Record of Decision for the Electrical Interconnection of the Willow Creek Wind Project June 2008

INTRODUCTION

The Bonneville Power Administration (BPA) has decided to offer contract terms for interconnection of up to 72 megawatts (MW) of power to be generated by the proposed Willow Creek Wind Project (Wind Project) into the Federal Columbia River Transmission System (FCRTS). Willow Creek Energy LLC (WCE) proposes to construct and operate the proposed Wind Project in Gilliam and Morrow counties, Oregon, and has requested interconnection to the FCRTS at a point along BPA's existing Tower Road-Alkali 115-kilovolt (kV) transmission line in Gilliam County, Oregon. BPA will construct a tap to allow the Wind Project to interconnect to BPA's transmission line, and will install new equipment at BPA's existing Boardman Substation in Morrow County, Oregon to accommodate this additional power in 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.[1] 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

[1] 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 Agreement (LGIA), which provide a uniform process for offering 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.

In January 2007, WCE submitted a generator interconnection request to BPA to interconnect 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 WCE.

PROJECT DESCRIPTION

BPA Interconnection Facilities

To interconnect the Wind Project, BPA will construct a tap to connect the Wind Project to BPA's existing Tower Road-Alkali No. 1 115-kV transmission line, and install new equipment at BPA's existing Boardman Substation. BPA's Tower Road-Alkali No. 1 115-kV transmission line is one of five transmission lines located within an existing transmission line corridor that passes through the project area. The tap site to interconnect the Wind Project will be at BPA's tower 4 located in mile 11 (tower 11/4) of the Tower Road-Alkali No. 1 115-kV transmission line. This tower is located near Pacific Power and Light Company's Dalreed Substation. The new structures and conductors for the tap will be installed underneath one existing BPA 500-kV line.

Five structures will be built for the tap. Three will be wood pole structures, and two will be lattice steel disconnect switch structures. A three-pole guyed wood structure will form the northern end of the tap under the Tower Road-Alkali transmission line just east of tower 11/4. Another three-pole guyed wood structure will be installed at the south edge of the right-of-way (ROW). One lattice steel switch structure will be installed on the south side of the new structure at the ROW edge. One two-pole wood structure will be placed west of tower 11/4 on the Tower Road-Alkali No. 1 line. This structure will support the new conductor connecting to one new lattice steel switch structure that will be installed west of the new two-pole wood structure. Each new structure will require about 1 acre of ground disturbance (200 feet by 200 feet) for a total of about five acres of land disturbance.

The existing access road along the transmission corridor between Dalreed Substation and the tap site is not well defined, so some road improvement (including grading and adding rock) may be required, totaling about 1 acre of improvement. The area is flat, dry rangeland so construction time may determine how much road work, if any, is needed. If construction can take place in the dry season, no road improvements may be needed.

To accommodate the power from the Wind Project, BPA also will add three new breakers at Boardman Substation, which requires added buswork and switches, and metering and control hardware. Other changes, including removing a disconnect switch, will be required. All work at Boardman Substation will take place within the existing substation fenced area and will not require additional ROW or land development.

Willow Creek Wind Project

WCE is proposing to construct and operate a 72 MW[2] wind power facility consisting of 48 wind turbines arranged in strings on privately-owned land in Gilliam and Morrow counties, Oregon, southeast of the town of Arlington, about 10 miles south of the Columbia River. The project property encompasses approximately 3,500 acres, with about 26.5 acres 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 would have a 25-year service life. During construction, about 250 workers would be employed, with a peak of 200 personnel onsite at one time.

Gilliam County approved a Conditional Use Permit (CUP) for the project on January 31, 2005. Morrow County approved a CUP, with conditions, for the project on January 25, 2005. The following summarizes WCE's proposed Wind Project. More detailed information is contained in project documents provided by WCE[3].

Turbines

WCE would install 48 General Electric (GE) 1.5sle wind turbines in strings in the project area for the Wind Project (see Figure 1). This turbine has a rated output of 1.5 MW. The total height of the tower, to the hub of the rotor blades, is 262 feet. Towers are made of heavy rolled steel and are fabricated off-site. The towers are conical with their diameter increasing towards the bottom for strength. Each of three tower sections includes flanges on both ends, and they are bolted together on-site. The towers feature a locked entry door just above ground level, and house internal control and communication electronics. An internal maintenance access ladder

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[2] WCE has requested interconnection of up to 150 MW under the Open Access Same-time Information System (OASIS) Generation Interconnection (GI) request number 255. At this time, however, WCE has obtained permission for a 72-MW wind facility from local siting authorities. Accordingly, environmental and other studies completed for the Wind Project are based on the size and number of turbines (48) to produce 72 MW. BPA therefore has decided to issue a LGIA for only the 72-MW project that has received local siting approval. Interconnection of the remaining amount of WCE's interconnection request at some time in the future would be considered a separate action that would require an amendment of the LGIA. BPA would review this separate action under NEPA and prepare any necessary NEPA documentation before making a decision regarding interconnection of the remaining amount of WCE's request.

[3] These documents include the following: David Evans and Associates. 2005. Wetland Determination and Permit Analysis Memorandum, Willow Creek Bridge. Portland, OR; Kronner et al. 2007. Wildlife Baseline Study for the Willow Creek Winds Project Gilliam and Morrow County, Oregon Prepared for Invenergy LLC. Northwest Wildlife Consultants, Inc. Pendleton, OR; Northwest Wildlife Consultants, Inc. 2007. An Investigation of Rare Plant Resources Associated with the Proposed Willow Creek Winds Project (Gilliam and Morrow Counties, Oregon) Prepared for Invenergy LLC, by Northwest Wildlife Consultants, Inc, Pendleton, OR; Tetra Tech EC, Inc. 2007. Pedestrian Cultural Resource Survey for the Willow Creek Winds Project Gilliam and Morrow Counties, Oregon. Prepared For Invenergy Wind Willow Creek Energy, LLC by Tetra Tech EC, Inc. Rancho Cordova, CA; Zipper Zeman Associates, Inc. 2007. Geotechnical Progress Report – Phase I Proposed Willow Creek Wind Energy Project Morrow and Gilliam Counties, Oregon. Portland, OR.

with safety platforms provides entry to the nacelle. The towers are smooth, with no avian perch opportunities, are neutral in color, and have a non-reflective finish.

Each wind turbine has three rotor blades, each constructed of one piece of fiberglass or fiberglass composite. Blades are about 126 feet from tip of the blade to center of the hub. Ground clearance of the blades, when the tips are closest to the ground, is about 136 feet. Blades are finished with a smooth white outer surface. At the peak of energy production, the blades will turn at approximately 20 revolutions per minute (rpm). Blades and nacelles are fabricated off-site and shipped to the project site, where they are attached to the nacelle on the ground and raised, with the nacelle, into position with a crane. Should adjustments be required, blades can be temporarily removed from the turbine and rotated or replaced.

Turbine towers will be anchor-bolted to concrete foundations. WCE will use spread-foot foundations that extend about 7 feet below ground. Foundations will be excavated using a backhoe or other appropriate excavation equipment. Concrete molds will be used to pour two rings of concrete, and steel anchor bolts will be embedded in the concrete. 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 x 200 feet during construction) and access roads. Trenches for collection and communications lines will be excavated in access road ROWs or in cross-country collection line easement corridors. Following construction, portions of the tower assembly areas, pads, roads and all trenched areas will be reclaimed. The permanent turbine footprint and graveled pad will be reduced to about a 45-foot diameter area, and road width will be reduced to about 16 feet.

