Record of Decision for the Electrical Interconnection of the Big Horn Wind Energy Project March 2005

INTRODUCTION

The Bonneville Power Administration (BPA) has decided to offer contract terms for interconnection of 200 megawatts (MW) of power to be generated by the proposed Big Horn Wind Energy Project (Wind Project) into the Federal Columbia River Transmission System (FCRTS). The Wind Project would be interconnected at a proposed BPA switching substation along BPA's Big Eddy-Midway No. 1 230-kilovolt (kV) transmission line. The proposed BPA switching substation and Wind Project would be located in Klickitat County, Washington, near the town of Bickleton, Washington.

The 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 Business Plan 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 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).

PPM Energy, Inc. (PPM Energy) has proposed the construction and operation of the Wind Project, which would generate up to 250.5 MW of electricity. PPM Energy has requested through the Open Access Transmission Tariff, interconnection of 200 MW from the Wind Project to the FCRTS at a point on the Big Eddy-Midway No. 1 230-kV transmission line.[2] The

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

[2] The request submitted by PPM Energy seeks interconnection of 200 MW. PPM Energy has permitted through Klickitat County a Wind Project of up to 250.5 MW. If PPM Energy should seek interconnection of an additional 50.5 MW, or any other amount, it would be through a new request under the Open Access Transmission Tariff. BPA would review any such request under NEPA and prepare any necessary NEPA documentation before making a decision regarding the request.

interconnection requested requires a 230-kV connection with a new switching substation. BPA will own, construct and operate the proposed substation, and by agreement PPM Energy will reimburse BPA for the cost of construction.

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 Record of Decision (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 this Wind Project was adequately covered within its scope and that it was appropriate to issue a ROD tiered to the BP ROD. This tiered ROD, which summarizes and incorporates information from the BP EIS, demonstrates this decision is within the scope of the BP EIS and BP ROD.

This ROD describes the specific information applicable to this decision to offer contract terms for transmission interconnection of the Wind Project at BPA's proposed switching substation, and provides a summary of the environmental impacts associated with the decision with reference to appropriate sections of the BP EIS and BP ROD. This ROD also 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. Lastly, this tiered ROD summarizes and references Wind Project information as appropriate from Washington's State Environmental Policy Act (SEPA) Checklist[3], Klickitat County's Mitigated Determination of Non-Significance, and Klickitat County's Conditional Use Permit (CUP), which includes non-discretionary conditions, Klickitat County's Energy Overlay Final EIS[4], and BPA's independent review of the proposed BPA switching substation proposal to clarify where and how the site-specific environmental consequences described in the BP EIS would occur.

PROJECT DESCRIPTION

BPA Spring Creek Switching Substation

To interconnect 200 MW from the proposed Wind Project with BPA's existing Big Eddy-Midway No. 1 230-kV line. BPA would construct, own and operate a switching substation adjacent to the right-of-way of this existing line. The proposed BPA switching substation site is a parcel of approximately ten acres located southwest of the town of Bickleton, in Klickitat County, Washington. Access to the site will be through a new road about 4,200 feet in length and varying in width, totaling about 7.7 acres, from a point on the Bickleton Highway about 1¼ miles west of Dot Road. The new access road will run north following the path of a transmission line that is to be constructed by PPM Energy to connect the Wind Project to the substation. The legal description of the property is the western ½ of Section 25, Township 6 North, Range 19 East, Willamette Meridian. A map of the project area is included in Attachment A.

The habitat within the ten-acre substation site and 7.7-acre access road is an upland area consisting primarily of scrub oak with some scattered ponderosa pine. According to the habitat survey (Attachment A) the entire site has burned relatively recently, leaving scattered ponderosa pine and a regenerating understory with grasses, shrubs, and tree saplings. The site may have historically been used for livestock grazing. The soil consists of thin silt loam topsoil over a thicker layer of clay loam. The slope of the northern half of the project area is relatively low, while the southern half of the project area just north of Bickleton Highway has moderate slope of approximately 7%. Two residences are in the vicinity of the site, approximately ¼ mile to the west.

To build the switching substation, the site would be graded and rock would be used to level the area. Onsite material will be reused as much as possible, but if additional fill material is needed, a supplier has been identified within ten miles of the site. To construct the access road, the route would be graded and the road covered with rock. Any excess rocks or boulders will be kept onsite and used to stabilize drainage areas, ditches, or as landscaping features, depending on size.

The BPA switching substation would consist of various equipment, including power circuit breakers, disconnect switches, voltage transformers, and surge arrestors, all connected by metal

[3] PPM Energy, Inc., December 2004. Final Big Horn Wind Energy CUP Application and SEPA Checklist.

[4] Klickitat County, September 2004. Klickitat County Energy Overlay Final Environmental Impact Statement.

tubing (known as "bus"). The footprint of the completed BPA switching substation would be a rocked area that would cover approximately two and a half acres of the ten-acre parcel owned by BPA. On the rocked area, some equipment would be on concrete pads for stability. Three lattice steel structures, each about 70 feet tall would be constructed within the BPA switching substation. All other equipment within the switching substation would be less than about 30 feet tall. All BPA substation equipment would be within a chain link fence, approximately seven feet tall.

