

**Record of Decision for the  
Electrical Interconnection of the  
Leaning Juniper II Wind Project  
March 2009**

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## **INTRODUCTION**

The Bonneville Power Administration (BPA) has decided to offer contract terms for interconnection of up to 200 megawatts (MW) of power to be generated by the proposed Leaning Juniper II Wind Project (Wind Project) into the Federal Columbia River Transmission System (FCRTS). Iberdrola Renewables, Inc. (Iberdrola) proposes to construct and operate the proposed Wind Project in Gilliam County, Oregon, and has requested interconnection to the FCRTS at BPA's Jones Canyon Substation in Gilliam County, Oregon. BPA will expand this existing substation and install new equipment at the substation to accommodate this additional power into the FCRTS.

BPA's decision to offer terms to interconnect the Wind Project is consistent with BPA's Business Plan Final Environmental Impact Statement (BP EIS) (DOE/EIS-0183, June 1995), and the Business Plan Record of Decision (BP ROD, August 15, 1995). This decision thus is tiered to the BP ROD.

## **BACKGROUND**

BPA is a federal agency that owns and operates the majority of the high-voltage electric transmission system in the Pacific Northwest. This system is known as the FCRTS. BPA has adopted an Open Access Transmission Tariff (Tariff) for the FCRTS, consistent with the Federal Energy Regulatory Commission's (FERC) *pro forma* open access tariff.<sup>1</sup> Under BPA's Tariff, BPA offers transmission interconnection to the FCRTS to all eligible customers on a first-come, first-served basis, with this offer subject to an environmental review under the National Environmental Policy Act (NEPA).

For all requests for interconnection of generating facilities that exceed 20 MW, BPA chooses to act consistently with FERC's Order No. 2003, Standardization of Large Generator Interconnection Agreement and Procedures, and Order 661, Interconnection for Wind Energy, as adopted by BPA and incorporated, with FERC approval, into BPA's Tariff. Order No. 2003 established the Large Generator Interconnection Procedures (LGIP) and Large Generator Interconnection Agreement (LGIA), which provide a uniform process for offering

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<sup>1</sup> Although BPA is generally not subject to FERC's jurisdiction, BPA follows the open access tariff as a matter of national policy. This course of action demonstrates BPA's commitment to non-discriminatory access to its transmission system and ensures that BPA will receive reciprocal and non-discriminatory access to the transmission systems of utilities that are subject to FERC's jurisdiction.

interconnection to any generating facilities exceeding 20 MW. Order 661 contains additional standardized processes and technical requirements specific to interconnection of wind generators. BPA has adopted its LGIP and LGIA as Attachment L to its Tariff.

In its Order 2003 Tariff filing, BPA included provisions in its LGIP to reflect BPA's obligation to complete an environmental review under NEPA of a proposed large generator interconnection before deciding whether to offer a final LGIA to the party requesting interconnection.

On May 24, 2006, Iberdrola submitted a generator interconnection request to BPA to interconnect 200 MW from its proposed Wind Project to the FCRTS. Consistent with its Tariff, including the LGIP, BPA must respond to this interconnection request and comply with its NEPA responsibilities.

## **RELATIONSHIP TO BUSINESS PLAN EIS**

In response to a need for a sound policy to guide its business direction under changing market conditions, BPA explored six alternative plans of action in its BP EIS. The six alternatives were: Status Quo (No Action), BPA Influence, Market-Driven, Maximize Financial Returns, Minimal BPA, and Short-Term Marketing. The BP EIS examined each of these six alternatives as they relate to meeting the regional electric energy need in the dynamic West Coast energy market. The analysis focused on the relationships among BPA, the utility market, and the affected environment and evaluated transmission as well as generation, comparing BPA actions and those of other energy suppliers in the region in meeting that need (BP EIS, Section 1.7).

In the BP ROD, the BPA Administrator selected the Market-Driven Alternative. Although the Status Quo and the BPA Influence Alternatives were the environmentally preferred alternatives, the differences among alternatives in total environmental impacts were relatively small. Other business aspects, including loads and rates, showed greater variation among the alternatives. BPA's ability to meet its public and financial responsibilities would be weakened under the environmentally preferred alternatives. The Market-Driven Alternative strikes a balance between marketing and environmental concerns, including those for transmission-related actions. It is also designed to help BPA ensure the financial strength necessary to maintain a high level of support for public service benefits, such as energy conservation and fish and wildlife mitigation and recovery activities.

The BP EIS was intended to support a number of decisions (BP EIS, Section 1.4.2), including contract terms BPA will offer for transmission interconnection services. The BP EIS and BP ROD documented a strategy for making these subsequent decisions (BP EIS, Figure 1.4-1 and BP ROD, Figure 3, page 15).

BPA's decision to offer terms for interconnecting the Wind Project is one of these subsequent decisions and the subject of this ROD. BPA reviewed the BP EIS to ensure that offering contract terms for interconnecting the Wind Project was adequately covered within its scope and that it was appropriate to issue a record of decision tiered to the BP ROD. This ROD for the Wind Project, which summarizes and incorporates information from the BP EIS, demonstrates this decision is within the scope of the BP EIS and BP ROD.

This ROD describes the specific project and environmental information applicable to this decision to offer contract terms for transmission interconnection of the Wind Project, with

reference to appropriate sections of the BP EIS and BP ROD. This ROD references information that was incorporated by reference into the BP EIS from BPA's Resource Programs (RP) EIS (DOE/EIS-0162, February 1993). The RP EIS contains an analysis of environmental effects and mitigation for wind projects and associated transmission.

This ROD also summarizes and references Wind Project information provided by Iberdrola, as well as from the Final Order for the project Site Certificate that was issued by the Oregon Energy Facility Siting Council (EFSC).<sup>2</sup>

## **PROJECT DESCRIPTION**

### **BPA Interconnection Facilities**

To accommodate interconnection of the Wind Project, BPA will expand its existing Jones Canyon Substation in Gilliam County, Oregon, by 0.68 acre. BPA will add various electrical equipment including one circuit breaker, four disconnect switches, and one set of voltage transformers - all connected by metal tubing (known as "bus") in the area where the substation is expanded. One additional tubular tower will be constructed within the existing substation. The existing control house and communication tower will be used to operate the equipment, so no new control facilities will be added. The expanded substation area will be graveled, and all new substation equipment will be placed on the gravel bed. To provide security, a 7-foot high chain link fence and lighting will be installed around the perimeter of the substation expansion.

### **Leaning Juniper II Wind Project**

Under its Site Certificate from Oregon EFSC, Iberdrola is authorized to construct and operate a 279 MW<sup>3</sup> wind power facility consisting of 133 wind turbines arranged in strings on privately-owned land in Gilliam County, Oregon, south of the Columbia River. Their proposed facility site will lie southwest of Arlington. The Arlington city limit boundary is adjacent to the wind farm lease boundary.

The Wind Project will 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.

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<sup>2</sup> 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.

<sup>3</sup> Although Iberdrola has obtained permission for a 279-MW wind facility from Oregon EFSC, Iberdrola has requested interconnection from BPA of only 200 MW under Open Access Same-Time Information System (OASIS) Generation Interconnection (GI) request number G0226. This ROD documents BPA's decision to issue a LGIA for the 200 MW request. If Iberdrola should seek interconnection of additional megawatts from its project, it would be through a new request under the Open Access Transmission Tariff. BPA would review any such request under NEPA and prepare any necessary NEPA documentation before making a decision regarding the request.

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

About 63 acres will be used for the footprint of the proposed turbines and related support facilities. This project is expected to take about 6 to 8 months to construct, and will have a 25-year service life. During construction, about 335 workers will be employed. The following summarizes the proposed Wind Project.

### ***Turbines***

The Wind Project will consist of individual wind turbines, each having a nacelle (containing the gearbox and generator), a rotor and blade assembly and a turbine tower and foundation. The wind turbines will be spaced approximately 350 to 850 feet apart (depending on turbine selection) in a series of turbine strings.

