

**Record of Decision for the  
Electrical Interconnection of the  
Goodnoe Hills and White Creek Wind Energy Projects  
October 2005**

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## **INTRODUCTION**

The Bonneville Power Administration (BPA) has decided to offer contract terms for interconnection of 350 megawatts (MW) of power to be generated by the proposed Goodnoe Hills (150 MW) and White Creek (200 MW) Wind Energy Projects (Wind Projects) into the Federal Columbia River Transmission System (FCRTS). The Wind Projects will be interconnected at the proposed BPA Rock Creek substation. This substation will be constructed as a 500/230-kilovolt (kV) substation along BPA's Wautoma - John Day No.1 500-kV transmission line. These proposed facilities will be located in Klickitat County, Washington.

BPA's decision to offer terms to interconnect the Wind Projects 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.<sup>1</sup> Under BPA's tariff, BPA offers transmission interconnection to the FCRTS to all eligible customers on a first-come, first-served basis, with this offer subject to an environmental review under the National Environmental Policy Act (NEPA).

Windtricity Ventures, LLC and Northwest Regional Power, LLC (Windtricity) and White Creek Project, LLC (WCP) (formerly Last Mile Electric Cooperative [LMEC]) have separately proposed to construct and operate the proposed Wind Projects, which would generate up to 350 MW of electricity. Both Windtricity and WCP have requested interconnection of their Wind

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

Projects to the FCRTS at a point on the Wautoma – John Day No. 1 500-kV transmission line.<sup>2</sup> Consistent with its Open Access Transmission Tariff, BPA needs to respond to these requests.

## **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 Projects 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 Projects 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 project and environmental information applicable to this decision to offer contract terms for transmission interconnection of the Wind Projects at BPA's

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<sup>2</sup> Windtricity has requested interconnection of 150 MW from BPA under OASIS request GI-131. WCP has requested interconnection of 200 MW from BPA under OASIS request GI-135. If either company should seek interconnection of additional megawatts, 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.

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proposed Rock Creek substation, 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 ROD summarizes and references Wind Project information from the following sources:

- Windtricity Klickitat Project State Environmental Policy Act (SEPA) Checklist & Conditional Use Permit (CUP) Application. Windtricity, LLC and Northwest Regional Power, LLC, June 2003.
- Mitigated Determination of Non-Significance for the Windtricity Klickitat Project. Klickitat County, June 19, 2003.
- Notice of Order Granting a CUP for the Windtricity Klickitat Project. Klickitat County, February 12, 2004 (contains non-discretionary conditions).
- White Creek Wind Energy Project Expanded SEPA Checklist. LMEC, January 28, 2005.
- White Creek Wind Energy Project CUP Application. LMEC, January 28, 2005.
- Mitigated Determination of Non-Significance for the White Creek Wind Energy Project. Klickitat County, February 11, 2005.
- Notice of Order Granting a CUP for the White Creek Wind Energy Project. Klickitat County, April 12, 2005 (contains non-discretionary conditions).
- Klickitat County Energy Overlay Final Environmental Impact Statement. Klickitat County, September 2004.

## **PROJECT DESCRIPTION**

The following description of the proposed Wind Projects is a condensed version of the project descriptions found in the SEPA Checklists for the Wind Projects and additional information provided by project developers.

### **Goodnoe Hills**

The proposed Goodnoe Hills Wind Energy Project would be constructed approximately 15 miles southeast of Goldendale, Washington, in south-central Klickitat County, north and northwest of the community of Goodnoe Hills. The project would extend along the eastern five miles of Hoctor Road.

The proposed project would span about 2,538 acres over three properties (Imrie property – 2,435 acres; Mariah Energy property, south of Hoctor Road – 100 acres; Mariah Energy property, north of Hoctor Road – 2.75 acres), but the actual permanent disturbance from the project would be between 60 and 80 acres depending on the specific size and placement of the

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turbines. An additional 80 acres would be used for mitigation for any potential impacts on the project site to wildlife habitat.

The proposed project would produce up to 125 MW of electricity and would require construction of 35-50 turbines, depending on size (850 kilowatts (kW) to 2.8 MW each). A 3.6 MW prototype turbine was also studied for this area but the technology is not expected to be proven for another five years. Final choice of turbines would be confirmed during the final design phase required for county building permits.