The switching substation would also include a one-story control house (approximately 30 by 44 feet) that would house operations equipment. A communications tower, which is a box-type tubular structure with one antenna disk about six feet wide, would be built near the control house. BPA personnel would visit the switching substation about once per week. There would be no water supply at the switching substation. A portable toilet would be available for personnel.

Some work would be done outside the proposed BPA switching substation, near the transmission line, to loop the BPA Big Eddy-Midway No. 1 transmission line into the substation. One new wood pole H-frame structure (consisting of three poles) would be added within the existing transmission line right-of-way, and three new wood pole H-frame structures (consisting of three poles per structure) would be constructed next to the existing transmission line and the new switchyard. The new wood pole structures would be approximately 65 feet tall.

Construction would begin around March 28, 2005 and be completed in fall 2005. Crews would work 8 to 12 hour days, during daylight hours, as needed to meet the schedule. About 10 to 15 workers would likely work at the site each day during construction. Routine operations and maintenance activities would be conducted once the proposed BPA switching substation is operational. No hazardous substances would be used in operations and maintenance other than routine use of oil to lubricate some machinery.

As a result of some maintenance activities, noise would be created momentarily when the circuit breakers are operated. When the breakers are operated, the brief, loud burst of noise would be similar to the noise caused by a gunshot. This would occur infrequently. The breakers would automatically operate when there is a problem with the line to prevent equipment from being damaged and as part of the maintenance of the line, such as when there is a need to repair or replace insulators damaged by vandals or hunters, or when wind turbine generators are being maintained.

Big Horn Wind Energy Project

The following description of the proposed Wind Project is from the project description in the SEPA Checklist for this project (December 2004). The proposed Wind Project would be constructed approximately three miles south of Bickleton on private land in an unincorporated area of Klickitat County. The proposed project would generate up to 250.5 MW of electricity. It would consist of the following facilities:

- Up to 167 wind turbines. Until construction takes place it is uncertain which specific model of turbine will be used. However, it is likely that the wind turbines will each be capable of generating 1.5 MW during peak production, will be mounted on concrete pads

in short strings, and spaced from 350 to 500 feet apart. The turbines are approximately 400 feet tall from the ground to the tip of a turbine blade. The towers are tubular steel structures that would be approximately 265 feet tall to the nacelle hub (the nacelle is the housing for gears and other mechanical features). The turbine blades are made of laminated fiberglass, and the circle formed by the three blades would be approximately 250 feet in diameter.

- Approximately 24 miles of newly constructed access roads.
- Approximately 6.7 miles of county roads temporarily widened and improved.
- Nine permanent meteorological towers.
- A 34.5-kV collector cable system linking each turbine to the next and to the project substation. The collector cable system would be primarily underground, but would be overhead where necessary to avoid wetland areas and to span deep canyons with less ground disturbance. Underground sections would be buried at least three feet below grade; overhead sections would be installed on wooden pole structures.
- A project substation located near the center of the project on Van Nostern Road.
- An operations and maintenance (O&M) facility, including shop facilities, a kitchen, an office, and a washroom, located adjacent to the project substation.
- A 12-mile, 230-kilovolt (kV) overhead transmission line connecting the project substation to the BPA switching substation in order to interconnect to the existing BPA 230-kV Big Eddy to Midway No. 1 transmission line northeast of Cleveland and north of Bickleton Highway.

The turbines would be grouped in strings of 3 to 19 turbines connected by an underground and overhead electrical collector cable system. The turbines would operate at wind speeds ranging from 9 to 56 miles per hour (mph). PPM Energy has determined the location and the end points of each turbine string. However, the number of turbines in each string, and the spacing between each turbine, may vary slightly depending on which turbine supplier is selected by PPM Energy. The SEPA checklist and CUP was approved by the county in a manner that allows PPM Energy flexibility in the precise spacing and number of turbines within each turbine string. Information about the final number, spacing, and type of turbine will be provided to the county before construction is complete. Final turbine siting, spacing, and clear areas would be in accordance with industry standards and safety measures.

The SEPA checklist and CUP application identify approximately 89 acres of permanently disturbed area and 236 acres of temporarily disturbed area (including the BPA switching substation and access road). These disturbed areas are dispersed throughout the project site, which is approximately 20,000 acres (or just over 30 square miles).

During the 9- to 12-month construction period, up to 250 workers would be employed. When the project is operational, there would be 10 to 15 permanent full-time or part-time employees on the O&M staff. It is expected that the project would function for at least 30 years. In some cases, at

the end of a wind energy project's expected life, it is upgraded with new technology and remains in operation. However, if the project is terminated, PPM Energy has a project decommissioning plan identifying measures to remove project infrastructure and restore or reclaim the natural setting.

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 by BPA, in conjunction with Klickitat County, for the proposed Big Horn Wind Energy Project and associated proposed switching substation. SEPA and County reviews of the Wind Project provided several opportunities for public comment. Klickitat County received various comments throughout the County process and addressed them through the addition or modification of non-discretionary conditions in the CUP.