Turbine strings will be oriented in a generally north-south alignment a half-mile or more apart. LJ-North will consist of up to 40 turbines. LJ-South will consist of up to 93 turbines. Iberdrola requested flexibility in selecting the turbine type and manufacturer. The total number of turbines to be built and the facility generating capacity will depend on the turbines selected. However, the site certificate limits the total number of turbines to 133 and the total peak generating capacity to 279 MW.

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

Turbine towers will be anchor-bolted to concrete foundations. The foundations will be backfilled and allowed to cure prior to tower erection. Tower foundations are designed to withstand approximately 120 mile per hour (mph) winds.

The turbine string corridor will consist of tower assembly areas and pads (200 square feet during construction) and access roads. Trenches for collection and communications lines will be excavated in easement corridors. Following construction, portions of the tower assembly areas, pads, roads and all trenched areas will be reclaimed.

### ***Substation and Interconnection System***

A Wind Project substation will be located adjacent to BPA's Jones Canyon Substation. The substation will be on a 3.6-acre site within a graveled, fenced area. The substation will convert the voltage from the 34.5-kV collector system to 230 kV. An aboveground transmission line less than 400 feet long will carry the power from the project to the existing BPA Jones Canyon Substation and the existing McNary-Jones Canyon 230-kV transmission line and the existing Jones Canyon-Santiam 230-kV transmission line.

### ***Power Collection System***

A power collection system operating at 34.5 kV will carry the power from each turbine to the Wind Project collector substation. To the extent practicable, the collection system will be installed underground at a depth of at least three feet. 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 will be supported by H-frame or monopole support structures. Overhead collector lines will 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 will consist of approximately 33.2 miles of collector lines. No more than 30 percent of the collector system (3.3 miles in LJ-North and 6.6 miles in LJ-South) will be installed aboveground.

### ***Meteorological Towers***

LJ-North will have one meteorological (met) tower, and LJ-South will have three met towers. The met towers will be non-guyed steel towers approximately 260 feet tall constructed on a square pad foundation measuring approximately 28 square feet and extending approximately 3 feet below grade. Under any turbine layout, the met towers (as well as access roads and underground communication lines for the two met towers) will be located within the project areas.

### ***Operations and Maintenance Facilities***

Iberdrola will construct either one or two operations and maintenance (O&M) buildings. The O&M buildings will be 4,000 to 8,000-square-foot, one-story buildings. Each O&M building will be located on a 10-acre site. The O&M buildings will contain offices, control system equipment, bathroom and kitchen facilities, storage area and a garage for vehicle, turbine and equipment maintenance. There will be approximately 2.5 acres of fenced, graveled parking and storage area adjacent to each building. At each building, water will be supplied by an on-site well and wastewater will be discharged to an on-site septic system. On-site power will be supplied by Pacific Power. The existing power line along Rattlesnake Road that currently serves the Leaning Juniper I O&M building will carry power for the LJ-North O&M building. Power for the LJ-South O&M building will 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 will 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 will be between 1.8 miles and 6.6 miles of new underground power line.

### **Control System**

A fiber optic communications network will link the wind turbines to a central computer at the O&M buildings. A Supervisory, Control and Data Acquisition (SCADA) system will 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 will be provided by the turbine manufacturer or a third-party SCADA vendor.

### **Access Roads**

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

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

### **Additional Construction Areas**

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

Crane paths will be used to move construction cranes between turbine strings for LJ-North. Crane paths will 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).

## **PUBLIC PROCESS AND CONSIDERATION OF COMMENTS**

Consistent with BPA's strategy for tiering appropriate subsequent decisions to the BP ROD, a public process was conducted for the Wind Project and BPA's proposed interconnection of the Wind Project into BPA's transmission system. Public review processes for Iberdrola's site certificate and other permits provided opportunities for public comment on the Wind Project. BPA also provided the following opportunities for public involvement on the interconnection:

- On January 6, 2009, BPA sent written notice to adjacent property owners and interested parties describing the interconnection of the Wind Project into the FCRTS at Jones Canyon Substation. The notice requested comments on the proposal by February 2, 2009.

- BPA posted information about the proposed interconnection on the Internet at [http://www.efw.bpa.gov/environmental\\_services/Document\\_Library/Leaning\\_Juniper/](http://www.efw.bpa.gov/environmental_services/Document_Library/Leaning_Juniper/) and in BPA's monthly information periodical, the "BPA Journal."

BPA received two letters through its public process for this project. The only concern expressed was about potential impacts to the Laurence's milk-vetch (*Astragalus collinus* var. *laurentii*), a state-listed threatened plant species.

## **ENVIRONMENTAL ANALYSIS**

Consistent with the BP ROD, the BP EIS was reviewed to determine whether offering terms to interconnect the Wind Project is adequately covered within its scope. The BP EIS alternatives analyzed a range of marketing actions and response strategies to maintain a market-driven approach. The BP EIS showed that environmental impacts are determined by the responses to BPA's marketing actions, rather than by the actions themselves. These market responses include resource development, resource operation, transmission development and operation, and consumer behavior.

BPA's BP EIS described generating resource types, their generic environmental effects on a per-average-MW (per-aMW) basis, and potential mitigation. The discussion of generic environmental impacts of renewable energy resource development, including wind, is provided in Section 4.3.1 of the BP EIS. The RP EIS also described the environmental effects and potential mitigation associated with the construction or upgrade of transmission facilities to integrate the resources with the existing transmission system (Section 3.5). The per-aMW impacts for wind projects (RP EIS, Table 3-19) were incorporated and updated in the BP EIS (Table 4.3-1). The BP EIS contains an analysis of generic environmental impacts, including resource development and operation (Section 4.3.1) and transmission development and operation (Section 4.3.2).

The Market-Driven Alternative anticipated unbundling of products and services, constructing transmission facilities for requests for non-federal power transmission, and providing transmission access to wholesale power producers (Section 2.2.3). The BP EIS also noted that, under the Market-Driven Alternative, new transmission would depend more on generator and other customer requests than on new resource development by BPA (Section 4.2.3.2). Finally, the BP EIS identified the associated need to enhance transmission facilities (Section 4.2.4.1) as one consequence of all resource development. One example would be customer requests for new transmission line and substation facilities for interconnection of generation resources.

In light of the analyses contained in the BP EIS and RP EIS, interconnection of the Wind Project falls within the scope of the BP EIS. Site-specific impacts that would result from the Wind Project are of the type and magnitude reported in the BP EIS and the RP EIS. The following discussion describes the environmental impacts that would result from the transmission line interconnection and the Wind Project, and provides additional information on potential cumulative impacts.

## **BPA Interconnection Facilities Impacts**

### ***Land Use and Recreation***

The land where Jones Canyon Substation will be expanded is mostly non-native grassland with a few scattered sagebrush and rabbitbrush shrubs. The project is zoned and used for agriculture. This type of land is abundant in the area. BPA's action will remove no more than one acre from productive agricultural use and temporarily disturb an additional acre. Areas of temporary disturbance can be returned to full productivity after reseeding. The only recreational use of the area is hunting, but permission from the landowner is needed for this activity and may be restricted. A number of game species such as mule deer and pheasants use the area. Current land use will not be changed around the substation expansion. The substation expansion will not diminish or affect any recreational opportunities.

### ***Geology and Soils***

The project area is in an upland area on a basalt plain east of Jones Canyon and south of the Columbia River. The basalt in the floor of the plain is overlain by wind-deposited silt. The soil in the area is mostly sandy and silty loams.

The substation expansion site will require grading and leveling. No new roads will be constructed. Soil disturbance will be minimal (fewer than 2 acres). No water is present on the site. BPA will require site-specific erosion and sediment controls for soil stabilization through the use of best management practices (BMPs), hazardous material and petroleum product releases, and will follow notification procedures. During construction, any spills or leaks of hydraulic fluid or oil from construction equipment will be cleaned up to prevent spills from reaching the soil or groundwater and causing contamination. To reduce disturbance to soils and vegetation, vehicle use will be restricted to access roads and immediate work areas. Access road drainage structures shall be kept functional and the road surface will be maintained to minimize erosion, run-off, and sedimentation.

