

# Record of Decision for the Electrical Interconnection of the Leaning Juniper Wind Project March 2005

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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 wind generation from the PPM Energy, Inc.'s (PPM) proposed Leaning Juniper Wind Project (Wind Project) into the Federal Columbia River Transmission System (FCRTS). The Wind Project will be interconnected at BPA's Jones Canyon Switching Station (Jones Canyon SS), which is under construction three miles southwest of the town of Arlington, Oregon. The Jones Canyon SS will provide transmission access for the Wind Project to BPA's McNary-Santiam #2 230-kilovolt (kV) transmission line. BPA will increase the capacity of the McNary-Santiam #2 to accommodate the Wind Project, which will require increased ground clearance at four locations along the transmission line. These proposed line upgrades will be located in Wasco, Gilliam, Sherman, and Morrow Counties in Oregon.

BPA's decision to offer terms to interconnect the Wind Project is consistent with the 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). Thus, this decision is tiered to the BP ROD.

## BACKGROUND

BPA is a Federal agency that owns and operates a 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 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).

In June 2002, PPM submitted a generation interconnection request to BPA for interconnection of up to 200 MW from the proposed Wind Project to BPA's McNary-Santiam #2 transmission line. Consistent with its tariff, BPA needs to respond to this request. In considering this request, BPA reviewed the environmental analysis in the BP EIS and considered whether offering contract terms was consistent with the Market-Driven alternative adopted by the BPA Administrator in the BP ROD. BPA also reviewed and relied on environmental information contained in the Conditional Use Permit (CUP) issued for the Wind Project by Gilliam County, Oregon. Additional information on cultural resources and special status plants and animals in

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<sup>1</sup> Although BPA is 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 non-discriminatory access to the transmission systems of utilities that are subject to FERC's jurisdiction.

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the vicinity of locations where the McNary-Santiam #2 transmission line would be upgraded was collected and analyzed as needed.

For BPA, implementing the proposed action involves offering contract terms to PPM or its successor for interconnecting the Wind Project into the FCRTS. Under this contract, BPA would construct, operate, and maintain the necessary interconnection facilities and integrate power from the Leaning Juniper Wind Project into the FCRTS.

## **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. The evaluation, which included transmission as well as generation, compared 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 generation interconnection services. The BP EIS and 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 this Wind Project was adequately covered within its scope and that it was appropriate to issue a ROD tiered to the BP ROD. This tiered ROD, which summarizes and incorporates information from the BP EIS, demonstrates this decision is within the scope of the BP EIS and ROD. This ROD describes the specific information applicable to this decision to offer contract terms for generation interconnection of the Wind Project at BPA's Jones Canyon SS, and provides a summary of the environmental impacts associated with the decision with reference to appropriate sections of the BP EIS and BP ROD. This tiered ROD also references information that was incorporated by reference into the BP EIS from BPA's Resource Programs EIS (RP EIS) (DOE/EIS-0162, February 1993). The RP EIS contains an analysis of environmental effects and mitigation for wind projects. Lastly, this ROD summarizes and references information as appropriate from the CUP issued by Gilliam County referenced above to clarify where and how the site-specific environmental consequences described in the BP EIS will occur.

## **PROJECT DESCRIPTION**

PPM proposes to construct and operate the Leaning Juniper Wind Project, which is a 104-MW wind farm<sup>2</sup> to be located on private property and consisting of up to 69 GE turbines, each capable of generating approximately 1.5 MW. The turbines would be mounted on concrete pads and spaced from 350 to 525 feet apart in strings oriented in a north-south direction on the plateau southwest of the town of Arlington. Each wind turbine tower would be approximately 265 feet tall and the sweep of the nacelle blades may reach up to 380-400 feet above the ground.

The proposed wind farm site is located in Sections 7, 8, 9, 10, 15, 16, 17, 18, 19, 21, 22, 27, 28, and 33, T2N, R21E, WM; Sections 11, 12, 13, 14, 15, 21, 22, 23, 26, 27 and 28, T2N, R20E, WM; Gilliam County, Oregon. The land under lease totals 9,396 acres and is owned by Waste Management Disposal Services of Oregon, Inc. The land has historically been used for dryland wheat farming and cattle grazing.

