are needed to bring the "fuel" to the location where the power is generated. In addition, there is little or no risk of an unanticipated hazardous material leak or spill that could result in significant future clean-up costs. Unlike other energy facilities, a wind facility has no on-site storage tanks containing hazardous materials. Only small quantities of hazardous materials (lubricants, oils, greases, antifreeze, cleaners, degreasers and hydraulic fluids) are used or stored on-site. Wind turbine nacelles are designed to contain any spillage that might occur during servicing of the wind turbines. The Council also considered that the long-term economic viability of a wind facility due to the ability of the operator to replace individual turbines as they become uneconomical to operate. This feature reduces the risk of facility closure and default by the certificate holder.

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. The Council finds that the value of the financial assurance bond or letter of credit for restoring the site of the proposed LJF would not exceed $8.847 million in 2006 dollars adjusted annually as described in Condition 30, based on the estimate shown in Table 2.

This estimate assumes that the LJF, as built, would have 133 GE 1.5-MW turbines. Because the estimate is based on highest-cost assumptions, it may overstate the restoration costs for the LJF under its final design configuration. Condition 30 would allow the certificate holder to adjust the amount of the initial bond or letter of credit based on the final design configuration of the facility by applying the unit costs and general costs shown in Table 2, subject to Department approval. The Council adopts Condition 30.

LJWP provided information about its financial capability in Exhibits D and M of the application. LJWP has provided a letter the Royal Bank of Scotland (Bank).[35] The letter states that PPM Energy has "sufficient available letter of credit capacity" to support a letter of credit of $9 million "under its existing uncommitted financing arrangements with the Bank." The letter states: "There is a reasonable likelihood that the Bank would provide an annual letter of credit for this project, should one be required." Though this letter does not constitute a firm commitment from the Bank to issue bonds or letters of credit in the amount the Council determines necessary, it is credible evidence that LJWP could obtain the financial assurance required under Condition 30.

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, the Council requires the certificate holder to

[35] Letter from Emily Freedman, The Royal Bank of Scotland, June 21, 2007.

ensure that the surety has agreed to comply with all applicable statutes, Council rules and site certificate conditions if the surety retains the right to complete construction, operate or retire the energy facility. 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.

Condition 8 requires that the certificate holder provide the bond or letter of credit before beginning construction, in accordance with OAR 345-027-0020(8). The bond or letter of credit would remain in force until the certificate holder has fully restored the site.

Conclusions of Law

The Council finds that the LJF 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 $8.847 million in 2006 dollars is a reasonable estimate of the cost to restore the site to a useful, non-hazardous condition, based on highest-cost assumptions described above. The Council finds that LJWP, subject to the recommended conditions, 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, the Council concludes that the applicant has met the Retirement and Financial Assurance Standard for the proposed LJF.

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

LJWP 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 entirely on land within the land use jurisdiction of Gilliam County. The energy facility and its related or supporting facilities, as well as staging areas needed during construction, would be on privately-owned land zoned Exclusive Farm Use (EFU).[36]

The Council's Land Use Standard (OAR 345-022-0030) must be applied 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

[36] App p. K-2.

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."[37]

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 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."

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."

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 the reasons discussed below, the Council finds that the proposed facility does not comply with all of the applicable substantive criteria. 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 48.

A. Applicable Substantive Criteria

The land use analysis begins with identification of the "applicable substantive criteria" recommended by the Special Advisory Group (SAG). On January 20, 2006, the Council appointed the Gilliam County Court the SAG for this application. The Department requested that the SAG identify the applicable substantive criteria in effect on the date LJWP submitted the application (February 1, 2006).[38]

The SAG identified criteria contained in Gilliam County Zoning and Land Development Ordinance (GCZO) Section 7.020(T)("Wind Power Generation Facility Siting Requirements") as the applicable substantive criteria for the proposed facility.[39] The SAG did

[37] *Save Our Rural Oregon v Energy Facility Siting Council*, 339 Or 353 (2005).
[38] Letter from John White to Judge Laura Pryor, February 6, 2006; Request for Comments on Completeness of the Application, February 1, 2006.
[39] Letter from Judge Laura Pryor, February 27, 2006.

not identify any specific sections of the Gilliam County Comprehensive Plan (GCCP) as containing applicable substantive criteria.[40]

The SAG requested consideration of the Gilliam County Planning Department's staff report (GCSR) and conditions of approval for the Conditional Use Permit (CUP) issued for LJ1. The GCSR addressed the County's "Wind Power Generation Facility Siting Requirements" and other sections of the GCZO as "review criteria." Gilliam County renumbered the sections of its land use ordinance after the GCSR was prepared in January 2005. Under the current ordinance numbering, the sections corresponding to the sections listed in the GCSR are as shown in Table 4. Based on the special advisory group's recommendations, the Council has applied the criteria in these sections of the GCZO. We use the current ordinance numbering in the findings discussed below.

Table 4: GCZO Renumbering

GCSR Numbering	Current GCZO Numbering
4.020(1)	4.020(A)
4.020(4)(n)	4.020(D)(14)
4.020(6)	4.020(J)
7.010(1)(A)	7.010(A)(1)
7.010(1)(B)	7.010(A)(2)
7.020(17)	7.020(Q)
7.020(20)	7.020(T)

GCZO Section 4.020(A): 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.

OAR 660-033-0020(8) defines "High Value Farmland" as land in a tract composed predominantly of soils that are classified as prime, unique, Class I or II by the Natural Resources Conservation Service (NRCS). The soils in the analysis area are not classified as prime, unique, Class I or Class II.[41] The County found that LJ1 would not be built on high value farmland and that "none of the Land is designated as prime farmland, the functional equivalent of high value farmland or as of statewide importance under the Farmland Protection Policy Act."[42] The land that LJF would occupy is substantially similar to the land

[40] Compatibility with the applicable GCCP policies is required under GCZO Section 7.010.
[41] NRCS Soil Survey of Gilliam County, Oregon.
[42] GCSR p. 7.

underlying LJ1.[43] Accordingly, the Council finds that the proposed LJF is not located on high-value farmland.

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 LJF is a commercial utility facility that would not be located on high-value farmland. The area occupied by the "power generation facility" is shown in Table 5.[44] The Council finds that the proposed LJF would preclude more than 20 acres from use as a commercial agricultural enterprise. The proposed facility, therefore, does not comply with GCZO Section 4.020(D)(14).

[43] App Figure I-1 and Site Certificate Application (January 2006), Figure K-3.
[44] In this discussion, we have included the proposed wind turbines, underground and aboveground power collection lines, meteorological towers, O&M buildings, control system and access roads as the components of the "power generation facility." The substation and aboveground transmission interconnection line are considered to be "utility facilities necessary for public service." See discussion below at page 47.

Table 5: Area Occupied by the Power Generation Facility[45]

Structure	**LJ-North** (acres)	**LJ-South** (acres)	**LJF Total** (acres)
Principal use			
Turbine towers, including pad areas and road turnouts	2.42	5.63	8.05
Meteorological towers	0.02	0.06	0.08
Aboveground 34.5-kV collector line[46]			0.04
O&M facilities	2.5	2.5	5
Subtotal	4.94	8.19	13.17
Access roads	17.06	33.05	50.11
Total	22	41.24	63.28

In addition to the acreage limitation, GCZO Section 4.020(D)(14) provides that approval of a commercial utility facility is subject to the review criteria of 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 36.

Other uses associated with the LJF are allowable on EFU land under other sections of GZCO Section 4.020(D). The turbine access roads are "transportation improvements" that are allowable under GCZO Section 4.020(D)(25), subject to the review criteria of Section 4.020(H). Improvements to existing public roads are allowable under GCZO Section 4.020(D)(24), subject to the review criteria of Section 4.020(H). The LJF project substation and interconnection transmission line are "utility facilities necessary for public service" that are allowable under GCZO Section 4.020(D)(29), subject to the provisions of ORS 215.275 and OAR 660-033-0130(16). "Wind power generation facilities" are allowable under GCZO Section 4.020(D)(34).[47]

[45] Figures in this table are based on App Table C-4. The table excludes the area occupied by the substation and interconnection line, which are analyzed as "utility facilities necessary for public service." The table overstates the total area that the facility would occupy because Table C-4 does not account for overlapping of the areas of the components listed (see App Table P-10A, Note 3, p. P-49).

[46] The estimate of area occupied by aboveground collector line structures is based on a worst-case total of 9 miles of aboveground transmission line for the project as a whole.

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

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.

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 applicant proposes that turbine towers and met towers would be located at least 250 feet from property lines. The applicant proposes that the O&M buildings and substation would be at least 50 feet from the property lines but that there would be no minimum setback for transmission line support poles.[48] The County CUP approved construction of the LJ1 turbines, O&M building and LJ Substation, subject to condition of approval #16, which requires a setback of 250 feet for turbine towers, and a setback of 50 feet for "a building or substation" from any road right-of-way, exterior lot line, occupied house, electrical substation or railroad right-of-way.

In addition, the applicant proposes a safety setback equal to the maximum blade tip height. This safety setback would be the minimum distance between a turbine and a residence. The applicant proposed a distance of 389 to 492 feet, depending on the turbine selected.[49] In the Final Order on the Application for the Klondike III Wind Project, the Council adopted a turbine safety setback of 450 feet from any residence or public road. This distance was based on the maximum blade tip height of approximately 400 feet for the largest turbines proposed for Klondike III (1.65-MW turbines). The Council adopts a safety setback for the LJF equal to maximum blade tip height plus 50 feet. The safety setback would be the minimum distance from any wind turbine to any residence or public road (except Rattlesnake Road or Stone Lane, which are not frequently used by the general public). The safety setback would apply unless a greater setback distance is required under the County ordinance discussed below or is necessary for compliance with noise control regulations (discussed at page 112).

GCZO Section 7.020(T)(4)(d)(1), discussed below at page 39, requires that "no portion of the facility" be located within 3,520 feet of properties zoned for residential use. The Council finds that this ordinance prohibits the construction of any LJF component (turbine, met tower, aboveground transmission line, building or access road) within 3,520 feet of the property line of any residential-zoned property. The northern lease boundary of the LJ-North area borders a residential zone.

[48] App Supp, Exhibit K, p. K-2.
[49] App Supp, Exhibit X, p. X-2.

The Council adopts Condition 39, which incorporates the setback distances discussed in this section.[50]

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." Subsection (a) requires compliance with "the applicable Comprehensive Plan designation and policies." In the GCSR, under the heading "Comprehensive Plan and Zoning Ordinance," the County Planning Department staff quoted GCCP "Part 3, Agricultural Land Use, Policy #1." In discussing GCZO Section 7.010(A)(1)(a), the staff did not identify any other applicable Comprehensive Plan designation or policies but states simply: "A commercial utility facility is allowed for the purpose of generating power for public use by sale." 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:

> *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.*

[50] The applicant stated that stated that the distance from the micrositing area to the nearest residential property line is "zero" but proposed to obtain a variance from Gilliam County to allow placement of LJF components closer than 3,520 feet from a residential property. (Response to RAI K-4, App Supp p. K-2.) The Department responded that any granting any variance would be a Siting Council decision and proposed several options to address the ordinance requirement. The applicant chose to accept a site certificate condition restricting placement of a wind turbine or other facility component within 3,520 of a residential property line with the understanding that the certificate holder could request a variance by submiting a site certificate amendment request. (E-mail from Erin Toelke, June 28, 2007).

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 LJF include the generating facility (authorized under ORS 215.283(2)(g)), the substation and interconnection line (authorized under ORS 215.283(1)(d)) and the access roads (authorized under ORS 215.283(3)).[51] These uses are authorized by statute and are otherwise consistent with the GCCP for the reasons discussed herein. The Council finds that the proposed LJF complies with GCZO Section 7.010(A)(1)(a).

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

GCZO Section 7.010(A)(1)(b) 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 O&M buildings in licensed on-site septic systems. Due to the small volume of sewage, a Water Pollution Control Facility permit would not be required. 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 28, 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 97, which requires construction of an on-site septic system subject to a county permit. The Council adopts Conditions 98, 99 and 100, 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.

GCZO Section 7.010(A)(1)(c) requires compliance with air and noise pollution standards. The proposed LJF would not generate air pollution emissions. The proposed facility would comply with state noise control regulations for the reasons discussed below at page 112.

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. Access to the facility site is available from Highway 19 and existing County roads. The Oregon Department of Transportation (ODOT) has determined that a new access permit is not required.[52] The proposed facility does not include construction of any new public roads. The facility would be built on private land. The applicant has negotiated long-term leases with the landowners that would give the certificate holder a legal right of access.

[51] These statutes are discussed below, beginning at page 44.
[52] Letter from Sam Wilkins Jr., ODOT, February 27, 2007.

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. 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. These public services and the impact of the facility on the capacity of local providers to provide these services are discussed below at page 106. For the reasons discussed there, the public services necessary for the proposed LJF are available and the proposed LJF 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 GCSR found that there are no "additional combining zone or overlay standards" applicable to LJ1, and the LJF lies within the same land use zone as LJ1. The Council finds that there are no combining zones applicable to the LJF.

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 LJF complies with this requirement because its impacts on air quality, soils, water supplies and water bodies would not exceed resource-carrying capacities of these resources. The proposed facility would have no air pollution emissions that would result in an adverse impact to air quality. 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 70 and 75). The facility would use a significant amount of water during construction, but the water would not exceed the resource-carrying capacity of the proposed water source. We discuss the availability of sufficient water and the right to use it for construction purposes at page 126. Water used for construction-related purposes would evaporate or infiltrate into the ground on-site. During construction, wastewater contained in portable toilets would be pumped and disposed of by a licensed contractor. Water would not be discharged to wetlands, lakes, rivers or streams, and there would be no adverse impact on water quality. Water use during operation would be insignificant. The LJF would obtain water for use during operation from on-site wells, and thus there would be no demand on public facilities to supply water during operation. Water used during operation at the O&M buildings 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 97). Measures to reduce and properly dispose of solid waste are discussed below at page 110.

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

Subsection (i) addresses carrying capacities of affected public services. This requirement is addressed under GCZO Section 7.010(A)(1)(e), discussed above. Compliance with this requirement is further supported by the findings under the Council's Public Services Standard, discussed below at page 106. Operation of the facility would consume a small amount of electricity for typical office loads at the O&M buildings. The power would be supplied by Pacific Power and would not exceed the utility's "carrying capacity."[53]

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. A mandatory condition of the site certificate requires 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 28, 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.

For the reasons discussed above, the Council finds that the proposed LJF would comply with GCZO Section 7.010(A)(1).

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.

[53] On-site loads would not exceed 150 kW (App Table B-2, p. B-11).

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 section is a list of discretionary conditions rather than a list of substantive standards. Citing this ordinance, the County imposed conditions of approval in the CUP for LJ1. The Department has consulted with the Gilliam County Planning Department regarding proposed site certificate conditions. This final order includes conditions recommended by the County.

In addition, the County requested inclusion of "a statement (not a requirement) to have the applicant use best efforts to hire Gilliam County residents during construction."[54] The applicant estimated that a minimum of 30 percent of the construction workers would be hired locally and that local hiring might be greater, depending on the availability of workers with appropriate skills.[55] The applicant stated that "most of the operations and maintenance staff will be hired locally, with the exception of those positions…that require previous experience at other wind generation facilities." The Council does not have jurisdiction over "matters that are not included in and governed by the site certificate…[including] wage and hour or other labor regulations…or other design or operational issues that do not relate to siting the facility."[56] Nevertheless, in recognition of the County's interest, the Council encourages the certificate holder to use its best efforts to hire qualified Gilliam County residents during project construction and operation.

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

[54] E-mail from Gilliam County Planning Director, Susie Anderson, July 17, 2007.
[55] App p. U-2.
[56] ORS 469.401(4).

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

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 LJF include a commercial utility facility (allowable under GZCO 4.020(D)(14)), transportation improvements (allowable under GZCO 4.020(D)(25)) and utility facilities necessary for public service (allowable under GZCO 4.020(D)(29)). Each of these uses is a "Type II" conditional use under the GCZO.[57]

The County found that the uses associated with LJ1 would not force a significant change in accepted farm practices on surrounding lands and would not significantly increase the cost of farm practices.[58] The same types of uses are associated with the LJF. The impact of the proposed LJF turbines and access roads would not force a significant change in accepted farm practices or significantly increase the cost of farm practices, for the reasons discussed below.

The lands devoted to farm use within the analysis area surrounding the LJF are used for cultivation of wheat and barley and for cattle grazing. Other land within the analysis area is occupied by the Arlington Landfill. There is no forest use within the analysis area. All of the turbines in LJ-South would be located on lands owned by Waste Management Services of Oregon, Inc., the landfill operator. These lands currently function as a buffer around the landfill and as a source of soils for covering landfill cells as they are filled and closed. A portion of the Waste Management land is leased for farming. All of the turbines for LJ-North would be located on land belonging to a single landowner. The land is used for farming and cattle grazing.

Accepted farm practices in the area include soil preparation, sowing, fertilizing, pest and weed management and harvesting. Construction and operation of the LJF could cause changes in routes of access to fields and changes in the pattern of cultivation, seeding, fertilizing and harvesting near the LJF turbines and access roads. These minor changes in farm practices would not significantly increase farm costs. 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 management plan, developed in consultation with the Gilliam County Weed Control Board. Implementation of an effective weed control program by the certificate holder would reduce the risk of weed infestation in cultivated land and associated cost to the farmer for weed control. The Council adopts Condition 82, which requires the certificate holder to implement a weed control plan.

Construction of the facility could adversely affect soil quality by erosion or compaction. Some farmland would be temporarily disturbed and unavailable to farming during construction. To avoid or reduce adverse impacts to soil quality, the applicant proposes

[57] 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.
[58] GCSR, pp. 7-8.

to implement dust-control and erosion-control measures during construction and operation of the facility. Construction vehicles would use designated existing and improved road surfaces as much as possible to avoid soil compaction. Upon completion of construction, the certificate holder would restore temporarily disturbed areas to their pre-construction condition. The applicant proposes to consult with area landowners and lessees during construction and operation of the facility to determine further measures that would reduce or avoid any adverse impacts to farm practices on surrounding lands and to avoid any increase in farming costs. The Council adopts Conditions 40, 70, 71 and 75, which require implementation of the measures discussed in this paragraph. These measures would avoid or reduce adverse impact to farming practices and the cost of those practices. The Council adopts Condition 41, which requires the certificate holder to locate facility components and temporary construction laydown and staging areas to minimize disturbance with farming operations. The Council adopts Condition 42, which requires the certificate holder to record a covenant not to sue with regard to generally accepted farming practices on adjacent farmland.

There are approximately 8,500 acres of land in the lease area for the proposed LJF. Approximately 2,800 acres are actively farmed.[59] The LJF would occupy approximately 19 acres of this farmland, or about 0.7 percent. The Council finds that the loss of this amount of farmed acreage is unlikely to force a significant change in accepted farm practices or significantly increase farm costs.

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.

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.

[59] Tables P-10b and P-15b (App Supp, Appendix B, Attachment1).

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:[60]

* * *

Subsections 1, 2, 3 and 4(a) of GCZO 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.

GCZO 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." The Department has consulted with the Gilliam County Planning Department regarding proposed site certificate conditions. This final order includes conditions recommended by the County.

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 28, which requires the certificate holder to obtain all necessary 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.)

The proposed LJF would be located entirely on land zoned EFU. The site boundary to the north of proposed String G, however, directly abuts a residential zone.[61] To comply with this ordinance, portions of the facility that are shown on the proposed turbine layout in Figure

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

[61] Revised Figure K-1 (App Supp, Appendix A, Attachment 7).

C-3a (including several turbines and their associated access road and pad areas) would have to be eliminated from the final design of the facility. The Council adopts Condition 39, which incorporates the setback of 3,520 feet required by GCZO Section 7.020(T)(4)(d)(1).

(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.

In considering reasonable measures to "blend the wind facility's towers with the natural surroundings," the Council must consider measures to 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 "a neutral gray or white color approved by the FAA for daylight marking."[62] In addition, the applicant proposes restricting turbine lighting "to the aviation warning lights required by the FAA."[63] Recent 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.[64] The Council adopts Condition 53, which requires pre-construction notification to the FAA, and Conditions 90 and 92, 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 57 and Siting Standards for Wind Energy Facilities at page 67. For the reasons discussed above and subject to site certificate conditions described herein, the Council finds that the LJF would comply with GCZO 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.

Compliance with these requirements is addressed in other sections of this final order. The proposed facility's effect on wildlife and wildlife habitat is addressed in the discussion of the Council's Threatened and Endangered Species Standard below at page 74 and Habitat Standard below at page 80. The potential impact on water resources is addressed in the discussion of the state's Ground Water Act below at page 126. 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 117. For the reasons discussed in those sections, the Council finds that the LJF would comply with GCZO Section 7.020(T)(4)(d)(3) and (4).

(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 112. Other "detrimental effects" may include public safety

[62] App p. B-4.
[63] App p. R-14.
[64] James W. Patterson, Jr., *Development of Obstruction Lighting Standards for Wind Turbine Farms* (FAA, November 2005).

concerns, which are addressed in the discussion of the Council's Public Health and Safety Standards for Wind Energy Facilities below at page 65 and in the discussion of public safety issues beginning on page 128. Transmission line and electrical safety is discussed below at page 72. For the reasons discussed in those sections, the Council finds that the LJF 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 locate lockable gates at the substation and on private access roads Condition 43.[65] The Council finds that the LJF would comply with GCZO 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 power collection system 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.[66] The applicant proposes to locate aboveground segments of the collector system in a manner that would prevent adverse impacts on agricultural operations.[67] The Council adopts Condition 40, which requires the certificate holder to consult with area landowners and lessees during construction and to implement measures to avoid adverse impact to farming practices. Transmission line and electrical safety is discussed below at page 72. The Council finds that the LJF would comply with GCZO 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 on-site O&M buildings that would be consistent in size and appearance to buildings used by commercial farmers and ranchers.[68] The County approved construction of a similar on-site O&M building when it issued a CUP for LJ1. Site restoration would include removal of the O&M building, as discussed above at page 18. The Councils find that the LJF would comply with GCZO Section 7.020(T)(4)(d)(8).

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[65] App Supp, Exhibit K, p. K-1.
[66] App p. B-5.
[67] App p. K-19.
[68] App p. K-19.

(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 65.

(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[69]

* * *

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.[70]

GCZO Section 7.020(T)(5) contains requirements for site restoration and financial assurance to the County for the "decommissioning fund." The Council finds that the proposed LJF would comply with the Council's Financial Assurance Standard (discussed above beginning at page 18). Compliance with the Council's standard satisfies the 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.)[70] *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.*

The Council will require the certificate holder to provide financial assurance for site restoration, as required under OAR 345-027-0020(8) (Condition 8). The bond or letter of credit required by the Council meets the requirement of this County provision.

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.

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

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

[70] 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 GCZO Section 7.020(T).

The Council adopts Condition 44, which requires 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 provision within 90 days after beginning operation of the LJF.

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 CUP. The provisions do 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.)

GCZO Section 7.020(T)(6)(e) 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. OAR 345-026-0080 requires certificate holders to report to the Council every six months during construction and annually after beginning construction (Condition 21).

B. 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, except GCZO Section 4.020(D)(14), which limits the area that a "commercial utility facility" may occupy as a conditional use in an EFU zone (discussed above at page 29). Because the facility does not comply with all of the County's applicable 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 has designated an EFU zone to preserve agricultural lands. Under Goal 3, nonfarm 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 that fit within the scope of the uses permitted in exclusive farm use zones as described in ORS 215.283(1), (2) or (3). The proposed LJF consists of the energy facility (the wind turbines) and the following related or supporting facilities: the underground and aboveground power collection lines, a substation and aboveground transmission interconnection line, three meteorological towers, one or two O&M buildings, the control system and access roads.[71]

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

The principal use is the energy facility. 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). In addition, the Council finds that the power collection system, meteorological towers, control system and O&M building are part of the principal use.

The function of the LJF Substation is to step up the power from the LJF to accommodate interconnection with the BPA system. The aboveground 230-kV transmission interconnection line connects the facility with the regional power grid. The Council finds that the substation and transmission interconnection line are "utility facilities necessary for public service" that are allowable under ORS 215.283(1)(d). Further, the Council finds that the access roads are allowable under ORS 215.283(3). We discuss the state law requirements applicable to these uses in the sections that follow.

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.[72] For the reasons discussed below (at page 46), the LJF turbine string access roads are also subject to OAR 660-033-0130(5) and (22). The following discussion addresses both the principal use and the access roads.

OAR 660-033-0130(5) cross-references ORS 215.296, which provides that a use allowed under ORS 215.283(2) may be approved only if the use would 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 factors are identical to the requirements of GCZO Section 7.020(Q), discussed above at page 36. For the reasons there, the principal use and the access roads would not force a significant change in accepted farm practices on surrounding farmland and would not significantly increase the cost of accepted farm practices. Accordingly, the Council finds that the principal use and access roads would comply with the standards of ORS 215.296 and OAR 660-033-0130(5).

The LJF principal use and access roads are also subject to OAR 660-033-0130(22), which provides as follows:

> *(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.*

[72] The proposed facility is not located on "high value farmland." See discussion at page 28.

The requirement that a "power generation facility shall not preclude more than 20 acres from use as a commercial agricultural enterprise" is identical to the requirement under GCZO Section 4.020(D)(14), discussed above at page 29. For the reasons discussed there, the Council finds that the principal use and access roads would occupy more than 20 acres of agricultural land and that the use would not comply with OAR 660-033-0130(22) and Goal 3. We discuss an exception to Goal 3 below at page 48.

The Access Roads

The proposed 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 LJF 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 660-033-0120 does not reference any criteria in OAR 660-033-0130 for this use.

OAR 660-012-0065 applies to transportation improvements on rural lands. The proposed LJF access roads are "accessory transportation improvements" as defined in OAR 660-012-0065(2)(d), because they are "transportation improvements that are incidental to a land use to provide safe and efficient access to the use."[73]

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

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

> *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.*

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

The rule language applies specifically to accessory transportation improvements "required as a condition of development." Because the LJF 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 applicable standards and requirements are contained in OAR 660-033-0130(5) and (22), and we have discussed the compliance of the access roads with these provisions above in the preceding section on the principal use.

Substation and Interconnection Line

The proposed LJF Substation is 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 over the interconnection line to the BPA Jones Canyon Switching Station and ultimately to public customers. Both the substation and the interconnection line 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.

ORS 215.275 lists factors for deciding whether a utility facility is "necessary for public service." The statute provides:

> *(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.*

The proposed LJF Substation must be located in an EFU zone because there is no non-EFU land near the BPA Jones Canyon Switching Station, which is the point of interconnection with 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 with the BPA system. It is not feasible or technically possible to interconnect with the main transmission grid without these facilities. The proposed substation and interconnection line 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 point of interconnection with the BPA system so that the power can be transmitted to customers. There are no urban or nonresource lands available to

locate the substation and interconnection line where they could serve their purpose. For these reasons, location of the substation and interconnection line on EFU land is "necessary for public service." The Council finds that the substation and interconnection line are allowed under ORS 215.283(1)(d) subject to the 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 proposed substation and support structures for the interconnection line would be located on land that would be part of the permanent LJF "footprint." The certificate holder would be responsible for restoring all areas temporarily disturbed during construction, maintenance or repair of the LJF (Conditions 11 and 74).

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." Construction of the substation and interconnection line would not substantially add to the impacts on agricultural land caused by the principal use and access roads, which would occupy a larger area of land. Conditions to "mitigate and minimize" the impacts of the proposed facility (including the substation and interconnection line) on farm practices have been addressed above in the discussion of GCZO Section 7.020(Q) at page 36. For the reasons discussed there, the Council finds that locating the proposed substation and interconnection line on approximately 3.6 acres of agricultural land would not cause a significant change in accepted farm practices or significantly increase the cost of those practices.

C. Goal 3 Exception

As shown in Table 5 on page 30 above, the proposed principal use and access roads would occupy more than 20 acres in an EFU zone and would not comply with OAR 660-033-0130(22) and 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 land use 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 63 acres of EFU land, they would occupy less than 1 percent of the EFU land adjacent to the facility.[74] The land that the wind facility structures would occupy would not be in a single, contiguous area within which no farming activities could occur. Rather, the spacing of turbines and turbine strings would allow farm use to continue on most of the land currently used for farming. Only 13 acres would be occupied by turbine towers and the O&M buildings; approximately 79 percent of the occupied land would be occupied by new access roads or improvements to existing roads. New turbine string access roads would be 16-feet wide and would be located to minimize conflict with farm uses on surrounding land. The new access roads and the improved existing roads would be available for use by the landowner or lessee in farm operations.

Second, approval of the proposed LJF 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 a large area of open land with unobstructed access to consistently strong winds. The areas within Gilliam County that have sufficient open space and strong winds are within EFU zones.

Third, the proposed location of the facility provides efficient access to BPA's regional transmission system. The facility is located adjacent to the BPA's Jones Canyon Switching Station. The switching station provides direct access to BPA's existing McNary-Santiam 230-kV transmission line, which crosses the proposed facility site.

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 51; to protected areas at page 53: to scenic areas at page 57; to threatened and endangered species at page 74; to wildlife habitat at page 80; to ambient noise levels at page 112; to wetlands at page 117; and to groundwater at page 126. The facility would have no emissions that would adversely affect air or water quality. Upon retirement of the proposed facility, the structures would be removed and the land would be restored to a

[74] The applicant estimates that there are approximately 8,534 acres of land within the lease boundaries of LJ-North and LJ-South. The proposed principal use and access roads would occupy 63.28 acres (about 0.7 percent).

useful, non-hazardous condition (see discussion of the Council's Retirement and Financial Assurance Standard at page 18).

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 335 jobs during construction and up to 30 jobs during operation.[75] Annual lease payments to the landowners in the wind facility lease area would supplement income from other farm operations without significantly reducing the land base available for farming practices. In addition, the proposed facility would provide significant property tax revenue to Gilliam County.[76]

The Council's standards address the potential adverse social consequences of the LJF. In our discussion of the standards, we explain how any adverse social consequences would be mitigated. 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 the Council's Public Services Standard at page 106). The facility would avoid adverse impact to historic, cultural and archaeological resources (see discussion at page 104). The proposed facility would have no adverse impact on recreational opportunities in the local area (see discussion at page 64). We address public safety issues related to the proposed facility at page 65 (Public Health and Safety Standards for Wind Energy Facilities), page 72 (Siting Standards for Transmission Lines), page 103 (Structural Standard) and page 128 (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 110).

The energy consequences of the proposed facility would be the generation of approximately 93 MW of electricity (average electric generating capacity) that would become available to meet local and regional energy needs. This electricity would be generated from a renewable source, which furthers the state's energy policy "to develop permanently sustainable energy resources" (ORS 469.010). The facility would have on-site electrical loads of less than 150 kW.[77] The facility would use electric service from Pacific Power, which can accommodate the facility's electrical needs.

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[75] App p. U-4.

[76] In response to request K6 (App Supp, Exhibit K, p. K-4), which asked for an estimate of the anticipated county revenue from the LJF, the applicant replied as follows:

> Under current assessment methods, a 100-MW wind plant in Gilliam County will contribute approximately $1 million annually from 2010 to 2020, with annual taxes declining approximately $20,000/year.
>
> The Oregon Department of Revenue (DOR) is reviewing the manner in which it assesses wind plants. The DOR has stated that its new assessment methodology will better track the cash value of wind plants (i.e., the value of the wind plant will depreciate in line with its cash flow). From a cash perspective, a 5-year-old wind plant is worth 50 percent its value on day 1 and 25 percent its initial value by year 10. It should be noted that while DOR has said they are going to adopt a new approach, DOR's assessment of PPM Energy's wind plants have not been in line with this new methodology. The Applicant will try to get LJ II included in the Gilliam County Enterprise Zone or will try to establish a Strategic Investment Program in Gilliam County as PPM Energy has done in Sherman County. This program would provide a 15-year property tax exemption and per state law would provide for a minimum payment to the County of $500,000 annually in these years.

[77] App Table B-2, p. B-11.

Compatibility with Other Adjacent Uses

Adjacent uses include farming (dryland wheat cultivation and cattle grazing) and the operation of the region's largest landfill. The proposed LJF would have no adverse impact on operation of the landfill. For the reasons discussed above in reference to GCZO 7.010 (see page 36), the facility is compatible with farm uses on the adjacent lands, 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 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, conditions and conclusions, the Council finds that the proposed facility does not comply with GCZO Section 4.020(D)(14) and therefore does not comply with all applicable substantive criteria from Gilliam County. 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). The Council adopts Conditions 28, 36, 39, 40, 41, 42, 43, 44, 70, 71, 74, 75, 82, 90, 92, 97, 98, 99, 100 to be included in the site certificate. 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

LJWP 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.

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 from 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.

LJWP identified the near surface soils in the analysis area using the NRCS Soil Survey of Gilliam County, Oregon. The major soil types in the analysis area are shown on Figure I-1 of the application. Soils noted for moderate to high water erosion potential within the site boundary include Olex gravelly silt loam (24E, 25D), Ritzville silt loam (32C, 33E),

Warden silt loam (55C, 55D), Willis silt loam (56B), Nansene silt loam (22F) and Xeric torrifluvents (58); areas noted for wind erosion include Sagehill fine sandy loam (40B, 40C, 40D) and Dune land (8).[78]

A. Impacts during Construction

Wind and water erosion is of concern within the site boundary where construction activities would occur. Construction of the energy facility would include removal of surface vegetation, grading and leveling operations and the use of large cranes and other heavy equipment that 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.

Heavy equipment movement, car and truck traffic and component laydown during construction could cause soil compaction. Soil compaction in relation to this standard is a concern where it could reduce agricultural productivity or interfere with revegetation. During construction, approximately 699 acres of land would be disturbed for road-building, turbine foundations, laydown and staging areas, turbine-string turn-around areas, parking and other construction-related uses.[79]

There is a risk of chemical spills during construction 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. Runoff of water used for blade-washing could result in erosion.

C. Mitigation Measures

The LJF would be subject to the requirements of the NPDES Storm Water Discharge General Permit (1200-C) and its associated Erosion and Sediment Control Plan (Condition 70). The Erosion and Sediment Control Plan would describe best management practices for erosion and sediment control and would be subject to DEQ approval. Construction truck traffic would be limited to existing and improved road surfaces to avoid soil compaction (Condition 71). Gravel or other non-erosive covering would be spread on turbine pad areas immediately after soil exposure during construction (Condition 60). All areas of temporary disturbance would be restored upon completion of construction (Condition 74).

[78] NRCS, Soil Survey of Gilliam County, Oregon (1984).
[79] Area of "temporary impact" based on Table 11 herein.

During operation, facility staff would regularly inspect all project areas for signs of erosion or sedimentation and, as necessary, maintain or repair erosion control measures and reseed areas disturbed during facility repair or maintenance activities (Condition 75). Blade-washing would be allowed if appropriate measures were taken to avoid runoff of wash water (Condition 77). Measures would be taken to avoid accidental spills of hazardous materials and to remedy any spills that occur as discussed at page 110.

Conclusions of Law

The Council finds 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 a significant adverse impact to soils. The Council adopts Conditions 60, 70, 71, 74, 75 and 77 to be included in the site certificate. 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

LJWP provided evidence 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 seven federal and state management areas within 20 miles of the proposed facility site.[80] Of the seven areas identified by the applicant, four are protected areas as defined by OAR 345-022-0040.[81] The following table shows the four protected areas within the analysis area, 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 the area is located:

Table 6: Protected Areas within 20 Miles

Protected Area	Rule Reference	Distance (Miles)	Direction from LJF	State
John Day River Wildlife Refuge	(d)	6	W	Oregon
John Day Federal Wild and Scenic River	(k)	6	W	Oregon
John Day State Scenic Waterway	(k)	6	W	Oregon
Horn Butte Area of Critical Environmental Concern	(o)	3	E	Oregon

A. Noise

The applicant estimated composite construction noise by using U.S. Environmental Protection Agency figures for "typical" noise levels from individual pieces of construction equipment. The applicant estimated composite noise levels ranging from 84 dBA to 90 dBA at 50 feet from the construction site and ranging from 54 dBA to 60 dBA at 1,500 feet from the construction site.[82] Construction noise is not likely to be noticeable above ambient noise levels at the protected areas, which are all at least three miles from the construction site. Noise levels from operation of the wind facility would be lower than the estimated construction noise levels and would have no adverse impact on protected areas.[83]

B. Traffic

Construction traffic would access the site along Oregon Highway 19 from I-84 at Arlington. The primary access to the eastern part of the site would be along Stone Lane and Rattlesnake Road from Highway 19. Primary access to the western part of the site would be south on Highway 19 to Cedar Springs Road and north on Blalock Canyon Road to reach access gravel roads to the site. Highway 19 is not a common route of access to the identified protected areas.

The applicant anticipates that construction would take ten to twelve months and employ an estimated 335 workers at peak construction periods.[84] In addition to travel by

[80] App Table L-1.
[81] The applicant's list included the John Day Dam and the Columbia Southern Railroad Passenger Station and Warehouse (in Wasco, listed on the National Register of Historic Places), which are not protected areas under OAR 345-022-0040. The applicant also included "JS Burres State Park," but this area is not a state park. 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)).
[82] App Table X-4.
[83] See further discussion of operational noise levels below at page 112.
[84] App p. U-4.

construction workers, construction traffic would include deliveries of heavy equipment, building materials and turbine components. LJWP estimated that construction-related vehicles would increase traffic levels on Highway 19 by 16 percent and on I-84 by less than 2 percent.[85] Construction-related traffic is not likely to cause any significant delay or other adverse effects on I-84 or Highway 19.[86] Therefore, the Council finds that there would be no significant adverse effect on access to protected areas during facility construction.

During operation, the LJF would employ 10 to 30 people. Road use by employees, combined with road use for deliveries and other facility-related purposes, is not likely to have a significant impact on traffic. The Council finds that traffic related to facility operation would have no significant adverse impact on any protected area.

C. Water Use and Wastewater Disposal

During construction, water would be used primarily for dust suppression and for mixing concrete. An estimated maximum of 35 million gallons of water would be used during construction of the LJF.[87] The applicant confirmed that sufficient water would be available from the City of Arlington under an existing municipal water right.[88] All water used during construction would be lost on or very near the site, primarily through evaporation. No water used on the site would be discharged into wetlands, lakes, rivers or streams. There would be no impact on any protected area.

During the operations phase, water would be used for sanitary purposes at the O&M facility. Water for these purposes would be supplied from an on-site well and would be discharged to an on-site septic system. Turbine blade washing would consume approximately 150 gallons per turbine (up to 1,200 gallons per week based on washing no more than eight turbines per week) and would be supplied from on-site wells.[89] There would be no impact on any protected area.