Public participation opportunities included the following:

- PPM Energy held an informational public meeting on the proposed Wind Project on October 21, 2004, in Bickleton, Washington, and BPA personnel were present to discuss the proposed BPA switching substation and take comments. BPA received no comments during or after the meeting.
- BPA created a web page for this project on the BPA Web site. The project web page describes the project, gives updates, and explains ways to comment.
- On February 3, 2005, Klickitat County gave notice to adjacent property owners and other interested parties about the proposed CUP process for this project. BPA gave notice on the project website that BPA personnel would again be present to discuss the proposed BPA switching substation and take comments.
- On February 23, 2005, Klickitat County conducted a formal public hearing on the proposed CUP for this project. BPA personnel were present, but received no comments during or after the meeting.

BPA received no written comments relating to the interconnection of the Wind Project. No formal verbal comments were offered for BPA during the public meetings. During informal discussions at public meetings, a small number of people spoke of their general support of the project with BPA personnel. In comments directed toward the County or PPM Energy regarding the Wind Project, there appeared to be considerable community support of the project, rooted in the significant economic benefits expected through property and other taxes, and in direct benefits to landowners in the form of leaseholder payments. Several comments focused on the unique opportunity that wind energy projects offered to farmers and other landowners, providing significant financial benefits while still allowing for most existing land uses to continue.

Comments at the public meeting also included concerns about impacts to the view. People concerned about the visual impacts of the project included both landowners near the project with a direct view of the proposed turbines, as well as others in the community with less of a direct view. Visual impacts were the impacts most commonly discussed by the community at the public meeting.

At the public hearing held on February 23, 2005, comments by the public still were largely offered in support of the project, and the concerns that were expressed had transitioned primarily into concerns about construction impacts.[5] Specifically, the public expressed concerns about traffic impacts, noise, dust and fire control. One landowner with property adjacent to the proposed project sought a setback from the property line to avoid potential impacts to a future wind energy project. The hearing examiner's responses to these issues are discussed more fully below, but in summary, a large number of conditions were imposed on PPM Energy in order to avoid or minimize impacts.

Klickitat County issued a *Mitigated Determination of Non-Significance* (MDNS) for the Wind Project in December 2004. An appeal to the MDNS was filed on January 7, 2005. PPM Energy worked with the appellants to further mitigate any of the bases for the appeal. As a result, PPM Energy and the appellants entered into a Stipulated Settlement Agreement, which resulted in the withdrawal of the appeal, and made the County's MDNS final.

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 requests would depend more on customer requests than on new resource development by BPA (Section 4.2.3.3). Finally, the BP EIS identified the associated need to enhance transmission facilities (Section 4.2.3.2) 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.

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[5] *See* Findings of Fact, Conclusions and Decision of the Hearing Examiner, *in Re* Application for Conditional Use Permit by PPM Energy…, pages 3-4.

In light of the analyses contained in the BP EIS and RP EIS, the interconnection of the Wind Project clearly falls within the scope of the BP EIS. The following discussion describes the site-specific impacts that would result from the transmission interconnection (the proposed switching substation) as well as the effects that would result from the Wind Project itself, and provides additional information on potential cumulative impacts.

Site-Specific Impacts

As discussed below, the potential impacts from the construction and operation of the proposed BPA switching substation and effects of the Wind Project are within the parameters projected in BPA's RP EIS and BP EIS and are consistent with federal, state, and local environmental regulations.

BPA Switching Substation and Access Road Impacts

Land Use and Recreation – The proposed BPA switching substation site and access road are currently not used for any known farming or recreational activity. The area may in the past have been suitable for livestock grazing, but is currently not suitable for grazing due to a recent burn. The Klickitat County Comprehensive Plan and the relevant zoning regulations designate the proposed switching substation site as General Rural (GR).

The construction of the proposed BPA switching substation and access road may use approximately 17.7 acres of land that might otherwise have been used for other development or recreational uses in the future. Given the slope and soil conditions and the recent burn of the area, there does not appear to be an immediate competing use of the land. The construction and operation of the substation and access road are therefore minor impacts.

Vegetation – The proposed switching substation and access road will be located in an area consisting primarily of scrub oak with some scattered ponderosa pine. According to the habitat survey (Attachment A) the entire site has burned relatively recently, leaving scattered ponderosa pine and a regenerating understory with grasses, shrubs, and tree saplings. Based on site surveys and information produced for the Wind Project SEPA checklist, there are no rare plants in the vicinity of the switching substation or access road.

Because the land is currently fallow and regenerating after the burn, and will be disturbed by the construction of the road and substation, there is potential for the spread of noxious weeds. BPA will take steps to avoid and minimize causing the spread of noxious weeds by washing construction equipment, limiting construction access through known weed areas, separation and disposal of weed-infested materials, and restoration seeding of disturbed areas using native seed mixes. BPA will manage any vegetation on the switching substation site and transmission line right-of-way according to BPA's "Transmission System Vegetation Management Program Environmental Impact Statement" (DOE/EIS-0285, May 2000).

Soils – The soils on the site are a silt loam topsoil over clay loam. The topsoil is moisture sensitive and erodes easily under wet or windy conditions. Soils would be disturbed during construction activities on the switching substation and access road. Specific impacts related to soil include the potential for erosion, mud or dust impacts at the access point on the Bickleton Highway, and dust impacts on two residences approximately ¼-mile to the west of the project.