PPM has stated in their application to the county that each string of wind turbines would require an access road to construct and service the turbines. The developer would make use of existing roads as much as possible, but would build approximately 16 miles of new roads. All roads used by the project would have a gravel all-weather surface. Existing culverts across intermittent streams would be replaced with wider or stronger culverts as necessary, and drainage improvements would be made. After the project is constructed, use of the improved and new access roads on private lands would be limited to the landowner and to project maintenance staff.

PPM estimates there would be 10.7 miles of underground conductor installed, a majority within existing and new road locations buried beneath the roadbed. There would be approximately 3 miles of trenching 5 feet wide and 3 feet deep to install an underground collector conductor system between the wind tower strings that would be outside of road prisms. In addition to the underground collector conductor, there would be overhead collector conductor between wind tower strings to span intermittent streams and canyons. The overhead collector conductor line would be single pole construction with wood poles averaging 30 feet tall strung with 34.5-kV conductor. The poles would be accessed via off-road travel resulting in temporary disturbance to vegetation over approximately 2.3 miles of temporary access. Temporarily disturbed areas would be treated for weed control and planted back to native grasses, shrubs, or agriculture following construction.

The ground would be leveled to 5 percent grade or less and cleared and compacted in an area of approximately 40 x 120 feet at each wind tower site to allow crane access for tower erection and nacelle and blade attachment. The wind turbine tower would be mounted on a concrete foundation with a diameter of approximately 20 feet. The towers would be painted a flat neutral gray color. Some of the towers would be furnished with lights visible to aircraft. This will be determined through consultation with the Federal Aviation Administration.

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<sup>2</sup> PPM has requested an interconnection of 200 MW as part of OASIS request GI-95. However, their current proposal for construction would only generate up to 104 MW. It is uncertain when and if additional generation capability would be added.

The Wind Project would deliver electric power to the regional transmission grid at BPA's Jones Canyon SS, located about 3 miles southwest of the town of Arlington. The Jones Canyon SS is located adjacent to the McNary-Santiam #2 230-kV line and would provide transmission access to this line.

PPM would construct, own, operate and maintain a separate collector substation on its own property in the northern part of the Wind Project area in a portion of a 10-acre fenced area. They would also construct, own, operate and maintain a switching station on two acres directly east and adjacent to Jones Canyon SS. The two switching stations would be interconnected using a bus or short transmission line. PPM would construct, operate, and own a separate control house that would be adjacent to their substation. The station would have approximately 3,000 square feet of enclosed space, including office and workshop areas, a kitchen, bathroom shower, and utility sink. It would be constructed of sheet metal, and would be 16 feet tall. Water for the bathroom and kitchen would be acquired from an onsite well constructed according to local and State requirements. The bathroom and kitchen would drain into an onsite septic system. A graveled parking area for employees, visitors, and equipment would be located adjacent to the building.

The following equipment may be installed in the PPM substation:

- power circuit breakers;
- substation dead end structures;
- transmission dead end structures;
- voltage transformers
- surge arrestors
- a disconnect switch; and
- bus tubing and bus pedestals.
  
- equipment to regulate voltage such as capacitors and transformers.

In order to accommodate interconnection of the Wind Project, BPA would increase the capacity of the McNary-Santiam #2 transmission line, which will require increased ground clearance of four spans along the line to ensure reliability and safety following the interconnection. Three locations would have H-frame wood pole structures installed to lift the sag in the center of the line and provide additional ground clearance. The locations are near McNary-Santiam #2 structure 31/4 in Morrow County, structure 46/3 in Gilliam County, and structure 143/4 in Wasco County on the Confederated Tribes of the Warm Springs Reservation (CTWSR) (see attached map). These structures have two wood poles spaced 20 feet apart inserted into the ground at each location. Temporary access would be necessary to access these locations so a tracked backhoe or truck-mounted drill can drill holes to install the wood poles. Equipment would drive through grass and brush off road for up to 200 feet near structures 31/4 and 46/3. The third location near structure 143/4 would have shoulder high manzanita and snowbrush removed for approximately 50 feet and a width of 20 feet. Ground disturbance approximately 50 feet in diameter would occur at each structure location. The fourth location is in Sherman County and would have insulators removed from conductors on existing structures 66/3 and 66/4 on either end of an existing span to raise the line enough to operate the line at a higher capacity. Current access is good to structure 66/3; however, off-road driving will be necessary to access structure 66/4.