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. Dust suppression during construction would avoid the creation of dust clouds. An adverse impact to a protected area could result if the area's protected status is due, in part, to visual resources and if the facility is visible from locations within the protected area. Even where the facility is visible, the distance from the viewpoint to the facility may reduce the 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. In evaluating the visual impact of wind turbines, the Council has previously found that the visual impact of wind turbines up to 85

[85] App p. U-13.
[86] The 16-percent increase in volume on Highway 19 represents an estimated increase of 133 vehicle trips per day, but due to the low volume of traffic on Highway 19, the total volume will be less than 1,000 vehicles per day, including the LJF construction traffic. App p. U-14.
[87] App Tables O-1 and O-2.
[88] Response to RAI O1, App Supp, Exhibit O, p. O-1.
[89] App p. O-4.

meters at hub height would not be significant at distances of five miles or more from the site.[90] Wind turbines at the proposed LJF could be up to 100 meters at hub height.

Portions of the areas identified in Table 6 that lie along the John Day River are within approximately six miles from the site. The John Day Federal Wild and Scenic River and the John Day State Scenic Waterway are managed, in part, for outstanding scenic quality. LJWP used computer modeling to determine what parts of the LJF would be visible from the John Day River, assuming the use of 3.0-MW turbines with a 100-meter hub height (150-meter blade tip height). The analysis showed that the proposed LJF wind turbines would not be visible from viewpoints on the river. Portions of the John Day Wildlife Refuge are approximately six miles from the proposed facility, but the refuge is protected because it provides wildlife habitat. It is not managed for its scenic views. Based on the applicant's analysis, some portions a few turbines might be visible from a small and relatively inaccessible area within the wildlife refuge approximately ¼-mile from of the riverbank.[91] The Council finds that the LJF would not have a significant adverse visual impact on any protected area.

Conclusions of Law

The Council finds that the proposed facility is not located in a protected area as 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. The Council adopts Conditions 90, 91 and 92 to be included in the site certificate. 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

LJWP 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 boundary and 30 miles from the site boundary, including areas outside the state.[92] In applying this standard, the Council focuses on the effects of facility structures on "scenic resources and

[90] Final Order on the Biglow Canyon Wind Farm (June 2006), p. 73 (85-meter hub height); Final Order on the Klondike III Wind Project (June 2006) p. 53 (80-meter hub height); Final Order on the Stateline Wind Project (September 2001), p. 48 (50-meter hub height).
[91] App Figures L-1, R-2 and R-4; Figure L-3 (App Supp, Appendix B, Attachment 7) and response to RAI L1 (App Supp, Exhibit L, p. L-1).
[92] First Amended Project Order, November 21, 2006.

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."

The tallest structures that would be part of the proposed LJF are the turbine towers, and these structures are the visual elements of the facility most likely to be visible from a distance. In evaluating the visual impact of wind turbines, the Council has previously found that the visual impact of wind turbines up to 85 meters at hub height would not be significant at distances of five miles or more from the site.[93]

A. Visual Features of the Site and the Proposed Facility

The proposed LJF site occupies an overall area of approximately 13 square miles. Within that area, up to 133 1.5-MW wind turbines could be built or up to 93 3.0-MW turbines could be built. The 1.5-MW turbines would have a tower hub height of approximately 80 m; the 3.0-MW turbines would have a tower hub height of approximately 100 m. Overall height, including the rotor radius would be approximately 119 m for the 1.5-MW turbines and up to 150 m for the 3.0-MW turbines. Turbines would be arrayed in "strings" spaced about a mile apart. The towers would be smooth, tubular steel structures painted white. Turbine tower lighting required for aviation safety would make the facility visible at night. Other aboveground facility structures would include approximately 22 miles of new access roads, one or two O&M buildings, a substation, four meteorological towers and up to 9.9 miles of aboveground collector transmission line. The O&M buildings and substation structures would be painted in a neutral color to blend with the surrounding landscape (Conditions 90 and 91). The meteorological towers would be non-guyed steel towers, approximately 80 m tall.

A proposed 230-kV transmission interconnection line less than 400 feet in length would connect the facility substation to the BPA Jones Canyon Switching Station. This transmission line would be supported by structures that would also support the interconnection from the Leaning Juniper I facility. Aboveground segments of the 34.5-kV power collector system would be supported on wood or steel poles with a typical height of 35 to 80 feet.

B. Effect on Identified Scenic Values

LJWP performed a Zones of Visual Influence (ZVI) analysis on areas within a 30-mile radius of the site. The ZVI analysis is a modeling analysis of line-of-sight visibility. The applicant used the modeling analysis to determine whether any part of the proposed LJF might be visible from viewpoints within the analysis area. The model does not take into account screening from vegetation or structures that might be present between a viewpoint and the site or factors such as weather conditions, haze or background landscape that might obscure the visual effect. 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.

To address the "worst case" visual effect, LJWP considered both a maximum turbine layout (133 1.5-MW turbines) and a maximum turbine height layout (93 3.0-MW turbines). Results of the analysis show that while the 133-turbine layout would be more visible in

[93] See footnote 90.

general, the effect of either layout on the identified scenic resources would be practically the same.[94]

To decide whether the proposed facility would have an adverse impact on identified scenic resources under the Council's standard, the Council must determine whether the facility could be visible from locations within the federal or locally-managed areas and whether the visual impact of the facility would adversely affect the scenic values addressed by the management plans. Based on the line-of-sight ZVI analysis, LJWP determined that some portion of the proposed facility might be visible within the following managed areas:[95]

Table 7: Land Management Areas

Area	**Management**	**Location**	**Distance to nearest LJF turbine** (miles)
Columbia River Gorge National Scenic Area	Federal Partnership	Oregon Washington	27
John Day River	Federal/State	Oregon	6
Oregon National Historic Trail	Federal	Oregon	6
Umatilla National Wildlife Refuge	Federal	Oregon	27
Gilliam County	County	Oregon	0
Sherman County	County	Oregon	7
Morrow County	County	Oregon	7
Wasco County	County	Oregon	26
Klickitat County	County	Washington	3
Benton County	County	Washington	18
Yakima County	County	Washington	23
Boardman	City	Oregon	25

Columbia River Gorge National Scenic Area

The Columbia River Gorge National Scenic Area (CRGNSA) is an 83-mile protected corridor along the Columbia River from Troutdale to the Deschutes River. It was created by Congress in 1986 under the Columbia River Gorge National Scenic Area Act. The Scenic Area is managed through a partnership between the Columbia River Gorge Commission, the U.S. Forest Service, Oregon and Washington state governments, six county governments and four tribes in accordance with the *Management Plan for the Columbia River Gorge National Scenic Area*. The CRGNSA is divided into three categories of land: Urban Areas, the Special Management Area (SMA) and the General Management Area (GMA). A small portion of the CRGNSA lies within the analysis area but at least 27 miles from the nearest proposed LJF turbine location. That portion of the CRGNSA that lies within the LJF analysis area is GMA land.

[94] App Figures R-1, R-2, R-3 and R-4.

[95] OAR 345-022-0080 requires consideration of "federal land management plans," which would include areas such as National Forests or National Wildlife Refuges, "local land use plans," which would include state lands, county lands and areas within incorporated cities in the analysis area, and tribal land management plans.

The management plan's stated goal for scenic resources within GMA land is to "protect and enhance the scenic resources of the Scenic Area."[96] The management plan defines the "Scenic Area" as the CRGNSA itself.[97] The plan includes policies and guidelines that address development activity within the CRGNSA. The plan identifies "key viewing areas," defined as "portions of important public roads, parks, or other vantage points within the Scenic Area from which the public views Scenic Area landscapes."[98] The applicant listed the following "key viewing areas" that lie partially within the analysis area for the LJF: Interstate 84 (I-84), Washington State Route 14 (SR-14) and the Columbia River. The scenic values protected under the CRGNSA management plan are views of landscapes within the Scenic Area.

Based on the ZVI analysis, a line-of-site exists from some areas within the CRGNSA to the LJF site, without considering screening from trees and other vegetation or structures and without considering weather conditions or haze. The visual impact of any LJF turbines that might be visible would be a negligible element of the far background, considering the distance of more than 27 miles. The proposed facility would not interfere with views of landscapes within the Scenic Area. The Council finds that the proposed facility is not likely to result in a significant adverse impact to the important scenic values identified in the CRGNSA management plan.

John Day River

(a) Federal Management

In February 2006, the Bureau of Land Management (BLM), Prineville District, announced its intention to update the guidance for BLM managed lands in the John Day basin.[99] Management of the lands is currently guided by three separate management plans and the BLM intends to consolidate guidance into a single document. The applicant cited the *Two Rivers Resource Management Plan and Record of Decision* (June 1986) and the *Record of Decision for John Day Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments* (February 2001). The 1986 document identifies the Deschutes and John Day River Canyons as scenic resources: "Areas of high visual and natural quality in the canyon areas (approximately 139,000 acres) will continue to be protected while allowing other compatible uses in the same area." 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 John Day River within the analysis area is also a designated State Scenic Waterway. The State Scenic Waterways Act provides for management of scenic waterways

[96] *Management Plan for the Columbia River Gorge National Scenic Area*, Part I, Chapter 1.
[97] *Management Plan for the Columbia River Gorge National Scenic Area*, Glossary.
[98] *Management Plan for the Columbia River Gorge National Scenic Area*, Glossary.
[99] Letter from Christina M. Welch, BLM Field Manager, Central Oregon Resource Area, February 16, 2006.

and "related adjacent land" (land within one-fourth of one mile of the bank) "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."[100]

The administrative rules adopted by the Oregon Parks and Recreation Department for the management of State Scenic Waterways generally protect scenic values "seen from the waters" or "visible from the river." These terms are defined to exclude lands beyond the boundaries of "related adjacent land" from state management jurisdiction.[101]

(c) Visual Impact of the Facility

Table R-1 in the application indicates that the proposed facility is "potentially visible" from some viewpoints within the John Day River corridor. The applicant's ZVI maps, however, indicate that there would be no line-of-site to the facility from almost all of the managed areas. Portions of the facility might be visible from vantage points at higher elevation along the canyon walls. The nearest wind turbines would be at least six miles away. Considering the distance, the visual impact of the facility would be a very small element within the landscape. Under both the federal and state management plans, the protected scenic values are scenic areas that lie within the boundaries of the management area. The presence of wind turbines six miles or more away from the river would not interfere with views of the protected scenic values. For these reasons, the Council finds that construction and operation of the facility would not result in significant adverse impact to the significant or important scenic values within the John Day River area.

Oregon National Historic Trail

The Oregon National Historic Trail received federal designation to commemorate the historic travel route and to promote its preservation, interpretation and public use and appreciation. The Trail passes through six states and covers 2,130 miles. The applicant identified four "high potential" sites within the analysis area: Fourmile Canyon, John Day River Crossing (McDonald Ford), Biggs Junction and the Deschutes River Crossing. Under the National Trails System Act, "high potential historic 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." 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."[102]

Based on the applicant's ZVI analysis, the facility might be visible from Fourmile Canyon, but there would be no line-of-site to the other identified "high potential" sites within the analysis area. The Fourmile Canyon site is located seven miles from the nearest proposed turbine location. The Fourmile Canyon site is protected primarily for the historic significance of deep wagon ruts visible where the trail crossed Fourmile Canyon. An interpretive wayside is located within the canyon itself where the topography would likely block the line-of-sight

[100] ORS 390.845.
[101] OAR 736-040-0015.
[102] 16 USC 1251.

to LJF turbines. The Council finds that, if visible at all, the LJF is not likely to result in significant adverse impact to the scenic values associated with the Fourmile Canyon historic site.

Umatilla National Wildlife Refuge

The Umatilla National Wildlife Refuge is located along the Columbia River, approximately 27 miles east of the LJF. Although the ZVI analysis shows a line-of-site to the proposed LJF turbines, there is no federal management plan for the refuge. Accordingly, there are no identified scenic values that the Council must consider.

Gilliam County

The proposed facility is located within Gilliam County. The proposed LJF turbines would be visible from many locations within the county. The applicant states that the Gilliam County Comprehensive Plan, Part 5, identifies "rock outcroppings marking the rim and walls of steep canyon slopes" as important scenic resources. The Council finds that the proposed facility is not likely to have a significant impact on viewing rock outcroppings and scenic canyons in Gilliam County. In addition, the Plan identifies the John Day River corridor as a scenic resource. The visual impact of the proposed facility on scenic values identified in the management plans for the John Day River Canyon has been described above.

Sherman County

The proposed LJF is at least seven miles from the nearest locations in Sherman County. The Sherman County Comprehensive Plan identifies scenic resources within the County. Section XI, Finding XI, of the Plan 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 ODOT. The related county Comprehensive Plan 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 LJF 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 Canyons have been described above. In addition, the Sherman County Comprehensive Plan identifies I-80, US Highway 97 and Oregon Highways 206 and 216 as scenic highways. ODOT is responsible for managing State highways. Except for US Highway 97 discussed below, ODOT does not list these routes as state or federal "scenic byways."[103] The Council finds that the proposed LJF would not result in a significant adverse impact to the scenic values identified in the Sherman County land use plan.

The Journey Through Time Tour Route is managed by the Oregon Department of Transportation. It is an Oregon Scenic Byway running from Baker City to Biggs. Within the analysis area, the Byway follows US Highway 97. 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

[103] ODOT website, http://egov.oregon.gov/ODOT/HWY/SCENICBYWAYS/proponets.shtml (October 17, 2005)

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 near Wasco, and are at least 18 miles from the nearest proposed LJF turbine.

Morrow County

The Morrow County Comprehensive Plan does not identify any specific scenic resources as significant or important. The nearest parts of Morrow County are at least 7 miles from the LJF site.

Wasco County

The nearest parts of Wasco County are 26 miles or more from the proposed LJF. The applicant states that the Wasco County Comprehensive plan identifies the following "outstanding scenic and recreational areas": the Columbia River Gorge, areas within the Deschutes River canyon or designated as a state scenic waterway, areas seen from the John Day River or designated as a state scenic waterway, Rock Creek Reservoir, Pine Hollow Lake and lands within the White River Canyon. The visual impacts of the proposed facility on scenic values in the Columbia Gorge and in the John Day River Canyon have been described above. The Deschutes River and White River Falls State Park are more than 30 miles from the LJF, outside the analysis area, and the ZVI analysis indicates that there would be no line-of-sight from these scenic areas. The Council finds that the proposed facility is unlikely to have a significant impact on the scenic values identified in the Wasco County Comprehensive Plan due to the distance from the site and intervening topography.

Klickitat County

Klickitat County, Washington, lies north of the project area on the north side of the Columbia River. The nearest proposed LJF turbines are at least three miles away from the nearest locations in Klickitat County. According to the applicant, the Klickitat County Comprehensive Plan identifies scenic values associated with the CRGNSA, which have been discussed above.[104]

Benton County

The nearest locations within Benton County, Washington, are 18 miles or more from the proposed LJF turbines. The Benton County Comprehensive Plan identifies scenic values associated with the Columbia, Snake and Yakima Rivers and Badger Mountain Preserve. All of these areas, except areas along the northern banks of the Columbia, are beyond the 30-mile analysis area boundary. The ZVI analysis indicates that portions of LJF turbines would be in a line-of-sight from the north side of the Columbia, but at a distance of 18 miles, the turbines would be a very small element within the landscape, and the visual impact of the facility would be negligible.

Yakima County

The ZVI analysis reveals a line-of-sight to the LJF turbines from locations within a small area in southern Yakima County, Washington, within the Yakama Reservation. The nearest turbines would be at least 23 miles away. The applicant states that the LJF wind turbines "have a low probability of being detectable under most atmospheric and lighting

[104] Based on the applicant's personal communication with Klickitat County Planner, Janette Herrington (App p. R-9).

conditions." At a distance of 23 miles or more, any visible turbines the turbines would be a very small element within the landscape, and the visual impact of the facility would be negligible.

Boardman

The City of Boardman, Oregon, lies approximately 25 miles east of the LJF. The City of Boardman Comprehensive Plan states that the City has "limited scenic views, none of which could be considered outstanding."

Conclusions of Law

The Council 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. The Council adopts Conditions 90, 91 and 92 to be included in the site certificate. Based on these findings and 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

LJWP 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.

Recreational opportunities within the analysis area include camping, hiking, upland bird and big game hunting, boating, fishing, sightseeing, nature and wildlife photography, wind surfing and bicycling. There are no unusual or outstanding features of these recreational opportunities within the analysis area. There are many other locations for these types of recreation outside the analysis area, and so the opportunities may be considered common and replaceable. The following sections describe the recreational areas in the analysis area that the applicant identified and assessed for importance based on the factors listed in OAR 345-022-0100.

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.

Historic Trail Alignment

The alignment of the Oregon National Historic Trail does not intersect the site boundary. No "high-potential sites" along the trail are within the analysis area.[105] The surrounding landscape is used primarily for private landfill operation and cultivation of wheat, so recreational opportunities are limited to visiting and viewing the approximate historic alignments from county roads. The historic trail alignment is outstanding because of its historical significance. Demand (public interest in the alignment) might be considered moderate. The opportunity to view developed areas of the alignment is common and replaceable, although views of intact segments are rare and irreplaceable. The Council finds that the historic trail alignment is an important recreational opportunity.

B. Potential Impact on Important Recreational Opportunities

Based on the analysis above, the Council finds that the only recreational opportunities within the analysis area that might be considered important are opportunities associated with the historic trail alignment. Design, construction and operation of the proposed facility would have no adverse effect on these opportunities.

Conclusions of Law

The Council finds 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 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:

[105] See discussion of high potential areas above at page 61.

(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

Because the proposed facility would be located on private property, public access would be limited. At the closest point of rotation, turbine blade tips would be at least 30 meters (98 feet) above ground.

The Council adopts Condition 39, which requires a turbine safety setback from residences and public roads. The minimum safety setback distance would be equal to the maximum blade tip height of the turbine, plus 50 feet.

Towers would be smooth steel structures with no exterior ladders or access to the turbine blades. Each tower would have a locked entry door at ground level restricting access to authorized personnel (Condition 55). There would be no public access to the nacelles or turbine tower interiors or to the electrical equipment contained therein. Generator step-up transformers would be located within locked cabinets at the base of each tower (Condition 59).

Towers and tower foundations, as well as aboveground transmission line support structures would be designed according to applicable building codes to avoid failure or collapse (Condition 50). During construction, the certificate holder would follow manufacturers' recommended handling instructions and procedures to prevent damage to towers or blades that could lead to failure (Condition 56).

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 57). All turbines would have self-monitoring devices linked to sensors at the O&M building to alert operators to potentially dangerous conditions (Condition 58).

Electric transformers and other equipment associated with the proposed substation would be enclosed by a fence with a locked gate and otherwise be made inaccessible to the public (Condition 54). Warning signs would be posted as required by law for the safety of the public (Condition 90).

Conclusions of Law

The Council finds that the applicant 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 the applicant 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. The Council adopts Conditions 39, 50, 54, 55, 56, 57, 58, 59 and 90 to be included in the site certificate. Based on these findings and 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 this standard in Exhibit BB of the application. The proposed LJF (up to 133 turbines) is located in northern Gilliam County. Table 8 is a list of wind energy projects that are operating, approved or proposed in the three-county area of Sherman, Gilliam and Morrow Counties.[106]

[106] Based on information available to the Department as of June 2007.

Table 8: Wind Energy Projects

Project	County	Turbines	MW (capacity)	Status
Three-Mile Wind I	Morrow	9	15	county-approved
Willow Creek	Morrow/Gilliam	48	72	county-approved
Shepherds Flat Wind Farm	Morrow/Gilliam	303	909	under Council review
Condon Wind Energy	Gilliam	83	50	operating
Leaning Juniper I	Gilliam	67	100	operating
Leaning Juniper II	Gilliam	133	279	under Council review
Rattlesnake Road	Gilliam	181	300	under Council review
Pebble Springs	Gilliam	103	103	county-approved
Mar-Lu	Gilliam	3	5	county-approved
Klondike I and II	Sherman	56	99	operating
Klondike III	Sherman	165	272	under construction
Biglow Canyon Wind Farm	Sherman	225	450	under construction
Oregon Trail Wind Farm	Sherman	5	10	county-approved
Golden Hills Wind Farm	Sherman	200	300	under Council review
Grass Valley	Sherman	69	104	proposed
Sherman County Wind Farm	Sherman	5	10	proposed
Total (potential)		1,655	3,078	

Currently-operating facilities in the three-county area amount to a cumulative total of approximately 249 MW of wind energy projects (206 turbines). Approximately 2,800 MW of additional wind energy projects have been approved or are pending approval. Altogether, more than 1,600 wind turbines could be operating within the three-county area within the next five years.

Access Roads

LJWP considered and analyzed potential adverse environmental impacts in locating the proposed new access roads. The construction of new roads would be limited to locations within the lease boundary. In addition, improvements would be made to some existing public 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.

Transmission Lines and Substations

Transmission lines to collect the power generated by individual wind turbines would be predominantly underground, although the facility could have a maximum of 9.9 miles of aboveground collector line, where necessary due to terrain or geotechnical constraints. A short segment (less than 400 feet) of aboveground 230-kV transmission line would connect the LJF Substation to the BPA Jones Canyon Switching Station, which lies along the existing McNary-Santiam 230-kV transmission line. The substation site is immediately adjacent to the substation for Leaning Juniper I and the substation site for the proposed Rattlesnake Road

Wind Power Facility. The three substations and the BPA switching station are all contained in a single plot of land.[107]

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. Pad-mounted transformers at each turbine would be designed to avoid use by raptors or prey species as artificial habitat (Condition 59). Turbine pad areas would be graveled to reduce the potential for erosion and weed infestation (Condition 60). The turbines would be mounted on smooth tubular towers rather than lattice towers to avoid creating horizontal perching opportunities. All transmission support poles would conform to raptor protection guidelines recommended by APLIC and would have anti-perching devices on poles within a half-mile of turbines (Condition 83).[108] Meteorological towers would be freestanding 80-meter pole structures with no guy wires.

Visual Features

The wind turbines would be mounted on tubular steel towers of uniform height. The towers would be uniformly painted white or a shade of white. 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 identifying the facility (Condition 90).

Lighting

Turbines would have the minimum lighting required by the FAA or conforming to FAA guidelines. The O&M buildings could have low impact (focused downward) exterior lighting for safety and security purposes (Condition 92).

Cumulative Impacts Discussion

The Department asked the applicant to discuss whether the operation of the proposed facility, in combination with other wind energy facilities in the Columbia Basin that have been built or are in the permitting process, has a potential to cause cumulative adverse environmental impacts. The applicant's response (quoted below) provides a framework for future consideration of this issue as well as an assessment of current knowledge about cumulative impacts.[109]

> The Applicant recognizes the heightened concern regarding potential cumulative impacts resulting from wind energy development in the Columbia Basin region. The Applicant and its consultants thus far have found no information suggesting such a potential for the proposed facility. The Applicant agrees with ODOE that more detailed consideration of the potential for cumulative impacts should be focused through the Council's standards-based siting process. In light of these points, and for the technical and regulatory reasons set forth below, the Applicant is not currently able to present fully, and the Council is not yet in a position to evaluate, the potential for cumulative impacts from Columbia Basin wind energy projects.
>
> From a technical perspective, while it is possible to calculate the potential impacts of the proposed facility, it is difficult to determine if these impacts would contribute to or create a

[107] App Figure C-4.
[108] Response to RAI B8, App Supp, Exhibit B, p. B-4.
[109] Response to request BB1, App Supp, Exhibit BB, p. BB-1.

level of cumulative impacts that are biologically significant. The primary reasons are described below.

To determine the level of cumulative direct avian and bat fatalities resulting from the operation of the proposed and other wind energy facilities in the Columbia Basin, a number of factors will need to be defined. The first step will be to identify all known and proposed wind energy projects in the region, including projects in Washington and non-EFSC jurisdictional projects in Oregon. After identifying the location and size of these projects, the number of known and expected avian and bat fatalities will be calculated. For existing facilities with formal fatality monitoring programs, the number of avian and bat fatalities per MW per year could be obtained from the results of the monitoring programs. For existing projects without formal fatality monitoring, as well as future proposed projects, the number of fatalities will have to be estimated based on known fatality rates at other projects in the region, based on the assumption that new regional projects will have similar impacts to existing projects.

The BPA Final Environmental Impact Statement (FEIS) for the Klondike III/Biglow Canyon Integration Project conducted a similar analysis of cumulative avian fatalities for several wind projects in the region. As described in the BPA EIS, "the construction of multiple wind power and transmission facilities as well as other development in the project vicinity could cause cumulative impacts to some wildlife species. Cumulative impacts from the operation of the wind power and transmission line facilities on bird and bat species is more likely than impacts to terrestrial species, because these facilities have potential to harm or kill animals that strike them. A study of the potential cumulative impacts to bird and bat species was conducted in 2006 for the Klondike I and II, Klondike III, Biglow Canyon, and Orion South projects (WEST, *Cumulative Impacts Analysis for Avian Resources from Proposed Wind Projects in Sherman County, Oregon*, 2006). This study is included as Appendix A to [the BPA] EIS. This study did not include the full potential 279 MW of LJ II or the 750 MW Shepherd's Flat wind project, nor other projects currently in various stages of development or planning in Washington."

Once all wind projects that might contribute to avian mortality in the Columbia Basin are identified, the next step will be to identify all other major anthropogenic sources of avian mortality, to understand the range of factors contributing to avian mortality and population trends. Sources of mortality vary by species and habitat, but include vehicle, structure and electric distribution line collisions, domestic animals, and habitat loss.

Although the above analysis will provide a projection of cumulative, anthropogenic fatality numbers for broad groups of birds (such as all birds or all raptors), these numbers will not indicate whether the impacts represent a significant biological impact on the affected species, either on a local or regional population level. Species-specific population numbers will need to be obtained to answer this question. At this point, knowledge of Columbia Basin bird population sizes is very limited, and it will take a great deal of resources to determine a population size for a given species, much less for all affected species. The Applicant recently became aware of new research being conducted at the American Museum of Natural History using genetic tissue from large sample sizes of Hoary bats to estimate population numbers and genetic diversity of that particular species. However, we are not aware of similar work being done for avian species. Conducting a similar study on less common sensitive species such as Swainson's and Ferruginous hawks will be challenging, given the lack of genetic tissue, which is a result of the rarity of mortality events for these species.

In order to calculate cumulative impacts to native shrub-steppe and other wildlife habitat, the first step will be to identify all known and proposed projects and associated permanent and temporary footprints. For existing EFSC-jurisdictional facilities, the number of acres could be

obtained from the application for site certificate and habitat mitigation plan. For existing projects without formal reporting of habitat impacts, as well as future proposed projects, the level of habitat impacts could be estimated based on a combination of publicly available habitat mapping and estimates of level of impacts based on known impacts at other projects in the region. Because zoning and land use maps group native shrub-steppe and cultivated agricultural lands together as agricultural land, habitat in the Basin could be characterized using sources such as the USGS Gap Analysis Program (GAP) and aerial photography. The next step will be to describe the quantity and quality of native habitat currently available in the Columbia Basin, using the tools described above. The study will then compare the anticipated cumulative impacts resulting from wind facilities to the quantity and quality of the impacted habitat that exists in the Basin. However, it is important to note that determining the percent of each habitat type that may be affected by wind energy development may not fully answer the question of biological significance either. Other factors, such as the location of remaining native habitat, its integrity and its contiguity with other habitat (i.e., level of fragmentation) influence the usefulness of habitat to wildlife species.

To summarize from a technical perspective, the Applicant is aware of no studies or research suggesting that existing and proposed wind energy projects pose the potential for significant cumulative impacts to avian populations or to habitat in the Columbia Basin. More importantly, there is a fundamental lack of complex, regional data that will allow the Applicant, the Council, or any third party to determine whether such a potential exists.

From a regulatory and policy perspective, the Applicant's review of the Council's siting standards and application requirements suggests that the Council currently lacks the regulatory framework in which the potential for cumulative impacts could be presented thoroughly and evaluated fairly based on objective standards. The Council's Energy Generation Area rule, OAR 345-001-0200, is targeted at a question not related to ODOE's question above: when do the impacts of several small projects create "accumulated effects" significant enough that the Council will exercise its siting jurisdiction over otherwise subjurisdictional facilities? The Council's siting standard for wind energy facilities, OAR 345-024-0015(3), is more narrowly targeted to the project's "vicinity" (rather than, for example, the "Columbia Basin"). Further, the standard is narrowly focused on practicable design and construction measures that might reduce cumulative impacts relating to other wind projects in the vicinity (largely, for example, using existing facilities that support other existing projects rather than constructing new facilities for each new project). This standard calls for a conceptual analysis of potential categories of cumulative impact, and an assessment of practicable design and construction measures that could reduce those types of impacts. Such an analysis was presented in the ASC for this project. Finally, the existing Council rules do not contain any guidance on one of the central questions in any cumulative impacts analysis: how to apportion responsibility, and mitigation duties, among the project proponent and the owners of all the other anthropogenic impacts on any given species.

Overall, there is neither sufficient technical information nor a sufficient regulatory framework in which to take up fairly and objectively the question of cumulative impacts—a question that is complex and sophisticated and therefore surely should be based on a thorough facts and clear policy. At the same time, the Applicant is both aware of the Council's interest in this issue, and concerned as a wind project proponent to develop projects that provide renewable power in an environmentally responsible manner. Accordingly, the Applicant is willing to participate in technical studies and regulatory processes designed to move the Council into a position where it can in future responsibly assess the issue.

Conclusions of Law

The Council finds that the proposed design and construction of the facility would reduce cumulative adverse environmental effects in the vicinity by practicable measures in accordance with the requirements of OAR 345-024-0015. The Council adoptes Conditions 59, 60, 83, 90 and 92 to be included in the site certificate. Based on these findings and 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;

(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

This standard addresses safety hazards associated with electric fields around transmission lines.[110] The proposed LJF includes an aboveground 230-kV transmission line less than 400 feet in length from the facility substation to the BPA Jones Canyon Switching Station. In addition, the proposed facility includes approximately 32 miles of 34.5-kV transmission line (collector line) to transport the power from each turbine to the substation. Most of the collector line would be underground, but up to 9.9 miles of the collector line might be built in aboveground segments.

The electric fields around transmission lines are directly proportional to the voltage in the transmission line and inversely proportional to distance from the line (the higher the voltage, the stronger the field; the greater the distance, the weaker the field). The Council has adopted a safety standard for electric field strength of not more than 9 kV per meter at one meter above the ground surface in areas accessible to the public (OAR 345-024-0090).

Electric fields can induce a voltage in a person standing near a transmission line or in objects within the electric field. Unless proper precautions are taken, induced voltages might result in an electric shock when a person or animal touches the object and creates a path for a current to flow to the ground. A common induced voltage hazard occurs on fences that parallel overhead transmission lines. If the fence is ungrounded, it possesses the voltage of the net electric field of the overhead conductors. A person touching such a fence becomes a conducting path for the current and will feel a momentary shock. Grounding 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. OAR 345-024-0090 requires certificate holders to

[110] Magnetic field effects are addressed below under Public Health and Safety in Section V.1(e).

design and operate transmission lines so that induced currents will be as low as reasonably achievable.

Aboveground 230-kV Transmission Line

A short segment (less than 400 feet) of aboveground 230-kV transmission line would connect the facility substation to the BPA Jones Canyon Switching Station. The facility substation would be located adjacent to the existing Leaning Juniper I substation, which itself is adjacent to the BPA switching station. The two substations and the BPA switching station would be fenced, and the 230-kV transmission line would be located entirely within the fenced areas and inaccessible to the public. There are no residences or occupied buildings within 200 feet of the proposed facility substation and 230-kV line. Any electromagnetic fields generated by the 230-kV line would be completely obscured by the fields generated by the two substations. Nevertheless, the certificate holder would take appropriate precautions to minimize the risk of electric shock from induced currents (Condition 17).

Aboveground 34.5-kV Transmission Lines

The facility's aboveground 34.5-kV lines would include segments of single-circuit or double-circuit line (Condition 78). The applicant calculated electric field strength using "Corona and Field Effect Program (Version 3)," a software tool developed by BPA. The application contained the results of the analysis, which confirmed an estimated maximum electric field at one meter above ground of 0.3 kV per meter for single-circuit line and 0.2 kV per meter for double-circuit line.[111] There would be no occupied buildings or residences within 200 feet of either side of the proposed centerline of the overhead collector lines.

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. 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.

Conclusions of Law

The Council finds that LJWP 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 LJWP 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. The Council adopts Conditions 17, 78 and 79 to be included in the site certificate. Based on these findings and the site certificate conditions described herein, the Council concludes that the proposed facility complies with the Siting Standards for Transmission Lines.

[111] The application included a discussion of the assumptions used in the analysis and a printout of the data (App Exhibit AA).

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

LJWP provided information about compliance with the Council's Threatened and Endangered Species Standard in Exhibit Q of the application. The analysis area for threatened and endangered plant[112] and wildlife species[113] is the area within the site boundary and 5 miles from the site boundary.

[112] 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.

[113] 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.

LJWP contacted the U.S. Fish and Wildlife Service (USFWS) and the Oregon Natural Heritage Information Center (ORNHIC) to request information on threatened, endangered and sensitive species within the 5-mile analysis area. The USFWS declined to provide a site-specific list of federally-listed plant and wildlife species but instead provided lists of protected species that might be found in Gilliam and Klickitat (Washington) Counties. LJWP reviewed the lists of species obtained from the USFWS and ORNHIC and assessed the potential for these species to occur in the analysis area based on suitable habitat, professional experience and consultation with ODFW.

Plant Species

The applicant hired CH2M HILL to identify rare plant species that might be found within the analysis area.[114] A preliminary assessment included a literature review and consultation with USFWS, ONHIC and other sources and a "reconnaissance-level" field investigation. The assessment identified one state-listed candidate species, sessile mousetail, as potentially occurring in the analysis area.

In a follow-up report, CH2M HILL conducted a "protocol-level" survey for sessile mousetail (State Candidate Species).[115] Populations of the plant were observed in four vernal pools within the site boundary. No facility components would be located in these areas, and there would be no temporary disturbance of the areas during construction. The certificate holder would install exclusion fencing around confirmed populations of the plant as a protective measure during construction (Condition 84).[116]

Although candidate species are not currently protected as threatened or endangered, their status could change between the time a site certificate is issued and the time that construction begins. For this reason, the Council adopts Condition 84, which requires the certificate holder to confirm the status of sessile mousetail before beginning construction. If the species has been upgraded to threatened or endangered under State or federal law, the certificate holder should take appropriate mitigation actions approved by the Department.

CH2M HILL identified five other plant species that might occur in the analysis area. Table 9 lists the protected and candidate plant species that could be present in Gilliam County. CH2M HILL concluded that Laurence's milk-vetch (a State-listed threatened species) is not likely to occur within the site boundary because it is generally found at higher elevations. The only known occurrences of northern wormwood (a State-listed endangered species) are in gravels along the Columbia River. Northern wormwood is not likely to exist within the site boundary.[117] Because CH2M HILL found no threatened or endangered plant species in the analysis area, the applicant concluded that no Oregon Department of Agriculture plant protection and conservation programs apply.

[114] CH2M HILL, *Preliminary Rare Plant Habitat Assessment, Leaning Juniper Wind Energy Project, Gilliam County, Oregon* (September 1, 2006), App Attachment Q-1.
[115] CH2M HILL, *Rare Plant Survey Addendum Leaning Juniper II Wind Energy Project, Gilliam County, Oregon*, App Attachment Q-1.
[116] App pp. Q-17, Q-23 and Q-24.
[117] Sara McMahon, technical memorandum dated June 26, 2007, p. 4.

Table 9: Protected and Candidate Plant Species

Species	Federal Status	State Status
Disappearing monkey flower (*Mimulus evanescens*)	species of concern	none
Laurence's milk-vetch (*Astragalus collinus* var. laurentii)	species of concern	threatened
Little mousetail (*Myosurus minimus* ssp. apus var. sessiliflorus).	species of concern	none
Northern wormwood (*Artemisia campestris* ssp. wormskioldii)	candidate	endangered
Robinson's onion (*Allium robinsonii*),	species of concern	none
Sessile mousetail (*Myosurus sessilis*)	none	candidate

Fish and Wildlife Species

LJWP searched database information from the USFWS and the ORNHIC on the potential for occurrence of threatened and endangered wildlife species in the analysis area. LJWP hired Northwest Wildlife Consultants, Inc. (NWC), and Western EcoSystems Technology, Inc. (WEST), to conduct literature reviews and wildlife impact analyses. NWC designed and conducted wildlife and habitat field investigations. WEST analyzed the avian use study data. The applicant consulted with ODFW regarding wildlife habitat requirements and distribution.

NWC conducted aerial raptor nest surveys within 2 miles of the lease boundary in 2005 and 2006. NWC conducted transect surveys of areas suitable for threatened and endangered wildlife species in 2005 and 2006. Spring season walking surveys were done in 2005 within 1,000 feet of the LJ-South components (based on the 2005 layout). In the spring season of 2006, the applicant completed transect surveys in all suitable habitat in the LJ-North area. If construction would affect areas that were not surveyed in 2005 and 2006, the certificate holder would conduct additional pre-construction surveys and would implement appropriate avoidance or mitigation measures for any threatened or endangered species detected (Condition 84).

Based on the literature review and consultations, LJWP identified the protected and candidate wildlife species that have the potential to occur in the analysis area. These species are listed in Table 10. Fish species have been excluded from this list, because no suitable habitat for special status fish species exists within the site boundary and because facility construction would not take place in any streams that function as habitat for the species or consume water from those sources.[118] Two federally-listed mammal species that are on the USFWS list for Klickitat County (gray wolf and Canada lynx) are omitted from this list because these species do not appear on the USFWS list for Gilliam County. There is no suitable habitat for these species near the LJF site. The applicant determined that the yellow-billed cuckoo is not likely to occur within or near the site boundary because there is no

[118] App p. Q-17.

suitable habitat.[119] The species is rarely observed east of the Cascades. The Council finds that the facility is unlikely to affect the yellow-billed cuckoo.

Table 10: Protected and Candidate Wildlife Species

Species	Federal Status	State Status
Birds		
American peregrine falcon (*Falco peregrinus anatum*)	none	none
Bald eagle (*Haliaeetus leucocephalus*)	none	threatened
Yellow-billed cuckoo (*Coccyzus americanus*)	candidate	none
Mammals		
Washington ground squirrel (*Spermophilus washingtoni*)	candidate	endangered

American Peregrine Falcon

The peregrine falcon was formerly a State-listed endangered species. It was removed from the State list on April 13, 2007.[120] The species was removed from the federal list of endangered and threatened wildlife on August 25, 1999. The critical nesting period for the peregrine falcon is mid-February through May. Peregrine falcons prefer to nest on natural ledges found along river courses and other large bodies of water, but they will also use suitable nesting ledges on artificial structures.