### ***Vegetation***

The substation expansion site is in an arid region with low precipitation, hot, dry summers and cold winters. The existing Jones Canyon Substation and its access road were built on land previously plowed and grazed. The vegetation where the substation will be expanded is mostly non-native grassland with a few scattered sagebrush and rabbitbrush shrubs. No trees or large shrubs are present.

Clearing for the expansion of Jones Canyon Substation will include removal of all brush and debris and some grading. About 0.68 acre will be permanently disturbed. To the extent practicable, existing public and private roads will be used for access during construction. The county roads are of sufficient quality to allow equipment and personnel movement to the construction site without significant road improvement. Any damage to county roads due to equipment movement or operation will be repaired to county standards prior to equipment demobilization.



Construction contractors will stockpile construction materials in the immediate area and in the surrounding area of the current substation footprint until the material is needed. These areas will also be used for truck refueling.

Approximately 1 acre of cleared or disturbed areas outside of the substation footprint will be reseeded with naturally occurring shrubs and grasses after construction. Impacts to vegetation will be minimal because the amount of existing vegetation taken out of production is small and the types of vegetation removed are abundant in the county.

### ***Wetlands and Water Resources***

The substation expansion site is in an upland location with no water present and no topographical features that could collect water. The site possesses neither soil qualities nor vegetation species indicative of wetlands. No wetlands will be impacted by the project.

### ***Fish and Wildlife***

No aquatic or riparian habitats occur at the site and no fish are present. The vegetation is mostly non-native grassland with a few scattered sagebrush and rabbitbrush shrubs and is of low quality habitat for animal species. Small numbers of upland animals such as mice, rabbits, ground squirrels, fox, coyote, mule and blacktailed deer and birds, that may now occupy or pass through the site, will be displaced temporarily during construction. Small burrowing mammal species such as mice and shrews may be killed when their burrows are crushed or excavated. Nearby populations or migrating individuals will also be temporarily disturbed during construction. The loss of low-quality sagebrush and shrub habitat will have a local temporary effect on species that use that habitat. Increased human use in the area will have a small impact on local resident species such as mule deer.

No fish species will be impacted because the project will not involve work in or around water.

BPA obtained an updated federal threatened or endangered species list from the U.S. Fish and Wildlife Service prior to a site visit. There are no federal, endangered, threatened or proposed species listed for Gilliam County and none are known to occupy the habitat at the substation expansion site. Field surveys found no species occurrences or any suitable habitat for the state-listed Washington ground squirrel (WGS) (*Spermophilus washingtoni*). Based on this information, BPA has determined that there will be no impacts to the WGS.

### ***Historic/Archeological Resources***

Under Section 106 of the National Historic Preservation Act, BPA consulted with the Oregon State Historic Preservation Office (SHPO), and the Yakama Nation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes of the Umatilla Reservation on potential effects to cultural resources and historic properties.

A pedestrian survey of the site was conducted on January 9, 2009. No cultural resources were identified during the survey and BPA determined that the project will not affect cultural resources or historical properties. On March 9, 2009, the Oregon SHPO concurred with BPA's determination of "No Adverse Effect."

If any cultural resources are uncovered during construction, work will immediately cease and BPA, state archeologists, and tribes will be notified to ensure proper procedures are implemented to protect the site until it is properly assessed.

### ***Visual Resources***

The substation expansion will require adding various electrical equipment including one additional circuit breaker, four additional disconnect switches, and one set of voltage transformers, all connected by metal tubing (known as “bus”). One additional tubular tower, about 55 feet tall, will be constructed within the existing substation. Otherwise, all other equipment within the substation will be less than 28 feet tall. The equipment used in the expansion area will use the existing control house and communications tower. All equipment will be within a fenced area. A 7-foot chain link fence will be built around the substation and security lighting will be placed on the perimeter. No residences are within sight distance of the site. Traffic along the adjacent road is generally limited to landowners.

The substation expansion will not greatly alter existing visual resources in the area because it will be next to the existing substation, near existing 500-kV lines, and will occupy a small area already impacted by utility development. Impact to visual resources will be minimal.

### ***Noise***

Construction will begin on the substation expansion in May 2009, and be completed in October 2009. Crews will work 8- to 12-hour days, during daylight hours, as needed to meet the schedule. There may be as many as 15 workers on site at one time but generally fewer during the construction period. Construction noise will be temporary and will cease once construction is complete.

Routine operations and maintenance activities at the existing substation and in the expansion area will occur after construction. Noise will be created when the disconnect switches and circuit breakers in the substation are operated. When the switches or breakers are operated, they create a brief, loud burst of noise, similar to the type of noise caused by a gunshot. This noise will occur infrequently. The disconnect switches will automatically operate when there is a problem with a transmission line to prevent equipment from being damaged and as part of the maintenance of the line, such as when there is a need to repair or replace insulators damaged by vandals or hunters. There are no residences within one mile of the substation.

### ***Public Health and Safety***

During construction, BPA will use standard construction safety procedures to reduce the risk of fire. BPA requires that the construction contractor develop an emergency response plan that includes responding to a potential accidental fire during construction. BPA will also use standard industry traffic controls to inform motorists and manage traffic during construction activities. All equipment fueling operations will use pumps and funnels and absorbent pads. A supply of sorbent materials will be maintained on-site in the event of a spill. Response measures and procedures will be put in place in case of an accidental release of petroleum products and/or hazardous substances. BPA’s Pollution Prevention & Abatement (PPA) Program will create an environmental requirements document that will guide construction personnel. A member of the

PPA staff is assigned to the project, and will be notified immediately in the event of any hazardous material spill.

Except for fuel and oil used in construction equipment, no combustible materials will be used; therefore, increased risk of fire and explosion is unlikely. Minimal new toxic substances or hazardous waste (small amounts of lubricants and solvents) will be introduced. BMPs will be employed to reduce or control the potential for environmental health hazards.

### ***Socioeconomics and Public Services***

Expansion of the substation is expected to take 4 to 6 months. The expansion may temporarily increase traffic on roads in and around the access routes. Impacts could be minimized by coordinating construction schedules and equipment access with landowners, other wind projects in the area, and local residents.

Once operation commences, BPA personnel will visit the substation about once per week. There will be no water supply at the substation. A portable toilet will be available for personnel.

No increase in public services is anticipated from the construction and operation of the substation expansion because of its small size and lack of need for services. During construction, indirect economic benefits will accrue to businesses in the area from construction workers purchasing goods and services.

The presence of workers will cause a small, short-term economic benefit to the local community as the workers patronize local businesses.

### ***Air Quality***

Small amounts of dust will be temporarily created by excavation activities during construction, especially during dry, windy weather. BPA requires that the construction contractor develop and implement a suitable dust abatement plan to control and minimize dust. BMPs will be used to control dust, including using water for dust control; proper storage of disturbed soils; minimizing the amount of disturbed soil at any given time; and restoration seeding of disturbed areas. Construction and maintenance vehicles and equipment will be in good running condition, minimizing emissions. Water trucks will be used for dust control. No water will be withdrawn from any stream, ditch or water body in the project area unless approved.

### **Wind Project Impacts**

The following summary of environmental impacts is based on information submitted by Iberdrola to BPA and to the state's site certificate process referenced previously.

### ***Land Use and Recreation***

The Wind Project will be located on non-high-value farm land used for dryland wheat and cattle grazing. The spacing of turbines and turbine strings will allow farm use to continue on most of the land currently used for farming.

In all, the Wind Project will occupy about 63 acres. The access roads will occupy 50 acres of that 'footprint,' which will be occupied by new access roads or improvements to existing roads.

Thirteen acres will be occupied by turbine towers and associated operations and maintenance (O&M) buildings, meteorological towers, and 34.5 kV collector lines. New turbine string access roads will be 16-feet wide and will be located to minimize conflict with farm uses on surrounding land. The new access roads and the improved existing roads will be available for use by the landowner or lessee for farm operations.