One 252-foot meteorological tower will be erected downwind of the turbine string corridors on a 3-foot diameter pier foundation. Foundation depth will vary depending on local soil conditions. Foundations will be drilled using a truck-mounted drill and then filled with concrete. The meteorological tower will be anchored with guy wires.

Trenching and Placement of Underground Electrical and Communications Cables

Underground electrical and communications cables will be placed in approximately 1-foot wide trenches along the length of each turbine string corridor. In some cases, trenches will run from the end of one string to the end of an adjacent string to connect more turbines together via the underground network. Trenches will be excavated to below frostline and electric distribution and communications cables will be placed in the trench using trucks. Electrical cables will be installed first and the trench will be partially backfilled prior to placement of the communications cables. Trenches will be backfilled and the area revegetated concurrently with revegetation of other construction areas. One transformer will be installed for each turbine to step up low voltage power to 34.5 kV and approximately 13 miles of underground power cable trench will be installed (trenches may contain more than one cable).

Project Substation and O&M Building

A substation will be constructed on private land near the center of the Wind Project. The substation will house transformers and other facilities to provide fault protection and to step up medium voltage power from the Wind Project's 34.5-kV collection lines to high voltage for

delivery to the 115-kV transmission line. The substation will be similar to substations typically used on transmission systems in the region and will require fewer than 5 acres. The basic elements of the project substation include a control house, one main transformer, outdoor breakers, a reactor bank, relaying equipment, high voltage bus work, steel support structures, an underground grounding grid and overhead lightning suppression conductors.

Small concrete foundations will be constructed for the main power transformer and other components within the substation. These foundations will be constructed using standard cut-and-fill techniques and by pouring concrete in a shallow slab or using a precast structure set on an appropriate depth of structural fill. The remainder of the substation yard will be covered with crushed rock. Crushed rock, sand, and gravel will be obtained from existing permitted sources. The substation will be fenced with a 7-foot high chain-link fence topped with three strands of barbed wire, for a total fence height of 8 feet. Access gates will be locked at all times and warning signs will be posted for public safety.

The O&M building will be constructed in a central area in the Wind Project. The O&M building will likely contain a simple plumbing system, in which fresh water is trucked in and stored in a cistern, and used water is stored in holding tanks and then disposed of at an approved off-site facility. Alternatively, WCE may opt to construct a septic system. Any septic system will be constructed in conformance with state and county regulations and permitted accordingly.

WCE Transmission Line

From the Wind Project's substation to the new tap site at tower 11/4 of BPA's Tower Road-Alkali No. 1 115-kV transmission line, WCE will construct an 8.3-mile transmission line to transmit power from the Wind Project to the FCRTS (Figure 2). This line will cross two private properties.

Approximately 100 structures would be needed for the transmission line. The transmission line will be constructed with nonspecular (low reflectivity) conductors and two continuous ground wires. For about 4 miles, the transmission line will zigzag through crop pivots using single steel pole structures. These self-supporting steel or wood poles will have concrete caisson foundations to avoid using guys and anchors, will be about 85-90 feet tall with a span of about 400 feet between structures, and will be placed to avoid interference with the existing irrigation system.

The remaining 4 miles of the transmission line will be on undeveloped land. Single wood pole structures would be used in this portion of the line. These structures will be about 60-65 feet tall above ground, with a span of about 500 feet between structures.

Transmission line construction will use standard industry procedures including: surveying and staking; ROW preparation; materials hauling; structure assembly and erection; ground wire; conductor stringing; cleanup; and restoration. The transmission line will be designed to minimize potential for bird collisions and electrocutions (Avian Power Line Interaction Committee 1996). Vegetation clearing and minor grading may be necessary at some of the transmission line structures to facilitate their construction. Once construction is complete, vegetation will be allowed to re-establish.

Transmission line structures would be installed 10 feet deep into the ground. Holes for the structures will be auger drilled unless consolidated rock is encountered, then, structure holes will

be advanced using dynamite. All blasting will be conducted by a permitted contractor, and will be in compliance with state and federal regulations. Structures will be assembled onsite. Aboveground pole height will range from 60 to 65 feet. The disturbed surface area at each structure location will average 50 by 100 feet. Structure erection and conductor stringing will occur sequentially along the ROW.

WCE's transmission line structures also would support two redundant fiber optic cable lines that WCE would install from the Wind Project substation to connections with BPA's existing Ross-Franklin fiber optic lines. Both are 36 strand single mode fiber. For the length of the WCE line, one of the fiber lines would be strung at the top of the pole (OPGW), and the other would be strung beneath the conductors (ADSS), with a minimum of 10 feet separating the two. At the interconnection point (or just before), both fiber lines will drop and continue underground to their respective tap points. The first tap point is tower 20/3 on the Coyote Springs-Slatt transmission line, which is located about 1,000 feet eastward of the interconnection point along BPA's ROW. The second tap point is tower 16/5 on the same line, which is about 3.8 miles eastward of the interconnection point along BPA's ROW.

To install these underground portions, WCE will construct a single trench that runs about 50 feet south of BPA's ROW on land within easements purchased by WCE. The construction will be performed with a trenching machine, which minimizes disturbances to the surface. The trench will be about 12 inches wide, with berms on either size extending out about another foot. The entire machine is less than 10 feet wide. The trenching system would install the fiber line(s) in one continuous operation, with the fiber buried below plow depth. The machine is followed by a small bulldozer to fill the trench and a tamping machine to compact the soil. Overall, this construction would disturb about 4.8 acres.

Project Roads

About 10 miles of new access roads will be required for the Wind Project. Access roads will be constructed in accordance with landowner easement agreements. Roads will be located to minimize disturbance and avoid sensitive resources and steep topography. The minimum full surfaced travel way width will be no greater than 16 feet; overall surface disturbance could be up to 35 feet wide. Disturbance width may increase in steeper areas due to cuts and fills necessary to construct and stabilize roads on slopes.

Topsoil removed during new road construction will be stockpiled in elongated piles within road easements. Topsoil will be re-spread on cut-and-fill slopes and these areas will be reclaimed in accordance with easement agreements. During final road grading, surface flows will be directed away from cut-and-fill slopes and into ditches that outlet to natural drainages.

During construction and O&M of the wind project, traffic will be restricted to the roads developed for the project. Use of unimproved roads will be restricted to emergency situations. Speed limits will be set to ensure safe and efficient traffic flow. Signs will be placed along the roads, as necessary, to identify speed limits, travel restrictions, and other standard traffic control information.

Erosion Control and Site Clean-up

WCE will be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) as required by the U.S. Environmental Protection Agency (EPA), and the plan will include standard sediment control devices (e.g., silt fences, straw bales, netting, soil stabilizers, check dams) to minimize soil erosion during and after construction. WCE or their agents will rent dumpsters from a local sanitation company to collect and dispose of waste materials. Following construction, WCE will ensure that all unused construction materials and waste are picked up and removed from the project area. WCE will hire a contractor to provide an adequate number of portable toilets in the project area during construction and will ensure that sanitary wastes will be removed and disposed of at an approved facility in accordance with state and local laws.