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

Consistent with BPA's strategy for tiering appropriate subsequent decisions to the BP ROD, a public process for the generation interconnection and related facilities was conducted. Review processes for PPM's CUP and other permits for the Wind Project generated site-specific environmental information about the Wind Project and provided several opportunities for public comment. Specific impacts and related mitigation actions for the Wind Project were described and comments provided through the following processes.

- On January 22, 2005, Gilliam County conducted a formal public hearing on the proposed order for the Wind Project.
- On February 6, 2005, Gilliam County approved the application for a CUP for the Wind Project, with attached Conditions of Approval.

In addition, BPA provided the following opportunities for public involvement.

- On January 31, 2005, BPA sent written notice to adjacent property owners and interested persons requesting comments by February 20, 2005, on the proposed interconnection to the FCRTS of the Leaning Juniper Wind Project. This written notice of BPA's project and the associated open comment period also was posted on BPA's Internet site and in our monthly information periodical, "BPA Journal." No comments were received from the public regarding BPA's proposed action or the interconnection of the Wind Project.
- On November 19, 2004, BPA initiated consultation with the Tribal Historic Preservation Officer (THPO) of the Confederated Tribes of the Warm Springs Reservation (CTWSR). BPA consulted again with the THPO on January 25 and February 22, 2005. Consultation with the THPO is ongoing.
- BPA met with the CTWSR Resource Management Interdisciplinary Team (RMIDT) on March 1, 2005, concerning project consistency with their Integrated Resource Management Plan. The RMIDT plans to review the proposed action and provide further resource protection guidance and a decision prior to any implementation.
- On November 19, 2004, BPA notified the Confederated Tribes of the Umatilla Reservation and the Yakama Nation of the area of potential effect and sought comment on the proposal. No comments were received.
- On November 19, 2004, BPA requested a list of threatened and endangered species that may occur in the area of the switching station from the U.S. Fish and Wildlife Service. A response with the list was received on December 20, 2004. A determination of No Effect to any listed or candidate species was filed on January 26, 2005.
- On November 22, 2004, BPA initiated Section 106 consultation with the Oregon State Historic Preservation Officer (SHPO). The SHPO concurred with the area of potential effect on December 6, 2004 and concurred with our findings of No Effect for all proposed actions off of the CTWSR.

## **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 RP EIS describes generating resource types, their generic environmental effects on a per-average-MW (per-aMW) basis, and potential mitigation. The discussion for wind generation is included in section 3.2.1.3. The RP EIS also describes 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 turbines (RP EIS, Table 3-19) were incorporated and updated in the BP EIS (Table 4.3-1); however, there have been additional improvements and efficiencies to wind turbines since the BP EIS was developed. 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 requests would depend more on customer requests than on new resource development by BPA (section 4.2.3.3).

In light of these analyses contained in the BP EIS and RP EIS, the interconnection of the Wind Project clearly 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 describes the site-specific impacts of the McNary-Santiam #2 line upgrades related to the transmission interconnection as well as the indirect and cumulative impacts of the Wind Project itself and other proposed projects in the vicinity.

### **Environmental Impacts**

#### ***Vegetation***

***BPA Action Impacts*** - Clearing for access to the wood pole installation on the CTWSR (near structure 143/4 of the McNary-Santiam #2) would include removal of all brush and debris in an area approximately 50 feet long and 20 feet wide and in a radius of 50 feet around the center of the wood pole structure location. This totals approximately 0.2 acres. Manzanita and snowbrush is presently growing in the right-of-way at this location, with the surrounding area being a managed pine forest.

Temporary disturbance due to off road access at each of the other 2 wood pole installations (near structures 31/4 and 46/3 of the McNary-Santiam #2) could be as much as 0.15 acre each. Vegetation at both locations is low to moderate quality grassland. Species present include cheatgrass, bunchgrass, rabbitbrush, and knapweed. Disturbance of the grassland around the wood pole locations would total 0.15 acres each. Temporary disturbance to shrub-steppe would also occur to access structure 66/4 to remove insulators. There is not a road to access this

structure and a vehicle would need to drive off road up to 500 feet through grasses and sagebrush to access it. However, there is a road that provides access to structure 66/3. Total disturbance to these previously grazed grasslands and shrub-steppe would amount to approximately 0.7 acres.