Prior to the start of construction, appropriate erosion and sediment control Best Management Practices (BMPs) would be used in accordance with the Washington State Department of Ecology's "Stormwater Management Manual for Eastern Washington." Mitigation for impacts to soil include the following: water will be used to prevent dust; all soil that is to be stored for reuse as backfill, restoration, or for disposal would be managed to prevent erosion by wind or water; disturbed areas will be restoration seeded with a native seed mix; and, topsoil will be salvaged and used for restoration. Because of the mitigation used and the small size of the project area, impacts to soils would be minor.

Fish and Wildlife – There are no species of fish in the vicinity of the proposed project because it is entirely upland. Wildlife that may be found in the project area include mule deer, black-tailed deer, badgers, coyotes, red fox, porcupines, pocket gophers, rabbits, voles, and mice. One of the considerations PPM Energy used in choosing the project site was that the vicinity of the proposed project was identified in the Klickitat County Energy Overlay Final EIS as the area in the county with the lowest potential for raptors and other bird use. Construction impacts to wildlife, from noise and other construction disturbance, would be temporary and minor. The switching substation would be adjacent to the existing transmission line and would not substantially change the existing environment for wildlife.

Federally Listed Species – The U.S. Fish and Wildlife Service publishes a list of all species with the potential to occur in Eastern Washington, which are listed, proposed for listing, or candidates for listing under the Endangered Species Act.[6] Based on literature review, habitat surveys, and field surveys, no federal endangered, threatened, or proposed species are found in the Wind Project area, including the proposed substation and access road sites. The species most likely to be present is the threatened bald eagle. However, during avian surveys and raptor nest surveys for the proposed project, no bald eagles or active bald eagle nests were recorded. Based on this information, BPA has made a determination of no effect to federally-listed species

Wetlands and Waterways – The proposed switching substation and access road are in upland area. No National Wetland Inventory-mapped wetlands and no United States Geological Survey (USGS)-mapped stream drainages are located within the 300-foot survey area for the proposed project. There is no potential for jurisdictional waters or wetlands on the site, so construction and operation of the proposed switching substation and access road will not cause impacts to wetlands or waterways.

Historic/Archeological Resources – Under Section 106 of the National Historic Preservation Act, BPA consulted with the Washington Office of Archaeology and Historic Preservation (OAHP), and with the Yakama Nation, on potential affects to cultural resources and historic properties. Initially, BPA had proposed to use an existing timber road to access the switching substation site. During preliminary archaeological surveys, however, an archaeological site was identified along the existing road. The new proposed access road alignment avoids the archaeological site.

[6] *See* http://easternwashington.fws.gov/documents/UCFWO%20listed-candidate%20spp.pdf, noted as last updated in February 2005.

Once the location of the new alignment was final, archaeologists performed a pedestrian survey of the route, with a 350-foot wide survey corridor. Additionally, a buffer of 200 feet was added to the survey around the proposed switching substation site. These survey areas represented an expanded survey compared to the area of potential effect that BPA initially described to the State OAHP and the Yakama Nation. The survey area was expanded, based on professional judgment in the field and by the project manager, to take into account site conditions and the potential for presence of archaeological resources. BPA submitted the results of the survey to the State OAHP and the Yakama Nation, and determined that based on the new alignment, the construction of the substation and access road would have no effect on historic properties. On February 22, 2005, the Washington OAHP concurred with BPA's determination.

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

Visual Resources – The proposed switching substation would be constructed adjacent to the existing transmission line corridor. The switching substation would be within ¼ mile of two residences to the west of the site. The proposed switching substation and access road would not greatly alter the existing visual resources in the area because it would occupy such a small area and transmission lines are already in this area.

Public Health and Safety **–** Although construction and operation of the proposed switching substation could possibly affect the health and safety of construction workers, operation and maintenance personnel, the public, and others who work near the project site, such as farmers, public health and safety impacts are expected to be low. During construction, BPA will use standard construction safety procedures to reduce the risk of fire. BPA will also use standard industry traffic controls to inform motorists and manage traffic during construction activities.

All equipment fueling operations shall use pumps and funnels and absorbent pads. A supply of sorbent materials would be maintained on-site in the event of a spill. Response measures and procedures would be put in place in case of an accidental release of petroleum products and/or hazardous substances. BPA's Pollution Prevention & Abatement (PPA) program has created an environmental requirements document that will guide construction personnel. A member of the PPA staff is assigned to the project, and is to be notified immediately in the event of any hazardous material spill. Implementing these measures will avoid or minimize impacts on public health and safety.

Noise **–** Noise has been identified as an issue by the community, but in the context of the construction and operation of the Wind Project itself, rather than the substation. In the context of the switching substation and access road, construction noise might be heard by residents in the homes approximately ¼ mile to the west. Noise from the operation of the switching substation will be infrequent and minor, and unlikely to be noticed by residents. Construction noise will occur during the daytime, will be temporary, and will be limited to the construction period for the substation and access road, which is expected to last from March 2005 until the fall of 2005.

Socioeconomics and Public Services – No increase in public services is anticipated from the construction and operation of the proposed BPA switching substation. During construction, the

presence of up to 15 workers per day would result in a small, short-term economic benefit to the local community as the workers patronize local businesses.