There is suitable nesting habitat for peregrine falcons on basalt cliffs along the Columbia River five miles or more from the proposed LJF. One peregrine has been seen in Arlington, approximately one mile from the site boundary. A few historic nests are located from 7 to 30 miles away. The LJF site might be within foraging range of some of these nest locations; however, no peregrine falcons were observed during baseline surveys at the site.

One pair of peregrine falcons nested approximately five miles from the closest wind turbine at the Stateline Wind Project, but no peregrine fatalities were found during two years of fatality monitoring at Stateline. Likewise, there have been no recorded fatalities of peregrine falcons at the Nine Canyon Wind Project in southeast Washington or at the Combine Hills Wind Project in Umatilla County.[121]

Based on the absence of known turbine-related fatalities at other wind facilities in the region and the low potential for use of the LJF site by the species, the Council finds that the design, construction, operation and retirement of the proposed LJF are not likely to have any significant adverse impact on peregrine falcons.

If peregrine falcon fatalities are discovered during post-construction monitoring required under the Wildlife Monitoring and Mitigation Plan (WMMP), Attachment A incorporated herein, the certificate holder would notify USFWS, ODFW and the Department. If appropriate, additional mitigation measures would then be implemented (Condition 87).

[119] App p. Q-11.
[120] E-mail from Rose Owens, ODFW, August 21, 2007.
[121] App p. Q-12.

Bald Eagle

The bald eagle is a State-listed threatened species. It 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. Unlike golden eagles, bald eagles do not appear susceptible to colliding with wind turbines, probably because of differences in foraging habits. There have been no reported instances of bald eagle fatalities at any U.S. wind facility.[122]

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.

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 might scavenge on carrion and small mammals in the upland areas. The nearest known nest is more than 47 miles from the proposed LJF. Bald eagles might pass through the site infrequently during spring and fall migration or during the winter. No bald eagles were observed during the avian baseline study conducted by NWC. The Council finds that the design, construction, operation and retirement of the proposed LJF are not likely to have any significant adverse impact on bald eagles.

If bald eagle fatalities are discovered during post-construction monitoring required under the WMMP, the certificate holder would notify USFWS, ODFW and the Department. If appropriate, additional mitigation measures would then be implemented (Condition 87).

Washington Ground Squirrel

The Washington ground squirrel (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 east and south of the Columbia River in Washington and Oregon. Its current range 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. Much of the remaining native habitat is dominated by rabbitbrush and cheatgrass or is grazed intensively, reducing forage and cover for the WGS. The WGS is found most often in areas that have good vegetative cover and deep, loose soils.[123]

Suitable habitat for WGS exists within the LJF site boundary. NWC conducted extensive protocol-level surveys in 2005. Although no WGS colonies were discovered during surveys of LJ-North, active WGS colonies were found in several locations within the surveyed corridors near LJ-South.[124] There are at least five primary patches or occupied colonies (one consisting of five smaller areas) in areas near LJ-South components. The WGS

[122] App p. Q-13.
[123] App pp. Q-13 - Q-14.
[124] App, Table Q-2, p. Q-15, and Figures Q-4 through Q-7.

patches range from 3 to 74 acres in size. Some active sites extend onto areas that were not surveyed. Based on soils and habitat, more WGS colonies are likely to be present in the vicinity of the LJF site in uncultivated areas that have not been surveyed.

The WGS were found primarily in open, low shrub and grass habitat (SSB) and also in shrub-grass (SSA) and annual grassland (GA). LJ-South facilities would occupy about 18 acres of habitat in these categories and construction would disturb an additional 205 acres of this habitat. The total potential disturbance (about 223 acres) is about 10 percent of the habitat in these categories within the LJ-South lease area (2,278 acres).[125] The applicant does not expect that the disturbance of this area would affect connectivity between the active WGS colonies within the LJ-South lease boundary.

Based on the baseline surveys, the applicant modified the preliminary facility layout to avoid placement of any facility components within any of the identified WGS patches. During construction, the certificate holder would protect known WGS patches and an appropriate buffer by use of exclusion fencing (Condition 85). Depending on site-specific vegetation, WGS use habitat adjacent to their colonies for cover and forage during daily or periodic movements. This potential squirrel use area can be up to 785 feet from the active WGS cluster.

Incidental Take Permit

Individual WGS might roam outside the identified patches and be struck by vehicles during construction. Under OAR 635-100-170, ODFW "may issue a permit to any person for the incidental take of a state-listed threatened or endangered species if it determines that such take will not adversely impact the long-term conservation of the species or its habitat." OAR 635-100-0100 defines "take" as "to kill or obtain possession or control of any species" on the State threatened or endangered species list. To obtain an Incidental Take Permit (ITP), an applicant submits an ITP application to ODFW. An application describes the potential impact on the protected species, requests an incidental take allowance (number of incidental species fatalities per year), describes conservation and mitigation measures and describes a plan for monitoring and reporting. Under ODFW procedure, if the agency approves of the measures described in the applicant's ITP application, the agency issues an ITP letter approving the ITP (rather than issuing a separate permit document).

To address potential fatalities of WGS during construction and operation of the proposed LJF, the applicant submitted an ITP application to ODFW and the Department (Attachment E).[126] The applicant prepared the ITP application after consultation with ODFW and the Department. ODFW staff has recommended approval of the terms and commitments set forth in the ITP application.[127] Based on the ODFW recommendation, the Council approves the terms and commitments in the ITP application and requests that ODFW issue an ITP letter based on the ITP application for the proposed facility in accordance with ORS 469.401(3). Condition 88 requires the certificate holder to obtain the ITP letter from ODFW before beginning construction.

[125] Calculation based on revised Table P-15B (App Supp, Appendix B, Attachment1).
[126] E-mail from Sara Parsons, July 18, 2007.
[127] E-mail from Rose Owens, July 18, 2007.

Conclusions of Law

The Council finds that no conservation program applies and that the design, construction and operation of the proposed facility, taking into account mitigation and subject to the site certificate conditions described herein, 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. The Council finds that an ITP letter should be issued incorporating the terms and commitments of the ITP application (Attachment E). The Council adopts Conditions 84, 85, 87 and 88 to be included in the site certificate. Based on these findings and 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.[128]

"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-

[128] 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."

proximity" habitat mitigation to achieve no net loss of either pre-development habitat quantity or quality.[129] 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 existing 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.*

If impacts are unavoidable, the mitigation goal for Category 5 habitat is to provide a net benefit in habitat quantity or quality. The Council interprets this to mean that there must be an improvement in either habitat quality or quantity. 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.

B. Baseline Surveys

LJWP provided information about compliance with the Habitat Standard in Exhibit P of the application. The Project Order defines the analysis area for potential fish and wildlife habitat impacts as the area within the site boundary (including the area within the perimeter of

[129] 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."

all micrositing corridors, facility components lying outside of any micrositing corridor and all temporary laydown and staging areas). LJWP mapped habitat within the lease boundaries of LJ-North and LJ-South and, within that area, identified habitat using the ODFW habitat categories.

LJWP reviewed USFWS and ORNHIC databases to determine documented occurrences of special status species, including state sensitive species, in the analysis area. LJWP conducted a literature search and consulted with ODFW biologists for additional information on species distribution and habitat requirements. LJWP hired NWC and WEST to conduct literature reviews and wildlife impact analyses. NWC drafted a biological resources study protocol, which was discussed with USFWS and reviewed and approved by Gilliam County and ODFW. On-site habitat studies for LJ-South included the following:[130]

- Site reconnaissance for suitable WGS habitat (2003)
- Wildlife habitat mapping within one mile of LJ-South lease area (2004 and 2006)
- Avian use study (fall 2004 through summer 2005)
- Raptor nest survey (2005)
- Monitoring of special-status raptor nests in the Leaning Juniper I project area during construction (2006)
- WGS surveys (2005, spot-checks of some colonies in 2006)
- Breeding season surveys for State Sensitive species within 1,000 feet of proposed LJ-South components based on the 2005 project layout (2006)
- Site reconnaissance for suitable bat habitat (2005)
- Wildlife habitat rating (2005, 2006)

On-site habitat studies for LJ-North included the following:

- Site reconnaissance for suitable WGS habitat (2005)
- Avian use study (spring 2006)
- Raptor nest survey (2006)
- WGS surveys (2006)
- Breeding season surveys for State Sensitive species (2006)
- Site reconnaissance for suitable bat habitat
- Wildlife habitat rating (2006)

Some areas within the lease boundary were not included in the on-site surveys because of the absence of suitable habitat (plowed wheat fields or residential areas) or because no project components would be built in those areas (outside the site boundary). The applicant did not conduct on-site surveys for fish species or fish habitat because of the absence of suitable habitat within or immediately adjacent to the site boundary.

C. Habitat in the Analysis Area

NWC mapped habitat types within the lease boundaries using aerial photography, County soil maps and ground surveys. Broad habitat types were further defined into subtypes.

[130] Information from the 2005 field surveys is reported in a baseline study report prepared by NWC and WEST, *Wildlife Baseline Study for the Leaning Juniper Wind Power Project, Gilliam County, Oregon*, App Attachment P-2.

Habitats within the LJ-North and LJ-South analysis areas were then rated according to the ODFW habitat categories. Figures P-3 and P-4 in the application identify and map the habitat within the analysis area by category.

To allow for micrositing of final turbine locations while ensuring that there would be adequate mitigation for potential impacts on higher-value habitat (categories 2 through 5), LJWP estimated the amount of habitat affected assuming a "worst case." In calculating the worst-case impacts, LJWP assumed that 3.0-MW turbines would be used. Construction of these larger turbines would have a larger area of temporary disturbance for each turbine (approximately 84,545 square feet). Nevertheless, a greater number of smaller turbines might have a larger cumulative impact in total ground area than a smaller number of larger turbines. To account for this possibility, the applicant calculated the area of permanent impact using the maximum number of turbines (smaller turbines) and the largest area of temporary and permanent impact per turbine.[131] In addition, for the purpose of worst-case analysis, the applicant assumed a layout of turbines and other facility components within the micrositing corridors that would maximize the impact on higher-value habitat. Category 1 habitat was excluded from the analysis because the certificate holder would be required to avoid permanent and temporary impacts on Category 1 habitat (Condition 84).

Because LJWP might build and operate the LJ-North components as part of the sub-jurisdictional Pebble Springs Wind Project, we have considered the maximum area of habitat impacts for the LJF with and without the LJ-North components. Table 11 shows the habitat impacts for LJ-North and LJ-South combined. Table 12 shows the habitat impacts of LJ-South only. These tables show the maximum area of permanent and temporary habitat impact, based on the applicant's worst-case analysis.[132]

Table 11: Habitat Impacts, LJ-North and LJ-South Combined

Category and Habitat Description	**Habitat Subtype**	**Temporary Impact** (Acres)	**Permanent Impact** (Acres)	**Acres Within Lease Boundary**
Category 1				
Raptor nests (Juniper woodland and escarpment)	WJ, ESC	0	0	<1
Annual grass and weeds with residual native bunchgrass	GA	0	0	4
Shrub-grass	SSA	0	0	21
Open low shrub	SSB	0	0	87
Subtotal		**0**	**0**	**112**
Category 2				
Escarpment	ESC	0	0	78
Juniper woodland	WJ	1.02	0.4	95
Deciduous woodland	WL	0.1	0.07	3

[131] The applicant assumed a construction area of 400 ft x 400 ft at each turbine location. Response to RAI B1, App Supp, Exhibit B, p. B-6.

[132] The tables are based on revised Table P-10B (App Supp, Appendix B, Attachment 1) and revised Table P-15B (App Supp, Appendix C, Attachment 3).

Perennial bunchgrass	GB	11.32	0.74	32
Shrub-grass	SSA	47.95	6.69	266
Open low shrub	SSB	110.64	8.91	1,081
Purple sage/Sandberg's bluegrass with non-native annual grasses.	SSD	1.86	0	28
Bitterbrush/Buckwheat, Bunchgrass-Annual grass	SSE	20.73	2.29	244
Subtotal		**203.45**	**19.1**	**1,827**
Category 3				
Old field	DB	4.47	3.69	8
Annual grass and weeds with residual native bunchgrass	GA	0	0	221
Shrub-grass	SSA	5.3	0.23	32
Open low shrub	SSB	189.93	18.21	2,685
Open low shrub (buckwheat)/Sandberg's bluegrass with non-native annual grasses.	SSC	0.44	0.32	5
Purple sage/Sandberg's bluegrass with non-native annual grasses.	SSD	0	0	4
Shrub-steppe	SSU	0.05	0	0.25
Subtotal		**200.19**	**22.45**	**2,955**
Category 4				
Exposed basalt	EB	2.92	0	44
Old field	DB	18.04	1.04	100
Other disturbed ground.	DX	0.04	0.03	34
Annual grass and weeds with residual native bunchgrass.	GA	10.82	1.03	259
Erigonum/Poa Sandbergii	SSC	0.21	0[133]	0
Subtotal		**31.39**	**2.1**	**437**
Category 5				
Old field	DB	10.82	1.2	85
Dryland wheat	DW	0	0	111
Subtotal		**10.82**	**1.2**	**196**
Category 6				
Old field	DB	0.77	0.06	6
Farmyard	DF	0.59	0.23	47
Landfill	DL	0	0	15
Quarry	DQ	0.83	0.06	45
Dryland wheat	DW	246.68	18.87	2,871
Other disturbed ground.	DX	3.88	0.11	23
Subtotal		**252.75**	**19.33**	**3,007**
Total Area		**698.6**	**64.18**	**8,534**

[133] Category 4, SSC area is outside the lease boundary.

Table 12: Habitat Impacts, LJ-South Only

Category and Habitat Description	Habitat Subtype	Temporary Impact (Acres)	Permanent Impact (Acres)	Acres Within Lease Boundary
Category 1				
Raptor nests (Juniper woodland and escarpment)	WJ, ESC	0	0	<1
Annual grass and weeds with residual native bunchgrass	GA	0	0	4
Shrub-grass	SSA	0	0	21
Open low shrub	SSB	0	0	87
Subtotal		**0**	**0**	**112**
Category 2				
Perennial bunchgrass	GB	11.32	0.74	29
Shrub-grass	SSA	47.21	6.69	266
Open low shrub	SSB	109.21	8.54	1,054
Purple sage/Sandberg's bluegrass with non-native annual grasses.	SSD	1.86	0	28
Juniper woodland	WJ	1.02	0.4	95
Deciduous woodland	WL	0.1	0.07	3
Subtotal		**170.72**	**16.44**	**1,475**
Category 3				
Old field	DB	4.44	3.69	4
Annual grass and weeds with residual native bunchgrass	GA	0	0	221
Shrub-grass	SSA	5	0	18
Open low shrub	SSB	35.72	2.64	364
Open low shrub (buckwheat)/Sandberg's bluegrass with non-native annual grasses.	SSC	0.44	0.32	5
Purple sage/Sandberg's bluegrass with non-native annual grasses.	SSD	0	0	4
Shrub-steppe	SSU	0.05	0	0.25
Subtotal		**45.65**	**6.65**	**616**
Category 4				
Old field	DB	16.91	1.04	100
Other disturbed ground.	DX	0.04	0.03	34
Annual grass and weeds with residual native bunchgrass.	GA	7.63	0.4	243
Erigonum/Poa Sandbergii	SSC	0.21	0[134]	0
Subtotal		**24.79**	**1.47**	**377**

[134] Category 4, SSC area is outside the lease boundary.

Category 6				
Old field	DB	0	0.06	6
Farmyard	DF	0.35	0	22
Landfill	DL	0	0	15
Quarry	DQ	0.71	0	19
Dryland wheat	DW	246.68	18.87	2,871
Other disturbed ground.	DX	0.92	0.11	17
Subtotal		**248.66**	**19.04**	**2,950**
Total Area		**489.82**	**43.6**	**5,530**

As shown in Table 11, the proposed LJF would have permanent or temporary impacts on approximately 223 acres of Category 2 habitat, 223 acres of Category 3 habitat, 33 acres of Category 4 habitat, 12 acres of Category 5 habitat and 272 acres of Category 6 habitat under a worst-case analysis. If the LJ-North components were not included, the facility would have permanent or temporary impacts on approximately 187 acres of Category 2 habitat, 52 acres of Category 3 habitat, 26 acres of Category 4, no Category 5 habitat and 268 acres of Category 6 habitat under a worst-case analysis.

Impact on higher-value habitat (categories 2 through 5) would account for 64-percent of the total permanent or temporary impacts of the LJF facility under the worst-case analysis for LJ-North and LJ-South combined. Impact on higher-value habitat would account for 50-percent of the habitat impacts if the LJ-North components were removed. In either case, the facility would have no direct impact on known Washington ground squirrel colonies or other Category 1 habitat.

Category 1 Habitat

Category 1 habitat in the analysis area includes escarpment, woodland, grassland and shrub-steppe subtypes that contain documented WGS habitat or that support active or inactive raptor nests. Native or non-native trees, some of which support raptor nests, are located within the analysis area for LJ-North and LJ-South. Escarpment in the LJ-North area supports American kestrel and red-tailed hawk nests. The escarpment and upland tree habitat in the analysis area would be avoided during construction of the facility.

Category 1 grassland habitat (GA) in the LJ-South area supports at least one WGS patch. This GA grassland habitat lacks substantial areas of native bunchgrasses due to past wildfires, heavy grazing or other land use practices. The habitat contains a predominance of non-native annual grasses and weeds. Some scattered sagebrush is present.

WGS colonies were found in shrub-grass (SSA) and open low shrub (SSB) habitat in the LJ-South area, and this habitat was therefore classified as Category 1. Shrub-grass (SSA) habitat is present in the few areas where fire has not eliminated it from the landscape. The habitat is characterized by an overstory of sagebrush and rabbitbrush and an understory of native bunchgrasses, annual grasses and snakeweed. Shrub cover is moderate to dense. The habitat is weedy in a few places, but it is the best remaining shrub-steppe sagebrush habitat to be found in the vicinity. The open low shrub habitat (SSB) in the LJ-South area is characterized by dense or intermittent sagebrush “skeletons” (indicating that these areas might

be former SSA habitat attempting to recover from frequent burning), an overstory dominated by low-growing gray and green rabbitbrush, snakeweed and low-growing buckwheat species and an understory of perennial bunchgrasses, annual grasses and various forbs. Weeds are common.

Category 2 Habitat

Category 2 habitat in the analysis area includes escarpment, woodland, grassland, shrub-grass, open low shrub, purple sage and bitterbrush shrub habitat subtypes. Category 2 escarpment, located in the LJ-North area, provides foraging habitat to special-status species.[135] East and north-facing areas provide cover and shade or protection from extreme weather conditions. Vegetative cover on escarpments is composed primarily of Sandberg's bluegrass and various forbs.

Grassland habitat (GB) is present in the LJ-North and LJ-South areas. The vegetative cover in these grasslands is composed primarily of native perennial bunchgrass with a minor component of native forbs and low shrubs. Non-native grasses are present in GB habitat but to a lesser extent than in Category 3 grassland habitat areas.

Bitterbrush shrub habitat (SSE) is characterized by medium to dense bitterbrush and intermittent big sagebrush. The understory contains native perennial grasses, buckwheat, non-native annual grasses and weedy forbs. This habitat is present in one LJ-North area where recent fires have not eliminated shrub cover.

The open low shrub habitat (SSB) is characterized by the lack of sagebrush cover (likely due to wildfire) although small patches of sagebrush are present. The overstory is dominated by low-growing rabbitbrush and snakeweed. The understory consists of native and non-native bunchgrass and buckwheat.

Category 2 shrub-grass (SSA) and open low shrub (SSB) habitats are similar in vegetative composition to Category 1 areas of these habitat subtypes but are not considered irreplaceable habitat for WGS. The SSD habitat subtype is characterized by the presence of purple sage along with native Sandberg's bluegrass and annual grasses. There are areas of bare ground within the SSD habitat, primarily due to soil type.

Based on guidance from ODFW, WGS habitat is considered Category 1 if the habitat is irreplaceable when considering the consequences of a proposed development action. Patches of WGS were found in shrub-steppe habitat in the LJ-South are, and these locations are considered Category 1, as described above. The WGS might use adjacent habitat (up to 785 feet from the delineated active cluster WGS, a known travel distance for the species) for cover and possibly forage during daily or periodic movements.[136] Because this "squirrel use area" adjacent to the colonies or patches is "replaceable," it is considered Category 2 habitat. The species is also known to travel longer distances. Habitat in areas of unconfirmed use is considered replaceable because grassland and shrub cover could be restored if disturbed and because of the amount of potentially-suitable habitat in the vicinity.

[135] The term "special-status species" refers to State-listed threatened, endangered or sensitive species and to federal threatened or endangered species or species of concern.
[136] App p. P-20.

Category 2 woodland habitat (WJ and WL) is present in the LJ-South area. Woodland areas that do not support nests for raptors are considered Category 2 habitat. These areas provide limited habitat for food, water, cover and nesting. As a result of recent fires, the presence of mature woodland is sparse.

Category 3 Habitat

Category 3 habitat within the analysis area includes grassland, shrub-steppe and developed areas (old fields). The primary difference between Category 2 and Category 3 shrub-steppe habitats is the overall functionality of the habitat and the breeding season value for special-status species. In general, Category 3 shrub-steppe tends to be more weedy, less biologically diverse and more common in the vicinity.

Grassland habitat (GA and GB) is present in the LJ-South area. Category 3 grassland is similar to Category 2 grassland but has been affected more by grazing or other land uses and has less plant diversity. Small patches of grassland characterized by sparse annual grass or native bunchgrasses mixed with non-native species. Bare soil and rocks are common, and the soil surface is disturbed in some areas by grazing. There is a relatively large area GA grassland adjacent to an identified WGS colony, but the applicant classified the area as Category 3 because it does not appear to provide essential and limited habitat to WGS. The adjacent WGS colony small and lacks natal sites.

The shrub-grass habitat (SSA) in the LJ-North area contains mature sagebrush. Patches of SSA habitat along Rattlesnake Road are high quality but are limited in size and disturbed by vehicle traffic along the road. The SSA habitat in the LJ-South area consists of native sagebrush and rabbitbrush with a weedy understory, non-native grasses and forbs.

Open low shrub habitat (SSB) is the dominant habitat type within the LJ-North area and is widespread in the eastern parts of the LJ-South area. These areas appear to have been more affected by recent fires than Category 2 SSB habitat areas. Native rabbitbrush and other low-stature plants such as snakeweed and buckwheat are common. The understory is native Sandberg's bluegrass and non-native cheatgrass, bulbous bluegrass and tumblemustard. In many areas, the grass layer consists entirely of cheatgrass, but there are some signs of recovery and the habitat still provides important wildlife value for special-status species. The LJ-South area also contains smaller areas of purple sage shrub-steppe (SSD) and buckwheat-dominated open low shrub (SSC).

Compared to Category 2 shrub-steppe habitats, the Category 3 shrub-grass and open low shrub habitats have less plant diversity. The applicant classified these habitats as Category 3 rather than Category 4 habitat because of the wildlife value provided by the sagebrush, rabbitbrush or purple sage cover in an area otherwise dominated by grasslands.

Previously cultivated agricultural fields (DB) that are in relatively good condition and provide important habitat to wildlife were classified as Category 3 habitat. An old field within the LJ-North area contains non-native perennial crested wheatgrass, non-native annual grasses and young sagebrush and rabbitbrush. Developed areas classified as Category 3 habitat within the LJ-South area are non-native grasslands and previously cultivated fields. The non-native perennial grassland fields are in relatively good condition and are currently occupied by patches of young sagebrush and rabbitbrush or annual grasses and weeds.

Category 4 Habitat

Category 4 habitat within the analysis area includes grassland, exposed basalt and developed areas. Category 4 grassland habitat (GA) found within the analysis area consist of non-native grasses, a high weed component and variable soil depth. The high weed content is likely the result of recent hot fires that burned native shrubs and bunchgrasses, followed by heavy grazing and wind erosion. The lack of native grasses and the dense weed cover limit the ability of most wildlife species to use these areas for forage or cover. This habitat subtype is common throughout the Columbia Basin

Category 4 exposed basalt habitat is found in the LJ-North area. It is composed of shallow soils and exposed rock. Small areas containing wind-deposited soil contain sparse grass and forb cover.

Developed areas (old fields) are found in the LJ-South area. These areas include previously cultivated fields (DB) and other disturbed ground (DX). The old fields are in moderate condition but are dominated by non-native annual grasses. There is limited cover for wildlife, due to grazing. The other disturbed area (DX) appears to have been recently reseeded with grassland species. The Category 4 developed areas have less plant diversity and higher concentrations of weeds than Category 3 developed areas.

Category 5 Habitat

The applicant identified two areas within LJ-North as Category 5. The old field (DB and dryland wheat (DW) habitat areas have been disturbed by plowing or other activity, and may be subject to further disturbance. The areas contain weeds and non-native grasses and lack forage and structure for wildlife.

Category 6 Habitat

Category 6 habitat within the analysis area includes quarries, nonirrigated agricultural croplands and developed areas. These areas are highly disturbed on a regular basis and have been mostly or entirely cleared of native vegetation. The agricultural areas are a monoculture of dryland wheat and include areas in production and fallow fields. Other developed areas include farmyards, residential areas, old fields, the Waste Management landfill and leachate pond, an existing rock quarry and other disturbed grounds.

D. Species in the Analysis Area

NWC conducted a four-season avian use study for LJ-South in 2004 and 2005 and a spring-season study for LJ-North in 2006. The purpose of the avian use studies was to quantify the general level of bird use and species composition in the analysis area. The surveys consisted of point counts within representative habitats and topography in the analysis area. Methods and results of the point counts are described in detail in the application.[137]

Special-status species observed within or near the lease boundaries are shown in Table 13. This table includes species observed during the avian point-counts as well as species observed during other special-status wildlife surveys described in the baseline study for LJ-South. Based on 24 ferruginous hawk detections and 68 Swainson's hawk detections in the LJ-South area, there is moderate use of the facility site by these raptor species. The relatively

[137] *Wildlife Baseline Study for the Leaning Juniper Wind Power Project, Gilliam County, Oregon,* App Attachment P-2.

fewer detections of golden eagles indicate low use of the area by golden eagles. Use of the LJ-South area by loggerhead shrikes, long-billed curlews and grasshopper sparrows appears to be moderate to high. There is low use of the area by burrowing owls and white-tailed jackrabbits. No loggerhead shrikes or burrowing owls were observed in the LJ-North area, but some areas had characteristics of potential burrowing owl use or had possible signs of much earlier burrowing owl use burrowing owls.[138] Long-billed curlews and grasshopper sparrows were frequently observed in the LJ-North area. Use of the LJ-North area by white-tailed jackrabbits is low. The sagebrush lizard was observed in the LJ-South area.

Table 13: Special-Status Species

Species	Federal Status	State Status
Birds		
Ferruginous hawk *(Buteo regalis)*	Species of Concern (SoC) and Birds of Conservation Concern (BCC)	Sensitive: Critical (SC)
Golden eagle *(Aquila chrysaetos)*	BCC	none
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
Western burrowing owl *(Athene cunicularia)*	SoC and BCC	SC
Mammals and Reptiles		
White-tailed jackrabbit *(Lepus townsendii)*	none	Sensitive: Undetermined
Northern sagebrush lizard *(Sceloparus graciosus graciosus)*	SoC	SV

Observations of 40 species of birds were recorded during the avian use studies, including six special-status species (ferruginous hawk, golden eagle, grasshopper sparrow, long-billed curlew, Swainson's hawk and burrowing owl). The only special-status species documented at LJ-North was the long-billed curlew. Horned larks and common ravens were the most common species observed in the analysis area. Fourteen raptor species were observed in the LJ-South area. The overall raptor use rate (0.52/survey) is moderate to low compared to raptor use observed at other wind projects in the United States.[139] This suggests that the site is not within a major raptor migration corridor or breeding area.[140]

NWC conducted aerial raptor nest surveys within 2-miles of LJ-South in 2005. In 2006, LJWP conducted an aerial raptor nest survey that included area within 2 miles of LJ-

[138] App Supp, Exhibit P, p. P-4.
[139] Excluding the exceptionally high use rates at High Winds and Altamont Pass wind project areas in California. App Attachment P-2, Fig. 5.
[140] App Attachment P-5, pp. 26-26.

North not previously surveyed. Twenty-seven active nests and 22 inactive nests were found during the 2005 survey. Eighteen active nests and 12 inactive nests were found during the 2006 survey. Red-tailed hawks and Swainson's hawks occupied most of the active nests. Two ferruginous hawk nests were observed. The applicant observed six active raptor nests within a half-mile of proposed LJ-North components and nine active raptor nests within a half-mile of proposed LJ-South components.[141]

NWC reviewed the suitability of habitat for bats and the potential for occurrence of bat species in the analysis area, based on data from Morrow County and Klickitat County, wildlife databases, agency contacts and bat fatality monitoring study results from other wind projects in the region. The analysis area lacks adequate food and water sources for bats. The analysis area also lacks suitable roost structures for bat species (buildings, caves, mines, trees and bridges), although rock crevices in the escarpments and scattered juniper trees could provide summer roost sites for some bats species (pallid bat, big brown bat, California myotis, western small-footed myotis and western pipstrelle).

Fourteen species of bats have geographic ranges that include the project area, and nine of these species have been documented in Gilliam County. Two of the species (hoary bat and silver-haired bat) are considered migratory and have been documented within 35 miles of the LJF site. Both of these species might migrate through the analysis area, although little is known about migratory routes for these species. The other bat species in the county are not considered migratory, but they move between summer active sites and winter hibernation sites. There is some potential for these other species to move through the analysis area. None of the bat species documented in Oregon or nearby Washington counties are listed as federal or state threatened or endangered species; nine are either federal "Species of Concern" or State Sensitive species.[142]

E. Potential Habitat Impacts

Construction

Construction of the proposed LJF would result in the permanent loss of wildlife habitat (during the life of the facility) for the area that facility components would occupy. Based on the applicant's worst-case estimate, there would be a permanent loss of approximately 44 acres of habitat rated as "important" or "essential" to wildlife species (Category 4 and above). In addition, construction activities outside the permanent footprint would cause temporary loss of approximately 435 acres of this quality habitat. Although the certificate holder would be required to restore these areas of temporary disturbance, the habitat would be in a degraded condition continuing for a period of time after completion of construction activities until restoration success is achieved (temporal impact).

Habitat disturbance during construction could affect avian and bat species through loss or degradation of habitat (on a permanent or temporal basis). Incidental impacts with construction equipment could kill or injure wildlife. The risk of avian and bat fatalities from construction equipment is likely to be low or moderate. Large machinery, such as cranes, would be stationary for much of the time or would move slowly across the site. There would be an increased risk of avian fatalities from destruction of nest sites for ground-nesting

[141] App pp. P-42 - P-45.
[142] App Attachment P-2, Appendix D-4.

species. Construction would increase the volume of truck and small vehicle traffic on roads throughout the site and the possibility that wildlife could be injured or killed by impacts with vehicles. Indirect habitat impacts could result from disturbance of wildlife in areas near construction activities. Birds displaced from these areas might move to areas with less disturbance, and breeding and fledging success could be adversely affected.

The baseline raptor nesting surveys identified six active nests within a half-mile of proposed LJ-North components and nine active nests within a half-mile of proposed LJ-South components. Raptor nest density in the vicinity of the proposed LJF is high (0.41 per square mile) compared to other wind project areas in the region (averaging 0.18 per square mile). If construction activities are scheduled to occur during the sensitive breeding season for special-status raptors and if there are active nests near the construction areas, then there could be an adverse impact on nesting or fledging success.

Direct impact on WGS colonies and activity areas could be avoided during construction of the facility, but construction activities could cause indirect habitat impacts on WGS if the activities occur during the spring season when WGS are active. The baseline surveys identified at least six WGS areas near proposed LJ-South components.[143]

Operation

Operation of the proposed LJF would have a direct adverse impact on avian and bat species. Resident birds flying within site and migrating birds and bats flying through the area might collide with the wind turbines, resulting in fatalities or injuries. Potential avian and bat injuries or fatalities due to interaction with wind turbines (or with vehicles or other equipment) may be viewed as an indirect impact on habitat quality. Other potential impacts include abandonment of habitat near wind turbines due to disturbance caused by turbine operation and facility maintenance activities.

To assess the potential for avian fatalities from turbine collisions at the proposed LJF, the applicant compared baseline information with avian use, habitat and raptor nest information from other wind energy projects in the region, including Klondike I and II, Klondike III, Stateline, Combine Hills, Nine Canyon and Mar-Lu. The applicant also analyzed fatality data collected during operation of the Klondike I, Vansycle, Stateline and Nine Canyon projects. In addition, the applicant reviewed the available literature on avian fatalities at wind projects in other parts of the country. Based on the literature, the applicant determined that the average rate of avian fatalities at wind projects throughout the U.S. is 2.19 per turbine per year.[144]

The trend in wind development over the past several years has been toward larger turbines (taller hub heights, larger rotor-diameter and greater generating capacity per turbine). Larger turbines present a different risk to avian and bat species than the smaller turbines for which fatality data are available. In a wind project using larger turbines, there may be a lower total number of turbines across the landscape, but each turbine would have a larger rotor-

[143] App Table Q-2 and Fig. Q-4.
[144] App p. P-56.

swept area and therefore create a larger zone of collision risk to avian and bat species.[145] Installed turbine sizes differ among the projects for which avian fatality data have been collected. To provide a basis for comparing the fatality rates for projects having different turbine sizes, fatality rates are converted from fatalities per turbine to fatalities per MW. This approach assumes that the fatality rates are proportional to a turbine's rotor swept area and therefore approximately proportional to the generating capacity of the turbine. On a per-MW basis, the avian fatality rate for wind projects in the U.S. averages 3 fatalities per MW per year.

Avian fatality rates at facilities operating in the Columbia Basin region appear to fall within the national average. Average fatality rate estimates from four wind projects in the area range from 0.9 to 2.9 fatalities per MW per year, based on the limited data available. Because project sites within the region differ by local climate, elevation, topography, habitat type and proximity to other development, the potential fatality rate at the proposed LJF cannot be predicted with precision. The applicant compared overall bird use estimates for the LJF site with use levels at other open-habitat sites in the U.S. and concluded that bird use at the LJF site is "not high." Accordingly, the applicant conservatively predicts an avian fatality rate of between 1 and 4 fatalities per MW per year at the proposed LJF.[146] The applicant expects that horned larks will account for the highest number of fatalities, because this resident songbird (passerine) species was the most commonly-observed species in the avian use surveys and is one of the most common species in the Columbia Plateau. The applicant predicts a raptor fatality rate within the range of raptor fatalities observed at other wind facilities in the region (0.01 to 0.09 per MW per year), resulting in up to 25 raptor fatalities per year.

The operation of wind turbines might displace wildlife from habitat near turbines. Evidence of a displacement effect on avian species has been observed at some wind projects, but it is currently unknown whether displacement results in any permanent adverse impacts on population size, population trends or reproduction. Preliminary results from a study conducted at the Stateline Wind Project in accordance with site certificate requirements showed a statistically significant displacement of grassland birds within the first 50 meters from wind turbine locations.[147] The reduced use by grassland birds in the first few years after construction might be due to construction disturbance of habitat near the turbines and permanent loss of habitat due to the presence of access roads and turbine pad areas. It is unknown whether use by grassland bird species returns to pre-project levels after vegetation is restored and the birds acclimate to the presence of wind turbines in the local environment.

Two State Sensitive avian species, long-billed curlew and loggerhead shrike, might be displaced by turbine operation.[148] During baseline studies of the LJF area, long-billed curlews were frequently observed in both the LJ-North and LJ-South lease area. Loggerhead shrikes

[145] "Rotor-swept area" may be defined as a circle with a diameter equal to the vertical distance occupied by the turbine blades, from the lowest to the highest points above ground that a blade tip would reach during its rotation. For the proposed LJF project, NWC calculated a range bracketed by the GE 1.5-MW turbine and the Vestas 3.0-MW turbine. For the 1.5-MW turbine, the diameter of the rotor-swept area is from 41.5 m to 121 m above ground and for the 3-MW turbine, the rotor-swept area is from 30 m to 130 m above ground.
[146] This would result in 279 to 1,116 avian fatalities per year at the proposed LJF, based on a maximum generating capacity of 279 MW.
[147] *Stateline Wind Project Wildlife Monitoring Final Report, July 2001- December 2003,* p. 22-23.
[148] See Table 13: Special-Status Species.

are less common but were detected in sagebrush along Jones Canyon and within juniper woodland. No displacement data on these species are available from other wind projects in the region, but the applicant believes that curlews and shrikes will avoid areas of human activity during facility construction and operation.

Facility operation could affect migratory bat species. Preconstruction surveys conducted to predict impacts to migratory bats are ineffective because of a lack of technology to measure and document migrant bat use of a site. Based on fatality data from four wind projects in the region (ranging from 0.8 to 2.5 fatalities/MW/year), the average fatality rate is 1.7 bat fatalities per MW per year. The applicant reported that two migratory species account for 95-percent of all bat fatalities at wind projects in eastern Oregon and Washington: silver-haired bats (48 percent of reported fatalities) and hoary bats (47 percent of reported fatalities). The applicant predicts that bat fatality at the LJF would be within the range of bat fatalities observed at the four facilities in the region, amounting to between 223 and 698 bat fatalities per year at the proposed LJF. Under the terms of the WMMP, if bat fatalities exceed 2.5 per MW per year for all bat species as a group, or if fatality rates for individual bat species are higher than expected and at a level of biological concern, the certificate holder must propose and implement mitigation measures.

F. Mitigation and Monitoring

Avoidance

The ODFW goals and standards in OAR 635-415-0025 indicate a preference for avoidance of impacts on all higher-value habitat (Category 5 and above). LJWP has taken, or will take, the following steps to avoid impacts on higher-value habitat:

- Using existing, graveled roads to the extent possible.
- Avoiding the use of certain existing roads where construction traffic might have disturbed sensitive species or increased the risk of vehicle collision with wildlife even though the roads could have provided convenient access to parts of the LJF site.
- Locating underground collector lines in the road shoulder where feasible.
- Locating collector lines aboveground to avoid impacts to wetlands, canyons or rugged terrain where underground trenching is not feasible.
- Eliminating proposed access roads within WGS colonies that were identified in baseline wildlife surveys.
- Relocating proposed turbines to areas outside WGS-occupied habitat.
- Re-routing access roads and relocating construction staging areas to avoid WGS-occupied habitat.
- Avoiding the use or improvement of existing two-track farm roads that traverse WGS-occupied habitat.

The certificate holder would be required to avoid any impact on Category 1 habitat (Condition 84). To ensure that there would be no disturbance of Category 1 WGS habitat during construction, the certificate holder would place exclusion markers around these sensitive areas before construction begins and maintain the exclusion markings until construction has been completed (Condition 85).