Contractors will provide trash barrels or dumpsters to collect construction trash, lunch wrappers, etc., and these solid wastes will be routinely removed and disposed of at an approved facility. No waste disposal by incineration will occur. The O&M building will be used to store parts and equipment need for O&M. While WCE does not anticipate the use of any liquid chemicals within the project area, WCE will inspect and clean up the project area following construction to ensure that no solid (e.g., trash) or liquid wastes (e.g., used oil, fuel, turbine lubricating fluid) were inadvertently spilled or left on-site. A final site cleanup will be made in conjunction with construction site reclamation. Cleanup crews will patrol construction sites on a regular basis to remove litter. A final site cleanup will be made prior to shifting responsibilities to O&M crews. O&M crews will continue to use dumpsters for daily maintenance.

Public Access and Safety

Public access to private lands is already restricted by landowners and will continue to be restricted in accordance with easement agreements. The substation will be fenced as required for public safety, but no other fencing is proposed at this time. A lockable gate will be installed between the nearest wind turbine and Highway 74.

All fires will be extinguished immediately by WCE personnel, if there is no danger to life or personal safety, and the appropriate landowner and the county sheriff's department will be notified immediately. Some fire-fighting equipment will be located in vehicles and in the O&M building. If the fire cannot be extinguished by WCE personnel, the landowner and sheriff will be so advised. Fire deterrents within the wind project will include access roads, which may serve as fire breaks, and regular clearing of vegetation from areas around transformers, riser poles, and the substation.

Safety signing will be posted around all towers (where necessary), transformers, and other high-voltage facilities, and along roads, in conformance with applicable state and federal regulations.

The Federal Aviation Administration (FAA) typically requires every structure taller than 200 feet above ground level to be lighted, but in the case of wind power developments, it will allow a strategic lighting plan that provides complete conspicuity to aviators but does not require lighting every turbine. WCE is developing a lighting plan to be submitted for FAA approval. An estimated 20-25 percent of the project's turbines will be designated for lighting with medium intensity dual red synchronously flashing night-time lights and either no daytime lights or white strobe daytime lights.

Operations and Maintenance

WCE will operate and maintain the wind project. O&M will require about 6-8 full-time personnel. All turbines, collection and communications lines, substations, and transmission lines will be operated in a safe manner according to standard industry operation procedures. Routine maintenance of the turbines will be necessary to maximize performance and detect potential difficulties. Each turbine will be remotely scanned by computer every day to ensure operations are proceeding efficiently. Any problems will be promptly reported to on-site O&M personnel, who will perform both routine maintenance and most major repairs. Most servicing will be performed up-tower, without using a crane to remove the turbine from the tower. Additionally, all roads, pads, and trenched areas will be regularly inspected and maintained to minimize erosion.

Access roads will be maintained during O&M to prevent off-road detours due to ruts, mud holes, landslides, etc. Roads will be maintained as needed; it is anticipated that maintenance will occur twice per year but more frequent maintenance will be performed, if needed, to maintain roads in an condition acceptable to the county (for county roads) and to the landowner (for private roads). All fuels and/or hazardous materials will be properly stored during transportation and at the job site. Workers will be instructed to keep all job sites in a sanitary and safe condition. Workers will be expected to respect the property rights of private landowners.

Reclamation and Abandonment

Reclamation will be conducted on all disturbed areas to comply with easement agreements. The short-term goal of reclamation will be to stabilize disturbed areas as rapidly as possible, thereby protecting sites and adjacent undisturbed areas from degradation. The long-term goal will be to return the land to approximate pre-disturbance conditions.

After construction is complete, temporary work areas will be graded to the approximate original contour and the area will be revegetated with approved seed mixtures. WCE will consult with the Natural Resources Conservation Service (NRCS) on appropriate reclamation methods and seed mixtures and will obtain approval from landowners to implement the appropriate practices. Most post-construction work will entail stabilizing slopes; scarifying soils to reduce compaction; and reseeding unused disturbed areas including portions of turbine pads not required for O&M, road cuts-and-fills, underground power line trenches, and overhead power line routes. Approximately 69 percent of new disturbance will be reclaimed upon construction completion.

At the end of the project's useful life (about 25 years), WCE will obtain any necessary authorization from the appropriate regulatory agency or landowner to abandon the wind project. WCE would remove, at its sole cost and expense, all wind turbines and associated facilities.

Turbines, towers, and transformers will be removed and recycled or disposed of at approved facilities. Foundations will be abandoned in place to a depth of 3 to 4 feet below grade. All private project roads will revert to landowner control. Underground power and communication lines will be abandoned in place; overhead power lines and poles will be removed. Reclamation procedures will be based on site-specific requirements and techniques commonly employed at the time the area is to be reclaimed and will include regrading, topsoiling, and revegetation of all disturbed areas. This does not address the potential that the project could be repowered (i.e., new

or refurbished turbines could be installed after the life-of-project). Additional environmental analysis and permitting will be required if the site is not abandoned as currently proposed.

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 WCE's CUP and other permits provided opportunities for public comment. BPA also provided the following opportunities for public involvement:

- On October 3, 2005, BPA sent written notice to adjacent property owners and interested parties describing the interconnection of the Willow Creek Wind Project into the FCRTS at Boardman Substation. The notice requested comments on the proposal by November 1, 2005.

- BPA posted information about the proposed interconnection on the Internet at http://www.efw.bpa.gov/environmental_services/Document_Library/Willow_Creek/ and in BPA's monthly information periodical, the "BPA Journal." Four letters were received.

- A public scoping meeting to identify key environmental issues was held on October 18, 2005, from 6 to 8 p.m. at Arlington High School, 1200 Main Street, Arlington, Oregon.

The following issues were identified in comments:

- Prevent the spread of noxious weeds; survey the project area before and 10 years after construction
- Consider affects to wildlife, including game birds
- Consider affects of blasting near the substation
- Minimize soil disturbance and compaction
- Protect Cecil Cemetery
- Control wildfire
- Limit trespass on private property
- Reseed disturbed areas with native grasses
- Close livestock gates
- The project will provide jobs, revenue to the local economy and support local businesses.
- Support renewable energy.
- Consider the visual impacts of the transmission line
- Consider that the existing ODOT right-of-way may not be wide enough for the transmission line.
- Adhere to the conditions in the county conditional use permit for the wind project.

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 tap site is located on lands owned by Three Mile Canyon Farm within BPA's ROW. The site is relatively flat and vegetated with grass, rabbitbrush and weeds. The site appears to have been used for agricultural and range activity in the past. This type of land is abundant in the area. The only recreational uses of the area would be hunting, but permission from the landowner would be 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 on the 5 acres developed for the tap site. Several new transmission and switch structures will be added to the existing transmission

corridor, which already contains numerous transmission structures. The addition of these structures will not diminish or affect any recreational opportunities.

Geology and Soils

The project area is in an upland area on a basalt plain to the west of Willow Creek and south of the Columbia River. The site elevation is approximately 550 feet. The basalt in the floor of the plain is overlain by wind-deposited silt. The soil in the area of the tap site is Taunton loamy fine sand.