Air Quality – The largest impact of the proposed project on air quality will be the generation of dust created from earth moving activities during project construction. BMPs will be put in place 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 the disturbed areas with native plants. If water is used for dust control, water will not be withdrawn from any stream, ditch or water body in the project area, unless approved. Given the rural nature of the setting and the amount of dust created by other vehicles and farming activities, the impacts to air quality would be low and temporary.

Wind Project Impacts

The following summary of environmental impacts is based on information in the SEPA Checklist (December 2004) for the Wind Project, as well as Klickitat County's MDNS and CUP for the Wind Project. Because the hearing examiner incorporated mitigation from the MDNS into the CUP, the CUP contains all information relevant to conditions of construction for the Wind Project. The hearing examiner imposed 97 conditions on the permit for the project, related to earth, air, water, plants, animals, health and safety, noise, aesthetics, light and glare, historic and cultural resources, transportation, and contact information. The condition on contact information requires that someone be available to respond to concerns of the public, 24 hours a day, 7 days a week, in the event of noise, dust, fire, or other concerns. This condition was imposed as a result of comments received during the public hearing. The potential impacts to other resources are summarized below.

Earth – Land use and recreation in the vicinity of the Wind Project is primarily rural agricultural with some minor hunting activity. The proposed Wind Project area includes 21,090 acres, of which only 84 are estimated to experience permanent changes as a result of the project. Surveys by PPM Energy indicated eight vegetation communities, including lithosol, shrub-steppe, riparian forested, riparian shrub-scrub, juniper-bunchgrass, Conservation Reserve Program (CRP) agricultural land, upland shrub-scrub, and cultivated wheat. The project site is dominated by silt loam soils, with some clay and cobble. The area is flat to gently sloping, and is subject to wind and water erosion.

The loss of agricultural and CRP land due to permanent project facilities is small (approximately 44 acres of the 21,090 acres in the project area, 38 acres in CRP). The Wind Project would result in few changes to existing agricultural practices because existing farming and grazing would continue in and around the turbines and other project facilities. There is one hunting club in the vicinity of the project, but hunting opportunities would not be affected as a result of the Wind Project. No other recreational uses of the area were identified in the SEPA process.

PPM Energy will use erosion control BMPs, will control dust using a water truck, and will implement a Stormwater Pollution Prevention Plan. Consultation with a geotechnical professional will ensure slope stability and erosion control. PPM Energy is also required to follow all conditions of the National Pollutant Discharge Elimination System, administered by the U.S. Environmental Protection Agency through the state of Washington, which will also minimize production of dust and other erosion.

Vegetation – The Wind Project area has been dominated by agricultural use, particularly livestock grazing. Permanent and temporary impacts to vegetation would result from the construction and operation of Wind Project facilities. Permanent impacts to vegetation would remove 84 acres of vegetation, primarily CRP land and lithosol-grasslands. Temporary impacts would occur on 223 acres of land, also composed mainly of CRP and lithosol-grasslands, with approximately 24 acres of other agricultural land taken out of production temporarily. Disturbance to native vegetation may result in the spread of noxious weeds.

The project was designed to avoid native habitats to the extent feasible, and in consultation with the Washington Department of Fish and Wildlife (WDFW), impacts to lithosol have been avoided or will be mitigated. Temporarily disturbed areas will be revegetated with an appropriate seed mix consisting of native shrubs, forbs, and grasses, developed in consultation with the Klickitat County Weed Board and WDFW. In accordance with the mitigation ratios included in the WDFW's Windpower Guidelines, for the approximate 84 acres of permanent impacts, and 223 acres of temporary impacts to vegetation, PPM Energy will work with WDFW to fund appropriate mitigation at an area selected by WDFW, or acquire a life-of-project conservation easement or fee acquisition for conservation purposes on approximately 178 acres of land within or in the general vicinity of the Wind Project.

Animals – There are no species of fish in the vicinity of the Wind Project because it is in uplands and there are minimal surface waters. Wildlife that may be found in the project area include mule deer, black-tailed deer, badgers, coyotes, red fox, porcupines, pocket gophers, rabbits, voles, and mice. During construction, wildlife could be displaced temporarily from the site as a result of human presence and construction related disturbance. Because of the extent of suitable habitat in the region, temporary loss of habitat in the Wind Project area is a minor effect. Once construction is complete it is expected that wildlife would become habituated to the wind turbines and reoccupy former habitat. No federal or state listed plant or animal species have been found in the project area and therefore no impacts to listed species are expected.

Based on their experience with construction and operation of wind energy projects, PPM Energy paid particular attention to the avian and bat use of the area. One of the considerations PPM Energy used in choosing the project site was that the vicinity of the proposed project was identified in the Klickitat County Energy Overlay Final EIS as the area in the county with the lowest potential for raptors and other bird use. Based on some comments received during the SEPA process, the community is sensitive to impacts on bluebirds, as the town of Bickleton has sometimes been known as the "the bluebird capital of the world." Based on data collected during research and avian surveys, PPM Energy has suggested that bluebirds fly near the ground, and not likely to collide with turbine blades.