Adjacent uses include farming (dryland wheat cultivation and cattle grazing) as well as the operation of the region's largest landfill. The Wind Project will have no adverse impact on operation of the landfill. The Wind Project is compatible with farm uses on adjacent lands, will not force a significant change in accepted farm practices on surrounding lands and will 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 will receive annual lease payments. Lease payments will provide a stable, supplemental income source that will help maintain the land in farm use by increasing the economic viability of the landowners' farm operations.

The Wind Project will not be located within any protected areas and there are no designated recreational facilities or activities on the project site.

### ***Geology and Soils***

The general landscape of the project area was formed by the Missoula floods and is primarily composed of flood deposited and subsequent wind re-deposited silts and loams forming low rolling hills with intermittent creek drainages. Soils in the area are mainly sandy and silt loams and dune remnants. These soil types have moderate to high potential for water and wind erosion.

Wind and water erosion is of concern within the site boundary where construction activities will occur. Construction of the Wind Project will include removal of surface vegetation, grading and leveling operations and the use of large cranes and other heavy equipment that will temporarily increase the potential for soil erosion. Installation of underground communications and power collection systems will require trenching that could expose the affected areas to increased erosion risk.

Heavy equipment movement, car and truck traffic and component lay-down during construction could cause soil compaction. Soil compaction could reduce agricultural productivity or interfere with revegetation. During construction, approximately 699 acres of land will be disturbed for road-building, turbine foundations, lay-down and staging areas, turbine-string turn-around areas, parking and other construction-related uses.

Additionally, there is a risk of chemical spills during construction from fuels, oils and grease associated with operation of construction equipment. Iberdrola will develop a Spill Prevention, Control, and Countermeasure Plan with procedures to be used during construction and operations to reduce the risk of spills.

Post-construction, the operation of the facility will 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 will 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.

The following measures will be implemented to minimize impacts to soils:

- Gravel or other non-erosive covering will be spread on turbine pad areas immediately after soil exposure during construction.
- The Wind Project will be subject to the requirements of the NPDES Storm Water Discharge General Permit (1200-C) and its associated Erosion and Sediment Control Plan. The Erosion and Sediment Control Plan will describe best management practices for erosion and sediment control and will be subject to Oregon Department of Environmental Quality approval.
- Construction truck traffic will be limited to existing and improved road surfaces to avoid soil compaction.
- All areas of temporary disturbance will be restored after construction.
- During operation, facility staff will 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.
- Blade washing will be allowed if appropriate measures were taken to avoid runoff of wash water.

### ***Vegetation***

Native plant communities (named for the dominant plant species) in the project area include bluebunch wheatgrass (*Pseudoroegneria spicata*), western needle-and-thread grass (*Stipa comata*), Sandberg's bluegrass (*Poa secunda*), Idaho fescue (*Festuca idahoensis*), sagebrush (*Artemisia tridentata*), with snakeweed (*Gutierrezia sarothrae*) and buckwheat (*Fallopia convolvulus*) species scattered intermittently throughout the area. Many of these native plant communities are mature and fully functional, a condition uncommon throughout the Columbia Basin. The Wind Project area also includes several dry drainages with small seeps, and small intermittent pools of water. Several small patches of Basin wild ryegrass (*Lolium* spp.) are present in small seepage areas, but show signs of cattle grazing damage. Although non-native cheatgrass (*Bromus tectorum*) is found within the area (as in most areas in the Columbia Basin), native vegetation persists and out-competes undesirable plants and grasses. The protective soil surface biotic crust (cryptogam) is in excellent condition in many areas.

There are no threatened or endangered plant species in project area. Laurence's milk-vetch (*Astragalus collinus* var. *laurentii*) and Northern wormwood (*Artemisia campestris* ssp. *wormskioldii*), both state-listed threatened species, could occur in the area, but neither is likely to occur in the project area. The only known occurrences of northern wormwood are in gravels along the Columbia River, and Laurence's milk-vetch is found at higher elevations. One state-listed candidate species, sessile mousetail (*Myosurus sessilis*) could potentially occur in the area, but is unlikely to occur because it is generally found at higher elevations.

The Wind Project will have permanent or temporary impacts on approximately 763 acres of vegetation under a worst-case analysis (category 2-6 habitats).

## ***Wetlands and Water Resources***

There are no perennial streams or creeks and no wetlands in the project area. During construction, water will be used primarily for dust suppression and for mixing concrete. About 35 million gallons of water will be used during construction. Sufficient water will be available from the City of Arlington under an existing municipal water right. All water used during construction will be lost on or very near the site, primarily through evaporation. No water used on the site will be discharged into wetlands, lakes, rivers or streams. Iberdrola will follow a Stormwater Pollution Prevention Plan to reduce impacts.

During operations, water will be used for sanitation at the O&M facility. Water will be supplied from an on-site well and will be discharged to an on-site septic system. Turbine blade washing will consume about 150 gallons per turbine (up to 1,200 gallons per week based on washing no more than eight turbines per week) and will be supplied from on-site wells.

Water use and disposal during construction and operation of the Wind Project will not impact water quantity or water quality.

## ***Fish and Wildlife***

### ***Fish Species***

No fish species will be impacted by the project because no suitable habitat for special status fish species exists within the site boundary, and because facility construction will not take place in any streams that function as habitat for the species or consume water from those sources.

### ***Terrestrial Wildlife Species***

Typical wildlife in the area includes: the Washington ground squirrel (*Spermophilus washingtoni*), white-tailed jackrabbit (*Lepus townsendii*), and the northern sagebrush lizard (*Sceloporus graciosus graciosus*).

Only one special status terrestrial wildlife species has the potential to occur in the project area, the Washington ground squirrel. The WGS is a state-listed endangered species and a federal candidate species. Historically, this species was abundant in sagebrush and native bunchgrass habitat throughout the Columbia plateau 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.

Suitable habitat for WGS exists within the Wind Project site. Iberdrola 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. There are at least five primary patches or occupied colonies (one consisting of five smaller areas) in areas near LJ-South components. The WGS patches range from 3 to 74 acres. 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 Wind Project 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). 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. LJ-South facilities will occupy about 18 acres of habitat in these categories and construction will 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). Iberdrola does not expect that the disturbance of this area will affect connectivity between the active WGS colonies within the LJ-South lease boundary.

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.

Based on the baseline surveys, Iberdrola modified the preliminary facility layout to avoid placement of any facility components within any of the identified WGS patches. During construction, Iberdrola will protect known WGS patches and provide an appropriate buffer with exclusion fencing.

### ***Bird Species***

Typical bird species in the area includes: the American peregrine falcon (*Falco peregrinus anatum*), bald eagle (*Haliaeetus leucocephalus*), yellow-billed cuckoo (*Coccyzus americanus*), red-tailed hawks, ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), grasshopper sparrow (*Ammodramus savannarum*), loggerhead shrike (*Lanius ludovicianus*), long-billed curlew (*Numenius americanus*), Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia*), horned larks and common ravens.

Generally, operation of the Wind Project will have a direct adverse impact on avian species. Resident birds flying within the site and migrating birds flying through the area might collide with the wind turbines, resulting in fatalities or injuries. Potential avian injuries or fatalities due to interaction with wind turbines (or with vehicles or other equipment) may be viewed as direct operational impacts.

Other potential impacts include abandonment of habitat near wind turbines due to disturbance caused by turbine operation and facility maintenance activities. Displacement 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.

Iberdrola conservatively predicts an avian fatality rate of between 1 and 4 fatalities per MW per year.

*Non-Listed Raptors*

The overall raptor use rate (0.52/survey) in the Wind Project area is moderate to low compared to raptor use observed at other wind projects in the United States. This suggests that the Wind Project is not within a major raptor migration corridor or breeding area.

There is moderate use of the facility site by Swainson's hawks. Use of the area by golden eagles is low.

The peregrine falcon was formerly a state-listed endangered species. It was removed from the state list on April 13, 2007. 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 Wind Project site. One peregrine falcon 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 Wind Project 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.

Based on the absence of known turbine-related fatalities at other wind facilities in the region and the low potential for use of the Wind Project site by the species, the design, construction, operation and retirement of the proposed Wind Project 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), Iberdrola will notify USFWS, ODFW and the Oregon Department of Energy (ODOE). If appropriate, additional mitigation measures will then be implemented.