The tap site will not require any grading or leveling, and no new roads will be constructed. The existing access road is poorly defined, so some minor grading or rocking may be required to allow larger trucks to access the tap site. The total amount of access road work would total no more than 1 acre. The new poles and switches would be installed in the ground using truck-mounted augurs and small backhoes. Soil disturbance will be minimal (no more than 0.25 acres distributed over a 5-acre site). No water is present on the site. The site is level, but BPA would require site-specific erosion and sediment controls (best management practices [BMP]) for soil stabilization, hazardous material and petroleum product releases, and would follow notification procedures. During construction, any spills or leaks of hydraulic fluid or oil from construction equipment would 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 must be maintained to minimize erosion, run-off, and sedimentation.

Vegetation

The tap site is in an arid region with low precipitation, hot, dry summers and cold winters. The area is vegetated with grass, rabbitbrush and various weed species. The site appears to have been used for agricultural activity in the past. No trees or large shrubs are present. Construction of the tap will permanently remove about 500 square feet of vegetation (at the tower and switch bases) and temporarily disturb approximately 0.25 acres. The 0.25 acres of disturbed area will be revegetated using a native grass and forb seed mix. Vegetation over the remainder of the 5-acre site could be slightly affected by vehicles traveling over it or by materials stored on top of it. In these cases, the vegetation would be crushed, but would not be removed, and would recover to pre-construction condition within one growing season. Overall, impacts to vegetation at the tap site will be minimal because so little vegetation is being removed or temporarily disturbed. Following construction, BPA will manage any vegetation at the tap site in accordance with BPA's Transmission System Vegetation Management Program Environmental Impact Statement (DOE/EIS-0285, 2000).

Wetlands and Water Resources

This tap site is located 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.

Fish and Wildlife

No aquatic or riparian habitats occur at the site and no fish are present. During a field survey, a number of small animal burrows were found, and mule deer, jackrabbits, red-tailed hawks and a variety of songbirds were observed. No evidence of Washington ground squirrels (*Spermophilus washingtoni*) were identified, and the soils in the area are not the type usually occupied by them. Small numbers of upland animals that may now occupy or pass through the site, such as mice, rabbits, ground squirrels, fox, coyote, mule and blacktailed deer and birds, 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 new tap structures and transmission lines are in an area that already contains similar structures, and thus do not pose a new threat to birds or animals where none existed before.

Threatened and Endangered Species

BPA completed a site assessment to determine the potential impacts to listed species from the expansion project. No fish species would be impacted because the project would not involve work in or around water. BPA obtained an updated species list from the U.S. Fish and Wildlife Service prior to a site visit. No federal, endangered, threatened or proposed species are known to occupy the habitat at the tap site, and field surveys did not identify any species occurrences or identify any suitable habitat for listed species with the exception of potential habitat for the state-listed Washington ground squirrel *(Spermophilus washingtoni*). After finding that suitable soils did not exist on site and a survey of the project site, it was determined that no Washington ground squirrels were present on the site or were likely to be present in the future, and that follow-up surveys were unnecessary. Based on this information, BPA has made a determination of no effect to federally-listed or state-listed species.

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, the Confederated Tribes of the Umatilla Reservation, the Burns Paiute Tribe, the Nez Perce Tribe, and the Confederated Tribes of the Colville Reservation on potential effects to cultural resources and historic properties.

A pedestrian survey of a portion of the site was conducted on January 11, 2008. No cultural resources were identified during the survey and BPA determined that the project would not affect cultural resources or historical properties. On February 21 2008, 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 tap site will be constructed near the existing Dalreed Substation (owned by Pacific Power and Light Company), and underneath three existing high-voltage transmission lines. Traffic near

the tap site is limited to employees of Three Mile Canyon Farms; no public roads exist nearby. No residences are within sight distance of the tap site. The tap site will not greatly alter existing visual resources in the area because it will be near existing 500-kV lines and will occupy a small area already impacted by utility development. Impact to visual resources from development of the tap site will be minimal.

Noise

Intermittent noise will be generated at the tap site during construction. Construction will be limited to daytime hours. This noise will be minimal, temporary and will cease once construction is complete. The tap site will not generate noise during operations. There will be no long-term noise impacts.

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.

Socioeconomics and Public Services

No increase in public services is anticipated from the construction and operation of the tap because of its small size and lack of need for services. During construction, the presence of 5 to 10 workers per day 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. 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 WCE to BPA and to the Gilliam and Morrow counties' CUP process referenced previously.

Land Use and Recreation

The proposed project will be located on primarily irrigated farmland. There is currently one private landowner whom WCE is in the process of executing leases with for wind energy development, and up to three landowners where WCE either has or will have easement agreements for the construction of the transmission line. All the land where wind turbine construction is proposed is currently secured under option agreements that will be executed into long term leases with each landowner. All the proposed project facilities are in areas currently zoned agriculture. The project area is approximately 3,518 acres; total long-term disturbance (the project footprint) will be approximately 26.5 acres.

In 2005, five irrigated farmland circle pivots were present; alfalfa and wheat were being grown. In the non-cropland sites, cattle grazing was, and is still the primary land use.

All existing agricultural land uses would continue to occur in and around the turbines and other facilities during construction and operations as much as possible. The transmission line has been routed to avoid circle pivots as much as possible. 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.

Installation of the underground portion of the fiber optic lines would disturb about 4.8 acres, with about 4.2 acres of the disturbed land in agricultural areas, and the remaining 0.6 acres in pasture areas. If crops are disturbed due to the fiber construction, the landowner will be compensated for crop damage and will be allowed to re-plant immediately after the trenching machine passes through the area.

There are no designated recreational facilities or activities on the project site.

Transportation

Heavy equipment will be delivered via Interstate 84, and Highway 74. About 3 miles of existing private roads will be improved for construction access and 9 miles of new private roads will be constructed.

Although construction would temporarily increase traffic on roads in and around the project parcels, coordinating construction schedules and equipment access with landowners in the project area would minimize impacts on agricultural activities. Once the project is constructed, operations would involve a negligible increase in vehicle traffic for project operations staff—about 10 round trips on Highway 74 daily. On an as-needed basis, maintenance vehicles would travel to and from the turbines on the project site; most of this vehicle traffic would be on private roads.

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. Major soil types within the Willow Creek project area include the Sagehill fine sandy loam, the Warden silt loam, the Warden very fine sandy loam, and the Ritzville silt loam. The Taunton loamy fine sand also occurs along the western boundary of the project area. The water erosion hazard ranges from slight to moderate, depending on slopes, which vary from 2-20 percent. The hazard of soil blowing is moderate to high because of the fine soil texture and frequent strong winds.

There are no perennial streams in the areas planned for wind turbines. Willow Creek is to the east of the wind turbine strings and Eightmile Canyon Creek is to the west. The two creeks are considered perennial creeks, but in some years of low precipitation or during the month of August they have periods of no flow; only shallow pools can be found scattered throughout. The highest point in the project area is approximately 1,000 feet above mean sea level.