Based on avian, bat, and raptor nest surveys, PPM Energy has anticipated mortality of as many as 3-4 raptors (mainly American kestrels), 267 other birds, and 200 bats per year during project operation. To avoid or minimize impacts to animals, and to mitigate for any expected impacts, the county has imposed a number of conditions. For example, overhead collector lines and transmission lines will be constructed in accordance with the recommendations of the Avian Power Line Interaction Committee (APLIC) for raptor protection on power lines (including minimum conductor spacing and the use of anti-perch guards). In addition, PPM Energy is

required to provide funding for the materials needed to construct bluebird nest boxes-up to $15/nest box for 165 nest boxes.

Further, PPM Energy is required to work with the county to establish a Technical Advisory Committee (TAC), consisting of representatives of WDFW and the U.S. Fish and Wildlife Service, landowners, and local environmental groups. Avian and bat mortality will be monitored for at least 1 year following construction, and if mortality is significantly more than predicted through the SEPA analysis, the TAC may recommend additional monitoring or other mitigation.

Water Resources – The Wind Project could have an impact on major drainages in the vicinity of the project, as well as other minor drainages and several wetlands. A minimum of seven culverts will be installed, and six fords or bridges at other stream crossings. During construction, machinery could leak oil or other materials into surface waters, and during operation there is some chance that wind turbine machinery could leak hydraulic fluids. Water use will consist mainly of dust control during construction. During operation, all water needs of the project will be met by a small well that is under the threshold of use and is therefore exempt from state permitting.

As mitigation, PPM Energy is required to have a Spill Prevention and Cleanup plan, and will be regulated by an NPDES permit that will require BMP's to minimize possible impacts from erosion, spills, or other impacts to soils and water. Mitigation for unavoidable impacts to wetlands and waters will be accomplished through riparian plantings along stream drainages within the Project site with a mix of native shrubs and trees.

Historical/Archeological Resources – PPM Energy conducted field surveys in consultation with the OAHP and the Yakama Nation. As a result, several sites were identified that have archaeological resources present. In accordance with provisions of the National Historic Preservation Act, BPA will not disclose the exact location and nature of the historic sites. Only one of the sites discovered would have been impacted by the proposed project, and PPM Energy redesigned the project to avoid impacts to this site. All other sites identified were not within areas that would be affected by construction.

PPM Energy will monitor construction activities to ensure that flagged historic and cultural properties are avoided. Construction workers will be trained on the need to avoid historical and cultural properties, and on the procedures to follow if previously unidentified historical or cultural properties, including Native American graves, are encountered during construction. If any evidence of historic, scientific, archaeological, or cultural importance is discovered during construction, work will be immediately halted in the area of the find and the OAHP will be contacted in order to determine how to properly address the feature.

Visual Resources – View in the vicinity of the Wind Project would be altered as a result of the installation of Wind Project facilities. The turbines will be visible from public roads and from private residences. To avoid or minimize visual impacts, PPM Energy will among other actions, paint the turbines a neutral color such as gray, white or off-white, landscape the O&M facility in consultation with Klickitat County, store equipment and supplies off site or in a visually-acceptable manner, promptly remove construction debris and damaged or unusable equipment from the site, promptly repair or decommission turbines that are not functioning or prove to be uneconomically sited, and prepare a decommissioning plan for the project.

Some public comment was received by the County indicating a concern about the lights used on the turbines. The Federal Aviation Administration (FAA) normally requires that some of the turbines be furnished with red blinking lights that operate at night. The exact number and configuration of the lighting will be determined by the FAA. In addition, lighting on the wind turbine structures and at the O&M facility will be minimized to the extent possible given FAA requirements. Exterior lighting at all facilities will be down-cast lighting controlled by motion detectors. Although visual resources would be impacted from some vantage points, impacts at the community level are not expected to be significant because it is a sparsely populated rural area.

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

PPM Energy will have a Spill Prevention and Cleanup Plan, and will also develop and maintain an on-site health and safety plan that informs employees and others on site what to do in case of emergencies, including the locations of fire extinguishers and nearby hospitals, telephone numbers for emergencies, contact information for "first responders" and first aide techniques. Employees shall be trained to address health and safety emergencies, and to safely operate and maintain the turbines and other mechanical equipment. PPM Energy will also develop a fire suppression plan in consultation with the local fire department, and will have fire-fighting equipment on site during construction.

Noise – The area of the Wind Project and surrounding vicinity are sparsely populated, and the nearest residence is more than 1,000 feet from any project facilities. Noise from the operation of the Wind Project due to aerodynamic noise of the turbine blades moving through the air, and from the gears and other machinery of the turbine. Because of the distance of the residences from the project, no impacts due to noise are expected.

However, to minimize noise impacts, construction activities would be limited to daylight hours and equipment would have sound-control devices. During operation of the Wind Project, sound levels at the project boundaries will be limited to the agricultural noise standard at the property line and a lower residential limit near the any residences. If there is a complaint that the noise standards are exceeded, the county may require the applicant to provide further noise mitigation.