Iberdrola 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.

*Non-Listed Other Birds*

Horned larks and common ravens were the most common species observed in the analysis area.

Iberdrola expects that horned larks will account for the highest number of fatalities from the project, 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.



*Special Status Birds*

Observations of 40 species of birds were recorded during the avian use studies, including special-status species (bald eagle, ferruginous hawk, golden eagle, grasshopper sparrow, long-billed curlew, Swainson's hawk and burrowing owl). Use of the project area by ferruginous hawks is moderate. Use of the project area by loggerhead shrikes, long-billed curlews and grasshopper sparrows is moderate to high. There is low use of the area by burrowing owls. 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. Long-billed curlews and grasshopper sparrows were frequently observed in the LJ-North area.

The yellow-billed cuckoo is a candidate species for federal listing and is not likely to occur within or near the site boundary because there is no suitable habitat and it is rarely observed east of the Cascades.

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.

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 Wind Project. 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 Iberdrola. The design, construction, operation and retirement of the Wind Project 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, Iberdrola will notify USFWS, ODFW and the ODOE. If appropriate, additional mitigation measures will then be implemented.

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

Iberdrola believes that curlews and shrikes will avoid areas of human activity during facility construction and operation.

### ***Bat Species***

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 Wind Project. Both species might migrate through the project 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 project area. None of the bat species documented in Oregon or nearby Washington counties are listed as federal or state threatened or endangered species.

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 project area lacks adequate food and water sources for bats. The project 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).

Facility operation could affect migratory bat species. Migrating bats flying through the area might collide with the wind turbines, resulting in fatalities or injuries. 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. Iberdrola 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). Iberdrola predicts that bat fatalities at the wind project site will 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. 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, Iberdrola must propose and implement mitigation measures.

### ***Habitat***

Habitats within the LJ-North and LJ-South analysis areas were rated according to the ODFW habitat categories. Category 1 habitat was excluded from the analysis because Iberdrola is required to avoid permanent and temporary impacts on Category 1 habitat.

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

Construction will result in the permanent loss of wildlife habitat (during the life of the facility) for the area that facility components will occupy. Based on Iberdrola's worst-case estimate, there will 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 will cause temporary loss of approximately 435 acres of this quality habitat. Although Iberdrola will be required to restore these areas of temporary disturbance, the habitat will be in a degraded condition continuing for a period of time after completion of construction activities until restoration success is achieved (temporal impact).

### ***Historic/Archeological Resources***

Field investigations of the project area that included much of the LJ-South area were conducted in November and December 2004. In September 2005, a supplemental field investigation was performed in the LJ-South area, based on re-alignment of turbine strings under a layout proposed at the time. In April 2006, an additional supplemental field investigation of proposed disturbance areas in the LJ-North area was performed.

Before beginning field investigations, the Oregon State Historic Preservation Office (SHPO) was consulted, and comments were requested from the Confederated Tribes of the Warm Springs Reservation regarding any cultural sites in the project area. There were no previously-recorded cultural resource sites within the project area. Field investigation consisted of systematic pedestrian inspection of the baseline survey area, but did not include all lands within the proposed corridors. The field investigations did not include excavations or other sub-surface testing. Because not all of the project area has been inspected by field investigation, those areas outside of the baseline survey area will be inspected where construction-related impacts will occur.

The baseline field investigations identified the following three resource sites:

- A diffuse scatter of historic debris, with no evidence of any former standing structure.
- 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, Iberdrola proposes to avoid impacts to these sites. Mitigation efforts around these sites will include participation by construction crews in environmental compliance training that will include instruction on avoiding accidental damage to cultural resource sites, labeling identified resource sites construction maps and drawings as "no entry" areas, and flagging a 50-foot buffer around an identified site, if construction activities will occur within 200 feet. Additionally, in accordance with state law (ORS 97.745 and 358.920), earth-disturbing activities will be halted if archeological objects are discovered in the course of

construction of the facility. The State Historic Preservation Office and ODOE will be notified and the site will be evaluated 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 Wind Project is not likely to result any adverse impacts to the Oregon Trail.

### ***Visual Resources***

The project area is characterized by rolling terraces, agricultural fields and rangeland above the Columbia River. Wind energy facilities have no emissions to affect air quality or visibility. Dust suppression during construction will 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. The visual impacts of wind turbines from previous studies found that the visual impact of wind turbines up to 279 feet at hub height will not be significant at distances of five miles or more from the site. Wind turbines at the Wind Project could be up to 328 feet at hub height.

Some protected areas along the John Day River (John Day Federal Wild and Scenic River and the John Day State Scenic Waterway) are within about six miles from the site. These sites are managed, in part, for outstanding scenic quality. Iberdrola used computer modeling to determine what parts of the Wind Project will be visible from the John Day River, assuming the use of 3.0-MW turbines with a 328 feet hub height (492-foot blade tip height). The analysis showed that the Wind Project turbines will not be visible from viewpoints on the river. Additionally, portions of the John Day Wildlife Refuge are approximately six miles from the Wind Project, but the refuge is protected because it provides wildlife habitat. It is not managed for its scenic views. Based on this analysis, some portions of a few turbines might be visible from a small and relatively inaccessible area within the wildlife refuge approximately ¼-mile from of the riverbank. Otherwise, the Wind Project will not have a significant adverse visual impact.

### ***Noise***

The project area is rural, and ambient noise levels are low with infrequent noise from agricultural and landfill activities. There are no residences near the Wind Project site. Construction of the Wind Project will cause localized, short-duration noise. Such temporarily increased noise levels will result from normal construction activities. The estimated construction noise levels ranged from 84 dBA to 90 dBA at 50 feet from the construction site and range from 54 dBA to 60 dBA at 1,500 feet from the construction site. Construction noise is not likely to be noticeable above ambient noise levels. Noise levels from operation of the wind facility will be lower than the estimated construction noise levels.

### ***Public Health and Safety***

There are no anticipated conditions that will cause an impact to public health and safety. However, the following measures will be implemented to minimize any potential impacts to public health and safety:

- The Wind Project will be located on private property and public access will be limited. At the closest point of rotation, turbine blade tips will be at least 98 feet above ground.
- The turbine safety setback from residences and public roads will be equal to the maximum blade tip height of the turbine plus 50 feet.
- Towers will be smooth steel structures with no exterior ladders or access to the turbine blades. Each tower will have a locked entry door at ground level restricting access to authorized personnel.
- There will be no public access to the nacelles or turbine tower interiors or to the electrical equipment contained therein. Generator step-up transformers will be located within locked cabinets at the base of each tower.
- Towers and tower foundations, as well as aboveground transmission line support structures will be designed according to applicable building codes to avoid failure or collapse.
- During construction, the manufacturers' recommended handling instructions and procedures to prevent damage to towers or blades that could lead to failure will be followed.
- During operation, a safety-monitoring program will be implemented to inspect turbine blades on a regular basis for signs of wear.
- All turbines will have self-monitoring devices linked to sensors at the O&M building to alert operators to potentially dangerous conditions.
- Electric transformers and other equipment associated with the proposed substation will be enclosed by a fence with a locked gate and otherwise be made inaccessible to the public; and,
- Warning signs will be posted as required by law for the safety of the public.

### ***Socioeconomics and Public Services***

The Wind Project will have beneficial economic consequences and no significant adverse economic consequences. The facility will offer local employment opportunities by providing up to 335 jobs during construction and up to 30 jobs during operation. Annual lease payments to the landowners in the wind facility lease area will supplement income from other farm operations without significantly reducing the land base available for farming practices. In addition, the Wind Project will provide significant property tax revenue to Gilliam County.

The Wind Project will 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. The facility will avoid adverse impact to historic, cultural and archaeological resources. The Wind Project will have no adverse impact on recreational opportunities in the local area. During construction and operation of the facility, solid waste and wastewater minimization will properly be disposed or recycled.