Existing public and private roads would be used for access during the construction effort. It is anticipated that the county roads would be 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 would be repaired to county standards prior to equipment demobilization. Construction at each of these four sites would be of limited duration. Mitigation at these areas includes:

- Temporarily disturbed areas would be re-seeded with an appropriate mix of grasses following construction at an appropriate time of year to ensure success.
- Vehicles accessing these sites would need to be cleaned upon departure to remove noxious weed seeds prior to traveling to other areas.
- A fire watch would be needed if construction is during summer fire season.

Wind Project Impacts - The wind farm facilities would be sited in a mixture of shrub-steppe habitat dominated by dryland grasses and scattered shrubs and occasional juniper trees or in dryland wheat cropland. The shrub steppe and grassland areas have been exposed to seasonal grazing pressure for years. There is a mixture of native grasses such as blue-bunch wheatgrass, with non-native grasses bulbous bluegrass and cheatgrass. Shallow soils may contain desert parsley and buckwheat. Deeper soils may have sagebrush, rabbitbrush, and occasional juniper trees. Estimated impacts due to wind farm construction would be spread equally between shrub-steppe habitat and dryland wheat cropland.

The Wind Project would have a net impact of 49 acres of permanent vegetation clearance through a net construction of 16 miles of road to access wind turbines and providing turnarounds on each string. The developer would make use of existing roads, build some new roads predominantly along the strings where wind towers are sited, and return some existing roads to agriculture use. Siting of the base pads for each turbine and required clearing around each pad would result in 8 acres of permanent vegetation removal. Siting of the substation would require permanent removal of vegetation on 10 acres.

Temporary disturbance to vegetation would occur during construction. Loss of vegetation due to improvements to existing roads (widen to 20 feet) and temporary widening of new roads during construction to a width of 35 feet to allow haul of turbine materials, would total approximately 79 acres. Approximately 10.7 miles of collector conductor would be buried beneath roadbeds and between the wind tower strings causing approximately 13 acres of temporary vegetation removal. There would be 2.3 miles of overhead collector conductor between wind tower strings. This single pole line construction would be accessed via off-road travel, resulting in temporary disturbance to an additional 6 acres of vegetation. Additional temporary vegetation disturbance would occur for laydown areas around each of the wind turbine locations and for laydown areas at the end of each string. Laydown areas may impact a total of 51 acres of temporary disturbance. All of these areas of temporary disturbance would be treated for weed control by PPM and planted back to native grasses, shrubs, or agriculture following construction.

The effects of the Wind Project on vegetation would be mitigated by the following:

- The Wind Project would comply with a Weed Management Control and Response Plan in consultation with the Gilliam County Weed Control Board.
- Each wind turbine generator and pad-mounted transformer shall be constructed with a cleared pad around each base with a minimum of 15 feet of non-flammable ground cover. Vehicles and buildings will be equipped with fire extinguishers.

### **Land Use**

BPA Action Impacts - Project components outside of the CTWSR are in an area zoned for Exclusive Farm Use. Land use in this area is predominantly either dryland wheat cropland or cattle grazing. BPA's action would not affect use for agriculture. None of the areas that would be disturbed are currently used as farmland.

The single wood pole structure installation on the CTWSR is in an area generally designated as a forest area covered by the Integrated Resource Management Plan (IRMP) for lands managed by the CTWSR. BPA has consulted with tribal staff on the installation of the wood pole structure for project consistency with the IRMP and documentation of consistency will be completed prior to implementation.

Wind Project Impacts - Construction of the wind farm would permanently remove 66 acres of land from agriculture use and temporarily impact approximately 148 acres of agricultural use. Gilliam County found that the Wind Project is consistent with their land use classification. Parcels adjacent to the Wind Project facilities are also used for farming and grazing. There would be no impact to these adjacent parcels' use for these purposes.

### **Fish and Wildlife**

BPA Action Impacts – There would be a minor temporary impact to low-quality shrub-steppe habitat and grassland from construction of the line upgrades that would have a local temporary effect on wildlife and bird species that utilize that habitat. No impacts to fish species would be expected from these upgrades since there are no fish-bearing waters in the vicinity.

Wind Project Impacts – Avian surveys were conducted in the fall of 2004 and winter of 2004/2005. Additional surveys will be conducted in the spring of 2005. Raptor nest surveys were conducted in the fall of 2004 and mapped. The number of species of birds observed was 25 in the fall and 12 in the winter; however, there were more birds observed at each plot in the winter than the fall. Most common species observed were horned lark, common raven, European starling, western meadowlark, Canada goose, American goldfinch, and white-crowned sparrow.