Socioeconomics and Public Facilities – There would be no significant increase in permanent population as a result of construction and operation of the Wind Project. During construction up to 250 people would work on the project, most of which are from the local area. During operation of the Wind Project, approximately 10-15 people would work full-time within the project area. The Wind Project would not result in a significant increased need for public services, including fire protection. The number of people expected to need temporary lodging or

permanent housing within the Wind Project area would be small enough that adequate housing, and other lodging, would be available. The Wind Project would have a net economic benefit to the landowners participating in the project because wind lease payments to landowners would provide a supplementary source of income that would help farmers retain their farms when farm prices reduce other sources of farm income. A substantial increase in the Klickitat County tax base would provide benefits to all county residents. Indirect economic benefits would accrue to businesses in the area from construction workers purchasing goods and services.

Air Quality – Temporary emissions consisting of exhaust from heavy machinery and dust would occur during construction of the Wind Project from construction vehicles and equipment. These temporary emissions would be minimized by use of construction BMPs listed in the *MDNS* and *CUP*. Also, construction and operations vehicles and equipment will comply with applicable state and federal emissions standards. 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. Additionally, the Klickitat County Energy Overly Final EIS discusses potential cumulative impacts of wind energy development throughout the County. PPM Energy was required to provide a cumulative impact analysis as part of its SEPA process, and the majority of the following analysis is taken from that existing SEPA documentation.

According to public notices issued by Klickitat County, there are no major construction projects in the county in the permitting stage at this time except another wind project just south of Big Horn Wind Project called White Creek, a 250 MW project proposed by Last Mile Electric Cooperative. In addition to the White Creek Wind Project, another developer (Windtricity) is proposing a 150 MW project in the Columbia Hills area west of Rock Creek. A renewable energy map by Renewable Northwest Project shows an additional proposed wind energy project called Columbia Wind Ranch just to the east of Windtricity's proposal.[7]

The Klickitat County Energy Overlay Final Environmental Impact Statement (FEIS), published in September 2004, addresses the potential for cumulative effects of wind energy development in the County. The FEIS states that four wind power projects with total generating capacity of 1,000 MW would be developed in the County energy overlay zone from the present to the year 2024. A total of 500 turbines would be built west of Rock Creek and 167 turbines would be built east of Rock Creek (based on the land area and wind availability, and using 1.5-MW turbines).

Air

Air quality issues associated with wind energy are limited to construction emissions, which would be minimized by conditions required through local permits. The potential development of additional wind generation capabilities in the general area would not be cumulative because

[7] Renewable Northwest Project, map of renewable energy projects: http://www.rnp.org/Projects/REmap.html.

project construction schedules would likely not overlap due to permitting timeframes. Other proposed energy facilities (i.e., gas fired) would have different air emissions than the proposed project and, therefore, would not add to the cumulative impacts of the Big Horn project.

Noise

No planned or existing projects have been identified that would generate a significant amount of noise in the project area. Additional wind generation projects would result in a minor increase in construction noise, but no operational impacts are anticipated. Overall, noise impacts are additive. Energy projects developed in proximity to each other would have a higher cumulative impact.

Vegetation and Wildlife

Cumulative impacts that would result from more wind generation construction would include habitat losses for turbine sites and access roads, road-kill mortality from increased traffic, and disturbance from maintenance and monitoring personnel present at turbine strings. Because the developments are likely to be dispersed throughout the County, the impacts are not likely to be concentrated, leaving unaffected areas that can offset impacts by providing refuge and recruitment for plant and animal species.

Based on the raptor use estimates for Klickitat County, PPM Energy has estimated that annual raptor collision mortality would range from 0.02 per turbine east of Rock Creek and greater than 1.5 miles from the Columbia River to 0.06 per turbine west of U.S. 97 and less than 1.5 miles from the Columbia. Assuming that 500 turbines would be built west of Rock Creek and 167 turbines might be built east of Rock Creek (based on the land area and wind availability, and assuming a total development of 1,000 MW using 1.5-MW turbines), the predicted cumulative annual raptor mortality could be: (500 turbines x 0.06 mortalities/turbine) + (167 turbines x 0.02 mortalities/turbine) = 33 raptor mortalities per year.

Because of their relatively high use of Klickitat County and susceptibility to collisions at other wind plants, small falcons such as American kestrels would comprise most of the raptor mortality at Klickitat County wind plants. Large falcons (i.e., prairie falcons) would comprise approximately 9.8 percent of the raptor fatalities, buteos would comprise approximately 5.5 percent, eagles would comprise 3.8 percent, northern harriers would comprise 2.6 percent, and other raptor species would comprise 12.8 percent of the mortality.

For all avian species throughout the entire U.S., the average number of avian collision fatalities per turbine is 2.19 per year. Using this average, the total bird mortality associated with the development of 667 turbines in Klickitat County would be approximately 1,461 birds per year.

As noted above, the FEIS assumes that more wind energy (500 turbines) will be built west of Rock Creek than east of Rock Creek (167). If more turbines are built east of Rock Creek, the avian mortality numbers cited above would be lower, because the FEIS analysis shows that there is less avian use overall, and specifically less raptor use, east of Rock Creek compared to west of Rock Creek.