About 120 acres of soils would be temporarily impacted during initial construction and about 26.5 acres would remain under roads, turbines, and facilities for the 25-year life-of-the-project. Impacts to soils from the project would be either minor and temporary or minor and long-term (for those soils within the constructed area). Impacts would include soil loss through erosion, compaction, and loss of structure in soils that are disturbed or driven on during construction. All turbines would be located on slopes less than 10 percent. All surface-disturbed or compacted areas not needed for operation would be regraded, loosened, and revegetated in accordance with county requirements and landowner wishes or easement agreements. Long-term impacts would occur where facilities are installed (e.g., along new roads and at tower sites). Since the overall footprint of the project is small relative to the size of the project area, impacts to soils would be minor.

The following measures would be implemented to minimize impacts to soils.

- No construction or routine maintenance activities would be conducted when soil is too wet to adequately support construction equipment (i.e., if such equipment creates ruts in excess of 4 inches deep).
- Certified weed-free straw mulches, certified weed-free hay bale barriers, silt fences, and water bars would be used to control soil erosion.
- Soil erosion control measures would be monitored, especially after storms, and would be repaired or replaced if needed.
- Surface disturbance would be limited to that which is necessary for safe and efficient construction.
- All surface-disturbed areas would be restored to the approximate original contour and reclaimed in accordance with easement agreements.
- Construction activities in areas of moderate to steep slopes (≥15-20 percent) would be avoided, where possible.

Vegetation

The project area is dominated by agriculture, with smaller areas of sagebrush steppe and big sagebrush. The agricultural lands are located on rolling upland hills mostly in central portions of the project area and are subject to frequent disturbances from cultivation. Pastureland is subject to disturbances from grazing and may support native and non-native grasses, forbs, and shrubs.

Mature sagebrush habitat is restricted to areas where cultivation has not occurred, typically along the side slopes or drainages and draws. Big sagebrush shrubland and sagebrush steppe vegetation communities are similar and consist of big sagebrush (*Artemisia tridentata*), bluebunch wheatgrass (*Agropyron spictatum*), fescue (*Festuca idahoensis*) and rabbitbrush (*Chrysothamus viscidiflorus*). Woody shrub and tree species are found along drainage channels. Typical tree species include black poplar, Russian olive, and willow trees. Cattails (*Typha* spp.), sedges (*Carex* spp.), and rushes (*Juncus* spp.) are located in drainages that contain perennial streams such as Willow Creek Valley. Most of the plant communities outside of cropland have been significantly modified due to disturbances such as cattle grazing, wildfire frequency changes, introduction of exotic plant species, and ground disturbance from development activities,

Construction activities would temporarily impact about 120 acres and permanently impact about 26.5 acres. Temporary disturbance would occur to approximately 42 acres of native vegetation, 40 acres on non-native grasslands, and 38 acres of irrigated agriculture. Permanent impacts would occur to 9.5 acres of native vegetation, 9 acres of non-native grasslands, and 8 acres of irrigated agriculture. After construction, areas of native vegetation that have been temporarily disturbed would be restored with native grasses and shrubs, and temporarily disturbed crop or range lands would be restored to previous cover. The 26.5 acres that could not be revegetated include project roads, turbine foundations and transformers, the O&M facility, substations and the transmission line.

Wetlands and Water Resources

There are no perennial streams in the wind turbine project area. Willow Creek is to the east of the project area and Eightmile Canyon Creek is to the west of the project area. The two creeks are considered perennial creeks, but in some years of low precipitation or during the month of August they have periods of no flow; only shallow pools can be found scattered throughout.

A new bridge would be placed across Willow Creek at the main access road off of Highway 74. Some minor disturbance to Willow Creek may occur, but the project would be subject to Army Corps of Engineers 404(d) permits requirements that would limit impacts to the creek. Several small wetlands were identified near the transmission corridor, but will be avoided by placing the transmission structures and access roads outside of them. With the exception of the new bridge placement, no impacts to streams or wetlands would be caused by the project.

Groundwater is found in porous zones in underlying basalt, generally deeper than 55 feet. Water from existing wells would be used for dust suppression. No long term use of groundwater is proposed, thus the project will have no impact on groundwater levels.

Construction could increase storm runoff and expose soils to erosion. WCE will follow a Stormwater Pollution Prevention Plan to reduce impacts.

Fish and Wildlife

Fish

According to anecdotal evidence, Willow Creek supported summer steelhead, and is designated as Essential Fish Habitat (EFH) for Chinook salmon. However, steelhead are not currently present due to passage obstructions and low flow problems. The lowest barrier in Willow Creek that blocks anadromous passage exists at about 11 miles upstream from the mouth at the Columbia River. Steelhead are occasionally seen holding downstream of this dam. Also, according to the ODFW's Mid Columbia Summer Steelhead SMU (Species Management Unit), "Historical populations of summer steelhead in the upper Deschutes and Willow Creek are extinct." Resident redband trout are known to occur in the more suitable reaches and headwater tributaries of Willow Creek. Redband Trout are the only salmonid fish species that reside in Willow Creek. Riparian vegetation in the Willow Creek drainage is estimated at less than 25 percent of historic levels. Willow shrubs and cottonwood trees are limited.

A new bridge would be placed across Willow Creek at the main access road off of Highway 74. Some minor disturbance to Willow Creek may occur, but the project would be subject to Army Corps of Engineers 404(d) permits requirements that would limit impacts to the creek. No impacts to fish species are anticipated.

Terrestrial Wildlife

Wildlife that may be found in the area include black-tailed deer, antelope, badgers, coyotes, , porcupines, jackrabbits (white- and black-tailed), gophers, ground squirrels, voles, mice, and various species of lizards and snakes.

Impacts to wildlife will mostly be local and temporary due to construction disturbance. Construction activities would tend to displace those wildlife species in and around the construction sites, but would not result in permanent displacement over time in those areas where temporary disturbance will take place.

WCE has held several meetings and site visits with ODFW to identify methods to reduce impacts to wildlife. During construction, the contractor will be required to minimize impacts to native habitats, and sensitive areas will be flagged for avoidance. A wildlife biologist will be present to identify additional ways to minimize disturbance during construction in sensitive areas, especially areas of sagebrush and juniper trees identified by ODFW along the transmission lines corridor.

Approximately 26.5 acres of wildlife habitat would be permanently lost due to infrastructure. WCE has ongoing meetings with ODFW to identify post-construction studies, long term monitoring, and mitigation efforts.

Avian Species

Avian use studies identified 51 species of native birds present in the project area, consisting mostly of songbirds (horned lark, western meadowlark, etc.) and raptors (Swainson’s hawk,

American kestrel, red-tailed hawk, etc.). Overall avian use is relatively high within the project area as compared to surrounding studied areas within the region.

Using regional (Northwest) fatality estimate range and the range of fatality estimates for Rocky Mountain and Upper Midwest, an estimate of the range of the potential fatalities for the 72 MW Willow Project could range between 65 and 425 birds per year, but would be more likely to range between 65 and 288 per year.

Raptors

The 17,581 acres (27.47 mi^2) surveyed within 2 miles of the Wind Project turbines contained 21 active raptor nests. These included: Swainson's hawk (12 nest sites), red-tailed hawk (2 nest sites), and ferruginous hawk (7 nest sites). In addition, there was one each of great-horned owl, common raven and barn owl nests. There were also 54 inactive stick nests (large bird nests constructed of sticks) within 2 miles of the turbines. These nest sites were mostly located to the north and east of the project area, with 7 active nest sites within the project boundaries. Overall, raptor use of the Willow Creek project area is somewhat higher than surrounding areas in the region.