Native or non-native trees, cliff faces and other natural structures that support active or inactive raptor nests are classified as Category 1 habitat for special-status raptor species. The

certificate holder would be required to avoid direct impact on these areas and to avoid construction disturbance near any active nests during the breeding season. During construction, the certificate holder would avoid or reduce construction activity that could interfere with raptor nesting in areas close to proposed turbine locations (Condition 86). If construction will take place during the sensitive nesting periods for Swainson's hawk, golden eagle, ferruginous hawk or burrowing owl, an independent biological monitor will survey potential nesting areas near the proposed turbine strings. High-impact construction activities, such as blasting or other major ground disturbance, would be avoided during the nesting period until the monitor has determined that the nest locations are unoccupied (or, if occupied, that the young have fledged).

Mitigation Standards and Minimizing Impact

The standards set out levels of mitigation for each habitat category, if impacts cannot be avoided. Table 14 summarizes the levels of mitigation that are required under the ODFW habitat mitigation goals and standards, which are discussed in more detail above at page 80:

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	Actions that contribute to essential or important habitat to provide a net benefit in habitat quantity or quality
Category 6	Minimize direct habitat loss and avoid impacts to off-site habitat

To minimize impact on all categories of wildlife habitat, the certificate holder would be required to design and construct facility components that are the minimum size needed for safe operation of the energy facility (Condition 84). In the final design of the facility within micrositing areas, the certificate holder would reduce impact on essential or important habitat (Category 4 and above) to the extent practicable.

Permanent Impacts: Higher-Value Habitat

The ODFW mitigation standard for impacts to essential or important wildlife habitat in Categories 2, 3 and 4 is "no net loss." In addition, a "net benefit" in quantity or quality of habitat must be provided as mitigation for impacts on Category 2 habitat. For habitat having "high potential to become either essential or important habitat" (Category 5), the ODFW mitigation standard is a "contribution" to essential or important habitat.[149]

LJWP proposes to establish a habitat mitigation area for permanent impacts to higher-value habitat. The mitigation area would replace wildlife habitat lost because of the construction of permanent facility components within the site of the facility. The size of the

[149] OAR 635-415-0025(5) describes the mitigation goal for Category 5 as providing a "net benefit," but unlike Categories 2, 3 and 4, the goal does not include the "no net loss" standard.

mitigation area will depend on the final design configuration of the facility and on whether PPM Energy decides to include the LJ-North components in the LJF. The mitigation area would include one acre for every acre of permanent impact to Category 3, 4 and 5 habitat, and two acres for every acre of permanent impact to Category 2 habitat.

Based on the applicant's worst-case analysis and with the LJ-North components included, the permanent footprint of the proposed LJF would occupy 19.1 acres of Category 2 habitat, 22.45 acres of Category 3 habitat and 2.1 acres of Category 4 habitat.[150] Excluding the LJ-North components, the permanent footprint of the proposed LJF would occupy 16.44 acres of Category 2 habitat, 6.65 acres of Category 3 habitat and 1.47 acres of Category 4 habitat.

Permanent Impacts: Low-Value Habitat

With the LJ-North components included, the permanent footprint of the proposed LJF would occupy approximately 19 acres of Category 6 habitat (30 percent of the total footprint area). The LJ-North components would occupy very little Category 6 habitat. Excluding the LJ-North components, the permanent footprint of the proposed LJF would still occupy approximately 19 acres of Category 6 habitat but this would represent a greater proportion of the total footprint area (approximately 44 percent). To meet the ODFW habitat mitigation standard for impacts to Category 6 habitat, LJWP proposes to design and construct facility components that are the minimum size needed for safe operation (Condition 84). In addition, the certificate holder would implement an Erosion and Sediment Control Plan during construction (Condition 70) and would monitor and control erosion during operation (Condition 75). The certificate holder would control noxious weeds on-site during construction and operation (Condition 82). Agricultural areas that are temporarily disturbed during construction or maintenance activities would be restored to pre-disturbance condition or better, as described in the Revegetation Plan that is incorporated in this final order as Attachment B (Condition 74). During operation, the certificate holder would avoid impact on cultivated land when performing facility repair and maintenance activities (Condition 40).

Construction Area Impacts

During construction of the facility, the total area of habitat disturbance would include the permanent footprint area plus additional area affected by construction outside the footprint ("temporary" impacts). With the LJ-North components, the total habitat disturbance would be approximately 763 acres, including approximately 699 acres of temporary impacts. Without the LJ-North components, the total habitat disturbance would be approximately 533 acres, including approximately 490 acres of temporary impacts. These estimates include habitat in all categories.

The certificate holder would be required to restore vegetation in all areas disturbed during construction lying outside the permanent footprint of facility components. Restoration of these areas would be done as described in the Revegetation Plan that is incorporated in this final order as Attachment B (Condition 74).

Construction activity outside the footprint would affect a significant quantity of habitat considered essential or important habitat that is limited in the region (Categories 2 and 3).

[150] All acreage quantities given throughout the discussion of mitigation that follows are quantities based on the applicant's worst-case analysis.

With the LJ-North components included, temporary construction impacts would affect 203 acres of Category 2 and 200 acres of Category 3 habitat. Excluding the LJ-North components, temporary construction impacts would affect about 171 acres of Category 2 and 46 acres of Category 3 habitat. It could take as long as seven years to restore mature stature of perennial bunchgrass areas and up to 30 years to restore mature shrubs. The restoration time would be less in areas where the construction impacts are relatively light.

At the request of the Department, LJWP proposed additional mitigation to address the temporal loss of habitat quality in areas of high-value Category 2 and 3 habitat. As described in the Habitat Mitigation Plan (Attachment C), for every acre of Category 2 or 3 SSA (shrub-grass; sagebrush-rabbitbrush-snakeweed/bunchgrass-annual grass) and SSE (bitterbrush-buckwheat-bunchgrass-annual grass) habitat affected by construction outside the footprint, the certificate holder would add ½-acre to the size of the mitigation area.

Proposed Mitigation Area

Before beginning construction, 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 certificate holder would implement the Habitat Mitigation Plan that is incorporated in this final order as Attachment C (Condition 89). The purpose of the mitigation plan is to preserve or improve the habitat quality of the mitigation area by protecting the site from habitat damage due to livestock grazing, plowing and other disturbances and to enhance habitat quality through shrub planting, weed and fire control and other measures. The certificate holder would monitor the mitigation area to assess progress toward meeting success criteria. The Habitat Mitigation Plan (Attachment C) describes how the certificate holder would select and calculate the final size of the mitigation area, the enhancement actions the certificate holder would implement, the monitoring and reporting procedures and the success criteria.

The applicant identified a 440-acre parcel in a relatively remote setting where habitat protection and enhancement are feasible and sufficient land area is available to accommodate the size of the mitigation area, based on a worst-case estimate. It is located approximately 16 miles southeast of the facility site and within the same Eightmile Canyon watershed. Bordering the parcel are grassland currently enrolled in the Conservation Reserve Program, native grassland and sagebrush-dominated shrub-steppe habitat, an intermittent stream (with pools of deep water in the summer months) and cropland. According to the landowner, there has been one other landowner during the previous 27 years. Before that, the land was owned by the federal Bureau of Land Management. Grazing has been the primary use in the past. Eighty acres of the 440-acre parcel are currently protected from development under a conservation easement for Leaning Juniper I, leaving a 360-acre portion potentially available for LJF mitigation. Department and ODFW staff have visited the parcel. The parcel is a suitable location for the LJF mitigation area with a high potential to achieve the mitigation goals.

The 440-acre parcel consists of native grassland and shrub-steppe habitat. Vegetation is variable, representative of the expected native plant associations of the area, and many Columbia Basin native plant communities are present onsite. Native plant communities (named for the dominant plant species) include bluebunch wheatgrass, western needle-and-thread grass, Sandberg's bluegrass, Idaho fescue, sagebrush, with snakeweed and buckwheat

species scattered intermittently throughout. Lithosol with forbs and sparse grass is found on steeper slopes with shallow soil and on rim edges. Many of the native plant communities are in a late seral stage, indicating a mature, fully functional vegetative condition that is uncommon throughout the Columbia Basin. The parcel includes several dry drainages with small seeps, and small pools of water were observed in one drainage as late as July 31, 2006. The seasonal drainages all flow into Eightmile Canyon Creek which lies to the south of the 440-acre parcel. Several small patches of Basin wild ryegrass are present in small seepage areas but show signs of cattle grazing damage. Basalt outcroppings on slopes and basalt cliff rim edges are also present. These features provide potential nesting habitat for raptors and roosting habitat for bats. The parcel has varied topography. Deep soils are present on upper slopes and plateaus and consist of Ritzville silt-loam and Mikkalo silt loam. Soils on steeper slopes are Lickskillet stony loam (lithosol) and Lickskillet rock outcrop complex. The shallower soil sites (Lickskillet) have pockets of deeper soil in swales and drainages.

Although non-native cheatgrass is found within the parcel (as in most areas in the Columbia Basin), native vegetation persists and out-competes undesirable plants and grasses, setting the area apart from most rangeland sites that the certificate holder considered in the region. The protective soil surface biotic crust (cryptogam) is in excellent condition and offers opportunities for ecology studies to further the knowledge of this under-studied, but important, unique biotic feature.

The applicant assessed wildlife use within the 440-acre parcel during three site visits in March, July and November 2006, a walk-though in various habitat types in March 2007 and a walking transect wildlife survey of deep soil perennial bunchgrass on north/northwest-facing slopes in May 2007. In March 2006, sage sparrows were observed, although no visits occurred during the typical wildlife breeding season to confirm nesting. In July 2006, the following species were observed: Western meadowlarks, horned lark, vesper sparrow, savannah sparrow, two species of swallows, loggerhead shrike, rock wren, American kestrel, side-blotched lizard, fence lizard, mule deer and elk. Swallow nesting occurs just beyond the property line, and swallows were foraging throughout the 440-acre parcel. In March 2007, in addition to frequently encountered horned larks and Western meadowlarks, numerous migrating American robins and gray partridge were discovered resting in sagebrush patches within the 360-acre portion. A vesper sparrow and sage thrasher were also found, indicating arrivals of potential nesting pairs on site. No formal wildlife surveys have been conducted during the active wildlife breeding season. In May 2007, the walking transect survey indicated grasshopper sparrows nesting in three locations (north/northwest facing grassland slopes in good ecological condition). One loggerhead shrike appeared to be defending territory; potential nesting may have been within the big sagebrush habitat near a dry drainage (in the western half of Section 9). The grasshopper sparrow and loggerhead shrike are Oregon Sensitive-vulnerable status species. During the May 2007 survey, observations of 87 plant species were recorded, and some of the observed species are found only on sites in good ecological condition.

Other special-status species may use habitat within the 440-acre parcel. There are historical (1990) Washington ground squirrel (WGS) records within 2 miles of the parcel and more recent observations of WGS within 2 to 5 miles of the parcel. Soil types and vegetation within the parcel are suitable for WGS. No WGS have been observed within the parcel but full protocol surveys have not been conducted. In November 2006, a potential ferruginous

hawk nest was discovered near the boundary between the Leaning Juniper I mitigation area and the 360-acre portion that is available for LJF mitigation. Loggerhead shrikes and grasshopper sparrows are expected to use suitable habitat within the parcel for nesting. Individuals nesting elsewhere are likely to use the vegetative cover within the parcel for long and short-distance migration stop-over rest areas.

The applicant has rated most of the 360-acre portion according to the ODFW habitat categories using field assessments of the vegetation composition, native shrub structural stage and professional experience. In the absence of full wildlife surveys conducted during the peak of wildlife breeding season, the following habitat categorization is considered preliminary but illustrates the range opportunities for habitat enhancement and preservation of native habitat.

A large portion of the 360-acre portion is big sagebrush/perennial bunchgrass habitat, with a habitat rating of Category 3 or 4. Big sage *(Artemisia tridentata ssp. tridentata*) is the dominant native shrub. Bunchgrass species include bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg's bluegrass (*Poa secunda)*, needle-and-thread grass (*Hesperostipa comata*) and Idaho fescue (*Festuca idahoensis*). The big sage/perennial bunchgrass habitat type occurs in small to large patches on deeper soils throughout the 360 acres, as well as in all drainages and swales. There are approximately 52 acres of big sage/perennial bunchgrass habitat within patches ranging in size from 1 to 16 acres. The ecological condition of this habitat type varies from patches of largely undisturbed late seral stage with a well-represented big healthy sage component and a well-developed cryptogamic layer of soil mosses and lichens (including prominent late seral lichens in the genus *Trapeliopsis*) to a locally weedy condition with dead or dying sage and sparse native perennial bunchgrasses. Cattle grazing pressure has resulted in patchy disturbance, as indicated by non-native plant species such as cheat grass and tumble mustard present in abundance. This is the dominant vegetation type on deeper soils. Because deep-soil native shrub/grass vegetation is limited in the physiographic province (compared to historic availability for wildlife), this habitat type would typically rate as Category 2. Although some small patches of high-quality vegetation persist, most of the big sage/perennial bunchgrass habitat within the 360 acres is rated as Category 3 or 4 due to stress to vegetation caused by past land use practices. In particular, a large sagebrush patch in Section 8 was field reviewed and rated as Category 3 or 4. While the habitat category in this portion of Section 8 could be better defined with future wildlife species use information, the field review indicates that this area would benefit from enhancement through relief of cattle grazing and shrub and perennial grass restoration. Shrub-dependant wildlife species are likely to benefit in time. Most of the other big-sage/perennial bunchgrass patches within the 360-acre area are Category 3 with patches of Category 4.

In addition, the proposed mitigation area contains Category 3 perennial bunchgrass habitat and, to a lesser extent, Category 2 perennial bunchgrass. The perennial bunchgrass habitat type is present on deeper soils near the big sagebrush/perennial bunchgrass habitat. The perennial bunchgrass areas are relatively healthy and, although field surveys are limited, appear to have a diverse composition of native forbs. The ecological condition is primarily good with undisturbed late seral conditions dominant (soil mosses and lichens are very well-developed). Exotic species, although present, are a minor component of the vegetation in all locations investigated.

Perennial bunchgrass habitat provides forage and cover for wildlife and a high diversity of forbs, which is particularly attractive to vertebrates. Perennial bunchgrass is

limited in the physiographic province and is important to wildlife. Based on the vegetative quality, the habitat was rated as Category 3. Based on the presence grasshopper sparrows (State Sensitive: Vulnerable), there are three areas of Category 2 deep-soil perennial grassland in good condition.

The mitigation area also includes perennial bunchgrass on shallow soils, with a preliminary habitat rating of Category 4. The shallow-soil perennial bunchgrass (bluebunch wheatgrass and Sandberg's bluegrass) is relatively healthy. Like the perennial bunchgrass present on deeper soil sites, the bunchgrass areas on shallow soils appear to have a diverse composition of native forbs; many are not found on the deeper soil sites. The ecological condition is primarily good with undisturbed late seral conditions dominant (soil mosses and lichens are very well developed). This habitat type provides forage for wildlife and a high diversity of forbs, which is particularly attractive to invertebrates. The forb layer is most strongly characterized by members of the genera *Eriogonum* (the buckwheats) and Lomatium (the desert parsley group). The forb layer is not limited in the physiographic province but is important to wildlife. Until further field investigations document the full ecological condition and value, the shallow soil perennial bunchgrass was rated as Category 4. Enhancement measures such as raptor nest structures would increase the value for wildlife and could result in an improvement to Category 2 or 3. Preservation of habitat quality can be maintained by restricting cattle grazing to light use or by eliminating it.

The mitigation area includes patches of Basin wild ryegrass that have a habitat rating of Category 3. Basin wild ryegrass is a plant association occurring within the perennial bunchgrass habitat type on deeper soil patches within the shallow soil areas. Basin wild ryegrass occurs in small patches where seasonal seepage conditions are favorable for this tall stature grass. Although naturally-occurring in small patches, its tall cover is attractive for resting cattle and big game. In most areas within the 360-acre portion, cattle grazing has eroded the base of the Basin wild ryegrass. If cattle are removed from these areas, the grasses should respond favorably and reach full potential growth, which could improve the habitat to Category 2.

In summary, the overall ecological condition of the 440-acre parcel is very good but shows signs of stress from past land use practices and can be improved. Within the 360-acre portion, there are some areas of lower quality habitat that could benefit from reduced grazing and supplemental sagebrush planting. A hard freeze or pathogen disease appears to have occurred in some areas, affecting the sagebrush cover. Some natural recovery of sagebrush is occurring, but sage plantings could speed the recovery of sagebrush. Grazing by domestic livestock has been light in recent years. Eliminating all current and potential domestic livestock grazing would reduce disturbance to the soil surface and to native mature and recovering vegetation.

Wildlife Monitoring and Mitigation Plan

A common element of the ODFW mitigation goals and standards applicable to Category 2, 3 and 4 habitat is the protection of habitat quality as well as quantity. To address the issue of habitat quality and to ensure that the operation of the LJF complies with the Council standard, the certificate holder would conduct wildlife monitoring during operation of the proposed facility (Condition 87). 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 determine whether the operation of the facility results in an adverse impact to WGS.
- To determine whether operation of the facility results in a significant change in the level of avian use of grassland habitat near wind turbines.
- To determine whether the operation of the facility results in a significant loss of habitat quality.

The Wildlife Monitoring and Mitigation Plan (WMMP) incorporated herein (Attachment A) describes wildlife monitoring components, statistical analysis and data reporting that would be implemented by the certificate holder. The requirement of monitoring during the operation of the LJF facilities is a necessary part of finding compliance with the Fish and Wildlife Habitat Standard. Adequate 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 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 loss of habitat quality.

In its comments on the completed application, ODFW recommended that the certificate holder make an annual contribution to Blue Mountain Wildlife (BMW), a wildlife rehabilitation center in Pendleton.[151] Under the WMMP, any injured native birds found on-site would be taken to BMW or to another qualified specialist for care and rehabilitation. ODFW commented that financial support to BMW would "mitigate for raptor fatalities by helping to rehabilitate other injured raptors in the Basin." Under OAR 635-044-0130(1)(b)(D), it is "unlawful for any person to…kill [or] take" any "protected wildlife," including "nongame birds," which would include all raptors. In response, PPM Energy (the applicant's parent company) stated it is making contributions to support BMW and "in appreciation of their assistance with our Pacific Northwest projects."[152] PPM contributed $2,000 to BMW in October 2006 and $3,000 in January 2007. PPM has agreed to continue making an annual contribution to BMW of not less than $3,000 for at least the next five years.[153]

Other Related Conditions

To reduce the risk of vehicle injury to wildlife or other disturbance to wildlife habitat, the certificate holder would instruct construction and operations personnel to observe caution when driving through the facility area and to maintain reasonable driving speeds (Condition 85). The certificate holder would instruct personnel on fire safety and implement a plan for fire protection and response (Conditions 61 through 65).

[151] Letter from Rose Owens, ODFW, dated June 20, 2007.
[152] E-mail from Sara McMahon, June 21, 2007.
[153] E-mail from Sara Parsons, July 9, 2007.

G. General Findings of Consistency with ODFW Goals and Standards

Design

When completed, the proposed facility would occupy a permanent footprint of up to 64 acres if the LJ-North components were included (based on worst-case analysis). Without the LJ-North components, the facility would occupy up to 44 acres. There would be no impact on Category 1 habitat. The certificate holder would provide mitigation for the permanent loss of higher-value habitat (Category 5 and above) by protection and enhancement of a habitat mitigation area in accordance with the Habitat Mitigation Plan approved by the Council (Condition 89). The plan would include an area of Category 2 habitat of sufficient size to replace the permanent loss of Category 2 habitat at the facility site by a replacement ratio of 2:1. It would provide acre-for-acre replacement habitat for the on-site permanent loss of Category 3 and 4 habitat. If LJ-North components were included in the LJF, the plan would contribute additional area to mitigate for the permanent loss of 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 LJF 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 impacts outside the footprint. The area of temporary impacts would be approximately 699 acres if the LJ-North components were included. Without the LJ-North components, the temporary impact area would be approximately 490 acres. Upon completion of construction, the certificate holder would restore these areas in accordance with the Revegetation Plan approved by the Council (Condition 74). Because it could take five or more years to achieve revegetation success, the certificate holder would provide mitigation for the temporal loss of Category 2 and 3 habitat quality by including additional acres of habitat in the habitat mitigation area. There would be no construction impacts on Category 1 habitat. Impact to streams and wetlands would be avoided. The certificate holder would avoid construction activity within a buffer area around raptor nests during the sensitive nesting period. 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 Wildlife Monitoring and Mitigation Plan approved by the Council (Condition 87). If analysis of monitoring data indicates significant unanticipated impacts, the Council may require additional mitigation. The Council finds that operation of the facility would be consistent with OAR 635-415-0025.

Conclusions of Law

The Council finds that the design, construction and operation of the proposed facility, taking into account mitigation and subject to the site certificate conditions described herein, would be consistent with ODFW's habitat mitigation goals and standards (OAR 635-415-0025). The Council adopts Conditions 40, 60, 61, 62, 63, 64, 65, 70, 74,75, 82, 84, 85, 86, 87, 88 and 89 to be included in the site certificate. Based on these findings and 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.

** * **

Conditions

LJWP 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. CH2M HILL prepared Exhibit H on behalf of the applicant, based on a review of relevant literature.

The site is located in the north-central part of Gilliam County south of the Columbia River and east of the John Day River. Gilliam County is lies within the Columbia Plateau

physiographic province, and the facility site is located within an informal geographical area known as the Yakima Fold Belt subprovince, an area that is characterized by long, narrow anticlines (upward-arching folds in layered rocks) with intervening narrow to broad synclines (downward-arching folds) that extend in an easterly to southeasterly direction from the western margin of the plateau to its center. The seismic hazard in the facility area results from three seismic sources: the Cascadia Subduction Zone (CSZ) interplate events, CSZ intraslab events and crustal events. The Arlington-Shutler Butte fault (a crustal fault) passes across the LJ-North area in a northwest-trending direction. It is not believed to be an active fault.[154] Soils in the facility area generally consist of silty and sandy loams (loess), typically less than 15 feet deep. Based on aerial photography and field reconnaissance of the site in August 2006, CH2M HILL did not find evidence of slope instability, faulting or ground rupture at the site. CH2M HILL characterized the site as to the maximum credible and maximum probable seismic events.[155] CH2M HILL concluded that "the potential for ground rupture, earthquake-induced landslides and slope instability, lateral spreading, liquefaction, and settlement or subsidence at the site are low."[156] The moderate to high, non-seismic risk of soil erosion and the site certificate conditions for mitigation of this risk are discussed above in Section IV.3(b).

CH2M HILL did not undertake site-specific subsurface and geophysical investigations before the application was submitted. Appropriate site-specific geotechnical investigation would be performed in advance of engineering design and site construction activities to investigate the subsurface and foundation support conditions at the locations of the turbine towers and other significant facility structures (Condition 49). 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 LJF would be designed to meet or exceed the minimum standards required by the 2003 International Building Code (Condition 50).[157] The facility would be designed and built to avoid dangers to human safety presented by non-seismic hazards (Condition 51).

(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:

[154] App p. H-3 and H-9.
[155] App p. H-10.
[156] App p. H-14.
[157] App p. H-15.

(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.

* * *

Conditions

LJWP 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 site is entirely on private lands.

The applicant hired CH2M HILL to review literature and records regarding cultural resources in the project area. In November and December 2004, CH2M HILL conducted a field investigation that included much of the LJ-South area. In September 2005, CH2M HILL performed a supplemental field investigation in the LJ-South area, based on re-alignment of turbine strings under a layout proposed at the time. In April 2006, CH2M HILL performed an additional supplemental field investigation, including proposed disturbance areas in the LJ-North area. A cultural resources report covering the 2004 literature search and field investigations and technical memoranda covering the 2005 and 2006 supplemental surveys are included in the application.[158]

Before beginning its field investigations, CH2M HILL requested, but did not receive, comments from the Confederated Tribes of the Warm Springs Reservation regarding any cultural sites in the project area. CH2M HILL also consulted with the Oregon State Historic Preservation Office (SHPO). There were no previously-recorded cultural resource sites within the analysis area. Field investigation consisted of systematic pedestrian inspection of the baseline survey area, but did not include all lands within the proposed micrositing corridors. Figure S-1 in the site certificate application shows the baseline areas surveyed. The field investigations did not include excavations or other sub-surface testing. Because not all of the analysis area has been inspected by field investigation, those areas outside of the baseline survey area should be inspected where construction-related impacts would occur. The Council adopts Condition 45 to ensure that the inspection is completed before construction begins and that any newly-discovered resources are protected.

The baseline field investigations identified three resource sites. These consist of the following:

- A diffuse scatter of historic debris, with no evidence of any former standing structure.

[158] App Attachment S-1.

- A historic site consisting of seven small bowl-shaped depressions, a low, rectangular rock foundation structure, a large chunk of concrete and a stacked pile of rounded cobbles.
- Four stacked stone features located along a small hill.

These sites have not been formally evaluated for eligibility for listing on the National Register of Historic Places. Nevertheless, the applicant proposes to avoid impacts to these sites. The Council adopts Condition 46, which requires participation by construction crews in environmental compliance training that will include instruction on avoiding accidental damage to cultural resource sites. The Council adopts Condition 48, which requires labeling identified resource sites construction maps and drawings as "no entry" areas. The condition requires flagging a 50-foot buffer around an identified site, if construction activities will occur within 200 feet.

In accordance with state law (ORS 97.745 and 358.920), the Council adopts Condition 47 to require that earth-disturbing activities be halted if archeological objects are discovered in the course of construction of the facility.[159] The condition further requires notification of the State Historic Preservation Office and the Department and evaluation of the discovery by a qualified archaeologist.

The Oregon Trail is a designated historic trail under both federal and Oregon statutes. The alignment of the trail does not cross any part of the analysis area. It lies to the south of the site. Construction and operation of the proposed facility is not likely to result any adverse impacts to the Oregon Trail.

(c) Public Services

OAR 345-022-0110

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

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

* * *

Conditions

LJWP 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

[159] Under OAR 736-051-0090, a person may not "knowingly and intentionally excavate, injure, destroy or alter an archeological site or object or remove an archeological object from private lands in Oregon" without a permit issued under ORS 390.235.

area includes nearly all of Gilliam and significant portions of Morrow and Sherman Counties in Oregon and Klickitat County in Washington. Small segments of Wasco County in Oregon and Benton and Yakima Counties in Washington lie within the analysis area. There are ten incorporated cities in the analysis area: Arlington, Condon, Boardman, Ione, Lexington, Rufus, Wasco, Moro and Grass Valley in Oregon and Goldendale in Washington.

A. Sewage, Storm Water and Solid Waste

During construction of LJF, the impact on sewers and sewage treatment would be minimal. The Council adopts Condition 96 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. Construction of the LJF would generate solid waste that would be removed by a licensed hauler for off-site disposal at the Columbia Ridge landfill, which is adjacent to the site and which is not expected to reach its full capacity for another 50 years.

During operation, sewage from the O&M buildings would be disposed of in on-site septic systems. Appropriate measures would be used 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 operation would be insignificant and would be recycled or taken to the Columbia Ridge landfill by a licensed hauler.

B. Water

LJWP estimates water use during construction of the LJF would be up to 35 million gallons overall.[160] Water would be used primarily for dust control and concrete mixing. LJWP anticipates that water could come from the City of Arlington. To show that adequate water is available in the area, LJWP provided a letter from the City of Arlington, indicating that the city could supply approximately 35 million gallons of water for construction of the LJF.[161]

During operation, less than 5,000 gallons per day would be needed for incidental uses at the O&M buildings and, if necessary, blade-washing. This water would come from new on-site wells. The facility's use of water during operation, therefore, would have no impact on municipal water systems. The small volume of water needed for the O&M facilities is not likely to have an impact on other wells that serve local landowners.

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

The applicant estimates that construction of the LJF would employ an average of 167 workers and a maximum of 335 workers. Construction is expected to take up to 12 months to complete. The applicant "intends to hire locally to the extent possible."[162] Based on a conservative assumption that up to 70 percent of the construction workforce would come from outside the area, as many as 235 workers might come from outside the analysis area. The

[160] App Tables O-1 and O-2.
[161] Letter from Tim Wetherell, City of Arlington Public Works Director, September 21, 2006 (App Attachment O-1).
[162] App p. U-2.

applicant described "adequate supplies" of temporary housing available in The Dalles and Hermiston in Oregon and Goldendale in Washington.[163]

LJWP estimates that a staff of up to 30 full-time operational personnel would be employed at the proposed facility. Assuming conservatively that 20 percent of the workforce (six employees) would come from outside the area and that the average household would have 3.0 persons, the applicant estimated that the facility operation would bring approximately 18 new permanent residents to the local community. The applicant provided information showing that there are more than 164,000 housing units and an average housing vacancy rate of 12.9 percent in the seven counties in the analysis area.[164] The Council finds that construction and operation of the proposed LJF would not have a significant adverse effect on the supply of housing in the analysis area.

Local police service is provided by most of the incorporated cities in the analysis area. LJWP would seek police service from the Gilliam County Sheriff's Office in Condon, Oregon. Backup law enforcement service would be available from the Oregon State Police Eastern Region with offices in Arlington, Condon, Pendleton and Milton-Freewater, Oregon. Based on the estimate of up to 235 workers coming from outside the local area during facility construction and an assumed average household size of 2.0 persons, there could be up to 470 temporary residents during the 12 months of facility construction. Facility operation would bring approximately 18 new permanent residents to the local community. The relatively small number of new temporary and permanent residents is not expected to place significant new demands on the providers of police service in the analysis area. The Council finds that construction and operation of the proposed LJF would not have a significant adverse effect on local police agencies to provide police protection within the analysis area.

The North Gilliam County Rural Fire Protection District provides primary fire response for the area in which the proposed LJF is located. The applicant consulted the District regarding construction and operation of the LJF. The District has determined that the proposed facility would have no significant impact on fire emergency services.[165] Measures to reduce fire risk during construction and operation and appropriate site certificate conditions are discussed further at page 128. The Council finds that construction and operation of the proposed LJF would not have a significant adverse effect on local fire protection agencies to provide emergency fire response services within the analysis area.

The hospitals nearest the proposed facility are the Mid-Columbia Medical Center in The Dalles and the Good Shepherd Hospital in Hermiston. Both hospitals are located about the same distance from the proposed facility. Ambulance service in the area is provided by private service groups that contract with Gilliam County. Providers offer basic, intermediate and advanced life support emergency medical care and transportation. The Council finds that the small temporary and permanent population increases during construction and operation of the proposed facility are not likely to result in significant adverse impact on the ability of the health care service providers in the analysis area to provide health services.

[163] App p. U-18.
[164] App p. U-7.
[165] App Attachment U-2.

In Oregon, five school districts and 11 individual schools are located in the analysis area. In Washington, two school districts and four individual schools are located in the analysis area. The schools nearest the proposed facility are operated by the Arlington and Condon school districts, both of which have an elementary school and a high school. Because construction work for the proposed facility will be short-term and temporary, and because peak construction would occur during the summer months, LJWP expects there would be no new students during construction. During operation of the proposed facility, six workers might move with their families into the area, but the small number of school-age children would not significantly increase student population. The Council finds that the small temporary and permanent population increases during construction and operation of the proposed facility are not likely to result in significant adverse impact on schools in the analysis area.

D. Traffic Safety

LJWP estimated that approximately 120 truck trips would be needed during construction for each 1.5-MW turbine and approximately 140 truck trips for each 3.0-MW turbine, including five oversize trucks per turbine.[166] Additional oversize trucks would be needed for transport of large construction equipment, such as cranes and bulldozers. The applicant estimated that construction could require up to 15,960 truck deliveries or up to 133 truck trips per day, averaged over 12 months of construction. The number of truck trips per day is likely to be higher during some months of construction. The applicant provided information showing that the average daily traffic (ADT) volume on I-84 near the project area ranges between 10,600 and 10,900 vehicles. Based on this information, construction is not likely to cause a significant increase in traffic on I-84.

Construction-related traffic may cause traffic delays on Oregon Highway 19 and on local county roads near the site when trucks deliver turbines, construction-related equipment, concrete and other building materials. Such delays would be short-term and temporary. Local roadways currently have very low use.

Rattlesnake Road, a road that connects the primary transporter route with the proposed turbine string roads, is surfaced with gravel. The certificate holder would evaluate the condition of this road before beginning construction and again after completing construction to determine whether any degradation has occurred during construction of the proposed facility. If that evaluation shows the condition of Rattlesnake Road has been degraded, the certificate holder would repair the road to pre-construction conditions or better (Condition 36).[167] During construction, LJWP proposes to minimize the traffic-related impacts by implementing a number of control measures (Conditions 37) and not allowing equipment or machinery to be parked or stored on any county road (Condition 38). For these reasons, the use of highways and local roads during construction is not likely to result in a significant adverse impact on traffic safety.

During operation, the anticipated permanent staff of up to 30 employees would not significantly increase traffic in the analysis area. The use of area highways and local roads by

[166] App p. U-13.
[167] App p. U-13.

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;

(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.

** * **

Conditions

LJWP 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.

A. Solid Waste

Solid waste generated during construction would consist primarily of concrete waste from turbine pad construction, wood waste from wood forms used for concrete pad construction and scrap steel from turbine tower construction. Other construction wastes could include erosion control materials, such as straw bales and silt fencing, and packaging materials for turbine parts and other electrical equipment.

LJWP proposes to minimize the generation of solid waste during construction by detailed estimating of materials needs and efficient construction practices. Wastes generated during construction (such as steel scrap and wood waste) would be recycled when feasible. Packaging wastes (such as paper and cardboard) would be separated and recycled. Non-recyclable wastes would be collected and transported to a local landfill by a licensed waste hauler. The Council adopts Condition 98, which summarizes the applicant's solid waste management plan during construction.

Concrete waste would be generated on site during construction. This waste could be used on site as fill, with the agreement of the landowner. Before disposing of clean fill on site, the certificate holder would submit a request for permit exemption in accordance with OAR 340-093-0080 and would obtain any other applicable regulations. The material would be placed in an excavated hole and covered with at least 3 feet of topsoil. The surface would be graded to match existing contours. If no reuse option were available for concrete waste on site or at another location where such fill is allowed, it would be removed to a landfill by a

licensed waste hauler. The Council adopts Condition 99, which addresses requirements for disposal of waste concrete.

During operation, small quantities of office waste, such as paper, food packaging and scraps, would be generated at the O&M buildings. In addition, there could be small quantities of solid waste from repair or replacement of electrical or turbine equipment. Waste from the O&M buildings and other solid waste generated on site would be collected and recycled, as feasible. Non-recyclable wastes would be collected and transported to a local landfill by a licensed waste hauler. The Council adopts Condition 100, which summarizes the applicant's solid waste management plan during operation.

LJWP 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 include lubricating oils, cleaners and pesticides. Some hazardous wastes, such as oily rags or similar wastes related to turbine lubrication and other maintenance, would be generated during construction and operation. Used oil and hydraulic fluid would be recycled, if feasible. The applicant would use 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. Contaminated soil or other materials would be disposed of and treated according to applicable regulations. The Council adopts Condition 68, which addresses proper handling of hazardous materials, and Condition 69, which addresses preparation for and response to spills and accidental releases of hazardous materials.

B. Wastewater

Wash down of concrete trucks would be the major source of wastewater during construction. After concrete loads have been emptied, truck wash down may occur at the contractor-owned batch plant or on site at turbine tower foundation locations. The Council adopts Condition 73, which requires the certificate holder to ensure that wastewater from on-site wash down does not run off the construction site into otherwise undisturbed areas. The condition would require the certificate holder to ensure that the wastewater is disposed of on backfill piles and buried underground with the backfill over the tower foundation.

During construction, water loss will occur primarily through evaporation from wetted road surfaces and from drying concrete. Because of the dry conditions, the applicant expects that all water used during construction would be lost on or very near the site. 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. The Council adopts Condition 96, which requires that portable toilets be pumped and cleaned regularly by a licensed contractor. The contractor would dispose of wastewater from this source off-site.

During operation, sewage from the O&M buildings would be discharged to on-site septic systems. No industrial wastewater would be generated during operation. If blade-washing becomes necessary, the limited quantity of water used would evaporate or infiltrate into the ground near the point of use (Condition 77). Water would not be discharged into wetlands, streams or other waterways.

C. Impact on Surrounding and Adjacent Areas

The accumulation, storage, disposal and transportation of waste generated by construction and operation of the proposed facility would have minimal 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.

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

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

During construction, the certificate holder would ensure that contractors manage and monitor waste generation and recycle or dispose of wastes in an appropriate manner. During operation, the operations staff would be responsible for a waste management program, ensuring that solid waste is recycled to the extent feasible or disposed of in dumpsters and that hazardous wastes are properly disposed of in accordance with applicable regulations.

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." Oregon statutes and administrative rules that are not otherwise addressed in Section IV of this order and that might be applicable include the noise 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, the ODOT regulations for State Highway approach permits 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

Applicable Regulations

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.[168] 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 not been used by any industrial or commercial noise source at any time during the 20 years preceding the construction of a new noise source on the site.[169] In lieu of verification that any part of the site qualifies as "previously used," the applicant assumed a "previously unused" status for the entire site. The Department approved this approach, because this results in the conservative assumption that the facility must comply with the more restrictive requirements of OAR 340-035-0035(1)(b)(B).

The regulation, 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[170]) when turbines are operating "between cut-in speed and the wind speed corresponding to the maximum sound power

[168] OAR 340-035-0015(33) defines "new industrial or commercial noise source."
[169] OAR 340-035-0015(47) defines "previously unused industrial or commercial site." Agricultural activities are specifically excluded from this definition.
[170] The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network, which corresponds to the frequency response of the human ear.

level."[171] 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 background 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. Using the assumed background level, the ambient degradation limit is 36 dBA (26 dBA plus 10 dBA). 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:

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.		

The proposed energy facility would operate on a 24-hour basis. Therefore, the noise radiating from the proposed facility must not exceed the maximum allowable nighttime noise limits (10:00 PM to 7:00 AM). To comply with the "maximum allowable" test, the noise radiating from the LJF must not exceed an hourly L_{50} noise level of 50 dBA at any noise sensitive receiver. For the purpose of determining whether a proposed wind facility would comply with this test, noise levels must be predicted "assuming that all of the proposed wind facility's turbines are operating at the maximum sound power level."

Construction Noise

OAR 340-035-0035(5)(g) exempts noise caused by construction activities. Construction of the proposed LJF would produce localized, short-duration noise levels similar to those produced by any large construction project using heavy construction equipment. In

[171] 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." We refer to these as the "noise-sensitive receivers."

areas near residences, the certificate holder would confine the noisiest construction activities to daylight hours to mitigate noise impacts at the residences (Condition 93).