Based on the 12-month avian study conducted during the project design phase, the per turbine mortality rate for birds for the proposed Wind Project is expected to be between approximately 0.5 and 2.5 birds per turbine per year. Actual levels of mortality that would result from the proposed Wind Project are unknown and could be higher or lower depending on patterns of



avian movements through the area. The species most likely to be affected due to abundance, height of flight, and percent of time spent in flight, include common raven, Canada goose, horned lark, European starling, and rough-legged hawk. Raptor nests are located in the few juniper trees on the plateau and along basalt cliffs. No construction activities or disturbance would occur within a 0.5-mile radius of any active raptor nest during nesting season. State-listed sensitive species recorded during the studies included golden eagle, ferruginous hawk, Swainson's hawk, loggerhead shrike, burrowing owl, and white-tailed jackrabbit. Sensitive species with potential for occurrence include peregrine falcon, Washington ground squirrel, long billed curlew, grasshopper sparrow, and sage sparrow. Avian mortality would be monitored for one year following initial operation to determine if actual mortality is within the predicted range.

Mule deer are present in the Wind Project area. During construction, they could potentially be displaced temporarily from the site as a result of human presence and construction-related disturbance. Because of the extent of suitable habitat in the region, temporary loss of habitat in the Wind Project area is a minor effect. Once construction is complete it is expected that deer would become habituated to the wind turbines and reoccupy former habitat.

Five species of bats are likely to be resident in the area of the Wind Project; however, they are unlikely to be affected by the construction and operation of the turbines. A majority of the bat mortality from wind turbines appears to be during migration in the fall. There are two species of bats that have the potential to migrate through the area that would likely experience mortality due to the turbines--hoary bat and silver-haired bat. No Federally listed bats would be affected. Bat mortality would be monitored for one year of operation. Should such monitoring determine a significantly higher impact on bat species compared to other existing wind projects in the region, scientific studies aimed at determining effective methods of reducing bat fatalities would be conducted.

No fish are located in waters within the Wind Project area. Because of the distance from fish-bearing waters, it is highly unlikely that the Wind Project would have any effect on fish in the Columbia River. Sediment and erosion control measures would be installed to prevent any sediment from entering fish-bearing waters.

The loss of low to moderate quality shrub-steppe habitat would have a local effect on species that utilize that habitat.

### ***Federally Listed Species***

No Federally listed threatened or endangered species were observed in the Wind Project area during the avian study. Given the lack of presence within the project area, no impacts to bald eagles are expected from either BPA actions or the Wind Project activities. No rare plant species or likely habitat has been found in the project area and therefore no impacts are expected.

### ***Wetlands***

*BPA Action Impacts* – No wetlands would be impacted by the project.

*Wind Project Impacts* – Potentially jurisdictional waters were identified at eight locations within the 200-foot wide corridors where turbines, underground conductors, or access roads might be

located. Seven of the locations are ephemeral or intermittent drainages adjacent (within 100 feet) to a proposed component of the project. The eighth location is a shallow intermittent drainage channel where a project access road would cross. There was no water present in any of these channels at the time of identification in November 2004. These areas are identified on project maps and avoidance will be a goal during design and construction. The developer has submitted a Section 404 Nationwide Joint Removal-Fill Permit application to Oregon Division of State Lands and the U.S. Army Corps of Engineers.

### **Public Safety**

BPA Action Impacts – Except for fuel and oil used in construction equipment, no combustible materials would be used; therefore, increased risk of fire and explosion would be unlikely. During construction activities, the potential for fires and accidents always exists. Standard construction safety measures would be implemented to reduce the risk of hazards and accidents. Significant risks to public health and safety are not anticipated.

Wind Project Impacts - Minimal new toxic substances or hazardous waste (small amounts of lubricants and solvents) would be introduced as a result of the proposed Wind Project. Except for fuel and oil used in construction equipment, no combustible materials would be used; therefore, increased risk of fire and explosion would be unlikely. During construction activities, the potential for fires and accidents always exists. However, the Wind Project would be constructed in accordance with applicable State and local health and safety regulations to prevent such occurrences. Standard construction safety measures would be implemented to reduce the risk of hazards and accidents. Best Management Practices (BMPs) would be employed to reduce or control the potential for environmental health hazards. Significant risks to public health and safety are not anticipated as a result of the proposed Wind Project.