The proposed project may be constructed in one or two phases, with one phase most likely at this time. Each construction phase would last up to 12 months. During construction, up to 250 workers could be employed over the course of construction, although not simultaneously. Construction periods for a phased development could overlap.

More specifically, the Goodnoe Hills project would consist of the following facilities:

- Up to 50 (850 kW-2.8 MW) wind turbine generators erected on tubular steel towers; total extension would be from 300 to 420 feet above the ground. The turbines would be spaced in accordance with industry practices and grouped in strings or linear groups. The turbines would operate at wind speeds ranging from 4 to 70 miles per hour (mph). At each turbine location, an area will be prepared in accordance with manufacturers' recommendations that would be temporarily used for setting turbine and tower components prior to installation. A pad to support a construction crane is included in this area.
- Individual step-up transformers to increase the voltage of electricity generated by each turbine. The transformers would be located either on the towers or near them, on a reinforced concrete pad.
- An electrical collector system, which would collect energy from each wind turbine, using underground cabling, and deliver it to a new substation.
- A new substation, which would further increase the voltage of electricity from the collector voltage to 230-kV. The substation site would be a graveled, fenced area with transformer and switching equipment and an area to park utility vehicles. Transformers would not use polychlorinated biphenyl (PCB) oil.
- A new 230-kV line built along Hoctor Road from Windtricity's proposed substation to BPA's proposed Rock Creek substation (about 1 mile).
- A permanent control room/operations and maintenance (O&M) building constructed within the project area to perform O&M functions and to serve as a control room for individual phases of the project. The O&M facility would include office and workshop areas, a kitchen, bathroom, shower, and utility sink. There would be equipment sheds for vehicles and spare parts. When the project is operational, there would be 6 to 12 permanent full-time or part-time employees on the O&M staff per phase.

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- Buried communication system cabling including fiber optic or copper communication line between the wind turbines and substations, and the O&M facility. This communication system would allow individual wind turbines, turbine strings, and other project facilities to be monitored and controlled both onsite and from remote locations.
- Meteorological towers placed throughout the project area to collect data.
- Access to the project area via State Road 14/State Highway 97 and Hactor Road.
- A private service and access road to connect the turbines. No paved roads are planned at this time. The access road would overbuild many existing farm roads, improving these roads to a final roadbed of 24 feet. During construction, some of these roads would need to be temporarily widened by an additional 10 feet on each side, and then reclaimed to the 24-foot final width.
- Temporary staging areas for storage areas for tower sections, nacelles, blades, and other project components as well as for parking construction and personal vehicles. Staging area locations and size would be determined during the detailed design phase.

Although the proposed Goodnoe Hills project will ultimately be interconnected to the FCRTS at the Rock Creek substation, Windtricity has already received approval from BPA for interconnection of 85 MW of their project at a point along BPA's existing Big Eddy-Midway 230-kV transmission line. The project will temporarily interconnect to the Big Eddy-Midway line via an approximately 10-mile-long transmission line extending from the proposed project substation to a newly-installed 3-terminal tap at a point along the Big Eddy-Midway line about 100 feet west of structure 23/4. This 10-mile line would be constructed by Klickitat County Public Utility District (KCPUD) and Windtricity, and would require extending an existing KCPUD 69-kV line along Hactor Road and upgrading it to 230-kV. Once the Rock Creek substation is built and operational, the entire 125 MW project will integrate at BPA's Rock Creek substation instead of at the 3-terminal tap along the Big Eddy-Midway line. The 3-terminal tap will then be physically removed by BPA.

Windtricity plans to operate the project for at least 25 years. Upon termination of the project, Windtricity would remove, at its sole cost and expense, all wind turbines, step-up transformers, substations, support structures, switching/interconnection facilities, control rooms/O&M building, and meteorological masts. Footings and foundations would be removed to a level of 3 feet below the surface of the ground. Windtricity would repair any damage from removal, restore the property to grade, and implement erosion and control devices and procedures.

### **White Creek**

The proposed White Creek Wind Energy Project would be constructed east of Goldendale, Washington, in an unincorporated area of Klickitat County, approximately 4 miles northwest of the town of Roosevelt and 13 to 14 miles south and southwest of the town of Bickleton.