Compliance with the Regulations

The facility would consist of up to 133 1.5-MW turbines or up to 93 3.0-MW turbines. The applicant requests the flexibility to select any turbine within a range bounded by GE 1.5-MW turbines (having an overall maximum sound power level of 104 dBA) and Vestas 3.0-MW turbines (having an overall maximum sound power level of 110 dBA.[172] The applicant, further, requests flexibility to locate turbines anywhere within the turbine string micrositing areas identified in Attachment D, subject to certain restrictions that are specified by site certificate conditions. The applicant identified 86 noise-sensitive receivers that could be affected by noise from the proposed LJF.[173]

The application contains proposed turbine string layouts using either 1.5-MW or 3.0-MW turbines.[174] The applicant's analysis showed that predicted noise levels would exceed the 36-dBA ambient degradation limit at 53 of the noise-sensitive receivers under the proposed 1.5-MW layout; predicted noise levels would exceed the limit at all 86 noise-sensitive receivers under the proposed 3.0-MW layout. Under either of the proposed layouts, the predicted noise levels would not exceed the 50-dBA maximum allowable limit at any noise-sensitive receiver.

Because the applicant desires flexibility to locate turbines within the micrositing areas, the final design layout is unknown at the time of the Council's decision on the application. Without knowing the turbine type, the number of turbines in each string, the spacing between turbines and their precise locations, the applicant cannot complete the analysis necessary to determine whether the facility, as built, would comply with the noise regulations.

To support a Council finding that the facility could be built in a way that complies with the applicable noise regulations, the Department asked the applicant to provide one or more default facility layouts that would comply with the regulations. The applicant provided two "noise-compliant" layouts; one shows a configuration for 1.5-MW turbines and the other shows a configuration for 3.0-MW turbines.[175] To verify that these two default layouts would comply with the noise regulations, the applicant performed a noise modeling analysis. The procedures for conducting the analysis are described in OAR 340-035-0035(1)(b)(B)(iii)(IV) and (VI).

For the purpose of the analysis, the applicant increased the maximum sound power levels for the reference turbine types (GE 1.5-MW and Vestas 3.0-MW) by 2 dBA to account for the manufacturers' typical warranty, which applies an uncertainty band of +\- 2 dBA to the stated maximum sound power level. Accordingly, the applicant assumed that the 1.5-MW turbines would have a maximum sound power level of 106 dBA and the 3.0-MW turbines would have a maximum sound power level of 112 dBA.[176] For predicting the noise that would be generated by substation transformers, LJWP assumed an overall maximum sound power

[172] Table X-6, App p. X-5.
[173] Table X-11, App Supp, Appendix B, Attachment 13.
[174] Revised Figures X-1 and X-2, App Supp, Appendix B, Attachment 12.
[175] Revised Figures X-3 and X-4, App Supp, Appendix B, Attachment 12.
[176] Table X-10, App p. X-11.

level of 107 dBA.[177] The applicant stated that the 230-kV interconnection transmission line would be designed "to ensure that audible noise from foul-weather corona will not exceed 50 dBA at the edge of the right-of-way" and that there would be "no audible noise…at any receptor."[178] The applicant modeled noise effects using CADNA/A by Datakustik GmbH of Munich, Germany, a software program that uses sound propagation factors adopted from ISO 9613 (ISO, 1993) and VDI 2714 (VDI, 1988). The analysis assumed atmospheric absorption for conditions of 10° C and 70 percent relative humidity computed in accordance with ISO 9613-1.

As shown on the default layouts (revised Figures X-3 and X-4), predicted noise levels at properties outside the orange 36-dBA contour line would not exceed 36 dBA and predicted noise levels at properties outside the yellow 50-dBA contour line would not exceed 50 dBA. For all noise-sensitive receivers shown on Figures X-3 and X-4, the 50-dBA maximum allowable test would be met. Four noise-sensitive receivers are shown within the 36-dBA contours on Figures X-3 or X-4 (R3, R4, R5 and R6). At these properties, the 36-dBA ambient degradation limit would be exceeded, but the applicant has obtained noise waivers for those properties.[179] Accordingly, the applicant has demonstrated that the facility would comply with noise control regulations under either of the default layouts illustrated by Figures X-3 and X-4.

To ensure that the facility as built would comply with the noise control regulations, the Council adopts Condition 94. This site certificate 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 the operation of the LJF, the Council has 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 95, which requires the certificate holder to notify the Department of any complaints received about noise from the facility.

Conclusions of Law

Based on the findings and reasons discussed above, the Council finds that the proposed facility would comply with the applicable state noise control regulations (OAR 340-035-0035(1)(b)(B)). The Council adopts Conditions 93, 94 and 95 to be included in the site certificate.

(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)

[177] Table X-10, App p. X-11.
[178] App p. X-5.
[179] App Supp, Appendix A, Attachment 17.

require a Removal/Fill Permit if 50 cubic yards or more of material is removed, filled or altered within any "waters of the state" at the proposed site.[180] The Council must determine whether a permit is needed. In addition, 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). Under Section 404, a federal Nationwide or Individual fill permit may be required.

Findings of Fact

Delineation of Waters of the State

LJWP provided information about wetlands and other waters of the state in Exhibit J of the application. The applicant's contractor, CH2M HILL, conducted field investigation for wetlands following the procedures in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The CH2M HILL field investigation did not cover the entire area within the site boundary of the proposed LJF. In response to the Department's request for clarification, CH2M HILL provided the following explanation:[181]

> At the start of the LJII project, a study corridor was drawn on a map of all proposed project facilities—turbine strings, access roads, substation, O&M facilities, and other project-related activities. A review of existing documents and other information was conducted in the office for all areas within the identified study corridor. Documents reviewed included soil survey maps, NWI maps, USGS topographic maps, ODFW StreamNet maps, and DSL Essential Salmonid Habitat maps. This review then allowed us to focus the actual on-the-ground surveys in areas most likely to have wetlands or streams. The focused surveys were then conducted at those locations (the "discrete" locations). In addition to these surveys, the same biologists also conducted surveys for rare plant species. In these surveys we walked all or portions of all of the same survey corridors, providing a field check for the conclusions from our office review.

The application contains reports from CH2M HILL on the following investigations:

- November 2004 — *Wetlands and Jurisdictional Waters Determination Report, Leaning Juniper Wind Energy Project, Gilliam County, Oregon* (January 19, 2005), survey report on 200-foot-wide corridors centered on alignments of proposed turbine strings, underground collector lines and access roads in the area of LJ1 and LJ-South.[182]
- September 2005 — *Addendum to: Wetlands & Jurisdictional Waters Determination Report, Leaning Juniper Wind Energy Project, Gilliam County, Oregon"* (September 2, 2005), survey report on four potential stream crossings in the area of LJ1 and LJ-South.[183]

[180] OAR 141-085-0010(225) defines "Waters of this State." The term includes wetlands and certain other water bodies.
[181] E-mail from Erin Toelke, CH2M HILL, July 3, 2007.
[182] This report is included within App Attachment J-1.
[183] This report is included within Attachment G to the Section 404 permit application, App Supp, Appendix B, Attachment 6.

- January 2006 — *Jones Canyon Road Crossing Jurisdictional Waters Determination - Revised Location, Leaning Juniper Wind Energy Project, Gilliam County, Oregon* (January 16, 2006), survey report on one potential stream crossing in Jones Canyon within the LJ-South area.[184]
- May and September 2006 — *Addendum Wetlands and Jurisdictional Waters Determination Report, Leaning Juniper II Wind Power Facility, Gilliam County, Oregon* (September 25, 2006), survey report on 12 discrete locations within the LJF site boundary.[185]

Potential jurisdictional areas (areas subject to either a State Removal/Fill Permit or a federal Section 404 Permit) were identified based on the National Wetland Inventory, U.S. Geological Survey mapping, mapped hydric soils and field observation. The field studies focused on mapped stream channels underlying or adjacent to proposed facility components. An area was considered to be potentially jurisdictional if it met criteria for hydrology, hydric soils and hydrophytic vegetation or had physical characteristics such as a streambed and discernable banks and some evidence of surface flow.

The November 2004 surveys focused on 20 study locations that might be potential jurisdictional areas. Study locations that were greater than 100 feet from proposed facility components as of the time of the study were not considered further. Table 15 includes locations that CH2M HILL determined to be both potentially jurisdictional and within 100 feet of proposed facility components. The table excludes areas that are outside the LJF site boundary.

The September 2005 survey focused on four locations. CH2M HILL determined that only one of these locations was potentially jurisdictional. Three of the locations did not meet criteria for regulation due to surface alterations, lack of physical characteristics of an active drainage and lack of changes in vegetation. The one potentially jurisdictional location (S8A) is included in Table 15.

The January 2006 survey focused on a single location (S8B, as shown on later maps and included in Table 15). CH2M HILL determined that this location was potentially jurisdictional.

The surveys conducted in May and September of 2006 focused on 12 locations. Four of the locations did not meet criteria for regulation. The potentially jurisdictional areas included three stream channels (S24, S25 and S27) and six wetlands (W1-6), which are included on Table 15.

DSL concurred with the applicant's wetlands and waterways delineation. DSL determined that, of the numerous streams identified within the project area, only one (S27) is

[184] This report is included within App Attachment J-1.
[185] This report is included within App Attachment J-1.

jurisdictional for purposes of the State Removal/Fill Permit.[186] DSL confirmed that the six identified wetlands are also jurisdictional.[187]

Table 15: Wetlands and Waters[188]

Location	Description	State Jurisdiction	U.S. Jurisdiction
LJ-South			
S5	intermittent or ephemeral stream	no	potential
S8	intermittent stream (Jones Canyon)	no[189]	potential
S8A	marginally-defined shallow channel	no	potential
S8B	defined shallow channel	no	potential
S14	potential drainage channel (possible wetland upslope)	no	potential
S27	intermittent stream (China Ditch)	jurisdictional	potential
W6	vernal pool wetland	jurisdictional	potential
LJ-North			
S20	intermittent or ephemeral stream	no	potential
S24	well-defined channel	no	potential
S25	intermittent stream	no	potential
W1	vernal pool wetland	jurisdictional	potential
W2	vernal pool wetland	jurisdictional	potential
W3	vernal pool wetland	jurisdictional	potential
W4	vernal pool wetland	jurisdictional	potential
W5	vernal pool wetland	jurisdictional	potential

LJWP proposes to avoid impact at location S5, where a project collector line would cross the drainage. The certificate holder would use an aboveground collector line and would place the supporting poles outside the stream area (Condition 72). The applicant proposes to avoid any impact on the jurisdictional wetlands (W1-6).[190] The certificate holder would be required to avoid impact to these areas (Condition 72). Location S25 is an intermittent stream adjacent to Rattlesnake Road. If widening of Rattlesnake Road were needed, the certificate holder would avoid impact to the stream channel by widening the road on the upslope side. The September 25, 2006, CH2M HILL report described location S24 as a well-developed channel with evidence of intermittent flow. The certificate holder would avoid impacts to locations S24 and S25 (Condition 72).

The on-site surveys that CH2M HILL conducted in 2004 through 2006 did not cover all locations where jurisdictional waters or wetlands might exist within the site boundary of the proposed facility. A pre-construction field investigation should be done after the final design locations of facility components have been determined. The Council adopts Condition 72 to ensure that the facility would have no impact on jurisdictional waters of the state. Based

[186] Letter from Anna Buckley, DSL, July 2, 2007.
[187] E-mail from Anna Buckley, DSL, July 19, 2007.
[188] The locations listed on this table are identified in Figure J-2, App Supp, Appendix C, Attachment 2.
[189] DSL determination letter, April 15, 2005, response to request J1, RAI #2, Attachment 5.
[190] App p. J-4 and response to request J4, App Supp, Exhibit J, p. J-3.

on the final design layout of the facility, if construction would occur in any locations not previously investigated by CH2M HILL as described herein, the certificate holder would conduct on-site surveys to determine whether any jurisdictional waters of the state exist in those locations. The condition requires that there be no impact on any jurisdictional water identified in the pre-construction investigation.

Removal/Fill Permit

The applicant submitted a Joint Permit Application to DSL and USACE for anticipated impacts at two locations (S8A and S27).[191] Construction of an access road and ford crossing at one location (S8A) and replacement of a culvert at the other location (S27) would result in 18.8 cubic yards of removal and 84.8 cubic yards of fill. In comments to the Department on the proposed facility, DSL indicated that a Removal/Fill Permit would be needed for the proposed crossing at S27.[192] The proposed construction of the S27 crossing would involve 11.8 cubic yards of removal and 77.8 cubic yards of fill.[193] Given the size of the expansion of the road and culverts, the proposed construction does not qualify for an exemption under OAR 141-085-0020.[194]

Under ORS 196.825(1), removal of material from waters of the state must "not be inconsistent with the protection, conservation and best use of the water resources of this state as specified in ORS 196.805." ORS 196.805 states a legislative policy to protect and conserve the water resources of the state: "Streams, lakes, bays, estuaries and other bodies of water in this state, including not only water and materials for domestic, agricultural and industrial use but also habitats and spawning areas for fish, avenues for transportation and sites for commerce and public recreation, are vital to the economy and well-being of this state and its people." Similarly, ORS 196.825(2) allows fill to be placed in a water of the state if the proposed fill "would not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation."

ORS 196.825(3) requires consideration of certain factors in determining whether to grant a Removal/Fill permit:

> *(3) In determining whether or not a permit shall be issued, the director shall consider all of the following:*
>
> *(a) The public need for the proposed fill and the social, economic or other public benefits likely to result from the proposed fill. When the applicant for a fill permit is a public body, the director may accept and rely upon the public body's findings as to local public need and local public benefit.*
>
> *(b) The economic cost to the public if the proposed fill is not accomplished.*
>
> *(c) The availability of alternatives to the project for which the fill is proposed.*
>
> *(d) The availability of alternative sites for the proposed fill.*
>
> *(e) Whether the proposed fill conforms to sound policies of conservation and would not interfere with public health and safety.*

[191] App Supp, Appendix B, Attachment 6.
[192] E-mail from Jess Jordan, DSL, June 22, 2007; letter from Anna Buckley, DSL, July 2, 2007.
[193] Table 1, Supplement to Joint Permit Application, App Supp, Appendix B, Attachment 6.
[194] E-mail from Jess Jordan, DSL, June 27, 2007.

(f) Whether the proposed fill is in conformance with existing public uses of the waters and with uses designated for adjacent land in an acknowledged comprehensive plan and zoning ordinances.

(g) Whether the proposed fill is compatible with the acknowledged comprehensive plan and land use regulations for the area where the proposed fill is to take place or can be conditioned on a future local approval to meet this criterion.

(h) Whether the proposed fill is for streambank protection.

(i) Whether the applicant has provided all practicable mitigation to reduce the adverse effects of the proposed fill in the manner set forth in ORS 196.800 (10). If off-site compensatory wetland mitigation is proposed, the applicant shall document the impracticability of on-site compensatory wetland mitigation.

OAR 141-085-0029(3) contains review standards for Removal/Fill permits and implements the requirements of ORS 196.825.

(3) Considerations for Approval To issue an individual removal-fill permit the Department must determine that the proposed removal-fill activity will not be inconsistent with the protection, conservation and best use of the water resources of this state and would not unreasonably interfere with the paramount public policy of this state to preserve the use of its waters for navigation, fishing and public recreation, by:

(a) Considering the public need for the project including the social, economic or other public benefits likely to result from the project. If the applicant is a public body, the Department may rely on the public body's findings as to local public need and benefit;

(b) Considering the economic cost to the public if the project is not accomplished;

(c) Considering whether the project would interfere with public health and safety;

(d) Considering whether the project is compatible with the local comprehensive land use plan. The Department will not issue an individual removal-fill permit for a project that is not consistent or compatible with the local comprehensive land use plan and/or zoning ordinance. The Department may issue an individual removal-fill permit requiring the applicant to obtain local land use approval prior to beginning the authorized activity;

(e) Determining the degree to which, if at all, the project, will unreasonably interfere with navigation, fishing and public recreation uses of the waters of the state;

(f) Considering the degree to which, if at all, the project will increase erosion or flooding upstream and downstream of the project or redirect water from the project site onto adjacent nearby lands.

(g) Considering the practicable alternatives for the project in accordance with (4) as presented in the application; and

(h) Considering practicable mitigation (including compensatory mitigation) for all reasonably expected adverse impacts of project development, as required by subsection (5).

OAR 141-085-0029(4) and (5) describe the analysis of alternatives that is required under (3)(g). OAR 141-085-0029(7) describes mitigation measures as required under (3)(h):

> *(4) Alternatives Analysis The Department will issue a permit only upon the Department's determination that a fill or removal project represents the practicable alternative that would have the least adverse effects on the water resources and navigation, fishing and public recreation uses.*
>
> *(5) In determining whether or not an alternative might be the practicable alternative with the least adverse effects, the Department will consider the type, size and relative cost of the project, the condition of the water resources, and navigation, fishing and public recreation uses as depicted in the application. The financial capabilities of the applicant are not the primary consideration. The basic project purpose, logistics, use of available technology and what constitutes a reasonable project expense are the most relevant factors in determining the most practicable alternative. The applicant bears the burden of providing the Department with all information necessary to make this determination.*
>
> * * *
>
> *(7) Mitigation The Department will only issue an individual removal-fill permit for the practicable alternative with the least adverse effects to the water resources upon the Department's determination that the project includes appropriate and practicable steps to reduce (mitigate) reasonably expected adverse impacts of the project to the water resources and navigation, fishing and public recreation uses. Mitigation shall be considered in the following sequence:*
>
> *(a) Avoidance. The Department shall first consider whether the project can be accomplished by avoiding removing material or placing fill material in or on waters of the state altogether (e.g., by moving the location of a proposed structure, either on-site or off-site, to avoid filling wetlands);*
>
> *(b) Minimization. If the Department determines that the project cannot be accomplished without adverse impacts to water resources and/or navigation, fishing and public recreation uses, the Department shall then consider whether limiting the degree or magnitude of the removal fill and its implementation can minimize adverse impacts (e.g., bio-engineered and non-structural streambank stabilization techniques, such as bank sloping and revegetation, shall be installed instead of solutions relying primarily on concrete and riprap, whenever technically feasible, suitable and environmentally preferable);*
>
> *(c) Rectification. If the Department determines that project impacts to the waters of the state cannot be further minimized, the Department shall then consider whether repairing, rehabilitating or restoring (e.g., restoring site conditions along a pipeline corridor after installation is complete) the removal fill impact area can rectify the impact;*
>
> *(d) Reduction or elimination. When removal fill impacts have been minimized and rectified to the maximum extent practicable, the Department will consider whether the impacts can be further reduced or eliminated over time by monitoring and taking appropriate corrective measures (e.g., assure that site restoration methods have effectively revegetated the site); and*

(e) Compensation. The Department shall then consider how the applicant's project would compensate for reasonably expected adverse impacts of project development by replacing or providing comparable substitute wetland or water resources and/or navigation, fishing and public recreation uses. Compensatory mitigation may not be used as a method to reduce environmental impacts in the evaluation of practicable alternatives.

(a) Public Need (ORS 196.825(3)(a) and OAR 141-085-0029(3)(a))

This factor addresses the public need for the proposed fill. It does not address need for the proposed facility. The applicant proposes approximately 85 cubic yards of fill that would be necessary to complete the widening of an existing road, replacement of an existing culvert, installation of an underground collector line and construction of a ford crossing. Crossing the two intermittent stream areas is essential to the efficient design of the access road and power collection system. Efficient routing of roads and collector lines serves the public interest in minimizing impacts on the land.

(b) Economic Cost Avoided (ORS 196.825(3)(b) and OAR 141-085-0029(3)(b))

LJWP has designed the proposed facility to avoid and minimize impacts to waters of the state. The necessary separation of wind turbine strings and the large overall lease area involved in a commercial wind power project means that designing the facility to avoid crossing any drainage is impractical. Allowing reasonable amounts of fill would avoid the economic cost of lost opportunity to develop the wind resource in some locations that might otherwise be inaccessible. That cost would include loss of lease income to the landowner as well as loss of property tax revenue to the county.

(c) Project and Site Alternatives (ORS 196.825(3)(c) and (d) and OAR 141-085-0029(3)(g), (4) and (5))

The fill is proposed in connection with intermittent stream crossings. Given the number of such drainages within the site boundary, there is no practical alternative to crossing one or more drainages to construct necessary access roads and collector lines. The proposed locations are reasonable, given the location of other proposed facility components and the need to minimize permanent habitat impacts. The applicant has designed the location of the stream crossings to avoid impacts to wetlands and waters to the extent possible.

Although there are alternative sites for stream crossings, the proposed locations minimize potential impacts to waters of the state. The proposed stream crossings would have no significant impact on navigation, fishing and public recreation uses. Construction would be done when the stream channels are dry. For these reasons, the proposed crossings are the practicable alternatives with the least adverse effects on water resources.

(d) Conservation; Public Health & Safety (ORS 196.825(3)(e) and OAR 141-085-0029(3)(c))

For reasons discussed above, the proposed fill would allow access road and collector system crossings to be located in a manner that conserves habitat. The proposed fill would have no adverse public health and safety impacts. Construction of a wider road and improved culvert would reduce a potential safety hazard to vehicles using the access roads.

(e) Existing Uses (ORS 196.825(3)(f) and OAR 141-085-0029(3)(e))

The proposed removal and fill would affect intermittent drainages that have no direct navigation, fishing or public recreation uses. The proposed crossings would have no

significant impact. There are no existing public uses of the intermittent streams in the locations proposed for the fill. The adjacent land is zoned as EFU. The land is not currently cultivated. The fill would be compatible with adjacent habitat uses.

(f) Land Use (ORS 196.825(3)(g) and OAR 141-085-0029(3)(d))

The fill is associated with the access roads and with the collector system that are part of the proposed facility. The wind energy facility and its access roads are permitted uses on EFU land. Land use is discussed in more detail above, beginning at page 25.

(g) Streambank Protection (ORS 196.825(3)(h))

The proposed fill is not specifically for streambank protection. The fill is needed to protect the drainages by construction of an improved culvert and road crossing in one location and by construction of a ford crossing in another location.

(h) Erosion and Flooding (OAR 141-085-0029(3)(f))

The proposed fill would not increase erosion or flooding upstream or downstream of the project and would not redirect water from the crossing locations onto adjacent or nearby lands. The applicant has proposed technical specifications for the construction of the ford crossing and replacement of the existing culvert that are designed to reduce or avoid erosion, flooding and redirection of the stream flow.[195] The certificate holder would implement erosion control measures during construction as described in an Erosion and Sediment Control Plan (Condition 70),

(i) Mitigation (ORS 196.825(3)(h) and OAR 141-085-0029(3)(h))

LJWP has proposed measures to mitigate the impact of the proposed fill.[196] As described in the Joint Permit Application, LJWP designed the proposed facility layout to avoid impacts to wetlands and waters to the maximum extent possible. In particular, LJWP has incorporated the following mitigation considerations in the design of the facility:

- Locating turbine strings, underground collector lines and access roads to minimize number of stream crossings.
- Using existing county and farm roads for access to the extent possible.
- Locating turbine strings and underground collector lines adjacent to existing county or farm roads as much as possible to minimize impacts associated with construction and maintenance of access roads.
- Locating new access roads adjacent to turbine towers to minimize the permanent footprint of access roads. In addition to providing facility access, the new access

[195] Technical specifications for the work are described on pages 8 and 9 of the Supplement to the Joint Permit Application, App Supp, Appendix B, Attachment 6.

[196] ORS 196.800(10) defines "mitigation" for the purpose of approval of a Removal/Fill permit, as follows:

> (10) "Mitigation" means the reduction of adverse effects of a proposed project by considering, in the following order:
>
> (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
>
> (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
>
> (c) Rectifying the impact by repairing, rehabilitating or restoring the affected environment;
>
> (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action by monitoring and taking appropriate corrective measures; and
>
> (e) Compensating for the impact by replacing or providing comparable substitute wetland or water resources.

roads will provide farmers with improved, all weather access to their agricultural fields.

- Implementing best management practices to minimize temporary impacts to streambeds.[197]
- Preparing and implementing an Erosion and Sediment Control Plan (Condition 70)
- Locating staging areas at least 100 feet from potential waters of the state or waters of the United States.
- Constructing the culvert crossing when the channel is dry. In the event of water flow occurring in the channel during construction, work will cease and construction equipment will be removed from the channel.
- Avoiding temporary and permanent impacts to wetlands and vernal pools.

DSL has recommended substantive requirements to be included in the Removal/Fill Permit.[198] These requirements are listed in Attachment F. For the reasons discussed above, the Council finds that the proposed removal of approximately 11.8 cubic yards of material from waters of the state would not be inconsistent with the protection, conservation and best use of the water resources of the state as specified in ORS 196.805. The Council finds that placing fill consisting of approximately 77.8 cubic yards of material in waters of the state would not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation. The Council approves a Removal/Fill Permit for the proposed LJF and requests that DSL issue the permit substantially in the form of Attachment F and subject only to the conditions set forth in the site certificate, including the substantive requirements listed in Attachment F (Condition 72). DSL has approved the form of the permit.[199]

Conclusions of Law

Based on the findings discussed above, the Council concludes that a Removal-Fill Permit is needed for the proposed LJF. The Council approves the issuance of a Removal/Fill Permit, subject to the requirements of Condition 72.

(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 LJF complies with these statutes and administrative rules.

Findings of Fact

The applicant provided information about anticipated water use for construction and operation of the proposed facility in Exhibit O of the application. During construction, tanker trucks would bring water to the construction site, where it would be used for concrete mixing, road compaction and dust suppression. The amount of water needed for concrete mixing

[197] Specific best management practices are described in the Supplement to the Joint Permit Application, p. 9, App Supp, Appendix B, Attachment 6.
[198] E-mail from Jess Jordan, DSL, June 22 and 27, 2007.
[199] E-mail from Jess Jordan, DSL, July 9, 2007.

would vary, depending on the number of turbines in the final design configuration of the facility. The applicant estimated that up to 10.6 million gallons of water could be used during construction of LJ-North and up to 24.4 million gallons of water could be used during construction of LJ-South. The total amount of water for facility construction (approximately 35 million gallons) could be obtained from the City of Arlington.[200]

During operation, water would be used at the O&M buildings primarily for incidental uses (drinking, flushing toilets, using sinks). Water would be supplied from one or more on-site wells. 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. The Council adopts Condition 76, which restricts on-site water use in accordance with this statute.

If turbine blade-washing becomes necessary, water would be supplied from the approved on-site wells. Water use would be restricted to approximately 50 gallons per blade and no more than eight turbines (24 blades) would be washed per week. Information received from the Oregon Department of Environmental Quality (DEQ), indicates that a #1700-B Wash Water Permit would not be needed for blade-washing, so long as there would be no runoff of wash water from the site or discharges to surface waters, storm sewers or dry wells and provided that no acids, bases or metal brighteners would be used with the wash water.[201] DEQ recommends cleaning only with cold water. Biodegradable, phosphate-free cleaners are allowed, but all chemicals, soaps or detergents should be used sparingly. The Council adopts Condition 77, which allows blade-washing, subject to the restrictions recommended by DEQ.

Conclusions of Law

Based on the reasons discussed above, the Council concludes that the proposed use of ground water for the construction and operation of the proposed LJF complies with the Ground Water Act of 1955 and the rules of the Water Resources Department, subject to the recommended conditions stated herein. The Council adopts Conditions 76 and 77 to be included in the site certificate.

(d) State Highway Approach

Oregon Highway 19 runs along the eastern boundary of the LJF lease area. Primary access to the site during construction and operation would be from Highway 19. The certificate holder would need a permit to establish a new approach to a State highway or change the use of an existing approach. Under OAR 734-051-0070, an application for a State highway approach is required under the following circumstances:

- For a new approach to a state highway.
- When a change of use occurs.
- For a temporary approach to a State highway.
- For a restricted use approach to a State highway.

[200] The City's ability to provide the water is documented in a letter from Tim Wetherell, City of Arlington Public Works Director, September 21, 2006 (App Attachment O-1). Water would be provided under water right G-1201 (Response to RAI O1, App Supp, Exhibit O, p. O-1). The Oregon Water Resources Department confirmed the City's right to supply the water under an existing permit (E-mail from Jerry Sauter, Oregon Water Resources Department, June 7, 2007).

[201] Letter from Walter West, DEQ, December 13, 2006, App Supp, Appendix A, Attachment 5.

ODOT issued a permit for Leaning Juniper I and determined that no further access procedure or construction is required for the LJF.[202] The certificate holder would be required to keep the access free of gravel that tracks out onto Highway 19 (Condition 37).

(e) Public Health and Safety

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

Findings of Fact

We discuss specific public health and safety standards for wind energy facilities above at page 65. In this section, we discuss the issues of fire protection, magnetic fields and coordination with the Oregon Public Utilities Commission.

A. Fire Protection

The certificate holder would develop and implement a fire management plan during construction in consultation with local fire control authorities (Condition 61). The plan 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 (Condition 63).

Turbine towers and pad-mounted transformers would be constructed with a concrete pad around each base and a minimum of 10 feet of non-flammable ground cover on all sides (Condition 60). 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 58). Service vehicles used for regular maintenance or construction at the site and the O&M buildings would be equipped with shovels and portable fire extinguishers of a 4A5OBC or equivalent rating (Condition 62).

The certificate holder would develop and implement a fire safety plan during facility operation in consultation with local fire control authorities (Condition 61). During operation, all on-site employees would receive annual fire prevention and response training by qualified instructors or members of the local fire department (Condition 65). 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 will provide to the North Gilliam County Rural Fire Protection District and the Arlington Fire Department 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 64).

[202] Letter from Sam Wilkins Jr., ODOT, February 27, 2007.

The State Fire Marshal's office raised a concern about the local fire authority lacking capability to perform high angle rescue.[203] In response, the applicant stated that, during construction, the construction contractors would have personnel on-site who are trained and equipped for tower rescue and who are first aid and CPR certified (Condition 66).[204] In the event of an accident or medical emergency, these personnel would perform tower rescue. During operation, operations personnel would be trained and equipped to perform tower rescue for tower-related emergencies (Condition 65). First aid kits would be taken up each tower during maintenance procedures. During operation, the certificate holder would meet annually with the North Gilliam County Rural Fire Protection District and the Arlington Fire Department to discuss emergency planning (Condition 61). The certificate holder would invite District and Fire Department personnel to observe any emergency drill or tower rescue training conducted at the facility. The Fire Marshal's office was satisfied with the applicant's response.[205]

B. Magnetic Fields

The proposed facility would include a network of underground and aboveground electric transmission lines (collector system) and a short 230-kV transmission interconnection from the facility substation to the BPA Jones Canyon Switching Station. Electric transmission lines create both electric and magnetic fields. Electric fields produced by the proposed LJF transmission lines are addressed above at page 72, and for the reasons discussed there, the electric fields would not exceed the Council's 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 caused by the electrical load. Magnetic field strength is measured in units of milligauss (mG).

The Council has previously considered the issue of whether exposure to magnetic fields might cause health risks.[206] The issue has been the subject of considerable scientific research and discussion. Based on its review in other cases, the Council has concluded that the credible evidence of a health risk from low levels of exposure to magnetic fields is inconclusive. 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 implement low-cost ways to reduce or manage public exposure to magnetic fields from transmission lines under

[203] E-mail from Stacy Warner, OSFM, June 18, 2007.
[204] Sara McMahon, technical memorandum, dated June 26, 2007.
[205] E-mail form Stacy Warner, OSFM, July 3, 2007
[206] Final Order on the Application (Klondike III Wind Project), June 2006; Final Order for the Klamath Generation Facility, September 2005; Final Order for the COB Energy Facility, January 2005; Final Order for the Summit/Westward Project, October 2002; Final Order for the Port Westward Generating Project, November 2002; Final Order for the Hermiston Power Project, March 1996; Report of the EMF Committee to the Energy Facility Siting Council, dated March 30, 1993; Final Report on Human Health Effects from Exposure to 60-Hz Electric and Magnetic Fields from High Voltage Power Lines to the Council, dated April 1990.

the Council's jurisdiction. This approach is sometimes referred to as "prudent avoidance." The Council adopts Condition 81, which would reduce public exposure to magnetic fields.

Aboveground 230-kV Transmission Line

The 230-kV interconnection line would be entirely within a fenced area and inaccessible to the public. The adjacent facility substation and Leaning Juniper I substation would completely obscure any electromagnetic fields generated by the 230-kV line. There would be no residential structures within 200 feet.

Aboveground 34.5-kV Transmission Line

The applicant calculated magnetic field strength using "Corona and Field Effect Program (Version 3)," a software tool developed by BPA. Based on the analysis, the highest magnetic field (maximum current during peak load) below a single-circuit line would be 98.7 mG and below a double-circuit line would be 59.8 mG. The analysis showed that magnetic field strength decreases sharply with distance from the centerline to less than 1.5 mG at 200 feet from center for a single-circuit line.[207]

Underground 34.5-kV Transmission Line

The applicant acknowledged that a magnetic field is measurable on the surface of the ground above underground transmission lines. Although the applicant did not provide a calculation of the magnetic field strength, the Council has previously found that the maximum field strength above similar underground collector lines would be approximately 41 mG.[208]

C. Coordination with the PUC

The Oregon Public Utility Commission Safety and Reliability Section (PUC) has previously requested that the Council ensure that certificate holders coordinate with PUC staff on the design and specifications of electrical transmission lines. The PUC has explained that others in the past have made inadvertent, but costly, mistakes in the design and specifications of transmission lines 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 electrical transmission lines with the PUC (Condition 79).

Conclusions of Law

Based on these findings and the site certificate conditions described herein, the Council concludes that the siting, construction and operation of the proposed LJF facilities, subject to the site certificate conditions described herein, are consistent with protection of public health and safety. The Council adopts Conditions 58, 60, 61, 62, 63, 64, 65, 66, 79 and 81 to be included in the site certificate.

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

[207] Table AA-1, App p.AA-7.
[208] Final Order on the Application (Klondike III Wind Project), June 2006.

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 47).

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 57).

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 (Condition 61).

4) Hazardous Materials: The certificate holder must monitor the use of hazardous materials to ensure protection of public health, safety and the environment (Condition 68).

5) Soil Impacts: The certificate holder must implement an Erosion and Sediment Control Plan during construction to minimize adverse impacts to soils (Condition 70) and must monitor the facility site during operation to maintain or repair erosion control measures (Condition 75).

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 74).

7) Weed Control: The certificate holder must monitor the facility site during operation to control the spread of noxious weeds (Condition 82).

8) Wildlife nest avoidance: The certificate holder must monitor raptor nest locations during construction to comply with restrictions of construction activity within 1,300 feet of active nests (Condition 86)

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 87).

10) Washington ground squirrel: The certificate holder must implement long-term post-construction monitoring of WGS activity in accordance with the Incidental Take Permit and the Wildlife Monitoring and Mitigation Plan (Conditions 87 and 88).

11) Habitat Mitigation: The certificate holder must monitor the habitat mitigation site to ensure that success criteria are met and maintained for the life of the facility (Condition 89).

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.

The applicant has applied to the Oregon Department of Environmental Quality (DEQ) for the NPDES 1200-C General Construction Storm Water permit.[209]

(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 these conditions, "Office of Energy" and "Office" mean the Oregon Department of Energy, and the other definitions in OAR 345-001-0010 apply.

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 the certificate holder's agents or

[209] Letter from Heidi Williams, DEQ, May 29, 2007.

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 25 and 26.*)

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 a 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 a 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 section (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 this chapter 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 section (a) and monitoring programs required by permitting agencies and local governments.

(c) For each monitoring program described in sections (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 a 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 this rule.

(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 this rule. The Council Secretary and the certificate holder may, by mutual agreement, change the reporting date.

(iii) To the extent that information required by this rule 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 request an amendment of the site certificate if the LJ-North components are built or operated as part of the Pebble Springs Wind Project under the authority of a Gilliam County Conditional Use Permit.

25 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.

26 The certificate holder shall complete construction of the facility within four 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.

27 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:

(a) The total number of turbines at the facility must not exceed 133 turbines.

(b) The peak generating capacity of each turbine must not exceed 3.0 megawatts.

(c) The combined peak generating capacity of the facility must not exceed 279 megawatts.

(d) The turbine hub height must not exceed 100 meters, and the turbine blade tip height must not exceed 150 meters.

(e) The minimum blade tip clearance must be 30 meters above ground.

(f) The certificate holder shall request an amendment of the site certificate to increase the combined peak generating capacity of the facility or to increase the number of wind turbines or the dimensions of wind turbines at the facility.

28 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.

29 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 OAR 345-001-0010 or ORS 469.300 and shall provide to the Department a description of the work and evidence that its value is less than $250,000.

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 $8.847 million (in 2006 dollars), 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 by applying the unit costs and general costs illustrated in Table 2 and Table 3 of the Final Order on the Application to the final design 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 gross cost component of the bond or letter of credit amount (expressed in 2006 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 2006 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 2006 dollars to present value.

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

(iii) Add the adjusted gross cost (i) to the sum of the percentages (ii) 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 major construction contractor(s) for specific portions of the work. The certificate holder shall select contractors that have substantial experience in the design and construction of similar facilities. The certificate holder shall report to the Department any change of major construction 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 an on-site assistant construction manager who is qualified in environmental compliance to ensure compliance with all construction-related site certificate conditions. During operation, the certificate holder shall have a project manager who is qualified in environmental compliance to ensure compliance with all ongoing site certificate conditions. The certificate holder shall notify the Department of the name, telephone number, fax number and e-mail address of these managers and shall keep the Department informed of any change in this information.

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 cooperate with the Gilliam County Road 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 County Road Department.

37 During construction, the certificate holder shall implement measures to reduce traffic impacts, including:

(a) Providing notice to adjacent landowners when heavy construction traffic is anticipated.

(b) Providing appropriate traffic safety signage and warnings.

(c) Requiring flaggers to be at appropriate locations at appropriate times during construction to direct traffic reduce accident risks.

(d) Using traffic diversion equipment (such as advanced signage and pilot cars) when slow or oversize construction loads are anticipated.

(e) Maintaining at least one travel lane at all times so that roads will not be closed to traffic because of construction vehicles.

(f) Encouraging carpooling for the construction workforce.

(g) Including traffic control procedures in contract specifications for construction of the facility.

(h) Keeping the access from Highway 19 free of gravel that tracks out onto the highway.

38 The certificate holder shall ensure that no equipment or machinery is parked or stored on any county road except while in use.

39 The certificate holder shall construct all facility components in compliance with the following setback requirements:

(a) 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) The distance from any turbine to the nearest residence or public road (except Rattlesnake Road and Stone Lane) must be no less than the maximum blade tip height of the turbine plus 50 feet.