Construction of the proposed Wind Project is expected to take 9 to 12 months. Although construction would temporarily increase traffic on roads in and around the Wind Project access routes, impacts would be minimized by coordinating construction schedules and equipment access with landowners, other Wind Project construction, and local residents. Once the Wind Project is constructed, operations would involve a minor increase in vehicle traffic for project operations staff, since fewer than 30 vehicle trips per day are projected to the Wind Project area.

### **Air Quality**

BPA Action Impacts and Wind Project Impacts - Temporary emissions would occur during construction of the Wind Project from construction vehicles and equipment. There also would be an increased potential for dust generation during construction, when soil is exposed or excavated. This potential would be greatest during dry, windy weather but would be mitigated by applying water for dust control and by gravelling the access roads. When the Wind Project is operational, minimal emissions from any source are expected.

### **Noise**

BPA Action Impacts – Construction activities are expected to take place on BPA facilities during the summer of 2005. Crews would work 8- to 12-hour days, during daylight hours, as needed to meet the schedule. Given the remote location of BPA construction activities and their short-term duration, noise impacts would be expected to be minor and low. During operation, no changes to the existing noise environment are expected.

Wind Project Impacts - In general, noise associated with wind energy is greatest during the construction phase, as noise levels from the operation of these types of facilities are low and meet State standards.

### **Hazardous Substances**

Minimal new toxic substances or hazardous waste (small amounts of lubricants and solvents) would be introduced as a result of BPA's proposed action or the proposed Wind Project.

### **Socioeconomics and Public Facilities**

BPA Action Impacts and Wind Project Impacts – The only community likely to be affected by construction and operation of the proposed switching station and the Wind Project is Arlington. There would be no significant increases in permanent population as a result of construction and operation of the Wind Project because less than 10 people would work full-time once the Wind Project is completed. The Wind Project would not result in a significant increased need for public services, including fire protection. The number of people expected to need temporary lodging or permanent housing within the Wind Project area would be small enough that adequate housing, and other lodging, would be available. The peak onsite work force during construction would be about 120 employees. The Wind Project would have a net economic benefit to the landowners participating in the project because wind lease payments to landowners would provide a supplementary source of income that would help farmers retain their farms when farm prices reduce other sources of farm income. An increase in the Gilliam County tax base would provide benefits to all county residents. Indirect economic benefits would accrue to businesses in the area from construction workers purchasing goods and services.

### **Historic/Archaeological Resources**

BPA Action Impacts – An archaeological survey of the four transmission line upgrade sites was conducted by a BPA archaeologist. No significant cultural resources were found at the sites. In addition, background information was gathered from the CTWSR Cultural Resources staff. The SHPO has concurred with these findings for the three sites not on CTWSR land.

One pole installation would be on the CTWSR. BPA worked closely with the Warm Springs Tribe Cultural Resources Department and THPO to determine the potential for impacts. Background information was gathered from the CTWSR Cultural Resources staff and concurrence on findings is pending from the THPO. A tribal monitor from the Warm Springs Tribe will be present during excavation activities for the 3 sites where poles will be installed. Procedures to minimize damage to any cultural artifacts discovered during construction would be followed.

Wind Project Impacts – An archaeological survey of the Wind Project site was conducted and a technical report filed with the SHPO in January 2005. Preliminary findings include one historical site containing miscellaneous historic debris discovered in the vicinity of turbine #29. This site can easily be avoided during construction and operation activities and no impacts should result.

A letter and copy of the project layout have been sent to the director of the Cultural Resources program of the CTWSR to inquire about any other cultural resources known to the tribe. No response has been received to date.

### **Visual Aesthetics**

BPA Action Impacts – The BPA H-frame structures are being installed in remote locations on an existing transmission line. The visual impact is minor.

Wind Project impacts – The Wind Project would potentially be visible from long distances from some scattered residences and the interstate freeway. However, these views are expected to be long-range background views in an area of low visual sensitivity.

The indirect effects of the Wind Project on visual aesthetics would be mitigated by the following conditions in the CUP:

- Color and finish limitations on all externally visible components of the Wind Project.
- Limitations on the placement of signs.
- Setbacks of turbines away from roads, lot boundaries, houses, railroad right-of-way, or electrical substations.
- Hooding or directional lighting requirements of any outdoor lights.
- Requirement to complete construction within 12 months from initiation of construction.
- Decommissioning requirements.