The project would occupy about 64 acres (permanent), and temporarily affect another 117 acres during construction. The project would produce up to 200 MW of electricity and would require construction of 111-133 wind turbines (1.5 MW or 1.8 MW turbines may be used).

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The proposed project may be constructed in one or two phases, with each construction phase lasting 9 to 12 months. During construction, up to 250 workers would be employed. Construction periods for the phased development could overlap.

More specifically, the White Creek project would consist of the following facilities:

- Up to 133 (1.5-1.8 MW) wind turbine generators erected on tubular steel towers; total extension would be about 360 feet above the ground. The turbines would be spaced approximately 500 feet apart and grouped in strings or linear groups of 1 to 20 turbines. The turbines would operate at wind speeds ranging from 8 to 56 mph. At each turbine location, an area of approximately 10,000 square feet would be used temporarily for setting turbine and tower components prior to installation. A pad to support a construction crane is included in this area.
- Individual step-up transformers to increase the voltage of electricity generated by each turbine from 575 volts to 34.5 kV. The transformers would be located either on the towers or approximately 5 feet away from the tower foundation on a reinforced concrete pad approximately 9 feet by 9 feet and 12 inches thick.
- A 34.5-kV electrical collector system, which would collect energy at 34.5 kV from each wind turbine, using underground cabling, and deliver it to a new substation.
- A new substation, which would further increase the voltage of electricity from 34.5 kV to 230 kV. The substation site would be a graveled, fenced area with transformer and switching equipment and an area to park utility vehicles. Transformers would not use polychlorinated biphenyl (PCB) oil.
- A new, single-circuit, 230-kV wood-pole, H-Frame transmission line that would extend from the proposed project substation about 9 miles to BPA's proposed Rock Creek substation. The new line would head west to the Wautoma-John Day transmission line ROW, and then head south paralleling the ROW into the substation.
- A permanent control room/operations and maintenance (O&M) building (150-feet by 150-feet) constructed within the project area to perform O&M functions and to serve as a control room for individual phases of the project. The O&M facility would include office and workshop areas, a kitchen, bathroom, shower, and utility sink. There would be equipment sheds for vehicles and spare parts. The total area would consist of 3 fenced acres. When the project is operational, there would be 10 to 15 permanent full-time or part-time employees on the O&M staff per phase.
- Buried communication system cabling including fiber optic or copper communication line between the wind turbines and substations, and the O&M facility. This communication system would allow individual wind turbines, turbine strings, and other project facilities to be monitored and controlled both onsite and from remote locations.
- Up to 13 meteorological towers placed throughout the project area. Eleven towers would be temporary and two would be permanent. The meteorological towers would collect

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meteorological data. The towers would be up to approximately 220 feet tall and the permanent towers would be freestanding, non-guyed structures.