(c) Except where (a) or (b) apply, turbines and meteorological towers must be at least 250 feet from any public road right-of-way, railroad right-of-way, exterior lot line or electrical substation.

(d) Except where (a) applies, any facility building or substation must be at least 50 feet any public road right-of-way, railroad right-of-way or exterior lot line.

40 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.

41 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.

42 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).

43 The certificate holder shall install lockable gates at the substation and on private access roads.

44 Within 90 days after beginning operation, the certificate holder shall provide to the Department and to the Gilliam County Planning Director 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 Gilliam County Planning Director, a summary of as-built changes in the facility compared to the original plan, if any.

3. Cultural Resource Conditions

45 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 disturbed during construction and also showing the areas that were surveyed in 2004, 2005 and 2006 as described in the site certificate application. If areas to be disturbed during construction lie outside of the surveyed areas, the certificate holder shall hire qualified personnel to conduct field investigation of those areas. The certificate holder shall provide a written report of the field investigation to the Department and to the State Historic Preservation Office (SHPO). If any historic, cultural or archaeological resources are found during the field investigation, the certificate holder shall ensure that construction and operation of the facility will have no impact on the resources. The certificate holder shall instruct all construction personnel to avoid the areas where resources identified in the 2004-2006 surveys or found during pre-construction investigations and shall implement other appropriate measures to protect the resources.

46 The certificate holder shall ensure that a qualified person instructs construction personnel in the identification of cultural materials and avoidance of accidental damage to identified resource sites.

47 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 archaeologist 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 archaeologist determines that the resource is significant, the certificate holder shall make recommendations to the Council for mitigation, including avoidance or data recovery, in consultation with the Department, SHPO and other appropriate parties. The certificate holder shall not restart work in the affected area until the certificate holder has demonstrated to the Department that it has complied with the archaeological permit requirements administered by SHPO.

48 During construction of the facility, the certificate holder shall label all identified historic, cultural or archaeological resource sites on construction maps and drawings as "no entry" areas, and if construction activities will occur within 200 feet of an identified site, the certificate holder shall flag a 50-foot buffer around the site.

4. Geotechnical Conditions

49 Before beginning construction, the certificate holder shall conduct site-specific geotechnical investigation and shall report its findings to the Oregon Department of Geology & Mineral Industries (DOGAMI). 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."

50 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 all components of the facility to meet or exceed the minimum standards required by the 2003 International Building Code.

51 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

52 The certificate holder shall notify the Department 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.

53 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 the turbines and related or supporting facilities. The certificate holder shall notify the Department of the FAA's response as soon as it has been received.

54 To protect the public from electrical hazards, the certificate holder shall enclose the facility substations with appropriate fencing and locked gates.

55 The certificate holder shall construct turbine towers that are smooth steel structures with no exterior ladders or access to the turbine blades and shall install locked access doors accessible only to authorized personnel.

56 The certificate holder shall follow manufacturers' recommended handling instructions and procedures to prevent damage to towers or blades that could lead to failure.

57 The certificate holder shall have an operational safety monitoring program and shall inspect turbine blades on a regular basis for signs of wear. The certificate holder shall repair turbine blades as necessary to protect public safety.

58 The certificate holder shall install and maintain self-monitoring devices on each turbine, linked to sensors at the operations and maintenance building, to alert operators to potentially dangerous conditions, and the certificate holder shall immediately remedy any 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.

59 The certificate holder shall install generator step-up transformers at the base of each tower in locked cabinets designed to protect the public from electrical hazards and shall design the cabinets to avoid creation of artificial habitat for raptor prey.

60 The certificate holder shall construct turbines on concrete pads with a minimum of 10 feet of non-flammable and non-erosive ground cover on all sides. The certificate holder shall cover turbine pad areas with non-erosive material immediately following exposure during construction and shall maintain the pad area covering during operation of the facility.

61 During construction and operation of the facility, the certificate holder shall develop and implement fire safety plans in consultation with the North Gilliam County Rural Fire

Protection District and the Arlington Fire Department 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 should take into account the dry nature of the region and should address risks on a seasonal basis. The certificate holder shall meet annually with District and Fire Department personnel to discuss emergency planning and shall invite District and Fire Department personnel to observe any emergency drill or tower rescue training conducted at the facility.

62 During construction and operation of the facility, the certificate holder shall ensure that the O&M buildings and all service vehicles are equipped with shovels and portable fire extinguishers of a 4A5OBC or equivalent rating.

63 During construction, the certificate holder shall 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.

64 Upon the beginning of operation of the facility, the certificate holder shall provide to North Gilliam County Rural Fire Protection District and the Arlington Fire Department a site plan indicating the identification number assigned to each turbine and the location of all facility structures. During operation, the certificate will ensure 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.

65 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 department and that all employees are instructed to keep vehicles on roads and off dry grassland, except when off-road operation is required for emergency purposes.

66 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.

67 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.

68 The certificate holder shall handle any 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.

69 If a spill or release of hazardous materials 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 storage facilities to respond to accidental spills and shall instruct employees handling hazardous materials in the proper handling, storage and cleanup of these materials.

6. Water, Soils, Streams & Wetlands Conditions

70 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 and storm water management requirements.

71 During construction, the certificate holder shall limit truck traffic to designated existing and improved road surfaces to avoid soil compaction, to the extent possible.

72 During construction, the certificate holder shall avoid impacts to waters of the state in the following manner:

(a) The certificate holder shall avoid any disturbance, including the placement of poles for the collector line, within 25 feet of the stream channel in the area identified as "S5" on Figure J-1 of the Site Certificate Application.

(b) The certificate holder shall avoid any disturbance to the six wetland areas identified as "W1" through "W6" on Figure J-1 of the Site Certificate Application.

(c) The certificate holder shall avoid any disturbance to the stream channels identified as "S24" and "S25" on Figure J-1 of the Site Certificate Application.

(d) Before beginning construction affecting the location identified as "S27"on Figure J-1 of the Site Certificate Application, the certificate holder shall apply for and obtain a Removal/Fill Permit from the Department of State Lands, which, in accordance with ORS 469.401, shall issue the permit substantially in the form of Attachment F of the Final Order on the Application and subject only to the conditions of this site certificate including substantive requirements listed in that attachment.

(e) Before beginning construction, the certificate holder shall determine whether any construction disturbance would occur in locations not previously investigated for potential jurisdictional waters as described in the Final Order on the Application. The certificate holder shall conduct a pre-construction investigation to determine whether any jurisdictional waters exist in those locations. The certificate holder shall submit a written report on this pre-construction investigation to the Department of Energy and to the Department of State Lands for approval before beginning construction and shall ensure that construction of the facility would have no impact on any jurisdictional water identified in the report.

73 During construction, the certificate holder shall ensure that the wash down of concrete trucks occurs only at a contractor-owned batch plant or at tower foundation locations. If such wash down occurs at tower foundation locations, then the certificate holder shall ensure that wash down wastewater does not run off the construction site into otherwise undisturbed areas and that the wastewater is disposed of on backfill piles and buried underground with the backfill over the tower foundation.

74 The certificate holder shall restore areas outside the permanent footprint that are disturbed during construction 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.

75 During facility operation, the certificate holder shall routinely inspect and maintain all roads, pads and trenched areas and, as necessary, maintain or repair erosion control measures. The certificate holder shall restore areas that are temporarily disturbed during facility maintenance or repair activities to pre-disturbance condition or better.

76 During facility operation, the certificate holder shall obtain water for on-site uses from one or more on-site wells, subject to compliance with any applicable permit requirements, not exceeding 5,000 gallons per day. The certificate holder shall not change the source of water for on-site uses without prior Department approval.

77 During facility operation, if blade-washing becomes necessary, the certificate holder shall ensure that there is no runoff of wash water from the site or discharges to surface waters, storm sewers or dry wells. The certificate holder shall not use more than 50 gallons of water per blade and shall not wash more than eight turbines (24 blades) per week. The certificate holder shall not use acids, bases or metal brighteners with the wash water. The certificate may use biodegradable, phosphate-free cleaners sparingly.

7. Transmission Line & EMF Conditions

78 The certificate holder shall install the 34.5-kV collector system underground to the extent practical. Where geotechnical conditions or other engineering considerations require, the certificate holder may install segments of the collector system but the total length of aboveground segments must not exceed 9.9 miles. The certificate holder shall construct aboveground segments of the collector system using single or double circuit monopole design as described in the site certificate application.

79 At least 30 days before beginning preparation of detailed design and specifications for the electrical transmission lines, the certificate holder shall consult with the Oregon Public Utility Commission staff to ensure that transmission line designs and specifications are consistent with applicable codes and standards.

80 To protect public safety, the certificate holder shall design and maintain the transmission lines so that:

(a) Alternating current electric fields during operation do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public.

(b) Induced voltages during operation are as low as reasonably achievable.

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.

(b) Ensuring that the area near the facility substation is inaccessible to the public by fencing the area.

(c) Constructing aboveground 34.5-kV transmission lines with a minimum clearance of 25 feet from the ground.

(d) Providing to landowners a map of underground and overhead transmission lines on their property and advising landowners of possible health risks.

8. Plants, Wildlife & Habitat Protection Conditions

82 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 in consultation with the Gilliam County Weed Control Board.

83 The certificate holder shall design all aboveground transmission line support structures following the practices suggested by the Avian Powerline Interaction Committee (1996) and shall install anti-perching devices on transmission pole tops and cross arms where the poles are located within ½ mile of turbines.

84 The certificate holder may construct turbines and other facility components within the micrositing areas identified in Attachment D of the Final Order on the Application, subject to the following requirements addressing potential habitat impact:

(a) The certificate holder shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat.

(b) The certificate holder shall design and construct facility components that are the minimum size needed for safe operation of the energy facility.

(c) In the final design of the facility within micrositing areas, the certificate holder shall reduce impact on essential or important habitat (Category 4 and above) to the extent practical.

(d) As a protective measure during construction, the certificate holder shall install exclusion fencing around confirmed populations of sessile mousetail (identified in Figure Q-3 of the site certificate application). The certificate holder shall not install facility components or cause temporary disturbance within these areas. Before beginning construction, the certificate holder shall verify the protected status of sessile mousetail and notify the Department. If the species has been upgraded to threatened or endangered under State or federal law, the certificate holder shall take appropriate mitigation actions, subject to Department approval.

(e) If construction would affect locations within the micrositing areas that were not surveyed in 2005 and 2006 for the occurrence of State or federal threatened or endangered species, the certificate holder shall conduct additional pre-construction surveys of those locations, notify the Department of the findings and implement appropriate avoidance or mitigation measures for any threatened or endangered species detected, subject to Department approval.

85 The certificate holder shall implement measures to mitigate impacts to sensitive wildlife habitat during construction and operation including, but not limited to, the following:

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

(b) Before construction begins, the certificate holder shall have a qualified biologist place exclusion markers around sensitive wildlife habitat areas, including Category 1 Washington ground squirrel (WGS) areas and an appropriate buffer around these areas. The certificate holder shall maintain the exclusion markings until construction has been completed.

(c) Ensuring that a qualified person instructs construction and operations personnel to be aware of wildlife in the area and to take precautions to avoid injuring or destroying wildlife or sensitive wildlife habitat.

(d) Avoiding unnecessary road construction, temporary disturbance and vehicle use.

(e) Posting and maintaining speed limit signs (not to exceed 20 miles per hour) on access roads throughout the site. The certificate holder shall ensure that all construction and operations personnel are instructed to observe caution when driving in the facility area to avoid injury or disturbance to wildlife enforce and for personal safety.

86 During construction, the certificate holder shall protect the area within a 1300-foot buffer 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

During the year in which construction occurs, the certificate holder shall use a protocol approved by the Oregon Department of Fish and Wildlife (ODFW) to determine whether there are any active nests of these species within a half-mile of any areas that would be disturbed during construction. If a nest is occupied by any of these species after the beginning of the sensitive period, the certificate holder shall not engage in high-impact construction activities (activities that involve blasting, grading or other major ground disturbance) or allow high levels of construction traffic within 1300 feet of the nest site. In addition, the certificate holder will flag the boundaries of the 1300-foot buffer area and shall instruct construction personnel to avoid any unnecessary activity within the buffer area. The certificate holder shall hire an independent biological monitor to observe the active nest sites during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with this condition. If the monitor observes nest site abandonment or other adverse impact to nesting activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of the Department, unless the adverse impact is clearly shown to have a cause other than construction activity. The certificate holder may begin or resume high-impact construction activities before the ending day of the sensitive period if any known nest site is not occupied by the early release date. If a nest site is occupied, then the certificate holder may begin or resume high-impact construction before the ending day of the sensitive period with the approval of ODFW, after the young are fledged. The certificate holder shall use a protocol approved by ODFW to determine when the young are fledged (the young are independent of the core nest site).

87 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.

88 Before beginning construction, the certificate holder shall obtain an Incidental Take Permit (ITP) letter from the Oregon Department of Fish and Wildlife (ODFW) that incorporates the terms and commitments of the ITP application as set forth in Attachment E of the Final Order on the Application.

89 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.

9. Visual Effects Conditions

90 To reduce the visual impact of the facility, the certificate holder shall:

(a) Mount nacelles on smooth steel towers, painted uniformly in a neutral white color.

(b) Paint substation structures in a neutral color to blend with the surrounding landscape.

(c) Not allow any advertising on any part of the facility.

(d) Use only those signs required for facility safety or required by law, except that the certificate holder may erect a sign to identify the facility.

(e) Maintain any signs allowed under this condition in good repair.

91 The certificate holder shall design and construct the operation and maintenance buildings to be generally consistent with the character of similar buildings used by commercial farmers or ranchers in the area and shall paint the building in a neutral color to blend with the surrounding landscape.

92 The certificate holder shall not use exterior lighting at the facility except:

(a) The minimum turbine tower lighting required or recommended by the Federal Aviation Administration.

(b) Security lighting at the operations and maintenance buildings and at the 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

93 To reduce noise impacts at nearby residential areas, 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.

94 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 of the turbines and substation transformers 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 noise 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.

95 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.

11. Waste Management Conditions

96 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.

97 During operation, the certificate holder shall discharge sanitary wastewater generated at the O&M building to a licensed on-site septic system in compliance with county permit requirements. The certificate holder shall design the septic system design with a capacity that is less than 2,500 gallons per day.

98 The certificate holder shall implement a waste management plan during construction that includes but is not limited to the following measures:

(a) Training construction personnel to minimize and recycle solid waste.

(b) Minimizing the generation of wastes from construction through detailed estimating of materials needs and through efficient construction practices.

(c) Recycling steel and other metal scrap.

(d) Recycling wood waste.

(e) Recycling packaging wastes such as paper and cardboard.

(f) Collecting non-recyclable waste for transport to a landfill by a licensed waste hauler.

(g) 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.

99 The certificate holder may dispose of waste concrete on site with the permission of the landowner and in accordance with OAR 340-093-0080 and other applicable regulations. The certificate holder shall dispose of waste concrete on site by placing the material in an excavated hole, covering it with at least three feet of topsoil and grading the area to match existing contours. If the waste concrete is not disposed of on site, the certificate holder shall arrange for proper disposal in a landfill.

100 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.

(c) Recycling used oil and hydraulic fluid.

(d) Collecting non-recyclable waste for transport to a landfill by a licensed waste hauler.

(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 not more than 133 wind turbines having a combined peak electric generating capacity of not more than 279 megawatts. The Council adopts the site certificate conditions listed in Sections VI and VII of this final order to be included in a site certificate for the facility. The Council finds that a preponderance of evidence on the record supports the following conclusions:

1. The proposed facility complies with the requirements of the Oregon Energy Facility Siting statutes, ORS 469.300 to 469.520.

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

3. The proposed facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission, subject to an exception to Goal 3 that is justified under ORS 469.504(2)(c).

4. The proposed facility 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, 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 LJF, subject to the conditions stated in this final order.

IX. ORDER

The Council hereby orders that a site certificate be issued to Leaning Juniper Wind Power II LLC for the proposed Leaning Juniper II Wind Power Facility, subject to the terms and conditions set forth above.

Issued this 21st day of September, 2007.

THE OREGON ENERGY FACILITY SITING COUNCIL

By: _____
David Ripma, Chair
Oregon Energy Facility Siting Council

Attachments

Attachment A: Wildlife Monitoring and Mitigation Plan

Attachment B: Revegetation Plan

Attachment C: Habitat Enhancement Plan

Attachment D: Micrositing Areas

Attachment E: Incidental Take Permit Application

Attachment F: Draft Removal/Fill Permit

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.

Leaning Juniper II Wind Project: Wildlife Monitoring and Mitigation Plan

[SEPTEMBER 21, 2007]

This plan describes wildlife monitoring that the certificate holder shall conduct during operation of the Leaning Juniper II Wind Power Facility (LJF).[1] The monitoring objectives are to determine whether the facility causes significant fatalities of birds and bats and to determine whether the facility results in a loss of habitat quality.

The LJF facility consists of up to 133 wind turbines, four non-guyed meteorological (met) towers and other related or supporting facilities as described in the site certificate. The permanent facility components occupy approximately 64 acres, of which approximately 45 acres is Category 5 wildlife habitat or better, based on the Oregon Department of Fish and Wildlife (ODFW) standards (OAR 635-415-0025).

The certificate holder shall use experienced personnel to implement the monitoring required under this plan and properly trained personnel to conduct the monitoring, subject to approval by the Oregon Department of Energy (Department) as to professional qualifications. For all components of this plan except PPM Energy's Leaning Juniper II Wildlife Reporting and Handling System, the certificate holder shall hire an independent third party (not employees of the certificate holder) to perform monitoring tasks.

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

1) Fatality monitoring program including:
    a) Removal trials
    b) Searcher efficiency trials
    c) Fatality search protocol
    d) Statistical analysis
2) Raptor nesting surveys
3) Washington ground squirrel surveys
4) Grassland bird study
5) PPM Energy's Leaning Juniper II Wildlife Reporting and Handling System

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

[1] This plan is incorporated by reference in the site certificate for the LJF and must be understood in that context. It is not a "stand-alone" document. This plan does not contain all mitigation required of the certificate holder.

1. Fatality Monitoring

(a) Definitions and Methods

Seasons

This plan uses the following dates for defining seasons:

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

Search Plots

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

Scheduling

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

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

Sample Size

The sample size for fatality monitoring is the number of turbines searched per monitoring year. During each monitoring year, the certificate holder shall search a minimum of 50 turbines. If fewer than 50 turbines are built, the certificate holder shall search all turbines.

As described in the site certificate, the certificate holder may choose to build the LJF using turbine types in two size classes:

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

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

(b) Removal Trials

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

The certificate holder shall conduct carcass removal trials within each of the seasons defined above during the years in which fatality monitoring occurs. During the first year in which fatality monitoring occurs, the certificate holder shall conduct one removal trial per season (four removal trials per year). For each trial, at least 10 small bird carcasses and at least 10 large bird carcasses will be distributed throughout the project area (approximately 80 trial carcasses per year).

Before beginning removal trials for the second year of fatality monitoring, the certificate holder shall report the results of the first year removal trials to the Department and ODFW. In the report, the certificate holder shall analyze whether four removal trials per year, as described above, provides sufficient data to accurately estimate adjustment factors for carcass removal. The number of removal trials for the second year of fatality monitoring may be adjusted up or down, subject to the approval of the Department.

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

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

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

It is expected that carcasses will be checked as follows, although actual intervals may vary. Carcasses will be checked for a period of 40 days to determine removal rates. They will be checked approximately every day for the first 4 days, and then on day 7, day 10, day 14, day 20, day 30 and day 40. This schedule may vary depending on weather and coordination with the other survey work. At the end of the 40-day period, the trial carcasses and scattered feathers will be removed.

(c) Searcher Efficiency Trials

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

The certificate holder shall conduct searcher efficiency trials within each of the seasons defined above during the years in which the fatality monitoring occurs. During each season of the years in which fatality monitoring occurs, the certificate holder shall use approximately 25 carcasses for searcher efficiency trials (approximately 100 carcasses per year). The certificate holder shall vary the number of trials per season and the number of carcasses per trial so that the searchers will not know the total number of trial carcasses being used in any trial. The certificate holder shall distribute trial carcasses in varied habitat in rough proportion to the habitat types within the facility site. During each season, both small bird and large bird carcasses will be used in approximately equal numbers. “Small bird” and “large bird” size classes and carcass selection are as described above for the removal trials.

Before beginning searcher efficiency trials for the second year of fatality monitoring, the certificate holder shall report the results of the first year efficiency trials to the Department and ODFW. In the report, the certificate holder shall analyze whether the efficiency trials as described above (using approximately 100 carcasses per year) provides sufficient data to accurately estimate adjustment factors for carcass removal. The number of removal trials for the second year of fatality monitoring may be adjusted up or down, subject to the approval of the Department.

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

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

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

Each non-domestic carcass will be discreetly marked so that it can be identified as an efficiency trial carcass after it is found. The number and location of the efficiency trial carcasses found during the carcass search will be recorded. The number of efficiency trial carcasses available for detection during each trial will be determined immediately after the trial by the person responsible for distributing the carcasses.

If new searchers are brought into the search team, additional searcher efficiency trials will be conducted to ensure that detection rates incorporate searcher differences. The certificate holder shall include a discussion of any changes in search personnel and any additional detection trials in the reporting required under Section 6 of this plan.

(d) Fatality Monitoring Search Protocol

The objective fatality monitoring is to estimate the number of bird and bat fatalities that are attributable to facility operation as an indicator of the impact of the facility on habitat quality. The goal of bird and bat fatality monitoring is to estimate fatality rates and associated variances. The certificate holder shall conduct fatality monitoring using standardized carcass searches. The certificate holder shall conduct fatality monitoring for two years (32 searches), beginning one month after the start of commercial operation of the facility.

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

The certificate holder shall calculate fatality rates using the statistical methods described in Section (e). On an annual basis, the certificate holder shall report an estimate of fatalities in eight categories: 1) all birds, 2) small birds, 3) large birds, 4) raptors, 5) grassland birds, 6) nocturnal migrants, 7) State Sensitive Species listed under OAR 635-100-0040 and 8) bats.

If the sample size is large enough to conduct a comparison study of large and small turbines and the Department approves, the certificate holder shall compare the fatality rates in the "all birds" category for each of the turbine size classes. In proposing a comparison study of large and small turbines, the certificate holder may include available data collected at other wind energy facilities in similar habitat areas, if the data are based on comparable survey protocols and are appropriately adjusted for removal and searcher efficiency bias.

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

Personnel trained in proper search techniques ("the searchers") will conduct the carcass searches by walking parallel transects within the search plots.[2] Transects will be initially set at 6 meters apart in the area to be searched. A searcher will walk at a rate of approximately 45 to 60

[2] Where search plots are adjacent, the search area may be rectangular.

meters per minute along each transect searching both sides out to three meters for casualties. Search area and speed may be adjusted by habitat type after evaluation of the first searcher efficiency trial. The searchers will record the condition of each carcass found, using the following condition categories:

- Intact – a carcass that is completely intact, is not badly decomposed and shows no sign of being fed upon by a predator or scavenger
- Scavenged – an entire carcass that shows signs of being fed upon by a predator or scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs, pieces of skin, etc.)
- Feather Spot – 10 or more feathers at one location indicating predation or scavenging or 2 or more primary feathers

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

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

The certificate holder shall develop and follow a protocol for handling injured birds. Any injured native birds found on the facility site will be carefully captured by a trained project biologist or technician and transported to a qualified rehabilitation specialist approved by the Department.[3] The certificate holder shall pay costs, if any, charged for time and expenses related

[3] Approved specialists include Lynn Tompkins (wildlife rehabilitator) of Blue Mountain Wildlife, a wildlife rehabilitation center in Pendleton, and the Audubon Bird Care Center in Portland. The certificate holder must obtain Department approval before using other specialists.

to care and rehabilitation of injured native birds found on the site, unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

(e) Statistical Methods for Fatality Estimates

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

(1) The observed number of carcasses found during standardized searches during the two monitoring years for which the cause of death is attributed to the facility.[4]
(2) Searcher efficiency expressed as the proportion of planted carcasses found by searchers.
(3) Removal rates expressed as the estimated average probability a carcass is expected to remain in the study area and be available for detection by the searchers during the entire survey period.

Definition of Variables

The following variables are used in the equations below:

c_i	the number of carcasses detected at plot *i* for the study period of interest (e.g., one year) for which the cause of death is either unknown or is attributed to the facility
n	the number of search plots
k	the number of turbines searched (includes the turbines centered within each search plot and a proportion of the number of turbines adjacent to search plots to account for the effect of adjacent turbines on the search plot buffer area)
$\bar{c}$	the average number of carcasses observed per turbine per year
s	the number of carcasses used in removal trials
s_c	the number of carcasses in removal trials that remain in the study area after 40 days
se	standard error (square of the sample variance of the mean)
t_i	the time (days) a carcass remains in the study area before it is removed
$\bar{t}$	the average time (days) a carcass remains in the study area before it is removed
d	the total number of carcasses placed in searcher efficiency trials
p	the estimated proportion of detectable carcasses found by searchers
I	the average interval between searches in days
$\hat{\pi}$	the estimated probability that a carcass is both available to be found during a search and is found
m_t	the estimated annual average number of fatalities per turbine per year, adjusted for removal and observer detection bias
C	nameplate energy output of turbine in megawatts (MW)

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

Observed Number of Carcasses

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

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

Estimation of Carcass Removal

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

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

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

Estimation of Observer Detection Rates

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

Estimation of Facility-Related Fatality Rates

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

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

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

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

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

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

The certificate holder shall calculate fatality estimates for: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) grassland birds, (6) nocturnal migrants 7) State Sensitive Species listed under OAR 635-100-0040 and 8) bats. If the sample size is large enough to conduct a comparison study of large and small turbines and the Department approves, the certificate holder shall compare the fatality rates in the "all birds" category for each of the turbine size classes. The final reported estimates of *m*, associated standard errors and 90% confidence intervals will be calculated using bootstrapping (Manly 1997). Bootstrapping is a computer simulation technique that is useful for calculating point estimates, variances and confidence intervals for complicated test statistics. For each iteration of the bootstrap, the plots will be sampled with replacement, trial carcasses will be sampled with replacement and $\bar{c}$, $\bar{t}$, p, $\hat{\pi}$ and m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap estimates is the estimated standard error. The lower 5^{th} and upper 95^{th} percentiles of the 5000 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

Nocturnal Migrant and Bat Fatalities

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

(f) Mitigation

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

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

If the data show that a threshold of concern for a species group has been exceeded, the certificate holder shall implement additional mitigation if the Department determines that mitigation is appropriate based on analysis of the data, consultation with ODFW and consideration of any other significant information available at the time. In addition, the Department may determine that mitigation is appropriate if fatality rates for individual avian or bat species (especially State Sensitive Species) are higher than expected and at a level of

biological concern. If the Department determines that mitigation is appropriate, the certificate holder, in consultation with the Department and ODFW, shall propose mitigation measures designed to benefit the affected species. The certificate holder shall implement mitigation as approved by the Council. The Department may recommend additional, targeted data collection if the need for mitigation is unclear based on the information available at the time. The certificate holder shall implement such data collection as approved by the Council.

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

2. Raptor Nest Surveys

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

(a) Survey Protocol

For Raptor Species that Nest Aboveground

The certificate holder shall use aerial and ground surveys to evaluate nest success by gathering data on active nests, on nests with young and on young fledged. The certificate holder will share the data with state and federal biologists. The certificate holder shall conduct the first year of post-construction raptor nest surveys in the first raptor nesting season after construction is completed. The second year of surveys will be done in the fourth year after construction is completed. Thereafter, the certificate holder shall conduct raptor nest surveys as described in Section 2(d) below.

During each survey year, the certificate holder will conduct a minimum of one helicopter survey in late May or early June and additional surveys as described in this section. All nests discovered during pre-construction surveys and any nests discovered during post-construction surveys, whether active or inactive, will be given identification numbers. Nest locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be recorded for each nest. Locations of inactive nests will be recorded because they could become occupied during future years.

The certificate holder shall conduct the aerial surveys within the LJF site and a 2-mile buffer around the site to determine nest occupancy. Determining nest *occupancy* will likely

require two helicopter visits to each nest. For occupied nests, the certificate holder shall determine nesting *success* by a minimum of one ground visit to determine species, number of young and young fledged. "Nesting success" means that the young have successfully fledged (the young are independent of the core nest site). Nests that cannot be monitored due to the landowner denying access will be checked from a distance where feasible.

For Burrowing Owls

If burrowing owl nest sites are discovered, the certificate holder will monitor them according to the following protocol. This species is not easily detected during aerial raptor nest surveys. The certificate holder shall record active burrowing owl nest sites in the vicinity of the facility as they are discovered during other wildlife monitoring tasks. Any nests discovered during post-construction surveys, whether active or showing signs of intermittent use by the species, will be given identification numbers. Nest locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be recorded for each nest site. Coordinates for ancillary burrows used by one nesting pair or a group of nesting pairs will also be recorded. Locations of inactive nests will be recorded because they could become occupied during future years.

For occupied nests, the certificate holder shall determine nesting *success* by a minimum of one ground visit to determine species, number of young and young fledged. "Nesting success" means that the young have successfully fledged (the young may or may not be independent of the core nest site). Three visits to the nest sites may be necessary to determine outcome. Nests that cannot be monitored due to the landowner denying access will be checked from a distance where feasible.

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

(b) Analysis

The certificate holder shall analyze the raptor nesting data collected after two survey years to determine whether a reduction in either nesting success or nest use has occurred in the vicinity of the LJF facility. If the analysis indicates a reduction in nesting success or nest use by Swainson's hawks, golden eagles, ferruginous hawks or burrowing owls within the facility site or within 2 miles of the facility site, then the certificate holder shall propose appropriate mitigation for the affected species as described in Section 2(c) and shall implement mitigation as approved by the Council. At a minimum, if the analysis shows that any raptors of these species have abandoned a nest territory within the facility site or within ½ mile of the facility site or has not fledged any young over the two survey years within that same area, the certificate holder shall assume the abandonment or unsuccessful fledging is due to operation of the facility unless another cause can be demonstrated convincingly.

Any reduction in nesting success or nest use could be due to operation of the LJF facility, operation of another wind facility in the vicinity or some other cause. The certificate holder shall attribute the reduction to operation of the LJF if the wind turbine closest to the affected nest site

is an LJF turbine, unless the certificate holder demonstrates, and the Department agrees, that the reduction was due to a different cause.

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

(c) Mitigation

The certificate holder shall propose mitigation for the affected species in consultation with the Department and ODFW and shall implement mitigation as approved by the Council. In proposing appropriate mitigation, the certificate holder shall advise the Department if any other wind project in the area is obligated to provide mitigation for a reduction in raptor nesting success at the same nest site. Mitigation should be designed to benefit the affected species or contribute to overall scientific knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may be designed to proceed in phases over several years. It may include, but is not limited to, additional raptor nest monitoring, protection of natural nest sites from human disturbance or cattle activity (preferably within the general area of the facility) or participation in research projects designed to improve scientific understanding of the needs of the affected species.

(d) Long-term Raptor Nest Monitoring and Mitigation Plan

In addition to the two years of post-construction raptor nest surveys described in Section 2(a), the certificate holder shall conduct long-term raptor nest surveys at five-year intervals for the life of the facility.[5] The certificate holder shall conduct the first long-term raptor nest survey in the ninth year after construction is completed. In conducting long-term surveys, the certificate holder shall follow the same survey protocols as described above in Section 2(a) unless the certificate holder proposes an alternative protocol that is approved by the Department. In developing an alternative protocol, the certificate holder shall consult with ODFW.

The certificate holder shall analyze the raptor nesting data collected after each year of long-term raptor nest surveys to determine whether a reduction in either nesting success or nest use has occurred in the vicinity of the LJF facility. If the analysis indicates a reduction in nesting success or nest use by Swainson's hawks, golden eagles, ferruginous hawks or burrowing owls within the facility site or within 2 miles of the facility site, then the certificate holder shall propose appropriate mitigation for the affected species as described in Section 2(c) and shall implement mitigation as approved by the Council. At a minimum, if the analysis shows that any raptors of these species have abandoned a nest territory within the facility site or within ½ mile of the facility site or has not fledged any young over the two survey years within that same area, the certificate holder shall assume the abandonment or unsuccessful fledging is due to operation of the facility unless another cause can be demonstrated convincingly.

Any reduction in nesting success or nest use could be due to operation of the LJF facility, operation of another wind facility in the vicinity or some other cause. The certificate holder shall

[5] As used in this plan, "life of the facility" means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

attribute the reduction to operation of LJF if the wind turbine closest to the affected nest site is an LJF turbine unless the certificate holder demonstrates, and the Department agrees, that the reduction was due to a different cause.

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

3. Washington ground squirrel surveys

The certificate holder shall conduct long-term post-construction surveys to collect data on Washington ground squirrel (WGS) activity within the lease boundary. A qualified professional biologist will monitor the WGS sites identified during the pre-construction surveys (2005 through 2007) and the buffer area within 500 feet in all directions from the identified WGS sites in suitable habitat. The certificate holder shall conduct surveys during the year following construction and every three years thereafter for the life of the facility. Surveyors will walk standard protocol-level transects twice between late March and late May and record level of use, notes on natal sites and physical extent of the sites. Details of the post-construction WGS monitoring are set forth in the Incidental Take Permit application as set forth in Attachment E of the Final Order on the Application.

4. Grassland Bird Study

The grassland bird study is a 2-year, post-construction evaluation of grassland bird use in the LJF area. Parts of the LJF facility occupy native habitat suitable for various ground-nesting bird species that nest in grassland or open low shrub habitat. Grassland birds that were documented on-site during baseline surveys conducted in 2006 included long-billed curlew, grasshopper sparrow, savannah sparrow, Western meadowlark and horned lark. These species are likely to nest on-site. Loggerhead shrikes may be present in the area but were not observed.

During the 2006 pre-construction surveys of the northern area of the LJF, the applicant surveyed 57 transects. The transects were approximately 60-meters wide. They were searched twice during the peak period of activity for the target species (March through May). Locations of territorial male grasshopper sparrows were recorded with a GPS unit. GPS locations of (assumed) paired long-billed curlews or approximate location of the pair's primary activity area and locations of curlew nests were also recorded. Surveyors made notes on the general location of special status grassland bird species observed in the area and on any observed behavior (for example, nesting, staging, courtship, non-breeders foraging in loose groups).[6] The surveyors noted detections of common species in blocks of areas surveyed (several transects combined) but did not record GPS locations or count the number of individuals present.

The objective of the post-construction grassland bird study is to determine if there are noticeable changes in the presence and overall use by special status grassland bird species compared to pre-construction data collected in 2006. By surveying a large area that includes the undisturbed area between turbine strings, the study could provide information on whether

[6] As used in this section, "special status grassland bird species" means grasshopper sparrows, long-billed curlews, loggerhead shrikes and burrowing owls.

operation of the LJF facility discourages use of the area by two indicator species: grasshopper sparrows and long-billed curlews. In addition to focusing on the two indicator species, the post-construction surveys will include observations of common species such as western meadowlark, savannah sparrow and horned lark to provide information on the presence and distribution of these species within the study area and their behavior relative to turbine locations. The phrase "behavior relative to turbine locations" is intended to address observations of behavior that is different near turbines compared behavior away from turbines.

(a) Study Area

The study area is located within the northern LJF lease boundary and covers approximately 1,362 acres.[7] For purposes of this discussion, the area north of Rattlesnake Road is referred to as the "north study area," and the area south of the road is referred to as the "south study area."

The north study area is bounded by the lease boundary on the northeast and west sides and by Rattlesnake Road on the southeast side. The south study area is bounded by an existing power line on the west and natural topography on the other sides. The north study area contains two proposed turbine strings of up to 18 turbines (G 1-15 and H 1-3) and associated access roads and transmission components. The south study area contains proposed access roads and one or two turbines (H-10 and H-11). The south study area might include burrowing owl dens, but no confirmed nests were discovered in the baseline surveys. The habitat in the north study area is primarily shrub-steppe with grassland-like vegetation in a recovery stage (it is assumed that fire disturbance has removed areas of mature shrubs). The south study area includes relatively flat ground with some gentle slopes and a dry drainage. The habitat in the south study area is similar to the habitat in the north study area and is relatively open grassland with some shrubs. Habitat for both the north and south study areas is not highly variable and is representative of a large portion of the remainder of the LJF North lease area.[8]

The study areas were selected because they are somewhat removed from human activity (except low traffic use on facility access roads and one county road) and contain a large area of grassland/shrub-steppe habitat (mapped as habitat sub-type "SSB") that is not proposed to be altered during project construction or operations.

(b) Survey Protocol

After completion of construction of the facility, the certificate holder shall survey the 57 transects that were searched before construction in 2006. Surveyors will collect data on the indicator species (grasshopper sparrows and long-billed curlews) and other special status grassland bird species. For all special status grassland bird species observed, the surveyors will record the number of observations of these species and their GPS locations, using the same methodology used in 2006. Special status grassland bird species that fly readily in the surveyor's presence will be tracked visually to attempt to determine defended territories and to limit potential double-counting of individuals. Surveyors will record notes on the general location and behavior of special status grassland bird species (for example, defensive responses, nesting,

[7] Figure 1 ("Area to be studied for Grassland Birds during Operations Phase"), App Supp, Appendix C, Attachment 4.
[8] Habitat types are shown in the site certificate application, Exhibit P, Figures P-1 and P-2.

staging, courtship, non-breeders foraging in loose groups). This plotted data will provide information on the location of special status grassland bird species at distances near and far from turbines and other facilities.

Surveyors will record notes on the location and abundance of common species. Abundant common species that fly readily in the surveyor's presence will be tracked visually to avoid double counting. Horned lark observations will be totaled for each survey area completed in one survey day. The data on the relative abundance and distribution of common species will provide information on the location of common species at distances near and far from turbines and other facilities.

The certificate holder shall conduct the first year of post-construction grassland surveys in the first spring following the beginning of commercial operation of the LJF facility. The certificate holder shall conduct a second year of grassland surveys two to five years after the first survey. The certificate holder will determine when the second survey will be done, in consultation with ODFW and subject to approval by the Department, based on the restoration of grassland cover in areas disturbed during facility construction.

In each survey year, surveyors will complete two walking transect surveys of the north and south study areas (one in April and one in May). A third visit to specific potential burrowing owl dens (based on 2006 data and any newly discovered sites) will be conducted during the period from late May to early July, if the surveyor determines a third visit is needed to confirm use by burrowing owls. The April and May time period includes the seasonal period of staging (pre-nesting) of long-billed curlews (April), the major period of territorial calling of grasshopper sparrows (May) and the nesting period for long-billed curlews and other species (May).