### ***Air Quality***

Air quality in the area is generally good. Fugitive dust emissions will result from dust entrained during project site preparation including road building, on-site travel on unpaved surfaces, and soil disrupting operations. Wind erosion of disturbed areas will also contribute to fugitive dust.

Construction activities also temporarily generate small amounts of carbon monoxide (CO). Heavy trucks and construction equipment powered by gasoline and diesel engines will generate CO from exhaust emissions. If construction traffic were to delay or reduce the speed of other vehicles in the area, CO emissions from traffic will increase slightly. CO emissions will be temporary and limited to the immediate area surrounding the construction site.

Wind farms help off-set the production of air pollutants and greenhouse gasses by replacing a small percentage of energy that otherwise will have to be generated, presumably, by traditional, 'dirtier' energy sources such as a gas or coal fired turbines. Overall, air quality impacts will be low because impacts will occur in the short term in a localized area, during construction only, with very unlikely health and safety risks.

When the Wind Project is operational, minimal emissions from any source are expected

### ***Transportation***

Construction traffic will access the Wind Project site along Oregon Highway 19 from I-84 at Arlington. The primary access to the eastern part of the site will be along Stone Lane and Rattlesnake Road from Highway 19. Primary access to the western part of the site will be south on Highway 19 to Cedar Springs Road and north on Blalock Canyon Road to reach access gravel roads to the site.

The Wind Project will be built over 10-12 months and should employ an estimated 335 workers at peak construction periods. In addition to travel by construction workers, construction traffic will include deliveries of heavy equipment, building materials and turbine components. Construction-related vehicles will increase traffic levels on Highway 19 by 16 percent and on I-84 by less than 2 percent. Construction-related traffic is not likely to cause any significant delay or other adverse effects on I-84 or Highway 19.

### ***Cumulative Impacts***

The BP EIS and RP EIS provide an analysis of potential cumulative impacts resulting from development of generation resources and transmission facilities in the region. Many other wind projects have been built and are reasonably certain to be built in the region. According to a cumulative impacts analysis prepared for a proposed nearby wind farm<sup>4</sup> approximately 4,060 MW of wind power is proposed in the Columbia Basin within 60 miles of that project area and is reasonably certain to be built. This figure and analysis area is used in the following sections discussing cumulative impacts. Other projects are in the early planning phases and may or may not be constructed, thus there is no reasonable certainty that they will be constructed.

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<sup>4</sup> Caithness Shepherds Flat, LLC. Application for a Site Certificate for the Shepherds Flat Wind Farm, Prepared for the Oregon Energy Facility Siting Council. Amended February 2007, and supporting documents.

There is a large regional landfill operated by Waste Management Inc., Columbia Ridge, just south of the Wind Project in Gilliam County. This facility will continue to operate and expand to its licensed capacity.

### ***Land Use and Recreation***

Overall, wind projects and associated facilities have relatively little direct impact on land use because the footprint of the facilities is small even if they occur across large areas. Additionally, wind projects tend to reinforce the existing agricultural land uses (the primary land uses in most areas proposed for wind energy). Wind projects are compatible with all types of agriculture, which can occur around most wind project facilities. Wind lease payments provide a supplemental source of income for farmers, helping them weather the uncertainties of agricultural yields and prices.

Depending upon the size of the project, Oregon and Washington state and local land use regulations require land use approval prior to construction of any additional facilities. This permitting process is designed to prevent incompatible uses and the degradation of farmland. The potential for cumulative impacts to land use is substantially minimized by these regulations.

Wind projects and associated facilities would have little direct impact to recreation in agricultural areas. Dispersed hunting that may occur in the region normally could continue after construction and during turbine operation. Some vandalism of facilities may occur.

### ***Geology and Soils and Flood Hazards***

Construction of energy projects close together could increase the flooding and erosion potential in flood-prone areas as a result of the decrease in soil storage area. Additional wind projects and associated facilities needed in the future could increase the potential for erosion, but the relatively small footprint of wind projects and standard control and containment measures would limit these impacts.

### ***Vegetation***

Additional projects in the area combined with the acreages already planned for development would increase the total acreage in the region used for wind development. The permanent footprint (during operations) of wind projects is small compared to the total acreage of the projects. The area taken up by each turbine and associated facilities, including roads and substations, would be changed and could no longer be in habitat. The acreage not used for facilities would remain unchanged. No land use changes and subsequent potential habitat changes would occur. Some projects will set aside acreage to mitigate impacts to wildlife habitat.

Native plant communities are being lost in the region because of past and current development and actions, and these trends will likely result in the further reduction of native plant communities. Additional projects in the region including proposed wind projects will remove small amounts of agricultural land and native habitats.

Most vegetative communities in the analysis area have been previously disturbed by human activities. The actions associated with the proposed projects would contribute incrementally and in a relatively minor way to the continuing cumulative loss of native vegetation communities.

### ***Fish***

Potential cumulative impacts to fish and other aquatic resources from past, present, and future development in the region include the loss of riparian habitat, increased sediment loading, increased stream temperatures, pollution from herbicide and insecticide use, changes in peak and low stream flows, fragmentation of fish habitat, decreases in streambank stability, and altered nutrient supply. Since the regional wind projects currently proposed are located in upland areas and generally well away from fish habitat, the completed and proposed regional projects would not contribute to cumulative direct impacts to fish species.

However, the interconnection of existing and proposed wind-powered generation projects in the region to the BPA transmission system also poses the potential for cumulative impacts to listed Columbia River fish species through a complex relationship among the wind projects, Columbia River hydropower operations, and operation of this hydropower system to meet ESA requirements for listed fish species.

Many of the region's wind generators are within what is known as the BPA Balancing Area. In BPA's Balancing Area, like all balancing areas, there must be a match between electricity generation and loads at all times. Within this balancing area, most existing and proposed wind projects are concentrated in one geographic area, located to the east of the Columbia River Gorge. Because of this concentration, the amount of wind power on BPA's transmission system tends to vary with the sometimes widely fluctuating wind velocities (and hence wind project output) in this area. That is, when wind speeds are low in this area, there is very little wind power generated, and the amount of wind power on BPA's system is low. Conversely, when wind speeds are high, the wind projects are generating close to or at full capacity, and the amount on BPA's system is high.

The proportion of wind power on BPA's transmission system has grown quickly and dramatically in recent years, and even greater future growth is expected. As of December 2008, there were approximately 1,500 MW of total wind generation interconnected to the BPA system. In addition, BPA currently has contracts in place that will allow for the interconnection of an additional 2,700 MW of wind generation to the BPA system; these projects may be built and operational within the next couple of years. By 2015, the amount of wind generation interconnected to the BPA system is projected to total anywhere from approximately 6,000 to 11,500 MW.

BPA is faced with two major reasons that lead to unscheduled swings in wind generation on up to several hundred megawatts within a single hour - the combination of an increasingly large proportional share of wind power on BPA's system and the natural fluctuation of this type of power. BPA reserves significant amounts of water in federal reservoirs so that it will have enough capacity available to provide balancing services for these swings when needed. However, the hydropower system's limits are being reached, and the potential for balancing services to affect Columbia River hydropower system operations necessary for ESA-listed fish species is increasing.



The potential for impacts to Columbia River fish arises when the electrical output from wind generators in the region exceeds their hourly generation schedules. In such situations, BPA must decrease federal generation in like amounts immediately to maintain the constant balance of generation and load needed to keep the system stable. To decrease generation, water must be spilled over dams rather than run through dam turbines. When river flows are already high due to spring runoff or other high water volume events, the increased spill needed to balance wind generation runs the risk that standards under the Clean Water Act (CWA) for total dissolved gases would be violated and ESA-listed fish species would be impacted.

The CWA standards for total dissolved gases limit the level of dissolved gas saturation permissible in the river when migrating salmon are present. Gas supersaturation can lead to gas bubble disease in fish or other aquatic organisms as a result of excessive uncompensated gas pressure caused by abnormal and unstable physical conditions.