Raptor mortality at the Wind Project is expected to be low to moderate. Based on monitoring results of other regional projects and raptor use documented at the project site in 2005, estimates of raptor mortality for Wind Project range between 0.07 and 0.35/MW per year, resulting in 5 to 25 raptors per year for the 72 MW Project. Most fatalities of diurnal raptors will likely consist of Swainson's hawk, ferruginous hawk, and red-tailed hawk, and American kestrels. Golden eagles are present in the project area and may be at risk of collision with turbines. The short-eared owl is emerging as an owl species frequently found as a (presumed) wind turbine fatality in the Pacific Northwest, and this species was observed during project surveys.

Mitigation measures to reduce impacts to raptors will take several forms. Minimizing construction during the sensitive nesting period near Ferruginous and Swainson's hawks' nests located onsite was identified by ODFW as a high priority. WCE will adjust the construction schedule to focus on constructing the six closest turbines to a potential ferruginous or Swainson's hawk nests (Turbines 10, 11, 12, 20, 21, and 22) before early March. By performing this work out of the natural construction sequence, a large portion of the ground disturbance for roads will take place in early February before nesting activities begin. WCE will also use the south entrance to the site as the main entrance to the project site for deliveries and vehicle access. This will place most construction traffic south of the known nest sites. Post-construction monitoring of ferruginous hawks (banding, radio telemetry or Global Positioning System [GPS] telemetry) and post construction fatality studies (for all bird species) are being discussed with ODFW and USFWS to identify any potential effects of wind farm operations.

Passerines

Passerines (songbirds) are abundant in the regional area and make up the largest group of birds potentially affected by wind turbines. Based on results of other regional projects, and estimates of passerine fatalities observed at other newer generation wind power projects in the western United States (approximately 1.5–3.5 birds/turbine/year), an approximate range of 72 to 288 songbird fatalities per year or one to four birds per MW per year is predicted for the Wind Project. The largest number of fatalities will likely be horned larks, a common grassland

songbird frequently detected during the surveys. Western meadowlarks may also collide with turbines, however, none were recorded flying in the rotor swept area. Impacts to individual western meadowlarks will likely be related to vehicular activity on-site. These ground-nesting species spend a considerable amount of time on the ground and could be struck by vehicles on occasion. Various swallow species may occasionally interact with turbines and night-migrating golden-crowned kinglets may collide with turbines. No other species (day or night-time migrant or resident nester) is anticipated to make up a large proportion of the fatalities, based on the patterns of results of other regional studies for projects that are operating in native habitat/agricultural environment.

Waterfowl

The project area is used by Canada geese, especially during the winter period. Some waterfowl mortality may occur from the project, but based on all available data from other projects, the numbers are expected to be low relative to the waterfowl use of the general area.

Another waterbird that was recorded during the surveys and incidentally observed while on-site was the sandhill crane. Two flocks were observed flying, and 83 percent of the cranes observed flying were within the rotor swept area. Sandhill cranes typically fly much higher, well above the turbine heights, as they migrate through the Columbia Basin in spring and fall. In the general project area cranes are infrequently observed flying lower and landing. Limited exposure to turbines is expected based on limited flights through the project area (2 total flocks).

Other Birds

Some upland game bird mortality has been documented at wind projects. It is not clear if these mortalities were caused by striking turbine towers or blades, but there are likely some collisions with project vehicles traveling through the project. Based on habitat present, results from other regional wind projects, and the presence of a few gamebirds (primarily pheasants) during the project baseline surveys, there is potential for mortality of some upland gamebirds to occur. It is, however, expected to be infrequent.

Bats

The primary impact to bats will be collision mortality. Available evidence indicates that this will be confined primarily to migratory species. Only 1-2 bat fatalities per turbine per year are typical for most projects in the Northwest, Rocky Mountains, and upper Midwest. Although 46 species of bats occur in the U.S., 11 species comprise all known bat fatalities at U.S. wind plants, despite the fact that wind projects occur in several regions of the country in a variety of habitats. The three most common species of migratory bats in the U.S. (hoary, eastern red, and silver-haired bats) comprised 93 percent of the 774 bat fatalities identified to species at U.S. wind projects.

Bat mortality estimates have been made for existing wind projects in the Pacific Northwest, where they have ranged from 0.07 to 5.37 per turbine per year, resulting in a weighted average of 1.5 per turbine per year. On a per megawatt basis, the regional average is 1.4/MW/year. Of 193 bat fatalities collected at existing wind projects in eastern Oregon and Washington during the past several years, 183 (95 percent) were represented by the two migratory species, including 91 hoary bats and 92 silver-haired bats. Virtually all of the mortality has occurred from July through early fall, coinciding with the fall migration period for hoary and silver-haired bats, with the exception of a few fatalities found during May and June.

Bat mortality at the Wind Project is expected to be similar to what has been documented at wind projects located in other arid landscapes of eastern Washington and Oregon containing similar habitat types, topography and proximity to the Columbia River. No aquatic habitat is present onsite for bats to drink or forage for insects over open water. Willow Creek itself and associated backwaters or man-made ponds in the floodplain likely provide drinking and foraging opportunities for bats in the arid landscape (no studies have been conducted to confirm bat activity in these areas). Old barns and abandoned buildings also in the Willow Creek area may provide roosting structure. The Columbia River is about 9 miles north of the closest planned turbine location. The shoreline facing the Columbia River is steep and contains areas of open, fissured rock; similar rocky areas are located in other parts of the general project area especially along the rims of the canyons.

Using the regional per MW per year range, bat mortality during operations of the Wind Project is expected to range between 0.4 to 2.5 MW/yr. This may result in an estimated 28 to 180 bat fatalities for the 72-MW project. Species composition will likely be similar to that at other wind projects, with silver-haired and hoary bats comprising most of the fatalities. Other Myotis species may be a smaller composition of the total fatalities as was also documented at Vansycle, Stateline and Nine Canyon wind projects. Actual fatality numbers may be higher or lower for each year during the life of the project.

State and Federal Threatened and Endangered Species and Species of Concern

No federally listed threatened or endangered species have been identified as having the potential to exist within the project area. A number of state-listed species are known to use the project area or surrounding areas.

Washington Ground Squirrel

No Washington ground squirrels or sign of their use was noted in the project area. There is a low to moderate potential for occurrence within portions of the proposed site due to the presence of suitable soil types, vegetative cover and presence in the general area. They are known to occur within 2 miles. The project site is within the known maximum dispersal distance established at the Naval Weapons Training Facility. There are historic and recent records across Highway 74 in the Boardman Conservation Area and in part of the Horn Butte area to the southwest of project. A very high rodent population was noted within the project area, however, these were determined to be kangaroo rats and pocket gophers. The area has been heavily impacted over the years by wildfire, farming activity and intensive livestock grazing, and this may also be a deterrent to habitation by Washington ground squirrels. No impacts to the Washington ground squirrel are expected from the wind project.

White-tailed Jackrabbit

This species was occasionally observed or sign of use was noted. A temporary and permanent loss of open shrub cover and grassland will not negatively impact this species because this habitat type is extensive on site where additional jackrabbits may be present. Perennial bunchgrass, shrub-steppe, and non-native grassland are three habitat types which can support white-tailed jackrabbits and these types combined make up approximately 2,132 acres of the total 3,442 acres within the project boundary.