(c) Data Analysis and Reporting

After the first survey year, the certificate holder shall submit a preliminary summary report to the Department. After the second survey year, the certificate holder shall submit a more comprehensive final report. The certificate holder shall submit maps for each survey year, showing transects walked and specific areas of use by the indicator species, other special status grassland bird species and common species (except horned larks). The certificate holder shall overlay a grid system on the mapped "as-built" locations of facility components within the study areas. Using the grid system, the certificate holder shall describe the survey results by area and distance from turbines.

The reports will include a description of vegetation compared to pre-construction conditions as recorded in 2006, including notes on any changes in land use by the landowner, wildfire influences and grazing and noting any areas of intense vegetation impact. Vegetation communities will be sampled by the transect method and a description of plant communities will be provided for each survey year.

The certificate holder shall report on observed changes in use by the indicator species. For example, the report will compare the locations and numbers of grasshopper sparrows plotted during the pre-construction surveys in the north study area to the locations and numbers of this species plotted during the post-construction survey years. The certificate holder shall report on the location of any burrowing owls observed during the transect searches or subsequent visits made to confirm use. The certificate holder shall analyze the locations for all special status

grassland bird species (using GPS data) and common species (except horned larks) to calculate distance from turbines or other facilities.[9]

The certificate holder shall evaluate the data to determine if there are changes in the use of the study areas by the two indicator species before and after construction. In addition, the certificate holder shall evaluate the data to determine if there is noticeable difference in the distribution, abundance or behavior of special status grassland bird species or common species relative to turbine locations.

5. PPM Energy's Leaning Juniper II Wildlife Reporting and Handling System

PPM Energy's LJF Wildlife Reporting and Handling System (WRHS) is a monitoring program to search for and handle avian and bat casualties found by maintenance personnel during operation of the facility. Maintenance personnel will be trained in the methods needed to carry out this program. This monitoring program includes the initial response, the handling and the reporting of bird and bat carcasses discovered incidental to maintenance operations ("incidental finds").

All avian and bat carcasses discovered by maintenance personnel will be photographed and the data recorded as would be done for carcasses within the formal search sample during scheduled searches. If maintenance personnel discover incidental finds, the maintenance personnel will notify a project biologist. The project biologist must be a qualified independent professional biologist who is not an employee of the certificate holder. The project biologist (or the project biologist's experienced wildlife technician) will collect the carcass or will instruct maintenance personnel to have an on-site carcass handling permittee collect the carcass. The certificate holder's on-site carcass handling permittee must be a person who is listed on state and federal scientific or salvage collection permits and who is available to process (collect) the find on the day it is discovered. The find must be processed on the same day as it is discovered.

During the years in which fatality monitoring occurs, if maintenance personnel discover incidental finds outside the search plots for the fatality monitoring searches, the data will be reported separately from fatality monitoring data. If maintenance personnel discover carcasses within search plots, the data will be included in the calculation of fatality rates. The maintenance personnel will notify a project biologist. The project biologist will collect the carcass or will instruct maintenance personnel to have an on-site carcass handling permittee collect the carcass. As stated above, the on-site permittee must be available to process the find on the day it is discovered. The certificate holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

6. Data Reporting

The certificate holder will report wildlife monitoring data and analysis to the Department. Monitoring data include fatality monitoring program data, raptor nest survey data, WGS survey data, grassland bird study data and WRHS data. The certificate holder may include the reporting of wildlife monitoring data and analysis in the annual report required under OAR 345-026-0080

[9] Data on common species cannot be compared to preconstruction data because the 2006 surveys did not record the location or abundance of these species by transect line. GPS data will not be collected for common species.

or submit this information as a separate document at the same time the annual report is submitted. In addition, the certificate holder shall provide to the Department any data or record generated in carrying out this monitoring plan upon request by the Department.

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

The public will have an opportunity to receive information about monitoring results and to offer comment. Within 30 days after receiving the final versions of reports that are required under this plan, the Department will make the reports available to the public on its website and will specify a time in which the public may submit comments to the Department.[10]

7. Amendment of the Plan

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

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

Leaning Juniper II Wind Project: Revegetation Plan

[SEPTEMBER 21, 2007]

I. Introduction

This plan describes methods and standards for restoration of areas disturbed during the construction of the Leaning Juniper II Wind Power Facility, excluding areas occupied by permanent facility components (the "footprint").[1] The objective of revegetation is to restore the disturbed areas to pre-disturbance condition or better. The site certificate for the facility requires restoration of these areas. This plan has been developed in consultation with the Oregon Department of Fish and Wildlife (ODFW).

The site certificate describes the area of disturbance anticipated during construction of the Leaning Juniper II facility. The affected area includes cultivated or otherwise developed agricultural land (cropland) as well as areas of grassland, shrub-steppe habitat and other habitat subtypes (wildlife habitat areas). The intensity of the construction impact will vary. In some areas, the impact will be relatively light, but in other areas, heavy construction activity will remove all vegetation, remove topsoil and compact the remaining subsoil. Where vegetation has been damaged or removed during construction, the certificate holder must restore suitable vegetation. In addition, the certificate holder shall maintain erosion and sediment control measures put in place during construction until the affected areas are restored as described in this plan and the risk of erosion has been eliminated. The plan specifies monitoring procedures to evaluate revegetation success of disturbed wildlife habitat areas. Remedial action may be necessary for wildlife habitat areas that do not show revegetation progress. Additional mitigation may be necessary if revegetation is unsuccessful.

II. Description of the Project Area

The facility is located in Gilliam County, Oregon. The project area is on private agricultural land used primarily for livestock grazing and some dry land winter wheat production. Soils are typically loess formations of well-drained, moderately permeable, fertile silt loams over basalt. The area receives approximately 9 inches of precipitation annually, most of which occurs between October 1 and March 31.

The project area is within the Columbia Plateau physiographic province. The facility is located on an upland plateau at elevations ranging up to 980 feet, with relief of about 130 feet. Most of the native vegetation in the project area has been modified by recent patchy hot fires coupled with periods of lower than normal precipitation. Very little intact sagebrush habitat exists, occurring predominantly along the plateau margins and steep side slopes of Juniper Woodland Canyon. Category 2 open low shrub, shrub-steppe habitat is present in the eastern portion of LJ-South, and some Category 2 bitterbrush shrub-steppe habitat is present in the northern portion of LJ-North. Plant communities in these areas consist of low-stature snakeweed and rabbitbrush-dominated shrub lands with patches of sagebrush and native bunchgrass grasslands, each with varying degrees of non-native invasive grass and forb species.

[1] This plan is incorporated by reference in the site certificate for the Leaning Juniper II Wind Power Facility and must be understood in that context. It is not a "stand-alone" document. This plan does not contain all mitigation required of the certificate holder.

III. Revegetation Methods

The certificate holder shall begin restoration of disturbed areas as soon as possible after completion of facility construction activity in the area to be restored. The certificate holder shall restore areas of disturbance by preparing the soil and seeding using common application methods. The certificate holder shall use mulching and other appropriate practices to control erosion and sediment during facility construction and during revegetation work. The certificate holder shall restore topsoil to pre-construction condition. The certificate holder shall select the seed mix to apply based on the pre-construction land use, as described below.

1. Seed Planting Methods

Planting should be done at the appropriate time of year to facilitate seed germination, based on weather conditions and the time of year when construction-related ground disturbance occurs. The certificate holder shall choose planting methods based on site-specific factors such as slope, erosion potential and the size of the area in need of revegetation. Disturbed ground may require chemical or mechanical weed control before weeds have a chance to go to seed. Two common application methods are described as follows.

(a) Broadcasting

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

(b) Drilling

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

IV. Restoration of Cropland

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

Cropland areas are successfully revegetated when the replanted areas achieve crop production comparable to adjacent non-disturbed cultivated areas. The certificate holder shall consult with the landowner or farmer to determine whether these areas have been successfully revegetated and shall report to the Department on the success of revegetation in these areas.

V. Restoration of Wildlife Habitat Areas

The certificate holder shall seed all disturbed grassland, shrub-steppe and other wildlife habitat subtype areas that are not cropland. The certificate holder shall consult with ODFW and the landowner to determine the appropriate seed mix and application rate for these areas, including a combination of grasses, forbs and shrubs based on the characteristics of the affected area. The mix should contain native species selected based on relative availability and compatibility with local growing conditions. Seed mix selection should consider soil erosion potential, soil type, seed availability and the need for using native or native-like species. The certificate holder shall obtain approval of the composition of the seed mix from the Oregon Department of Energy (Department). The certificate holder shall use seed provided by a reputable supplier and complying with the Oregon Seed Law.

VI. Monitoring

1. Revegetation Record

The certificate holder shall maintain a record of revegetation work for both cropland and wildlife habitat areas. In the record, the certificate holder shall include the date that construction activity was completed in the area to be restored, a description of the affected area (location, acres affected and pre-disturbance condition), the date that revegetation work began and a description of the work done within the affected area. The certificate shall update the revegetation records from time to time, as revegetation work occurs. The certificate holder shall provide copies of these records to the Department at the time of submitting the annual report required under the site certificate.

2. Monitoring Procedures

The certificate holder shall monitor the revegetation of wildlife habitat areas as described in this section, unless the landowner has converted the area to a use inconsistent with the success criteria. The certificate holder shall employ a qualified investigator (an independent botanist or revegetation specialist) to examine all non-cropland revegetation areas to assess vegetation cover (species, structural stage, etc.) and progress toward meeting the success criteria described below.

Weed Control

A qualified investigator shall inspect each revegetation area on an annual basis during the first five years following initial seeding to assess weed growth and to recommend weed control measures. The investigator shall report to the certificate holder, the Department and ODFW following each inspection, describing weed growth and the success of control measures. Based on the Year 5 report (described below), the certificate holder shall confer with the Department and ODFW to develop a weed control plan for subsequent years.

Wildlife Habitat Recovery

After the first growing season following initial seeding (Year 1), a qualified investigator shall inspect each revegetation area to assess revegetation success based on the success criteria and to recommend remedial actions, if needed. The qualified investigator shall reinspect these areas at two years and at four years after the first inspection (Year 3 and Year 5). The investigator shall report to the certificate holder, the Department and ODFW following each

inspection. The report shall include the investigator's assessment of whether the revegetated areas are trending toward meeting the success criteria and any remedial actions recommended.

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

The certificate holder's qualified investigator shall evaluate whether a wildlife habitat area is trending toward meeting the success criteria by comparing the revegetation area to a reference area. In consultation with ODFW, the investigator shall choose reference sites near the revegetation area to represent the target conditions for the revegetation effort. The investigator shall select one or more reference sites that closely resemble the pre-disturbance characteristics of the revegetation area as indicated by site conditions, including vegetation density, relative proportion of desirable vegetation and species diversity of desirable vegetation. "Desirable vegetation" means those species included in the seed mix or native or native-like species, excluding noxious weeds. The investigator shall consider land use patterns, soil type, local terrain and noxious weed densities in selecting reference sites. It is likely that different reference sites will be needed to represent different pre-disturbance habitat conditions of the disturbed areas.

During the monitoring visits in Year 1, Year 3 and Year 5, the certificate holder's qualified investigator shall compare the revegetation area to the selected reference sites, unless some event (such as wildfire or tilling) has changed the vegetation conditions of a reference site so that it no longer represents the pre-disturbance conditions of the revegetation area. If such events have eliminated all suitable reference sites for a revegetation area, the investigator, in consultation with ODFW, shall select one or more new reference sites.

Within each revegetation area, the investigator shall evaluate the progress of wildlife habitat recovery in comparison to the reference sites. The investigator shall evaluate the following site conditions (both within the revegetation area and within the reference sites):

- Degree of erosion due to disturbance activities (high, moderate or low).
- Vegetation density.
- Relative proportion of desirable vegetation as determined by the average number of stems of desirable vegetation per square foot or by a visual scan of the area, noting overall recovery status.
- Species diversity of desirable vegetation.

The certificate holder shall report the investigator's findings and recommendations regarding wildlife habitat recovery and revegetation success on an annual basis to the Department (as part of the annual report on the facility) and to ODFW.

3. Success Criteria

In each monitoring report to the Department, the certificate holder shall provide an assessment of revegetation success for all previously-disturbed wildlife habitat areas. A wildlife habitat area is successfully revegetated when its habitat quality is equal to, or better than, the habitat quality of the reference site as measured by the site conditions listed above.

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

4. Remedial Action

After each monitoring visit, the certificate holder's qualified investigator shall report to the certificate holder regarding the revegetation progress of each wildlife habitat area. The investigator shall make recommendations to the certificate holder for reseeding or other remedial measures for areas that are not showing progress toward achieving revegetation success. The certificate holder shall take appropriate action to meet the objectives of this revegetation plan. On an annual basis as part of the annual report on the facility, the certificate holder shall report to the Department the investigator's recommendations and the remedial actions taken. The Department may require reseeding or other remedial measures in those areas that do not meet the success criteria.

If a wildlife habitat area is damaged by wildfire during the first five years following initial seeding, the certificate holder shall work with the landowner to restore the damaged area. The certificate holder shall continue to report on revegetation progress during the remainder of the five-year period. The certificate holder shall report the damage caused by wildfire and the cause of the fire, if known.

VII. Amendment of the Plan

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

Leaning Juniper II Wind Project: Habitat Mitigation Plan

[SEPTEMBER 21, 2007]

I. Introduction

This plan describes methods and standards for preservation and enhancement of an area of land near the Leaning Juniper II Wind Power Facility (LJF) to mitigate for the impacts of the facility on wildlife habitat.[1] This plan addresses mitigation for both the permanent impacts of facility components and the temporal impacts of facility construction. The certificate holder shall protect and enhance the mitigation area as described in this plan. This plan specifies habitat enhancement actions and monitoring procedures to evaluate the success of those actions. Remedial action may be necessary if progress toward habitat enhancement success is not demonstrated in any part of the mitigation area.

II. Description of the Impacts Addressed by the Plan

The estimated land area that would be occupied by permanent facility components (the "footprint") is approximately 64 acres, based on a worst-case estimate.[2] In addition to the footprint impacts, construction of the facility would disturb approximately 699 acres, based on a worst-case estimate. Although much of the area is cropland, habitat affected by construction disturbance includes areas of perennial bunchgrass and desirable shrubs. After disturbance, the recovery of perennial bunchgrass species to a mature stage might take five to seven years; recovery of desirable shrubs such as bitterbrush and sagebrush might take ten to 30 years to reach maximum height and vertical branching. Even where recovery of these habitat subtypes is successful, there is a loss of habitat quality during the period of time needed to achieve recovery (temporal impact).

III. Calculation of the Size of the Mitigation Area

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

The mitigation area must be large enough to meet the habitat mitigation goals and standards of the Oregon Department of Fish and Wildlife (ODFW) described in OAR 635-415-0025. The ODFW goals require mitigation to achieve "no net loss" of habitat in Categories 2, 3

[1] This plan is incorporated by reference in the site certificate for the Leaning Juniper II Wind Power Facility and must be understood in that context. It is not a "stand-alone" document. This plan does not contain all mitigation required of the certificate holder.

[2] "Worst-case" estimates in this plan are based on revised Table P-10B (Application Supplement, Appendix B, Attachment 1) and revised Table P-15B (Application Supplement, Appendix C, Attachment 3).

and 4 and a "net benefit" in habitat quantity or quality for impacts to habitat in Categories 2 and 5.

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

To mitigate for construction impacts outside the footprint, the mitigation area includes ½ acre for every Category 2 or 3 SSA (shrub-grass; sagebrush-rabbitbrush-snakeweed/bunchgrass-annual grass) and SSE (bitterbrush-buckwheat-bunchgrass-annual grass) habitat affected (a 0.5:1 ratio). This portion of the mitigation area is intended to address the temporal loss of habitat quality during the recovery of SSA and SSE habitat disturbed during construction. The size of this portion of the mitigation area is based on the assumption that restoration of disturbed SSA and SSE habitat is successful, as determined under the Leaning Juniper II Revegetation Plan. If the revegetation success criteria are not met in the affected areas, then the Council may require the certificate holder to provide additional mitigation.

The area of impact within each affected habitat category and the corresponding mitigation area for each category are calculated as follows, based on worst-case estimates:

Category 2
Footprint impacts: 19.1 acres
Temporal impacts to SSA or SSE: 78.5 acres
Mitigation area: (19.1 acres x 2) + (78.5 acres x 0.5) = 77.5 acres

Category 3
Footprint impacts: 22.5 acres
Temporal impacts to SSA or SSE: 5.3 acres
Mitigation area: 22.5 acres + (5.3 acres x 0.5) = 25.1 acres

Category 4
Footprint impacts: 2.1 acres
Mitigation area: 2.1 acres

Category 5
Footprint impacts: 1.2 acres
Mitigation area: 1.2 acres

Total mitigation area (rounded to nearest whole acre): 106 acres

IV. Description of the Mitigation Area

The certificate holder shall select a mitigation area in proximity to the facility where habitat protection and enhancement are feasible consistent with this plan.[3] The applicant identified a 440-acre parcel in a relatively remote setting where habitat protection and enhancement are feasible and sufficient land area is available to accommodate the size of the mitigation area, based on a worst-case estimate.[4] Before beginning construction, the certificate holder shall determine the final size and boundaries of the mitigation area in consultation with ODFW and the affected landowners and subject to the approval of the Department. The final mitigation area must contain suitable habitat to achieve the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5 through appropriate enhancement actions. Before beginning construction of the facility, the certificate holder shall acquire the legal right to create, maintain and protect the habitat mitigation area for the life of the facility by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the Department.[5]

V. Habitat Enhancement Actions

The objectives of habitat enhancement are to protect habitat within the mitigation area from degradation and to improve the habitat quality of the mitigation area. By achieving these goals, the certificate holder can address the permanent and temporal habitat impacts of the LJF and meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5. The certificate holder shall initiate the habitat enhancement actions as soon as the final design configuration of the LJF is known and the size of the mitigation area has been determined and approved by the Department. The certificate holder shall implement the following enhancement actions:

1) Modification of Livestock Grazing Practices. The certificate holder shall restrict grazing within the habitat mitigation area. Eliminating livestock grazing within the mitigation area during most of the year will enable recovery of native bunchgrass and sagebrush in areas where past grazing has occurred, resulting in better vegetative structure and complexity for a variety of wildlife. Reduced livestock grazing may be used as a vegetation management tool, limited to the period from February 1 through April 15.

2) Shrub Planting. The certificate holder shall plant sagebrush shrubs in locations where existing sagebrush is stressed. The certificate holder shall determine the size of the shrub-planting area based on the professional judgment of a qualified biologist after a ground survey of actual conditions. The size of the shrub-planting area will depend on the available mitigation area and opportunity for survival of planted shrubs. The shrub survival rate at four years after planting is an indicator of successful enhancement of

[3] OAR 635-415-0005 defines "in-proximity habitat mitigation" as follows: "habitat mitigation measures undertaken within or in proximity to areas affected by a development action. For the purposes of this policy, 'in proximity to' means within the same home range, or watershed (depending on the species or population being considered) whichever will have the highest likelihood of benefiting fish and wildlife populations directly affected by the development."

[4] The 440-acre parcel is described in Section IV.4.(b)(F) of the Final Order on the Application.

[5] As used in this plan, "life of the facility" means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

habitat quality to Category 2. Accordingly, although a minimum 5-acre area of shrub planting is anticipated, the certificate holder may choose to plant a larger area. The certificate holder shall complete the initial sagebrush planting within one year after the beginning of construction of the LJF. Supplementing existing but disturbed sagebrush areas with sagebrush seedlings would assist the recovery of this valuable shrub-steppe component. The certificate holder shall obtain shrubs from a qualified nursery or grow shrubs from native seeds gathered from the mitigation area. The certificate holder shall identify the area to be planted with sagebrush shrubs after consultation with ODFW and subject to final approval by the Department. The certificate holder shall mark the planted sagebrush clusters at the time of planting for later monitoring purposes and shall keep a record of the number of shrubs planted.

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

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

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

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

VI. Monitoring

1. Monitoring Procedures

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

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

1) Annually assess vegetation cover (species, structural stage, etc.) and progress toward meeting the success criteria.

2) Annually record environmental factors (such as precipitation at the time of surveys and precipitation levels for the year).

3) Annually record any wildfire that occurs within the mitigation area and any remedial actions taken to restore habitat quality in the damaged area.

4) Annually assess the success of the weed control program and recommend remedial action, if needed.

5) Assess the recovery of native bunchgrass and natural recruitment of sagebrush resulting from removal of livestock grazing pressure by comparing the quality of bunchgrass and sagebrush cover at the time of each monitoring visit with the quality observed in previous monitoring visits and as observed when the mitigation area was first established. The investigator shall establish photo plots of naturally recovering sagebrush and native bunchgrass during the first year following the beginning of construction of the LJF. The investigator shall take comparison photos in the first year and in every other year thereafter until the subject vegetation has achieved mature stature. The investigator shall determine the extent of successful recovery of native bunchgrass based on measurable indicators (such as, signs of more abundant seed production) and shall report on the progress of recovery within in the monitoring plots. The investigator shall report on the timing and extent of any livestock grazing that has occurred within the mitigation area since the previous monitoring visit.

6) Assess the survival rate and growth of planted sagebrush. At the time of planting, sagebrush clusters will be marked for the purpose of monitoring. The investigator shall select several planted clusters for photo monitoring and shall take close-up and long-distance digital images of each selected cluster during each monitoring visit. The certificate holder shall determine the number of clusters to be photo-monitored at the time of planting, in consultation with the Department and ODFW, based on the number of clusters planted. The investigator shall take comparison photos in the first year following the initial sagebrush planting and in every other year thereafter until the surviving planted sagebrush has achieved mature stature. In each monitoring year, the investigator shall determine and report the survival rate of planted sagebrush. Based on past experience of restoration specialists for other sagebrush planting projects, a survival rate as high as 50 percent can be achieved if there are years of

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

7) Between April 21 and May 21 beginning in the first spring season after the beginning of construction of the LJF, conduct an area search survey of avian species. An "area search" survey consists of recording all birds seen or heard in specific areas (for example, square or circular plots that are 5 to 10 acres in size). Area searches will be conducted during morning hours on days with low or no wind. The investigator shall determine the number searches and the number of search areas in consultation with ODFW. The investigator shall repeat the area search survey every five years during the life of the facility.

8) Beginning in the first year after the beginning of construction of the LJF and repeating every five years during the life of the facility, the investigator shall record observations of special status plant or wildlife species (federal or state threatened or endangered species and state sensitive species) during appropriate seasons for detection of these species.

The certificate holder shall report the investigator's findings and recommendations regarding the monitoring of the mitigation area to the Department and to ODFW on an annual basis. In the annual report, the certificate holder shall describe all habitat mitigation actions carried out during the reporting year. The report to the Department may be included as part of the annual report on the LJF.

2. **Success Criteria**

Mitigation of the permanent and temporal habitat impacts of the facility may be considered successful if the certificate holder protects and enhances sufficient habitat within the mitigation area to meet the ODFW goals of no net loss of habitat in Categories 2, 3 and 4 and a net benefit in habitat quantity or quality for impacts to habitat in Categories 2 and 5. The certificate holder must protect the quantity and quality of habitat within the mitigation area for the life of the facility. ODFW has advised the Department that protection of habitat alone (without enhancement activity) will not meet the intent of the "net benefit" goal.

The certificate holder must protect a sufficient quantity of habitat in each category to meet the mitigation area requirements calculated under Section III. As an illustration of the requirement, the following habitat quantity goals are based on the worst-case estimate described in Section III, expressed as a percentage of the mitigation area in each habitat category:

Total Mitigation Area: 106 acres

Category 2: 77.5 acres (73 percent)

Category 3: 25.1 acres (24 percent)

Category 4: 2.1 acres (2 percent)

Category 5: 1.2 acres (1 percent)

The certificate holder shall determine the actual mitigation area requirements, subject to Department approval, before beginning construction of the LJF. If the land selected for the mitigation area does not already contain sufficient habitat in each category to meet these requirements, then the certificate holder must demonstrate improvement of habitat quality sufficient to change lower-value habitat to a higher value (for example, to convert Category 3 habitat to Category 2). The certificate holder may demonstrate improvement of habitat quality based on evidence of indicators such as increased avian use by a diversity of species, survival of planted shrubs, more abundant seed production of desirable native bunchgrass, natural recruitment of sagebrush and successful weed control. If the certificate holder cannot demonstrate that the habitat mitigation area is trending toward the habitat quality goals described above within four years after the initial sagebrush planting, the certificate holder shall propose remedial action. The Department may require supplemental planting or other corrective measures.

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

VII. Amendment of the Plan

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

Leaning Juniper II Wind Project: Micrositing Areas

Table 1: Micrositing Corridors for Turbine Strings[1]

String or Segment	Boundary	Definition
A	N	lease boundary
	E	longitude: -120.3107982
	S	lease boundary
	W	longitude: -120.3210935
B, C and D	N	lease boundary
	E	longitude: -120.2686091
	S	lease boundary
	W	longitude: -120.3017389
E1 - E3	N	latitude: 45.655466
	E	longitude: -120.2500477
	S	lease boundary
	W	longitude: -120.261098
E4 - E11	N	latitude: 45.64662762
	E	longitude: -120.2414496
	S	lease boundary
	W	lease boundary
F1 - F-5	N	lease boundary
	E	longitude: -120.2238475
	S	lease boundary
	W	longitude: -120.2365971
F6 - F13	N	lease boundary
	E	lease boundary
	S	lease boundary
	W	longitude: -120.2344746
G	N	lease boundary
	E	longitude: -120.195484
	S	lease boundary
	W	lease boundary

[1] Based on revised revised Table C-2, App Supp, Appendix C, Attachment 1.

Leaning Juniper II Wind Project: Micrositing Areas

H1 - H8	N	latitude: 45.69452023
	E	longitude: -120.1848239
	S	latitude: 45.6725221
	W	longitude: -120.1922851
H9 - H11	N	latitude: 45.67606262
	E	longitude: -120.178417
	S	latitude: 45.66796
	W	longitude: -120.1859096
H12 - H16 and J1 - J3	N	latitude: 45.67115987
	E	longitude: -120.1719403
	S	latitude: 45.655232
	W	longitude: -120.1790375
I	Rectangular area defined by these points: NW corner: longitude: -120.1818659 latitude: 45.68968116 NE corner longitude: -120.1747899 latitude: 45.69178413 SW Corner longitude: -120.1735608 latitude: 45.67593476 SE Corner longitude: -120.1664095 latitude: 45.67806005	
J4 - J16	N	latitude: 45.66023208
	E	lease boundary
	S	lease boundary
	W	longitude: -120.177838
J17	N	latitude: 45.62241712
	E	longitude: -120.1902439
	S	latitude: 45.61721147
	W	longitude: -120.1981621

Table 2: Micrositing Corridors for Roads, Collector Cables, and Crane Paths[2]

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
1	Centerline of Alternate Collector Corridor Connecting J1-3 Turbine String Corridor to LJ I Easement	500		45.65764917	-120.184709
				45.65837155	-120.1808053
				45.65899633	-120.1791685
2	Centerline of Crane Path Corridor Connecting Access Road to H12 and 13	500		45.66270109	-120.1842465
				45.66536356	-120.1831584
				45.66623826	-120.1823774
				45.66710705	-120.1813575
				45.6678652	-120.1800045
3	Centerline of Northernmost Road Corridor Connecting I-String Turbine Corridor to H-String Turbine Corridor	500		45.68864792	-120.1812674
				45.68801958	-120.1849758
4	Centerline of Primary Collector Route Connecting F16 to F-17	500		45.63127598	-120.1776535
				45.62834378	-120.1822776
				45.62356555	-120.1849442
				45.62345681	-120.1851384
5	Centerline of Road Connecting D and E Strings	400	W	45.654691	-120.26886
			E	45.653847	-120.26109
6	Centerline of Road Corridor Connecting Access Road to F-1	500		45.65767811	-120.236452
				45.65468786	-120.2389854
7	Centerline of Southernmost Collector Corridor Connecting I-String Turbine Corridor to H-String Turbine Corridor	500		45.64916724	-120.2494657
				45.6824096	-120.1778171
8	Collector Connecting E1-3 to E4-11—Northwestern Edge of Corridor	630		45.64916724	-120.2494657
				45.64863259	-120.2488339
				45.64800059	-120.2484093
				45.64724968	-120.2482161
				45.64669198	-120.2481099
				45.64960668	-120.2500738
9	Crane Path Corridor Connecting G-string to H-string—Northern Boundary	500	N	45.69461058	-120.1939453
			S	45.69323968	-120.1940296

[2] Based on revised Table C-3, App Supp, Appendix C, Attachment 1.
[3] The corridors for easements across nonleased land and improvements to existing roads are 200 feet wide. The corridors for new roads, collector cables, and crane paths are 500 feet wide.

Leaning Juniper II Wind Project: Micrositing Areas

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
10	Expanded Corridor North of F6-13 Corridor	1,480	E		-120.2261001
			N	45.64893734	
			S	45.64597072	
			W		-120.2317406
11	Primary Access Road from East Entrance and Collector Corridor (Starting at West Side of J1-3 Corridor Ending at Lease Boundary)	500	N	45.66473767	-120.1797365
				45.66452299	-120.1805243
				45.66425543	-120.1811134
				45.66394674	-120.1816086
				45.66372868	-120.1818477
				45.66361072	-120.1824493
				45.6635676	-120.1830791
				45.66312206	-120.1847009
				45.6648038	-120.178906
			S	45.66167623	-120.1847212
				45.66212187	-120.1830097
				45.66223863	-120.1825718
				45.66224965	-120.1821746
				45.66256684	-120.1807351
				45.66304937	-120.1801263
				45.66325572	-120.179769
				45.66339075	-120.178977
12	Road and Collector Corridor Connecting E-String to F-String	550	N	45.65470859	-120.2472878
				45.65408307	-120.2453707
				45.65406739	-120.244955
				45.65401453	-120.2446455
				45.65493285	-120.2417272
				45.65496912	-120.2410678
				45.65483272	-120.2399986
				45.65460837	-120.2379173
				45.65458134	-120.2373501
				45.65446946	-120.2368371
				45.65515673	-120.2498032

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
				45.6546751	-120.2490195
			S	45.65322436	-120.2498255
				45.6533354	-120.247641
				45.65293484	-120.2464726
				45.65260547	-120.2460019
				45.6524296	-120.2454318
				45.65241419	-120.2447198
				45.65257356	-120.2438702
				45.65340061	-120.2415855
				45.65348998	-120.241182
				45.65343975	-120.2407061
				45.65317065	-120.2389199
				45.65306437	-120.2382143
				45.65285768	-120.2377119
				45.65274244	-120.2371752
13	Road and Collector Corridor Connecting E4-11 to F6-13 strings	500. Increases to 1,380 where road splits.	N	45.63521851	-120.2416616
				45.63529252	-120.2411365
				45.63659708	-120.2385929
				45.63809273	-120.2365057
				45.63931883	-120.2345442
			S	45.63393405	-120.2400196
				45.63411434	-120.239619
				45.63447353	-120.2393667
				45.63628215	-120.2362216
				45.63553383	-120.2347305
				45.63401158	-120.2348054
14	Road and Collector Corridor Connecting H8 to H9—Northeastern Boundary	500		45.67608998	-120.179524
				45.67657683	-120.1798506
				45.67910159	-120.184257
15	Road and Collector Corridor Connecting H-String to G-String	2,640	N	45.68135637	-120.1946997
			S	45.6741315	-120.1950336
16	Road and Collector Corridor Connecting	500	N	45.68552972	-120.1851604

Leaning Juniper II Wind Project: Micrositing Areas

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
	I-String Turbine Corridor to H-String Turbine Corridor			45.68491344	-120.1789809
			S	45.68414517	-120.1851621
				45.68366819	-120.1803791
				45.68282221	-120.1788328
17	Road and Collector Corridor Connecting LJ II North to LJ II Collector Substation	500	N	45.67484208	-120.2127925
				45.67491891	-120.2122355
				45.67476584	-120.2117114
				45.67463177	-120.2095789
				45.67513745	-120.205686
				45.675961	-120.2040863
			S	45.67211845	-120.212634
				45.6726361	-120.2120636
				45.67285234	-120.2114765
				45.67329244	-120.2102406
				45.67325915	-120.2094326
				45.67374452	-120.2056757
				45.6739979	-120.2045957
				45.67482203	-120.2029948
18	Road Connecting E-String (At Lease Boundary) to Access Road to the North	See Table C-2 J 1-3 Corridor			
19	Western Access Road from Blalock Canyon Road to B-String	Varies on the west side of the A-string. Width between A and B is 500 feet.	N	45.63711534	-120.3297983
				45.63630636	-120.3280113
				45.63517001	-120.3264266
				45.63395561	-120.3247266
				45.63262578	-120.3232179
				45.63201347	-120.3212997
				45.6311251	-120.311029
				45.63124782	-120.3094919
				45.63114983	-120.3082258
				45.63092978	-120.3071075
				45.63108705	-120.3019835
				45.63736069	-120.3315946
			S	45.63309464	

Leaning Juniper II Wind Project: Micrositing Areas

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
			W	Blalock Canyon Road	
20	Rattlesnake Road Corridor (Existing Road)	20		45.68961543	-120.1849553
				45.69036821	-120.183686
				45.69074216	-120.1831715
				45.69103459	-120.1828249
				45.69128387	-120.1824473
				45.69150057	-120.1820693
				45.69174243	-120.1815954
				45.69195314	-120.1811745
				45.69212005	-120.1807216
				45.69233172	-120.1803476
				45.69260513	-120.1801458
				45.69295129	-120.1800348
			NW	45.69323267	-120.1801337
				45.69357407	-120.1803023
				45.69381447	-120.1804468
				45.69404413	-120.1806293
				45.69638612	-120.1800127
				45.69650278	-120.1797582
				45.69668247	-120.1795695
				45.69692851	-120.1794292
				45.69724431	-120.1794531
				45.69776312	-120.1795421
				45.69788518	-120.1795484
				45.69806591	-120.1795075
				45.69838491	-120.1794516
			SE	45.6887425	-120.1849509
				45.68920673	-120.1843591
				45.68978268	-120.1834268
				45.69033131	-120.1826517
				45.69070797	-120.1821914

Leaning Juniper II Wind Project: Micrositing Areas

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
				45.69112456	-120.1814918
				45.69150326	-120.1807246
				45.69186374	-120.1798643
				45.69233201	-120.1794642
				45.69272228	-120.1792737
				45.69303956	-120.1792593
				45.69341363	-120.1793943
				45.69387074	-120.1796184
				45.69419624	-120.1798604
				45.69858171	-120.1785617
				45.69846994	-120.1786478
				45.69818191	-120.1786946
				45.69783829	-120.1787645
				45.69753312	-120.1787061
				45.69710911	-120.1786517
				45.69689141	-120.1786478
				45.69668431	-120.1787173
				45.69646971	-120.1788444
				45.6962629	-120.1790266
				45.69608985	-120.1792419
				45.69596381	-120.1794772
				45.69588128	-120.179696
				45.69575968	-120.1798283
21	Rattlesnake Road Corridor (Proposed Realignment)	500	NW	45.69404413	-120.1806293
				45.69419761	-120.1811359
				45.69451095	-120.1814389
				45.69514634	-120.1816395
				45.69728218	-120.1823147
				45.69780604	-120.1823313
				45.69834868	-120.1820993
				45.69876958	-120.1816884
				45.69925379	-120.1809797
				45.70056792	-120.1790376

Leaning Juniper II Wind Project: Micrositing Areas

#	Description	Width[3] (feet)	End Point (centerline of corridor)	Latitude	Longitude
				45.70122226	-120.1773506
				45.7014559	-120.1770683
				45.70158778	-120.1766021
				45.70157922	-120.1762862
				45.70153904	-120.176057
				45.70090798	-120.1755037
				45.70051386	-120.1756475
				45.7002195	-120.1759626
				45.70001293	-120.1763957
				45.6997346	-120.176686
				45.69966412	-120.1770148
				45.69969144	-120.1772811
				45.69947373	-120.1778479
				45.69923961	-120.1775735
				45.69897985	-120.1774921
			SE	45.69871512	120.1776584
				45.69858508	-120.1780485
				45.69858614	-120.1784799
				45.69838491	-120.1794516
				45.697834	-120.1802541
				45.6976519	-120.1803822
				45.69740327	-120.1803415
				45.69486659	-120.1795522
				45.69457699	-120.1795548
				45.69434818	-120.1796924
				45.69419805	-120.179862
22	Substation	200 x 795	NE	45.675962	-120.21411
			NW	45.675638	-120.214739
			SE	45.674209	-120.21226
			SW	45.673886	-120.212889
23	Alternate underground collector line (within lease boundary) connecting to J string	290 (maximum)	SE	45.631858	-120.183259
				45.631395	-120.184191
				45.630913	-120.185155

Micrositing Easements Outside the Lease Boundary

In addition to the micrositing areas within the LJF lease boundary described in Tables 1 and 2 above, facility collector lines and access roads may be located outside the lease boundary. These facility components are shown on Figure C-3a.[4] These components would be built within easements. The applicant provided legal descriptions of the easements in the Application Supplement, Appendix B, Attachment 3, and those descriptions are incorporated herein by this reference.

[4] Revised Figure C-3a, dated February 21, 2007 (App Supp, Appendix C, Attachment 1).

Oregon Department of Fish and Wildlife

Incidental Take Permit Application Information For State-Listed, Washington Ground Squirrel (*Spermophilus washingtoni*)

1. **Applicant Information:**

a) Affiliation: Leaning Juniper Wind Power II, LLC (subsidiary of PPM Energy)
b) Project Contact: Sara McMahon or Andy Linehan , Suite 700, 1125 NW Couch St., Portland, OR 97209
c) Phone: 503-796-7732 (Sara McMahon) or 503-796-6955 (Andy Linehan); Fax: 503-796-6906
d) E-mail: sara.mcmahon@ppmenergy.com or andy.linehan@ppmenergy.com
e) Date: July 18, 2007

2. **Project Name and Purpose**

Leaning Juniper Wind Power II, LLC (the Applicant) proposes to construct and operate a wind generation facility in Gilliam County, Oregon, with generating capacity of up to approximately 279 megawatts (MW). The Leaning Juniper II Wind Power Facility (the Facility) consists of two main components: (1) Leaning Juniper II South (the south portion of the Facility with up to 186 MW) and (2) Leaning Juniper II North (the north portion of the Facility with up to 93 MW).

All Facility components will be located on private land on which the Applicant has negotiated long-term wind energy leases with the landowners. The turbines for Leaning Juniper II South will be located on land owned by Waste Management Disposal Services of Oregon, Inc., which surrounds the existing Arlington Landfill on three sides. This land functions as a buffer around the landfill and as a source of soils and rock for covering landfill cells as they are filled and closed. Portions of the land are used for cultivation of winter wheat. Other portions are used for cattle grazing. The turbines for Leaning Juniper II North will be located on land owned by a private landowner, J.R. Krebs. This land currently is used for farming and cattle grazing. Easements have also been negotiated with adjacent landowners for road and collector cable access.