Species, life-stage, size and genetics are all important factors in determining the tolerance of fish to supersaturated waters. Acute mortality will occur when gas bubbles are present in the heart in sufficient quantity to prevent the movement of blood. Various sublethal effects have also been reported to significantly impact mortality, most importantly blindness, decreased tolerance to stress, loss of lateral sense, and secondary infections. Acute effects may be reversed by exposure to equilibrated water or to increased hydrostatic pressure. However, permanent effects to individuals and large-scale mortality in populations may occur after only short-term exposure, especially in environments where compensating pressures do not exist. In these settings, large-scale mortality (and huge economic losses) can occur in a matter of hours. Because of the vast amount of these mortality studies that have been performed on salmonids, it has been observed that steelhead are the least tolerant of salmonids to gas supersaturation conditions.

In natural circumstances, the limit of safe gas supersaturation levels depends on the escape depth available and the fish species behavior. This limit usually occurs between 105- and 120 percent of equilibrium total gas saturation pressure (ambient atmospheric pressure). Within the Columbia and Snake Rivers, the saturation limit cannot exceed 110 percent of saturation at any point of sample collection. Because of this standard, total dissolved gas monitoring is now a fundamental component in the proper management of hydroelectric power generation facilities for the protection of aquatic life within this system.

An example of the potential for cumulative impact of wind development occurred in spring 2008, when wind turbines in BPA's balancing area produced significantly more power than scheduled over several hours on one day. During this time, unscheduled excess wind generation peaked at over 400 MW. BPA had to reduce hydropower system generation to accommodate this unscheduled wind generation and provide necessary balancing services. Due to high water flows in the Columbia River at the time, water was already spilling over dams above that needed for fish protection. Decreasing hydropower generation at that time meant increasing water spill, and nitrogen saturation in the water rose nearly to levels dangerous to fish species.

BPA is currently taking steps to ensure that wind power on BPA's transmission system does not cumulatively impact Columbia River hydro operations necessary for listed fish species. As part of a comprehensive review of wind project interconnections and their effects that was conducted in winter 2008, BPA has decided to:

- Establish transmission operation protocols under which BPA's dispatch system would automatically instruct wind project operators to reduce their generation to specified levels if necessary for reliability and ESA or CWA compliance.
- Add language to its LGIAs that define the responsibilities of BPA and each generator that connects to BPA's transmission system, with these responsibilities in effect for the life of the generator.
- Evaluate establishing a larger amount of balancing reserves to address wind fleet generation imbalance for the 2010-2011 rate period.

More information on how BPA is supporting wind power in the Pacific Northwest is posted on the following website:

[http://www.bpa.gov/corporate/pubs/fact\\_sheets/09fs/BPA\\_supports\\_wind\\_power\\_for\\_the\\_Pacific\\_Northwest - Mar 2009.pdf](http://www.bpa.gov/corporate/pubs/fact_sheets/09fs/BPA_supports_wind_power_for_the_Pacific_Northwest_-_Mar_2009.pdf)

### ***Terrestrial Wildlife***

The current and proposed wind projects near the analysis area would have low impacts to non-avian terrestrial species because much of area is under agricultural cultivation and disturbance to these species occurs regularly. Additional fragmentation and reduction will be offset by mitigation (low-quality habitat restoration, or conservation easements). Likewise, operation of these facilities is not expected to adversely affect most terrestrial species.

### ***Birds***

Annual avian mortality estimates at six recently constructed wind farms in the Columbia Plateau Ecoregion ranged from 0.9 to 2.9 birds per MW, averaging 1.9 avian deaths/MW/year. All constructed, planned, and under construction projects within 60 miles and including Leaning Juniper II would contribute about 4,060 MW of power. Assuming that mortality rates are representative of the region, new wind power generation could cause between approximately 3,650 and 11,775 and on average 7,715 avian deaths per year in the region.

### ***Raptors***

At modern wind power projects in the Columbia Plateau Ecoregion, raptor mortality has been low, ranging from 0 to 0.14 raptor fatalities per MW per year. An added 4060 MW of capacity in the region could result in between 0 and 568, and on average about 200 raptor deaths per year. Red-tailed hawk, American kestrel, and northern harrier account for most of the summer raptor use at other projects where avian use was studied while rough-legged hawk and red-tailed hawk account for majority of the winter use. These four species are expected to be the raptor species with the highest collision risk across all the projects. The potential exists for other species to collide with turbines, including Swainson's hawk, ferruginous hawk, turkey vulture, golden eagle, Cooper's hawk, sharp-shinned hawk, prairie falcon, and bald eagle; however, the mortality risk associated with these species is expected to be lower due to the lower use by these species in general.

Red-tailed hawk and American kestrel account for more than 69 percent of the raptor fatalities recorded at the regional wind projects studied. Assuming this trend holds true for all proposed wind projects in the Columbia Plateau, it would be expected that on average 70 red-tailed hawk and 70 American kestrels would be killed each year. Approximately 18 red-tails and kestrels

fatalities would occur during the breeding season. An estimate of the breeding population in the Columbia Plateau based on the long-term average data is approximately 6,820 breeding red-tailed hawks and 6,288 breeding American kestrels. The impact to the breeding population would represent approximately 0.26 percent and 0.28 percent respectively, which is likely to be below background mortality for these species and is not considered to have an effect on the regional populations. The other species of raptors have been impacted far less and would represent a much smaller number of fatalities.

### *Passerines*

Passerines have been the most abundant avian fatality at wind projects studied. For projects in the Columbia Plateau Ecoregion on average approximately 69 percent of the avian fatalities have been passerine. Both migrant and resident passerine fatalities have been observed, with migrants generally making up 20-30 percent of the avian fatalities. Assuming that 69 percent of all bird mortality would be passerine fatalities between approximately 2,518 and 8,125 and on average 5,323 passerine deaths per year in the region would occur. Some impacts are expected for nocturnal migrating species; however, impacts are not expected to be great for the Columbia Plateau Ecoregion. Estimates for nocturnal migrant mortality at the regional wind projects have ranged from 0.27 to 0.73 per MW per year or approximately 1,090 to 2,960 nocturnal migrant fatalities for the 4,060 MW of wind power expected to be constructed. Passerine species most common to the project sites will likely be most at risk, including horned lark, and western meadowlark. Horned larks represent approximately 35 percent of the avian fatalities in the Columbia Plateau Ecoregion at wind projects.

Local populations of horned larks are difficult to define because of the vast amount of suitable habitat for this species in the Columbia Plateau. However, based on data from the USGS Breeding Bird Survey routes in the Columbia Plateau, the breeding horned lark population in the Columbia Plateau is calculated to be approximately 127,500 horned larks. If it is further assumed that the 2,715 horned lark fatalities are spread equally over the year, then roughly one-quarter of these (approximately 679) would be during the breeding season. This represents approximately 0.5 percent of the breeding horned larks and is not considered high enough to affect population dynamics. It is likely that other background mortality of breeding horned larks is greater than this estimate. Similar calculations for other passerine species indicate that impacts to these species would be minor and unlikely to have any population effects.

In general for wind projects in the Columbia Plateau, approximately 25 percent of the fatalities have been considered migrants spread over many species. The most common migrant fatality (9 percent) was golden-crowned kinglet. Golden-crowned kinglets are typically associated with tree or wooded habitats during the breeding season so it is assumed that many of the impacted individuals were from surrounding more mountainous ecoregions or populations further north (e.g., Canada). As with horned lark, estimating the potential population size from which these birds came requires a number of assumptions. However, while it is unknown, it is possible that the individual fatalities came from multiple populations in surrounding or more northern ecoregions, thus diluting the impacts on any one population. Other potential migrant species were found in lower numbers. Cumulatively the impacts to migrants would be spread over a much larger population base and are not considered to have population effects.

### *Upland Gamebirds*

For projects in the Columbia Plateau Ecoregion, upland gamebirds have composed a higher percentage of avian fatalities than in other regions of the U.S., approximately 18 percent of all avian fatalities. Three introduced species, ring-necked pheasant, chukar, and gray (Hungarian) partridge are the most commonly found non-passerine fatalities. Estimates for upland game bird mortality in the Columbia Plateau Ecoregion have varied from 0.27 to 0.47 per MW per year, or between 1,090 and 1,910 upland gamebird fatalities per year. The upland game bird species most commonly impacted, (ring-necked pheasant, gray partridge, and chukar) are introduced species common in mixed agricultural native grass/steppe habitats. There is generally low concern over impacts to upland gamebirds. These species are regulated by state agencies as game species. Impacts from wind farms to these species are not expected to have population level effects given the vast amounts of suitable habitat and other impacts to these species (i.e., hunting).