### **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. The following discussion further describes potential cumulative impacts in the project vicinity.

There are several wind projects in the southern Washington and northern Oregon region that are within approximately 20 air miles of the proposed Leaning Juniper Wind Energy Project. The operating Klondike Wind Project and its approved expansions and the proposed Sherman County Wind Project are in Sherman County, Oregon. Two other wind projects are proposed in Gilliam County, Oregon, the Shephards Flat Wind Project and the Willow Creek Wind Project. Also in Gilliam County and adjacent to the proposed Leaning Juniper project is the Arlington Wind Project, which is currently approved for construction and seeking a purchaser for the energy output. Across the Columbia River in Klickitat County, there is the proposed Roosevelt Wind Project. These projects could have a combined total of up to 2,100 MW of wind energy proposed. The size of these projects has varied considerably, however, and it is difficult to predict the number and size of projects that actually would be constructed.

The Arlington Wind Project is proposing to site the collector substation for their wind generation project directly adjacent to the Jones Canyon SS and interconnecting to the FCRTS at this switching station. The timeframes for construction of this facility would be very similar to the Leaning Juniper Wind Project. Close coordination would be required during construction of the three substations side by side. The Arlington project has already been analyzed in a separate NEPA process and a ROD to interconnect that project to the FCRTS and build the Jones Canyon Substation was published in the Federal Register on January 26, 2005.

These projects, combined with the proposed Leaning Juniper Wind Energy Project, would have relatively minor cumulative impacts to fish, wetlands and water resources, public safety, air quality, noise, socioeconomics and public services, and cultural resources. However, potentially significant cumulative impacts might occur to vegetation, land use, wildlife, and visual resources.

There is a large regional landfill operated by Waste Management Inc., Columbia Ridge, in Gilliam County. Leaning Juniper is leasing the land for their project from Waste Management, Inc. There is not likely to be any conflict with the operation of the landfill.

Vegetation – Implementation of all these projects could impact vegetation communities including native shrub-steppe. Because most tillable areas in these counties in private ownership have already been converted to agriculture or are currently grazed, it is unlikely that ongoing agricultural practices would result in the conversion of remaining native vegetation to cropland or pastureland instead of impacts from grazing. Historically, 10.7 million acres of eastern Washington and Oregon were covered in shrub-steppe vegetation, but about 60 percent of that area has been converted to agricultural, industrial, residential, and other uses. The overall additional impact to shrub steppe habitat could be cumulatively significant because so much has already been degraded or lost.

Construction of projects may increase the potential for the spread of weeds into previously undisturbed areas. Because of the awareness of the potential for the spread of weeds, projects include mitigation measures, including the development and implementation of weed control plans that could result in cumulatively insignificant impacts.

Land Use – Cumulative impacts on land use for the wind and transmission projects would be low because these projects would take a very small proportion of agricultural land out of production without changing the overall agricultural usefulness of the area. This would be a minor cumulative land use impact.

Fish and Wildlife – Implementation of the proposed Wind Project combined with the other proposed or planned projects could result in cumulative impacts to wildlife. Wind and transmission projects in the region could impact avian and bat species through collisions with turbines, meteorological towers, and transmission towers and conductors. Increased bird and bat mortality would occur, and an undetermined number of fatalities would be migrants that could pass through more than one wind project during migration.

Results from studies of other wind projects can be useful in predicting mortality at new wind projects. On average, based on four studies of wind projects in Washington and Oregon, approximately 2.7 bird fatalities occur per MW of wind energy produced. Assuming that there are 2,180 MW of wind energy being produced by the above-mentioned projects after construction and expansion, approximately 5,886 bird deaths may occur per year. The significance of this level of mortality is unknown, and other substantial sources of avian mortality such as communications towers, windows, vehicles, powerlines, domestic/feral cats, pesticides, and farming practices undoubtedly occur in the region. While it is hard to predict numbers of

bird deaths from other sources, it is safe to say that it is substantially higher than 5,886 per year, based on a review of the literature regarding avian mortality (NWCC, 2004)<sup>3</sup>.

As with birds, approximately 1.7 bat fatalities occur per MW of wind energy produced in the northwest. Assuming 2,180 MW of wind energy would be produced in the region, approximately 3,706 bat deaths may occur per year. The bat species at highest risk of collision with turbines in Washington and Oregon are hoary bat and silver-haired bat, both tree dwelling migratory species. These bats may come from as far north as Canada and southern Alaska and their range extends across most of Canada and the U.S. Other sources of mortality for hoary and silver-haired bats in Washington and Oregon likely include logging and pesticides. The significance of the cumulative level of mortality is unknown; however, given the extensive range of the species, the expected mortality level is likely a minor portion of the populations.