Bat mortality can be predicted based on monitoring conducted at other wind plants in the region, including the 38-turbine Vansycle Wind Plant in Umatilla County, Oregon; the 16- turbine Klondike Wind Plant in Sherman County, Oregon; and the 399-turbine Stateline Wind Plant in

Walla Walla County, Washington and Umatilla County, Oregon. The combined estimated bat mortality of these plants is 377 (0.9 per turbine per year). If one assumes these levels of mortality to be similar in Klickitat County, an average mortality rate for bats might range from 0.7 to 0.9 per turbine per year. Assuming 667 additional turbines are constructed, 467 to 600 bat mortalities per year would result.

These additional cumulative mortalities are relatively insignificant compared to the total bird and bat populations present and represent a small increase in the overall causes of bird mortality (predation, natural causes, and collisions with other structures and vehicles). Likewise, the habitat that would be lost or displaced represents a small percentage of the overall available habitat in Klickitat County. Hence, the cumulative impacts are not anticipated to have a significant effect on bird or bat population.

Geologic and Flood Hazards

Construction of energy projects within proximity of each other could increase the flooding and erosion potential in flood-prone areas as a result of the decrease in soil storage area.

Water Resources

Hydrologic, water quality, and water use impacts related to new wind generation projects, and buildout construction and operations of the Big Horn wind project, would be temporary and minor because of the upland nature of the wind projects, and are also subject to further regulatory approvals.

Cultural Resources

Cumulative effects on cultural resources are associated with construction activities and permanent land use change through development of additional wind generation projects. Because the developments are likely to be dispersed throughout the County, the impacts are not likely to be concentrated, so loss of cultural artifacts from an entire cultural source is unlikely. Further, by federal and state law, developers are required to avoid or minimize impacts to cultural resources, or to mitigate for any adverse affects that cannot be avoided.

Visual Resources and Aesthetics

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 County, visual impacts of wind energy would be experienced mostly by the relatively few residents of the rural areas. Turbines would also be visible to other County residents and people traveling through the County 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).

Public Health and Safety

Any potential risks to the health and safety of workers or the general public associated with the construction, operation, and maintenance of the project would be incidental and comparable to other construction projects.

Land Use and Recreation

For land use, the potential for cumulative impacts is described in terms of the impact of the potential full development of the wind resource area on existing and planned use—that is, the area of land that would no longer be available for agricultural use under potential full development. Overall, wind projects have relatively little direct impact on land use because the footprints of the wind turbine facilities are small even if they occur across large areas.

Additionally, wind projects tend to reinforce the existing agricultural land uses (the primary land uses in most areas proposed for wind energy). Wind projects are compatible with all types of agriculture, which can occur in and around 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 Klickitat County (whether under the current CUP process, or the process proposed by the Energy Overlay ordinance) would require a County land use approval prior to construction of additional facilities. This permitting process and related SEPA regulations are designed to prevent incompatible uses and the degradation of farmland. The potential for cumulative impacts would be substantially minimized by these regulations.

Socioeconomics

The potential future new wind generation projects would create temporary effects on employment, population, housing, and other socioeconomic factors. Because these effects would be temporary and would occur during a separate time period, accumulation of impacts related to project construction would likely be low risk. The tax revenues associated with the new wind projects would cumulatively be a significant source of new income to the County.

Operations and maintenance of new wind generation projects likely would require additional employees. The number of new employees and the magnitude of related socioeconomic impacts are so speculative as to be impossible to predict in this Record of Decision.

MITIGATION

Specific resource mitigation conditions to avoid or minimize environmental harm from the proposed BPA switching substation were identified through the design and site-specific review processes and are discussed above under the appropriate area in the Environmental Analysis section. All of these mitigation measures are adopted.

Specific resource mitigation conditions to avoid or minimize environmental harm from the Wind Project were identified through the SEPA and County CUP processes and are present in the mandatory CUP conditions.

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 Big Horn Wind Energy Project ROD are available from BPA's Public Information Center, P.O. Box 12999, Portland, Oregon, 97212. Copies of these documents may also be

obtained by using BPA's nationwide toll-free document request line: 1-800-622-4520, or by accessing BPA's Web site: www.efw.bpa.gov.

CONCLUSION

BPA has decided to offer contract terms for interconnection of the Big Horn Wind Project into the FCRTS. The Large Generation Interconnection Agreement (LGIA) provides for interconnection of the Wind Project with the FCRTS, the operation of Big Horn Wind Energy 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. It also provides for the construction, operation and maintenance of the interconnection facilities (i.e., the proposed BPA switching substation). 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
- in accordance with BPA's statutory authority to make available to all utilities any capacity in this system determined in excess to that required by the United States (16 U.S.C. 838d).

BPA will take measures to ensure the continuing safe, reliable operation of the FCRTS. This ROD identifies all practicable means to avoid or minimize environmental harm that might be caused by the integration of the Wind Project into the FCRTS. BPA adopts and will undertake the mitigation identified in this ROD for the proposed BPA switching substation and access road.

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

Issued in Portland, Oregon.

/s/ Stephen J. Wright — *3/24/05*
Stephen J. Wright — Date
Administrator and
Chief Executive Officer

Attachments:
Technical Memorandum with project map
Klickitat County Mitigated Determination of Nonsignificance (DNS), December 17, 2004
Klickitat County Conditional Use Permit (CUP), March 18, 2005