The Applicant has submitted an application to the Oregon Energy Facility Siting Council for the Facility. Up to 133 turbines will be located at the Facility site, depending on the final turbine size and vendor as further described in Section B of the Application for Site Certificate. Construction of Leaning Juniper II is currently expected to begin in late 2007 and to be completed in mid-2008. As described in the site certificate application, construction would begin no later than three years after the effective date of the site certificate and would be completed no later than four years after the effective date of the site certificate. The Council

rules allow these deadlines to be extended. Maps of facility layout can be found in the appropriate permitting agency files. The project is anticipated to have a life of 30 years; if and when the project is closed, facilities will be removed to at least three feet below grade and disturbed areas will be revegetated with appropriate native seed mixes in non-agricultural areas. If the life of the facility is greater than 30 years, the Applicant requests that the Incidental Take Permit be extended.

Because the Facility consists of two components that may ultimately be legally and financially discrete and separately owned, operated, and marketed in terms of power sales, the Applicant requests issuance of an Incidental Take Permit that covers the Facility as a whole but also considers the separate impacts of the two Facility components (Leaning Juniper II North and South). For purposes of future corporate strategy and financing, as well as to preserve the ability to potentially separate and market power from the Facility components in the future, the Applicant's parent company, PPM Energy, Inc. (PPM), needs to ensure flexibility. PPM will ensure that the Applicant has access to its parent company's resources and expertise in the development, construction management, and operation of the Facility.

This ITP addresses the activities and potential impacts on Washington ground squirrel (WGS) of the Project. The ODFW acknowledges that the primary landowners have existing, permitted landfill and/or quarry activities on the same parcels, and that nothing in this permit affects the existing rights and obligations of the landowners for these on-going activities.

3. Need for Incidental Take Permit including Alternatives Considered

The Applicant and its consulting biologist (Karen Kronner and staff of Northwest Wildlife Consultants, Inc. of Pendleton, Oregon - NWC) have conducted a range of biological studies over the last 4 years (2003-2007), as described in more detail below in Section 6. Although all permanent facilities have been located outside of known active (WGS) colonies (areas of use), impacts to WGS may occur from a number of activities:

- During the construction phase, WGS may be struck by trucks or other construction equipment as they leave the core colony areas to feed in or travel to adjacent areas.
- During the operations phase, although road traffic will be much lower than during the construction phase, the risk of collision with WGS will continue, although at a lower rate.

Washington Ground Squirrels colonies are known to shift over time, for reasons that may have to do with weather, vegetation patterns, predators, and population cycles. Therefore, it is possible that an increase in the local population of WGS over the life of the project could expose more squirrels to the risks of collision or other disturbance.

4. Species for Which an ITP is Requested

a) Species affected, including number of adults, young, eggs, acres of habitat, etc.

The species potentially affected by the proposed project is the Washington Ground Squirrel, *Spermophilus washingtoni*.

The Facility is located in the Townships 2 and 3 North and Ranges 20 and 21 East sections. The site is accessed by traveling approximately 3 miles south on Oregon Highway 19 from its intersection with Interstate 84. The area that the Applicant has leased for wind facilities (the area that contains the known, scattered WGS colonies) covers approximately 8,565 acres1 of land with a range of habitats in varying quality, including large areas of cultivated wheat fields, grassland and shrub-steppe.

NWC staff conducted surveys of the project impact area, using ODFW-approved survey protocols and experienced personnel. Habitat areas suitable for Washington ground squirrels were surveyed by means of spring season walking transects within 1,000 feet of the Leaning Juniper II South components based on the 2005 layout. All habitat suitable for T&E wildlife within the entire Leaning Juniper II North leased area was surveyed by spring season walking transects in 2006. NWC re-visited the Washington ground squirrel colonies identified during these surveys in the spring of 2006 while conducting construction monitoring of the nearby Leaning Juniper wind project owned by Pacificorp.

No WGS colonies were discovered during surveys of Leaning Juniper II North.

As presented in the Incidental Take Permit Application for Leaning Juniper I, active WGS colonies were discovered in several locations within the surveyed corridors near what is now Leaning Juniper II South, as shown in Figures 1 through 4 and described in Table 1. There were five primary patches or occupied colonies and one of these consisted of five smaller areas. The sites ranged from 3 to 74 acres in size and from very low density to dense. There was also a small patch of WGS use west of the E string without natal sites (see area #8 on Figure 2). Some active sites extended onto areas that were outside of the established survey corridor, as squirrels were heard calling from those areas during the surveys.

Most WGS colonies were located in habitat broadly defined during the fall 2004 habitat mapping as shrub-steppe and further typed as having a vegetative cover of rabbitbrush-snakeweed-buckwheat/bunchgrass (SSB). In addition to low, open shrub cover, these sites contain a few species of buckwheat (*Eriogonum spp.*), Sandberg's bluegrass (*Poa sandbergii*) and non-native cheatgrass (*Bromus tectorum*). Most of these areas are sagebrush-steppe attempting to recover from frequent burning, low precipitation cycles and land use. Sagebrush is very

limited and residual, and unburned sagebrush patches mapped as SSA are present in a few colonies. Soil types at the WGS sites are mostly silt-loam with a minor amount of fine, sandy loam. A wildfire burned in the general area on July 6, 2007. However, the fire only burned through one known colony, “Site 2”. This is not part of LJ-II.

During the original surveys in 2005, approximately 87 acres of occupied WGS areas were documented within SSB, 20 acres in shrub-grass (SSA) and 4 acres of occupied WGS areas within the annual grassland (GA) habitat type within the Facility lease boundaries. Based on soils and habitat, more WGS colonies may be present within the Facility in uncultivated areas that have not been surveyed. There are approximately 3,650 acres of the SSB habitat type and 485 acres of annual grassland within the Facility lease boundaries. The complete 2005 WGS survey methods and results are provided in the Wildlife Baseline Study (included as Attachment P-2 in the Application for Site Certificate).

The 2006 and 2007 WGS colony monitoring results are included in Table 1 below. There were no observed changes in the colonies in 2006. In 2007, NWC observed that colony #5 near the J turbine string lacked activity and others were noted as expanding slightly (Table 1). While the reason for the lack of activity at the WGS site #5 is unknown, NWC indicated that the lack of activity in 2007 may be due to increased cattle activity in the area or the WGS dispersing to another location. Once the 2007 survey data is fully analyzed and integrated into GIS, a revised map of the WGS locations will be provided to ODFW for their records and integrated into the project constraints maps.

Based on the 2005-2006 WGS survey results, the original project layout was substantially revised (see below, Section 6). The revised project layout avoids all areas that would be classified as ODFW Habitat Category 1 based on the presence of WGS.

As noted above, however, individual WGS may be directly impacted by construction and operations activities going on around the known colonies. The number of individual WGS that could be potentially affected is unknown. Through this application the applicant requests a maximum take of 10 WGS during the construction phase of the project (i.e., for calendar year 2008) and a maximum of 5 per year for the operating life of the project (anticipated to be 30 years) for the Project under this ITP. Therefore, this ITP has a term of 30 years after commencement of commercial operation. The ODFW recognizes that observed WGS mortality could be associated with the Project (and subject to the terms of this ITP and its take limits), with on-going landfill or other landowner operations (outside the scope of this ITP and its take limits), or neither (and thus also outside the scope of this ITP and its take limits). Section 7, below, addresses attribution of WGS mortality to these three causes.

In order to provide for continuity and project planning, the requested ITP may be reopened and revised only if the ITP take allowance has been exceeded or if material factual assumptions leading to ITP issuance are proved to be incorrect, and not otherwise applicable to the current situation.

Table 1. 2005 Washington Ground Squirrel Colonies Identified Near Leaning Juniper II South and General 2006 and 2007 Notes

WGS Colony#*	Soils	Mapped Habitat (late 2004)	Overall Density	Colony Size and Acres (rounded)	General Notes	Proximity to Facilities
1	23B, 56B	SSB, SSA	Dense	Large, 74 ac	Active in 2006 Active in 2007; showed some signs of slight expansion	East of existing access roads and the F turbine string.
4		SSB	Dense	Large, a-e combined=~101 ac	Extensive – probably is larger than surveyed data shows. Probably connects to Colony 1. Active in 2006 however less use was noted at 4d.	
A	23B	SSB	Low Density	Small, 9 ac	Active in 2007- Slight expansion	Leaning Juniper II F turbine string
B	23B	SSB	Medium Density	Medium, 15 ac	Active in 2007-Slight expansion	Leaning Juniper II F turbine string
C	14B, 23B	SSA	Dense	Large, 44 ac	Was probably more extensive to the south in prior years. Probably is more extensive in the area not leased (not surveyed) than shown. Active in 2007. Slight expansion	Leaning Juniper II F turbine string
D	23B	SSB	Dense	Large, 25 ac	Active in 2007 Slight expansion	Leaning Juniper II E turbine string
E	23 B, 23C	SSB	Dense	Small, 8 ac	Connected to D but a noticeable gap in-between Active in 2007. Slight expansion.	Leaning Juniper II E turbine string
5	23C, 23D, 33E	SSB	Dense	Small, 8 ac	Active in 2006. Not active in 2007. No sign of use.	Leaning Juniper II J turbine string and alternate overhead collector line route
6	14D	GA	Very Low	Very Small, 4 ac (May have been just a few individuals)	Sign of activity found at this site, incidental to conducting other 2006 field investigations. Active in 2007. Slight expansion. May now be classified as medium density	South of J turbine string
8	14B, 23B, 32B	SSA	Very Low	Very small, 2 ac	Was likely active in 2005, judging by sign of use noted in December 2005. Heard and saw two or three Washington ground squirrel on February 16, 2006. No indication of natal activity (female with young).	West of E turbine string

* Table includes only those colonies located near Leaning Juniper II Facility components.

Estimated size based on general observations.

Table 1. 2005 Washington Ground Squirrel Colonies Identified Near Leaning Juniper II South and General 2006 and 2007 Notes

WGS Colony#*	Soils	Mapped Habitat (late 2004)	Overall Density	Colony Size and Acres (rounded)	General Notes	Proximity to Facilities

Small = 10 to 30 individuals.
Medium = 30 to 40 individuals.
Large = 40 to 100+ individuals.

Soils

14B – Krebs silt loam, 2-5% slopes
14D – Krebs silt loam, 5-20% slopes
23B – Olex silt loam, 0-5% slopes
23C – Olex silt loam, 5-12% slopes
23D – Olex silt loam, 12-20% slopes
32B – Ritzville silt loam, 2-7% slopes
33E – Ritzville silt loam, 20-40% north slopes
40B – Sagehill fine sandy loam, 2-5% slopes
56B – Willis silt loam, 2-5% slopes
(23B has the most WGS use)

Mapped Habitat

Specific colony site vegetation descriptions are not yet prepared however, many of the sites burned moderately hot in 1999 or 2000 and are now grassland (native or annual) with open low shrub (rabbitbrush and buckwheat species {Eriogonum}).

4c and part of 1 and 4d are unburned sagebrush.

The following text is from the NWC November 2004 Habitat Mapping.

GA (1 site) - Annual grass and/or weeds. Soil depth variable. Long-billed curlews (LBCU), Washington ground squirrel (WGS). Common species such as horned lark (HOLA).

SSA (1 site, part of second site)—Shrub-grass. Sagebrush-rabbitbrush-snakeweed/bunchgrass-annual grasses. Soils medium to deep. Some sites have been intensively impacted by cattle grazing. This type appears to have potential value for shrub obligate species; Loggerhead shrike (LOSH). Also WGS and WTJ. Common species WEME.

SSB (many sites)—Open, low shrub and grass. Rabbitbrush-snakeweed-Eriogonum/bunchgrass-annual grass. Native bunchgrass is usually perennial Sandberg's bluegrass (*Poa sandbergii*). Most of these areas are formerly SS (more sagebrush) attempting to recover from frequent burning. Little current potential for nesting by shrub obligate species. LBCU, white-tailed jackrabbit (WTJ), WGS. Common species HOLA, Western meadowlark (WEME)."

5. Project Description and Methods

a) Leaning Juniper II

Project beginning and end dates

Construction of the Project is currently expected to begin in late 2007 and to be completed in mid-2008. As described in the site certificate application, construction would begin no later than three years after the effective date of the site certificate and would be completed no later than four years after the effective date of the site certificate. The Council rules allow these deadlines to be extended.

Project details, including location, maps, plans, electronic documents, land ownership information at and adjacent to parcel. Equipment to be utilized, names and affiliations of participating personnel including relationship to applicant, and contacts.

Figures 1 though 4 show the location of the project in relation to the WGS colonies. Construction of the project will require a variety of heavy equipment, including grading and earth-moving equipment; trucks and trailers for delivering gravel, concrete, tower sections, blades, and turbine assemblies; heavy duty cranes for turbine assembly; trenching equipment for installing underground collector cables; and pickup trucks for transporting construction crews and supplies. Other project details, including a description of the applicant and proposed project, a list of equipment to be utilized, maps and plans, and land ownership information at and adjacent to parcel can be found in the Application for Site Certificate provided to ODFW.

Key personnel will be determined closer to construction. In the interim, the contact persons are PPM Energy's project permitting manager: Sara McMahon (503-796-7732) or PPM Energy's Permitting Director Andy Linehan (503-796-6955).

6. Proposed measures to minimize impacts or enhance the species

Pre-Project Impact Reduction

Project Re-routing:

Following the 2004-2005 habitat and wildlife surveys, the Applicant worked with ODFW to identify turbine locations, laydown areas, and roads

located near known WGS colonies so that these facilities could be relocated during micrositing to avoid impacting these resources. These changes include:

- Roads such as Juniper Canyon Woodland and two-track farm roads, which cross through WGS colonies, were eliminated from the Facility construction plan.
- Turbines in the E and F turbine strings were relocated from within occupied WGS habitat to outside the occupied habitat.
- The road between E and F turbine strings and construction staging area will be constructed to avoid WGS occupied habitat.
- The road from turbine J-16 to Cedar Springs Road was designed to be located farther from WGS colony #6. During final design, an existing road from ORE 19 to an existing quarry may be used to access J-16 rather than construct a new road.
- In addition, the Applicant will maximize use of existing gravel roads rather than existing two-track, farm roads to avoid impacts to WGS. For example, the Applicant will utilize the graveled road off Highway 19, Stone Lane, as primary Facility access rather than improving the farm road through Juniper Canyon woodland, which traverses historical WGS colony #1.

As a result of these changes, no Leaning Juniper II South component footprint is located within known WGS active colonies or Category 1 habitat. In addition, potential Facility-related disturbance in habitat adjacent to all known WGS patches was kept to a minimum.

During Construction

The Applicant has also committed to implementing protective measures during construction, as summarized below.

- Pre-Construction Baseline Survey. In the spring of 2007, NWC surveyed the full extent of each known colony on the boundary closest to the construction zone to establish a pre-construction baseline survey. Once the 2007 survey data is fully analyzed and integrated into GIS, a revised map of the WGS locations will be provided to ODFW for their records and integrated into the project constraints maps. The revised WGS locations will be marked with exclusion flagging and avoided during construction. If any facility components overlap with the 2007 WGS locations, these will be micro-sited outside of the WGS locations to ensure that no Leaning Juniper II component footprint is located within known WGS active colonies or Category 1 habitat. In addition, potential Facility-related disturbance in habitat adjacent to all

known WGS patches will be minimized to the extent feasible. If construction occurs in 2008 or later, the full extent of each known colony identified in previous years will be surveyed on the boundary closest to the construction zone in the spring prior to construction. Because WGS colonies can change size and shape from year to year, surveying the colony edge prior to construction will ensure that the sensitive area is correctly marked with exclusion flagging and avoided during construction.

- Flagging: the Applicant will identify WGS occupied colonies near planned construction. The biological monitor will mark areas that should not be impacted during construction with brightly colored pin flags or wooden lathes and signing, and instruct the contractor to work outside these boundaries.
- Erosion Control: In an effort to minimize impacts to the project habitat, the Applicant prepared an Erosion and Sediment Control plan in accordance with a NPDES permit and will require the contractor to install erosion and siltation controls near riparian areas and other appropriate locations as designated in this plan.
- Environmental Training: the Applicant will develop an environmental training course for the construction contractors that provides information on the sensitive species present on-site, the exclusion flagging/signing, permit requirements and other environmental issues. All construction site personnel will be required to attend the environmental training in conjunction with hazard and safety training prior to working on-site. All construction personnel will be required to report any vehicular strikes of WGS or any dead or injured WGS found. The Applicant's construction contractor will maintain a list of on-site construction personnel who have received the training.
- Limited Work Areas: Construction work will be limited to the approved and surveyed areas shown on project constraints maps. No working or driving cross-country within the project boundaries as short-cuts or for any other purposes will be permitted without prior approval from appropriate authorities.
- Construction Monitoring:
    - The Applicant uses an on-site manager and requires the construction contractors to designate a Field Contact Representative (FCR) to oversee their compliance during construction. The FCR is responsible for overseeing compliance with environmental protective measures and coordination in accordance with the county and other regulatory agencies.
    - A qualified biologist (NWC WGS specialists or PPM Energy's Sara McMahon) will visit the site periodically before site development and during construction in order to flag sensitive resource areas and oversee construction and permit compliance. Details of proposed construction monitoring are provided in Attachment 1.

Post-Construction

After construction is complete, the Applicant will work to restore the habitat to pre-construction standards and monitor WGS impacts that may occur unintentionally during project operations. Habitat mitigation measures are summarized below as well as reporting of incidentally-found WGS carcasses or injured WGS and appropriate care:

Habitat Restoration: the Applicant will implement the Revegetation Plan included as Attachment B to the Site Certificate. In order to re-establish plant communities of most value to wildlife, native species will be used in non-agricultural areas to the maximum extent possible.

Habitat Conservation: The Applicant will implement the Habitat Mitigation Plan included as Attachment C to the Site Certificate for preservation and enhancement of an area of land near the Leaning Juniper II Wind Power Facility to mitigate for the impacts of the facility on wildlife habitat. The property will be protected under a conservation easement for the life of the Project.

Monitoring. The Applicant will conduct long-term post-construction surveys to collect data on WGS activity within the wind project lease boundary. A qualified professional biologist will monitor the WGS sites identified during the pre-construction surveys (2005 through 2007) and the buffer area within 500 feet in all directions from the identified WGS sites in suitable habitat. The certificate holder shall conduct surveys during the year following construction and every three years thereafter for the life of the Project.

Surveyors will walk standard protocol-level transects twice between late March and late May and record level of use, notes on natal sites and physical extent of the sites. Details of proposed post-construction monitoring are provided in Attachment 2.

Reporting. The Project staff (whether the Applicant employees, turbine contractor or other) will be required to report any WGS carcasses, injured WGS or vehicle strikes of WGS during operations of the Project for the life of the project. A reporting plan will be prepared, agreeable to the ODFW. Injured animals will receive immediate care as described in the Applicant's Wildlife Incidental Response and Handling System (to be prepared before start of Operations).

7. Project Outcome Reporting

In the event that one or more WGS are taken during and as the result of the construction or operation of the Project, the ITP holder will report this taking to

the ODFW within 3 working days. As discussed earlier, the ODFW recognizes that observed WGS mortality could be associated with the Project (and subject to the terms of this ITP and its take limits), with on-going operations (outside the scope of this ITP and its take limits), or neither (and thus also outside the scope of this ITP and its take limits). The ITP holder will provide any evidence of the cause of the WGS mortality (or injured WGS). The cause of the fatality will be attributed to the project if there is evidence demonstrating that the observed mortality is associated with the project. All specimens will be collected and retained if possible and made available to the ODFW. The ITP holder will report any survey results and a cumulative total of any WGS taken as a result of this to the ODFW on an annual basis.

July 18, 2007

_____ _____

Signature of Applicant | Date

Andrew Linehan | Wind Energy Permitting Director

Name | Title

Attachment 1

Construction Monitoring

Leaning Juniper II

Prior to construction, the Applicant will survey the full extent of each known colony identified in 2005, 2006 and/or 2007 on the boundary closest to the construction zone. Because WGS colonies can change size and shape from year to year, surveying the colony edge prior to construction will ensure that the sensitive area is correctly marked with exclusion flagging and avoided during construction.

The following construction monitoring specifies different monitoring protocols for different levels of Leaning Juniper II construction activity.

Level 1 Construction Activity

Facilities are relatively close to WGS sites and construction activity is likely to be more extensive and occur over a relatively long period. Monitoring will be intensive when needed with intermittent inspections before and after construction in the immediate area. Three sites – WGS sites 4, 5 and 6

Facility and Location: New road and E and F turbine strings near WGS patch 4, particularly 4a, 4b and 4 c; alternate overhead collector line over WGS patch 5 and road around WGS patch 6, near J turbine string.

Prior to any ground disturbing activities, the Applicant's representative (NWC) will mark the colony boundary closest to the new road and anticipated construction zone.

Experienced field biologists will walk through the known WGS site and look for sign of use by WGS. WGS may emerge as early as late January and could occupy areas not documented during the pre-construction protocol surveys. As discussed earlier, in the spring of 2007, NWC surveyed the full extent of each known colony on the boundary closest to the construction zone to establish a pre-construction baseline survey. Once the 2007 survey data is fully analyzed and integrated into GIS, a revised map of the WGS locations will be provided to ODFW for their records and integrated into the project constraints maps. The revised WGS locations will be marked with exclusion flagging and avoided during construction. If construction occurs in 2008 or later, the full extent of each known colony identified in previous years will be

surveyed on the boundary closest to the construction zone in the spring prior to construction. Because WGS colonies can change size and shape from year to year, surveying the colony edge prior to construction will ensure that the sensitive area is correctly marked with exclusion flagging and avoided during construction.

If construction will not occur until after March 1 when WGS activity has accelerated, biologists will observe WGS and construction activities from a safe and unobtrusive distance. If needed, the video probe can also be used to supplement the above-ground visual observations.

If any facility components overlap with the WGS locations, these will be micro-sited outside of the WGS locations to ensure that no Leaning Juniper II component footprint is located within known WGS active colonies or Category 1 habitat. In addition, potential Facility-related disturbance in habitat adjacent to all known WGS patches will be minimized to the extent feasible, as further described below.

WGS Site 4

To avoid and minimize impacts to the WGS site # 4 (a, b, and c), the collector line routes and roads along the F turbine string will be micro-sited outside of the WGS sites to ensure that no permanent facility components or temporary construction areas will be located within known WGS active colonies or Category 1 habitat. The collector lines, roads and construction paths and staging areas will be routed around the WGS colonies. For example, the collector line from F-11 will not continue to F-10, nor will the line from F-8 go to F-7. Instead, the lines will collect electricity from the turbines and transport the energy back to the substation along routes that follow project access roads, which will also be micro-sited outside WGS sites.

WGS Site 5

WGS Site #5, which was active in 2005 and 2006 and inactive in 2007, may become active again. To avoid and minimize impacts to the WGS site # 5, the alternate collector line route from turbine J-17 to J-14 would not be constructed unless the preferred route from J-17 to J-14 is determined to be infeasible. The preferred route runs generally to the south of WGS site #5. If the alternate route were to be used, the WGS site #5 would be crossed by an overhead collector line. The applicant would avoid placing any temporary construction paths or permanent overhead transmission line poles inside the colony. If practicable, the overhead line will be micro-sited so that the wires are not placed over the WGS site. As required by the Site Certificate, all project overhead collector lines would be constructed in accordance with the recommendations of the Avian Power Line Interaction Committee for raptor protection on power lines (including minimum conductor spacing and the use of anti-perch guards near turbines).

WGS Site 6

The road from Highway 19 to turbine J-16 would be routed to avoid any temporary or permanent impacts to the WGS Site #6.

2. An environmental monitor will be present during new road construction and during initial construction and blasting at these turbines. It is assumed that initial road blading/clearing and graveling will take 1-2 separate days, not necessarily all at one time and that turbine site preparation (blasting or other) will entail several periods of high activity and periods of a couple of hours or more intermittently over a range of three months. A monitor will be present during the entire duration of road blading/clearing and blasting near this group of turbines. Observations of squirrel responses and construction equipment near active squirrel burrow will occur from a specific vantage point.

3. After initial road clearing, after blasting, and periodically during the entire construction period in this vicinity the monitor will search for sign of direct impact to WGS, as required in the ITP. It is anticipated that weekly searches for WGS carcasses will occur, safety permitting, along the new access and turbine string roads closest to the colony. The biological monitor will schedule inspections in coordination with the contractor foreman to be able to inspect immediately after construction activities have subsided to a safe level.

Level 2 Construction Activity

Facilities are located further from WGS sites. Monitoring will be brief and intensive with intermittent inspections before and after construction in the immediate area. Two sites: WGS patch 1 and 4 (4d, 4e).

Facility and Location: WGS patch 4 (4d and 4e) and 8 near E and F turbine strings.

Prior to any ground disturbing activities, the Applicant's representative (NWC) will mark the WGS boundary closest to the turbine string, using the pre-construction data and historic activity in 2005, 2006 and early 2007. The colony boundaries will not be adjusted earlier than April 1 (after WGS activity levels are more predictable).

1. The environmental monitor will periodically inspect the site prior to and during authorized construction to monitor for unauthorized use by construction contractors or others.

2. If any of the known WGS sites are active during construction, the monitor will be present during the turbine string road construction blading/clearing and observe WGS activity from a safe and unobtrusive vantage point.

3. After initial road clearing and turbine pad preparation, the monitor will search for sign of direct impact to WGS, as required in the ITP.

Level 3 Construction Activity

Facilities are located further from WGS sites and are not within planned, construction authorized access areas. Three WGS sites – 1, 2 and 7.

Prior to start of construction, “No Entry” Signs will be placed at strategic locations such as existing roads or two-track trails that would take the person to a known WGS colony.

Attachment 2
Post-Construction Monitoring

Objective

The primary objective of the post-construction monitoring is to determine the current status of the pre-construction baseline sites. This can be accomplished by assessing notable changes in the overall use level (density and extent) of colonies.

Assumptions:

1. Permit holder will use pre-construction baseline data.

2. Permit holder will assess each of the six sites identified in 2005 and any expanded 2005 sites or new sites identified in 2006 or 2007 during the first year of post-construction monitoring and every three years for the life of the project.

3. If new occupied sites are incidentally discovered while conducting the periodic post-construction monitoring, the location and a site description will be prepared. The new sites will not be monitored, unless they are immediately adjacent to the pre-construction baseline sites.

Methods

On-Site

WGS sites within the project lease boundary that were identified prior to construction would be surveyed, with a buffer of an additional 500 feet in all directions during the first year of operations (only within suitable habitat within the project [wind lease] area) and every three years for the life of the Project. Surveyors will walk 30 to 50 meter wide transects twice from late March through late May and record the following: 1) level of use (low medium or high density), notes on natal sites present, and 2) the extent of colony (with natal sites) or small patch (no sign of natal site, likely adult males). GIS-based maps will be prepared and maintained in the Applicant's and NWC project files.

Figure Q-1
WGS Locations (2005-2006) - Enlarged Area 1
Leaning Juniper II
Wind Power Facility
Incidental Take Permit Application

PPM Energy
A ScottishPower Company

Legend

- Unconfirmed Washington Ground Squirrel Sites
- Washington Ground Squirrel Sites

Proposed Permanent Facilities

- Proposed Turbine - Leaning Juniper II North
- Proposed Turbine - Leaning Juniper II South
- Proposed Permanent Met Tower

Proposed Roads - Leaning Juniper II

- New Road
- Existing Road - Improvements Needed

Alternate Routes - Leaning Juniper II

- Existing Road - Improvements Needed
- New Road

Preferred Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line

Alternate Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line
- Proposed Substation
- Proposed O&M Facility and Laydown Area
- Alternate O&M Facility and Laydown Area
- BPA Jones Canyon Switching Station

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2-Acre Temporary Staging Area
- Proposed 5-Acre Temporary Staging Area

Existing Facilities

- Existing BPA Transmission Line
- Major Roads
- Existing LJ I Roads
- Railroads
- Streams
- Leaning Juniper II - North
- Leaning Juniper II - South

N W E S

0 2,000 4,000 6,000 Feet

Data Collected by Northwest Wildlife Consultants, Inc.

Enlarged Area 1 (See Figure Q-5)

Enlarged Area 2 (See Figure Q-6)

Enlarged Area 3 (See Figure Q-7)

Slatt-John Day No 1 (500 kV)

McNary-Santiam No 2 (230 kV)

Slatt-Buckley No 1 (500 kV) & A.she-Marion No 2 (500 kV)

Blalock Canyon Rd

Cedar Springs Rd

John Day

Rattlesnake Rd

Stone Ln

Met-1 Met-2 Met-3 Met-4

Figure Q-2

WGS Locations (2005-2006) - Enlarged Area 1

Leaning Juniper II
Wind Power Facility
Incidental Take Permit Application

PPM Energy
A ScottishPower Company

Legend

- Unconfirmed Washington Ground Squirrel Sites
- Washington Ground Squirrel Sites

Proposed Permanent Facilities

- Proposed Turbine - Leaning Juniper II North
- Proposed Turbine - Leaning Juniper II South
- Proposed Permanent Met Tower

Proposed Roads - Leaning Juniper II

- New Road
- Existing Road - Improvements Needed

Alternate Routes - Leaning Juniper II

- Existing Road - Improvements Needed
- New Road

Preferred Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line

Alternate Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line
- Proposed Substation
- Proposed O&M Facility and Laydown Area
- Alternate O&M Facility and Laydown Area
- BPA Jones Canyon Switching Station

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2-Acre Temporary Staging Area
- Proposed 5-Acre Temporary Staging Area

Existing Facilities

- Existing BPA Transmission Line
- Major Roads
- Existing LJ I Roads
- Railroads
- Streams
- Leaning Juniper II - North
- Leaning Juniper II - South

N
W E
S

0 500 1,000 1,500 2,000 Feet

Data Collected by Northwest Wildlife Consultants, Inc.

File Path: \\Porgis01\GIS Data\Projects\OR-WA\Leaning Juniper\MapDocuments\Report Figures\ITP Application\Figure Q-2 WGS (2005) - Enlarged Area 1.mxd, Date: July 11, 2007 1:03:19 PM

Figure Q-3

WGS Locations (2005-2006) - Enlarged Area 1

Leaning Juniper II
Wind Power Facility
Incidental Take Permit Application

Legend

PPM Energy
A ScottishPower Company

- Unconfirmed Washington Ground Squirrel Sites
- Washington Ground Squirrel Sites

Proposed Permanent Facilities

- Proposed Turbine - Leaning Juniper II North
- Proposed Turbine - Leaning Juniper II South
- Proposed Permanent Met Tower

Proposed Roads - Leaning Juniper II

- New Road
- Existing Road - Improvements Needed

Alternate Routes - Leaning Juniper II

- Existing Road - Improvements Needed
- New Road

Preferred Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line

Alternate Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line
- Proposed Substation
- Proposed O&M Facility and Laydown Area
- Alternate O&M Facility and Laydown Area
- BPA Jones Canyon Switching Station

Proposed Temporary Facilities

- Proposed Crane Path
- Proposed 2-Acre Temporary Staging Area
- Proposed 5-Acre Temporary Staging Area

Existing Facilities

- Existing BPA Transmission Line
- Major Roads
- Existing LJ I Roads
- Railroads
- Streams
- Leaning Juniper II - North
- Leaning Juniper II - South

N
W E
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0 500 1,000 1,500 2,000
Feet

Data Collected by Northwest Wildlife Consultants, Inc.

File Path: \\Porgis01\GIS Data\Projects\OR-WA\Leaning Juniper\MapDocuments\Report Figures\ITP Application\Figure 3 - Washington Ground Squirrel Locations (2005-2007) - Enlarged Area 2.mxd, Date: July 12, 2007 10:39:54 AM

Figure Q-4
WGS Locations (2005-2006) - Enlarged Area 1

Leaning Juniper II
Wind Power Facility
Incidental Take Permit Application

PPM Energy
A ScottishPower Company

Legend

- Unconfirmed Washington Ground Squirrel Sites
- Washington Ground Squirrel Sites

Proposed Permanent Facilities

- Proposed Turbine - Leaning Juniper II North
- Proposed Turbine - Leaning Juniper II South
- Proposed Permanent Met Tower

Proposed Roads - Leaning Juniper II

- New Road
- Existing Road - Improvements Needed

Alternate Routes - Leaning Juniper II

- Existing Road - Improvements Needed
- New Road

Preferred Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line

Alternate Collector Routes

- Underground 34.5-kV Line
- Overhead 34.5-kV Line
- Proposed Substation
- Proposed O&M Facility and Laydown Area
- Alternate O&M Facility and Laydown Area
- BPA Jones Canyon Switching Station

Proposed Temporary Facilities

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- Proposed 5-Acre Temporary Staging Area

Existing Facilities

- Existing BPA Transmission Line
- Major Roads
- Existing LJ I Roads
- Railroads
- Streams
- Leaning Juniper II - North
- Leaning Juniper II - South

N
W E
S

0 500 1,000 1,500 2,000 Feet

Data Collected by Northwest Wildlife Consultants, Inc.

Department of State Lands
1645 NE Forbes Road, Suite 112
Bend, Oregon 97701

☎ 541-388-6112

Permit No.: _____
Permit Type: _____
Waterway: _____
County: _____
Expiration Date: _____
Corps No.: _____

Leaning Juniper Wind Power II LLC (Certificate Holder)

IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE ATTACHED COPY OF THE APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:

1. This permit does not authorize trespass on the lands of others. The permit holder shall obtain all necessary access permits or rights-of-way before entering lands owned by another.
2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
5. A copy of the permit shall be available at the work site whenever operations authorized by the permit are being conducted.
6. Employees of the Department of State Lands and all duly authorized representatives of the Director shall be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
7. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within twenty-one (21) calendar days of the date this permit was issued.
8. In issuing this permit, the Department of State Lands makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390 and related administrative rules.
9. Permittee shall defend and hold harmless the State of Oregon, and its officers, agents, and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.

NOTICE: If removal is from state-owned submerged and submersible land, the applicant must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 - 274.940. This permit does not relieve the permittee of an obligation to secure appropriate leases from the Department of State Lands, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact the Department of State Lands, 541-388-6112.

Eric D. Metz, E Region Manager
Wetlands & Waterways Conservation Div
Oregon Department of State Lands

Authorized Signature **Date Issued**

ATTACHMENT A
Special Conditions for Removal/Fill

1. **<u>This is a draft permit</u>.** Once the Energy Facility Siting Council directs the Department of State Lands (DSL) to issue the permit, DSL would officially provide a permit and authorize the removal of up to 11.8 cubic yards of rock & gravel and fill of sediment up to 77.8 cubic yards of rock, gravel, and silt in T. 3N, R. 21E, Section 35C,34BCD, 33ABCD, & T. 2N, R. 21E, Section 2 BC, 3ABDC, 4ABDC, 8A, 9ABD, 10ABDC, 11B, 15ABDC, 17BC, 18ABDC, 19ABDC, 22ABDC, 27ABC, 28ADC, 33ABC & T. 2N, R. 20E, 11CD, 12C, 13ABDC, 14ABDC, 15ADC, 21ABDC, 22ABDC,23ABDC,26B, 27AB, 28AB, Tax Lot 1500,1600,2300 as outlined in the site certificate application.

2. TURBIDITY/EROSION CONTROLS. The authorized work shall not cause turbidity of affected waters to exceed 10% over natural background turbidity 100 feet downstream of the fill point. For projects proposed in areas with no discernible gradient break (gradient of 2% or less), monitoring shall take place at 4 hour intervals and the turbidity standard may be exceeded for a maximum of one monitoring interval per 24 hour work period provided all practicable control measures have been implemented. Visual gauging is acceptable

3. For projects in all other areas, the turbidity standard can be exceeded for a maximum of 2 hours (limited duration) provided all practicable erosion control measures have been implemented. These projects may also be subject to additional reporting requirements.

4. The following erosion control measures (and others as appropriate) shall be observed:

    a. Filter bags, sediment fences, sediment traps or catch basins, leave strips or berms, or other measures shall be used sufficient to prevent movement of soil from uplands into waterways or wetlands.
    b. To prevent erosion, use of compost berms, impervious materials or other equally effective methods, shall be used to protect soil stockpiled during rain events or when the stockpile site is not moved or reshaped for more than 48 hours.
    c. Erosion control measures shall be inspected and maintained daily, or more frequently as necessary, to ensure their continued effectiveness and shall remain in place until all exposed soil is stabilized.
    d. Unless part of the authorized permanent fill, all construction access points through, and staging areas in, riparian or wetland areas shall use removable pads or mats to prevent soil compaction. However, in some wetland areas under dry summer conditions, this requirement may be waived upon approval by DSL. At project completion, disturbed areas with soil exposed by construction activities shall be stabilized by mulching and native vegetative plantings/seeding. Sterile grass may be used instead of native vegetation for temporary sediment control. If soils are to remain exposed more than seven days after completion of the permitted work, they shall be covered with erosion control pads, mats or similar erosion control devices until vegetative stabilization is installed.
    e. Where vegetative erosion control is being done on cut slopes steeper than 1H:2V, a tackified seed mulch shall be used so the seed does not wash away before germination and rooting.
    f. Dredged or other excavated material shall be placed on upland areas having stable slopes and shall be prevented from eroding back into waterways or wetlands.

5. Erosion control measures shall be maintained as necessary to ensure their continued effectiveness, until soils become stabilized. All erosion control structures shall be removed when project is complete and soils are stabilized and vegetated.

6. HAZARDOUS, TOXIC AND WASTE MATERIALS. Petroleum products, chemicals, fresh cement sandblasted material and chipped paint or other deleterious waste materials shall not be allowed to enter waters of the state. No wood treated with leach able preservatives shall be placed in the waterway. Machinery refueling is to occur off-site or in a confined designated area to prevent spillage into waters of the state. Project-related spills into water of the state or onto land with a potential to enter waters of the state shall be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311.

7. If any archaeological resources and/or artifacts are uncovered during excavation, all construction activity shall immediately cease. The State Historic Preservation Office shall be contacted (phone: 503-986-0669).

8. When listed species are present, the permit holder must comply with the federal Endangered Species Act. If previously unknown listed species are encountered during the project, the permit holder shall contact the appropriate agency as soon as possible.

9. The Department of State Lands retains the authority to temporarily halt or modify the project in case of unforeseen damage to natural resources.

10. The certificate holder shall submit a monitoring report for the compensatory mitigation activities associated with this project to the Department of State Lands field office in Bend, Oregon for three consecutive years.

11. The certificate holder is responsible for carrying-out the terms and conditions of a DSL permit once issued unless the permit is transferred to another party as approved by the Department.