Other potential impacts to wildlife from wind projects include potential short-term disturbance impacts to big game followed by long-term beneficial effects if the wind project areas become a refuge from hunting for deer. If wind projects do create a refuge effect because they curtail hunting, the long-term cumulative effect may be increased numbers of deer. This may require a change in management strategy or techniques to maintain herd number objectives; however, the cumulative effects to big game species are not considered significant.

Cumulative impacts to fish species would be insignificant due to the lack of direct impacts to fish-bearing waters from these projects. Impacts would mainly be indirect and mitigated for by proactive design and implementation of BMPs at the project level.

*Federally Listed Species* – Results of the baseline wildlife studies conducted in the Wind Project area indicated that bald eagle (Federally threatened) rarely occur in the project area; therefore impacts are not expected. Bald eagle also occur in Sherman County and Umatilla County, Oregon, where the Klondike and Stateline wind projects are located. No bald eagle fatalities have been recorded at these projects. Based on this low level of impact, the cumulative effects from the wind projects in the region to the bald eagle are not expected to be significant.

Because there were no listed plant species documented in the Arlington Wind Project area, no additional cumulative impacts to listed plants are expected. Other projects did not have known significant impacts to listed plants species; therefore the cumulative impacts to rare plant species are not considered significant.

*Visual Resources* – Construction of the proposed Wind Project, combined with the other proposed or planned projects, would contribute to a cumulative change in the existing visual character of the region. However, the overall cumulative visual impact from all projects would likely be low to moderate due to the abundance of open, undeveloped areas in the region.

The wind projects in the area may have unavoidable adverse effects on visual resources. However, visual resources are difficult to assess and opinions vary and are highly subjective.

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<sup>3</sup> National Wind Coordinating Committee (NWCC). November 2004. Wind Turbine Interactions with Birds and Bats: A Summary of Research Results and Remaining Questions. NWCC Fact Sheet.

Some viewers regard wind farms as a visual attraction, but if they were to become more commonplace on the landscape, the novelty would likely diminish. Other viewers object to some open vistas becoming changed by the placement of turbines across the landscape.

### **Mitigation**

The Council on Environmental Quality's Regulations for Implementing NEPA (40 CFR 1505.2 C) require a ROD to "state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not."

Specific resource mitigation conditions to avoid or minimize environmental harm have been identified through the Gilliam County CUP process, and also summarized in site-specific impacts listed above. The Wind Project has adopted all identified feasible mitigation measures to avoid or minimize environmental impacts from the Wind Project.

## **PUBLIC AVAILABILITY**

This ROD will be distributed to all interested parties and affected persons and agencies. Copies of the BP EIS, BP ROD, and additional copies of this Leaning Juniper Wind Project Interconnection ROD, are available from BPA's Public Information Center, P.O. Box 12999, Portland, Oregon, 97212. 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 website [www.bpa.gov/corporate/pubs/rods/](http://www.bpa.gov/corporate/pubs/rods/).

## **CONCLUSION**

BPA has decided to offer contract terms for interconnection of the Leaning Juniper Wind Project into the FCRTS at BPA's Jones Canyon SS in Gilliam County, Oregon. The Standard Large Generator Interconnection Agreement (LGIA) provides for interconnection of the Leaning Juniper Wind Project with the FCRTS, the operation of Leaning Juniper Wind Project in the BPA Control Area (including control area services such as generation imbalance service), and the maintenance of reliability of the FCRTS and interconnected systems. The LGIA also provides for the construction of the interconnection facilities and their operation and maintenance.

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 transmission access tariff; 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 adopts and will undertake the mitigations identified in this ROD and incorporate any additional requirements for work on the CTWSR.

The Wind Project has or will soon fulfill all Federal, State, and local requirements for environmental compliance such as air emissions, water, wetlands, wildlife species, cultural/historic resources, and land use.

BPA contracts providing for integration of power from the Wind Project into the FCRTS at BPA's Jones Canyon SS shall include terms requiring that all pending permits be approved before the contract is implemented. BPA's 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

March 11, 2005  
Date

Attachment:  
Project Location Map