### ***Bats***

Results of fatality monitoring for the Columbia Plateau Ecoregion wind projects indicate mortality ranges of approximately 0.63 to 2.46 bats per MW per year. Based on these results, and considering the similarities in the characteristics of the project areas and other regional projects, a conservative estimate of total bat mortality would be between 2,550 and 9,990 bats per year, assuming 4,060 MW of wind power is constructed.

Only four species of bat fatalities have been documented for six wind projects monitored in the Columbia Plateau Ecoregion (silver-haired bat, hoary bat, little brown bat, and big brown bat). The species at highest risk appear to be foliage-dwelling (forest, trees), fall-migratory species. The annual period when most bat fatalities occur is in August and September. Hoary and silver-haired bats are wide spread across North America and breed into the boreal forests regions of Canada and migrate south to winter in the southern U.S., Mexico, and potentially further south in Central America.

Unlike with birds, there is little information available about populations of bat species. Bat mortality in the Columbia Plateau Ecoregion would involve primarily silver-haired and hoary bats, and no impacts to threatened or endangered bat species are anticipated. Hoary bat and silver-haired bats are widely distributed in North America. In general, mortality levels on the order of 1-2 bats per turbine or per MW are not significant to populations; however, cumulative effects may have greater consequences for long-lived low-fecundity species such as bats. Unlike many avian species that may have multiple clutches of multiple young per year, hoary bats and silver-haired bats likely only raise one or two young per year and only breed once per year. Bats tend to live longer than birds, however, and may have a long breeding lifespan. The impact of the loss of breeding individuals to populations such as these is generally unknown but may have greater consequences.

Since it is most likely breeding populations from surrounding mountainous/forested ecoregions or from more northern area (e.g., Canada) that are affected at the Columbia Plateau wind projects during the fall migration, the dynamics of these populations would need to be known to predict population effects. If these populations are large and stable the level of impact is not expected to be significant. However, if population trends are decreasing the added impact from wind

development may continue to cause population declines. This information is generally unknown and future study is needed before the significance of the impacts can be estimated.

### ***Wetlands and Water Resources***

Wetland, water quality, and water use impacts related to new wind generation projects would be temporary and minor, and subject to further regulatory approvals. Most wind project infrastructure is usually located on ridgetops and upland areas away from wetlands and water resources. In areas where wetland and water resources are present, wind project facilities can be located to avoid these resources. Cumulative impacts to wetlands and water resources from wind projects in the region are expected to be negligible because wetlands and water resources are scarce, and wind project infrastructure is usually located in upland areas.

### ***Historic and Cultural Resources***

Cumulative effects on cultural resources are associated with construction activities and permanent land use change through development of new wind generation projects. Because the developments are likely to be dispersed throughout the counties, the impacts are not likely to be concentrated, so loss of cultural artifacts from an entire cultural source is unlikely. Most wind project proponents conduct cultural resource surveys prior to final siting to avoid impacting cultural resources. Wind projects can be located to avoid these resources if any are found.

### ***Visual Resources***

Additional turbine installation would increase the number of areas from which turbines would be visible. Because future wind energy development would likely occur in rural areas, visual impacts would be experienced by the relatively few rural residents. Turbines would also be visible to other residents and people traveling through on public roads near wind project areas. The significance of the visual changes would vary according to the location of the wind project and the perceptions of the viewers (some viewers find that wind energy projects add a positive element to the visual environment, while others feel the opposite). Over time, the cumulative effect of the addition of multiple wind farms throughout the region will change the visual landscape from primarily agricultural to more industrialized, although the basic visual elements that currently exist will be retained.

### ***Noise***

Significant noise issues associated with wind generation projects are limited to the construction period of the project. If two or more wind projects were constructed at the same time, a minor increase in construction noise would occur. No operational impacts are anticipated other than the sound of the blades when the turbines are operating, and intermittent noise associated with substation operations.

### ***Public Health and Safety***

Any potential risks to the health and safety of workers or the general public associated with the construction of the project would be incidental and comparable to other construction projects. The long-term risk to the health and safety of residents and passersby from operation and maintenance of wind turbines and associated infrastructure is low, due to the small number of

people living and working in the area, and the large area over which the various wind farms will be scattered.

### ***Socioeconomics and Housing***

Wind lease payments to farmers would provide a supplementary source of income that would help farmers retain their farms when farm prices or weather reduce other sources of farm income. Additional development would provide tax revenue to local governments. New wind generation projects would create temporary effects on housing. Because these effects would be temporary and may occur during separate time periods, accumulation of impacts related to project construction would be minor.

### ***Public Services and Utilities***

Cumulative impacts on public services and utilities would be largely dependent on facility siting. Emergency services would have a higher demand with the additional facilities to cover. However, this additional demand could be offset by additional tax revenue. Impacts to utilities from additional wind energy integration are addressed during system planning studies, and minimized or eliminated with appropriate equipment within the system.

### ***Air Quality***

Air quality issues associated with wind energy are limited to construction emissions, which could be minimized by the use of reasonable controls on all projects. Impacts are temporary.

### ***Transportation***

If two or more wind projects are built at the same time in an area where the construction traffic uses the same road network, the construction-related traffic would have a cumulative effect. These effects would be temporary. To minimize them during construction, the projects involved could investigate coordinating delivery schedules and routes, use of shared resources to minimize trips, and coordinating construction schedules to address any temporary constraints on traffic flow that develop. The Public Works Departments in each county could work with project developers to ensure shared responsibility for any road improvements or repair.

## **MITIGATION**

Specific resource mitigation conditions to avoid or minimize environmental harm from the Wind Project were identified through the Oregon site certificate process and are incorporated here by reference.

## **PUBLIC AVAILABILITY**

This ROD will be available to all interested parties and affected persons and agencies. It is being sent to all stakeholders who requested a copy. Copies of the BP EIS, BP ROD, and additional copies of this Willow Creek Wind Project ROD are available from BPA's Public Information Center, P.O. Box 3621, Portland, Oregon, 97208-3621. Copies of these documents may also be

obtained by using BPA's nationwide toll-free document request line: 1-800-622-4520, or by accessing BPA's website: [www.efw.bpa.gov](http://www.efw.bpa.gov).

## **CONCLUSION**

BPA has decided to offer contract terms through a LGIA for interconnection of the Leaning Juniper II Wind Project into the FCRTS at Jones Canyon Substation in Gilliam County, Oregon. The LGIA provides for interconnection of the Wind Project with the FCRTS, the operation of the Leaning Juniper II Wind Project in the BPA Control Area and the maintenance of reliability of the FCRTS and interconnected systems. As described above, BPA has considered both the economic and environmental consequences of taking action to integrate power from the Wind Project into the FCRTS. This decision is:

- within the scope of environmental consequences examined in the BP EIS;
- in accordance with BPA's Open Access Transmission Tariff and associated LGIP; and
- in accordance with BPA's statutory authority to make available to all utilities any capacity in this system determined in excess to that required by the United States (16 U.S.C. 838d).

BPA will take measures to ensure the continuing safe, reliable operation of the FCRTS. This ROD identifies all practicable means to avoid or minimize environmental harm that might be caused by the integration of the Wind Project into the FCRTS.

BPA contracts providing for integration of power from the Wind Project into the FCRTS at Jones Canyon Substation will include terms requiring that all pending permits be approved before the contract is implemented. BPA contracts will also include appropriate provisions for remediation of oil or other hazardous substances associated with construction and operation of related electrical facilities in a manner consistent with applicable federal, state, and local laws.

Issued in Portland, Oregon.

/s/Stephen J. Wright

Stephen J. Wright  
Administrator and  
Chief Executive Officer

April 3, 2009

Date