Sagebrush Lizard

This species was found on site including within survey corridors and anticipated construction zones. Most of the observations were made on the western half and northwest portion of the project area. Therefore, impacts are expected at these locations and individuals in these areas could either be directly or indirectly impacted by construction or operation of the project. Other individuals may be present on site and may intermittently be found along primitive two-track dirt access roads within the project area where more sandy soils and an open soil surface are present within sagebrush and juniper habitat type. The majority of ground disturbing construction will take place during the winter months, which will help reduce impacts to this species. Overall impacts to the sagebrush lizard are expected to be low.

Bald Eagle

The bald eagle is classified as state threatened and was observed during the one-year baseline study. As of June 28, 2007, the federal government decided to de-list the bald eagle. Bald eagles will continue to be protected under the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act. Bald eagles winter along the Columbia River near the project area, but the nearest known nest is more than 10 miles away from the project area. Bald eagles may pass through the site very infrequently during spring and fall migration or during the winter. This low level of use is consistent with bald eagle use at other existing wind projects including the other regional Columbia Basin wind projects. Unlike golden eagles, bald eagles do not appear susceptible to colliding with wind turbines, likely due to their differences in foraging habits (golden eagles are predators and move through the landscape in search of upland prey whereas bald eagles tend to feed on fish or scavenge). Bald eagles are also known to prey on rabbits and waterfowl during winter season. There have been no reported instances of a bald eagle fatality at any U.S. wind farms. It is highly unlikely the Wind Project would have any negative effect on bald eagles.

Peregrine Falcon

The peregrine falcon was delisted in Oregon in April 2007 and is no longer federally listed, however, a new specific Oregon status has not been officially designated. There is suitable nesting habitat for peregrine falcons on basalt cliffs along the Columbia River within 15 miles of the project, although no active nests have been recently confirmed. A few historical nests are located from 18 to 30 miles away from the project area. Although occasional prairie falcon (a related species) fatalities have been observed at some wind projects, extremely low risk is anticipated for peregrine falcons because none were observed during the Willow Creek baseline surveys and no active nests or are known to be present near the project site. Peregrine falcon researchers suspect the nesting birds forage extensively on rock doves (pigeons) roosting and nesting within basalt cliffs along the Columbia River. One pair of peregrine falcons nested approximately 5 miles from the closest Stateline wind turbine but none were found as casualties during 2.5 years of intensive monitoring nor incidentally after the end of the studies.

Golden Eagle

This raptor is known to nest within 2.5 miles of the project area and was occasionally observed during fall through early spring during point counts and other on-site studies. Golden eagles are one of the most common fatalities at Altamont Pass, California. It is thought that the small size

and high revolutions per minute of most of the turbines at Altamont combined with presence of a large prey base contributes to the high eagle mortality observed at Altamont. In contrast, no eagle fatalities have been documented at any of the modern wind projects operating in the Pacific Northwest during the past several years.

During the four-season study conducted at the project area, there were 25 golden eagle detections and 21 individuals were observed flying. These numbers do not indicate a population as some individuals may have been counted more than once during the survey day or survey period. Of the 21 observed flying, 72 percent were observed flying within the rotor swept area, and the golden eagle is at low to moderate risk for collision. Based on relatively low to moderate use of the site by golden eagles and lack of eagle mortality at existing Pacific Northwest wind projects, it is unlikely the Wind Project would have any significant impact on golden eagle populations in the area.

Burrowing Owl

Burrowing owls may not be at risk of collision with turbines because none were observed flying within the rotor swept area. After a final facility layout and construction schedule is known, a more in-depth review of potential impacts and mitigation can be provided. During the nesting season, one detection along an access road and two confirmed nest sites indicate some burrowing owls may be nesting near construction activity zones and could be displaced. Standard BBS (Breeding Bird Survey) analyses suggest that populations of this species have increased and spatial analyses suggests populations are stable. However, in portions of the Oregon Columbia Basin, habitat conversion to agriculture has significantly reduced suitable habitat available for this species. Impacts to burrowing owls would likely be low.

Long-billed Curlew

The only shorebird observed in the turbine development area at the Wind Project was the long-billed curlew, a State Sensitive species. Long-billed curlews were frequently recorded using portions of the project area for nesting and foraging during spring and summer.

No long-billed curlew collision fatalities have been found at any existing wind projects, though some wind projects have been constructed at sites where long-billed curlews were recorded during baseline avian-use studies. Use by curlews at the Wind Project site is higher than at these studied projects, so some collision could occur. Additionally, most sightings were documented near proposed turbines. While long-billed curlews may be at risk for collision with turbines whenever they occur in the project area, they may be at increased risk during pair formation, when they are performing their aerial displays.

Long-billed curlews nest in the project area, and construction of the Wind Project will result in some minor temporary and permanent habitat loss. Presence of turbines and human activity during and after construction may also displace curlews from some areas. However, other portions of the wind-leased area are suitable for curlew nesting and staging and curlew use is expected to occur there. These areas will not be disturbed with the development and operation of the Wind Project. Localized impacts to nesting and staging curlews would not likely impact breeding populations in the general area.

Grasshopper Sparrow

No grasshopper sparrows were observed flying during point counts and thus, are not exhibiting an exposure risk to operating turbines. Though none were observed flying, they may occasionally fly through the area at heights of the turbines during local area movements or during migration periods. They were documented during the nesting season in the western portion of project area in suitable bunchgrass cover. Construction of the Wind Project will result in some temporary habitat loss and will be restricted to underground electrical lines, road shoulders and turbine assembly areas. Disturbance and possible displacement to nesting birds could occur if construction occurs during the sensitive breeding period (May 1 through June 30). Localized impacts to nesting grasshopper sparrows would not negatively impact breeding populations in the general area. Overall impacts to this species are expected to be regionally insignificant.

Plants

No federally-listed or state listed plants were found in the project area during surveys. No impacts to such plants will result from construction or operation of the project.

Historic/Archeological Resources

The project area has 12 high sensitivity/probability areas where cultural resources may be found during construction. During a pedestrian survey, one cultural resource isolate was found.

A cultural resource consultant has been engaged to provide monitoring during construction in the previously identified potentially sensitive areas on the site (identified in the Cultural Resources Report). Construction activities will not disturb the entire corridor that was walked during the pedestrian surveys and construction schedule will take place during potential frost and snow periods. Prior to construction, WCE will prepare a plan that will outline actions if culturally significant items are uncovered. The monitor will have the ability to stop construction at the site if something is identified.

The Emigrant Road (Oregon Trail) was used by tens of thousands of people from the late 1840s to 1860s during their migration to the Oregon Territory, and is designated as a Historic Trail under both federal and Oregon statutes. The Oregon Trail was not a single track trail, but instead a broad meandering route along favorable ridges, valleys, and stream crossings. The alignment of the Oregon Trail, as compiled by the Oregon State Highway Department in 1959, passes within one to two miles south of the current project area, running from east to west. The purported emigrant camp associated with the Willow Creek crossing of the Oregon Trail is located approximately 1.6 miles south of the southern most extent of the nearest project element, and is designated by an Oregon-California Trails Association marker.

Visual Resources

The project area is characterized by rolling terraces, agricultural fields and rangeland above the Columbia River. Highway 74, which runs along the boundary of the Wind Project, is part of the Blue Mountain Scenic Byway, designated by the state of Oregon in 1997. There are approximately 15 residences within 1.5 miles of the project boundaries. Most of these residences are located in the Willow Creek Valley, and residents would be unable to see all of the turbines. The homes most directly impacted lie directly east of the project area.

The project would be seen both by travelers and local residences from many locations along Highway 74. Because of the distance from major highways, the wind turbines would not block or obstruct views, but they would alter the visual landscape.

The wind turbines have been sited to take maximum advantage of the wind resource while avoiding or minimizing impacts, taking into account potential aesthetic impacts. In addition to the wind turbines and transmission lines, access roads can also impact visual resources. To the degree feasible, access to the project site would use existing roads, and new roads would follow contour lines along ridges to minimize visual impacts. After construction, all roads not required for facility maintenance and other disturbed areas will be reseeded.

The transmission facilities will use non-reflective conductors and non-luminous insulators. Non-reflective paint for towers and blades will reduce glare. Towers would be painted a neutral color that will blend easily with the neutral colors of the existing landscape.

The O&M facility will be constructed of materials compatible with existing buildings in the area and to the degree possible, the storage of maintenance and other materials will be within buildings. The substation and the O&M facility will use drought tolerant plantings around the perimeter of the facilities to minimize visual impacts. To minimize facility lighting from being visible offsite, lights would be shielded and directed downward along the perimeter of the buildings. Buildings will be equipped with manual lights for nighttime work; otherwise lighting will be limited to motion detector sensor lights.

Overall visual impacts would range from high to low. Impacts to residences and people traveling along Highway 74 would be high, since the easternmost turbine strings would be visible from these locations. Impacts to more distant viewers would be low.

Noise

Construction of the wind project would cause localized, short-duration noise. Such temporarily increased noise levels would result from normal construction activities.

The project area is rural, and ambient noise levels are low with infrequent noise from agricultural activities. At the proposed project sites, residences are the only noise sensitive properties identified. The nearest occupied residence to a wind turbine is about 2,640 feet. New noise sources on sites that have not previously been used for commercial or industrial purposes have a limit on the allowable increase over existing ambient noise levels. Generally, sources on new sites may not increase the noise levels by more than 10 dBA unless the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. This effectively allows for a noise level of no more than 36 dBA (26 dBA background + 10 dBA increase) at noise sensitive properties. Wind turbines and transformers can cause noise that may exceed the noise limit and would require mitigation.

Public Health and Safety

Fire risk from construction activities include dry vegetation coming in contact with an ignition source, such as catalytic converters on vehicle exhaust systems, smoking by construction personnel, use of explosives, electrical arcing, and use of welding equipment. There is a small

risk of accidental fire or explosion during operation and maintenance as a result of careless smoking practices, catalytic converters coming in contact with dry plant material, or a turbine mechanical failure. The site could also be impacted by range fires that originate off site or from lightning. Most of the electrical connection system will be buried, minimizing the potential for fire. However, the overhead transmission line could, in unusual circumstances, cause a fire from a broken electrical cable or sagging of the line into vegetation during periods of very hot weather. The appropriate maintenance of vegetation within the transmission line corridor and line voltage regulation would minimize this potential impact.

Fuel and lubricating oils from construction vehicles and equipment are potential sources of hazardous material that could accidentally leak or spill during construction, operation and maintenance. Potential spills or leaks could occur during refueling or equipment maintenance, but could also occur from equipment failure or an accident. Some turbine components also include lubricating oils and coolants that could be released if a component containing these materials was damaged during construction. Mineral oil used in turbine transformers and at the substations could also be accidentally released by damage caused during transport or installation.

Electromagnetic fields (EMF) are produced when electricity flows through a conducting material or is used by an electrical device or appliance. In particular, magnetic fields are the result of electrons moving through a conductor or electrical device and electric fields are a result of the force (voltage) that drives the electrical current. EMF would be associated with the turbines, turbine transformers, the underground collection system, the substations, and the overhead transmission line. Although there have been numerous studies on the potential health effects from EMF, the studies remain inconclusive showing no or weak associations with effects on health.[4]

Socioeconomics and Public Services

The project would not increase the need for public services. There would be no significant increase in permanent population as a result of construction and operation of the project. Most workers would be either existing permanent residents of the area, or workers from outside the area who would temporarily reside in the local area (approximately 250 workers total over the course of construction). Operation will not require a large number of people (about 6-8 permanent full-time employees). The project would not result in a significant increased need for public services, including fire and police protection. The number of people expected to need temporary lodging or permanent housing would be small enough that adequate housing, and other lodging, would be available. The 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. A substantial increase in the Morrow and Gilliam

[4] Minnesota Department of Health, [undated]. Electric and Magnetic Fields, Frequently Asked Questions, Web site: http://www.health.state.mn.us/divs/eh/radiation/emf/#risks, accessed December 5, 2005.

National Institute of Health Sciences and the National Institute of Health. June 2002. EMF Electric and Magnetic Fields Associated with the Use of Electric Power. Web site: http://www.doh.wa.gov/ehp/rp/xray/emf202.pdf, assessed December 5, 2005.

counties' tax bases would provide benefits to all county residents. Indirect economic benefits would accrue to businesses in the area from construction workers purchasing goods and services.

Air Quality

Air quality in the area is generally good, with windblown dust the only pollutant typically found.

Fugitive dust emissions would 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 would 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 would 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 would increase slightly. CO emissions would 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 would have to be generated, presumably, by traditional, 'dirtier' energy sources such as a gas or coal fired turbines. The proposed construction time varies and the projects may be completed in phases. Overall, air quality impacts would be low because impacts would 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.

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[5] approximately 4,060 MW of wind power is proposed in the Columbia Basin within 60 miles of the 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.

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,

[5] 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.

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.

State and local land use regulations in Oregon and Washington require county land use approval and, depending upon the size of the project, state approval, prior to construction of 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 proposed regional projects would not contribute to cumulative impacts to fish species.

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 Willow Creek 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, sharpshinned 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 calculation 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. Goldencrowned 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 know 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. The majority of wind project infrastructure is usually located on ridgetops and upland areas away from wetlands and water resources. Soil borings conducted at the Wind Project area did not encounter groundwater within approximately 50 feet of the surface (the maximum depth of the bores). 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 the Wind Project and other 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 and shallow groundwater areas are scarce.

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 facilities 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 of the counties, visual impacts would be experienced by the relatively few residents of the rural areas. Turbines would also be visible to other residents and people traveling through on public roads near the 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 Morrow County and the Gilliam County CUP permit processes 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 Web site: www.efw.bpa.gov.

CONCLUSION

BPA has decided to offer contract terms through a LGIA for interconnection of the Willow Creek Wind Project into the FCRTS at the tap of the Tower Road-Alkali transmission line in Gilliam County, Oregon. The LGIA provides for interconnection of the Wind Project with the FCRTS, the operation of the Willow Creek 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. 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 the tap at the Tower Road-Alkali transmission line 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 — *June 4, 2008*
Stephen J. Wright — Date
Administrator and
Chief Executive Officer