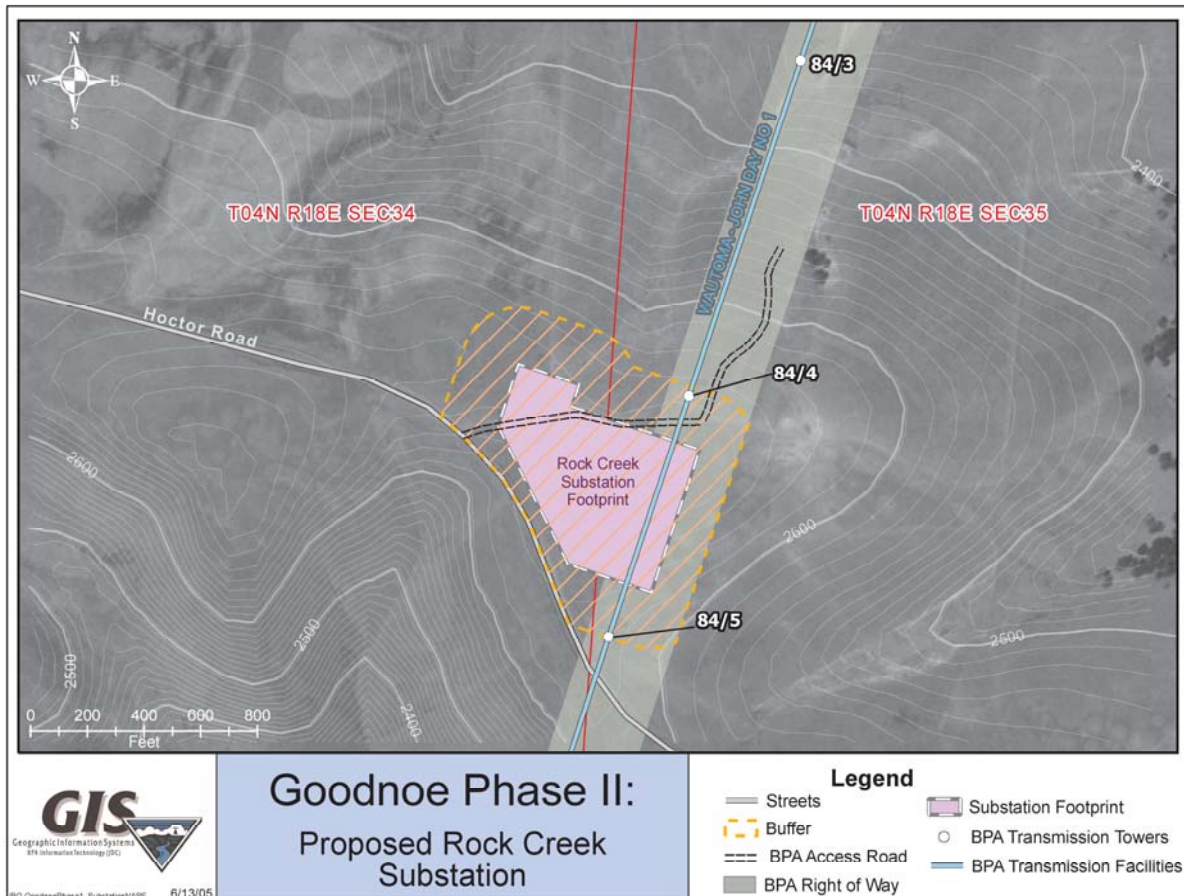
- Access to the project area via State Road 14/State Highway 97 and a combination of Dot Road, Newell Road, and Old Highway 8 as well as a network of existing county roads to most areas where project facilities would be located.
- Improvement of some existing roads to a final roadbed of 20 feet. During construction, some of these roads would be widened temporarily by an additional 10 feet on each side, and then reclaimed to the 20-foot final width. Twenty-one miles of new graveled roads would be constructed parallel to the proposed turbine strings. These roads would also have a final road width of 20 feet. In addition to these new roads, turnaround areas would be necessary at the dead ends of turbine strings. These turnaround areas total another 157,080 square feet.
- Temporary access required during construction. Generally, equipment would be driven across open ground but in some cases, minor grading may be required to allow safe access to construction areas.
- Up to three temporary staging areas for storage areas for tower sections, nacelles, blades, and other project components. Each staging area would be approximately 4 acres.
- Another one or two staging areas for each turbine string for parking construction vehicles, construction employees' personal vehicles, and other construction equipment. These additional staging areas each would be approximately 1 acre.

WCP plans to operate the project for at least 25 years. Upon termination of the project, WCP would remove, at its sole cost and expense, all wind turbines, step-up transformers, substations, support structures, switching/interconnection facilities, control rooms/O&M building, and meteorological masts. Footings and foundations would be removed to a level of 3 feet below the surface of the ground. WCP would repair any damage from removal, restore the property to grade, and implement erosion and control devices and procedures.

### **BPA Rock Creek Substation**

To interconnect the 350 MW from the proposed Wind Projects into BPA's existing Wautoma-John Day No. 1 500-kV line, BPA will construct, own, and operate the Rock Creek substation. The Rock Creek substation will be constructed as a 500/230-kV substation adjacent to and beneath the existing right-of-way (ROW) between BPA structures 84/4 and 84/5 (between the fourth and fifth structures in Mile 84 of this line; in Township 4 North, Range 18 East, Sections 34 and 35). See map. BPA will own, construct and operate the substation. By agreement, Windtricity and WCP will provide advance payment to BPA for the cost of design and construction.

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The Rock Creek substation site is a parcel of approximately 7.5 acres located in the Goodnoe Hills area, off Hactor Road, in Klickitat County, Washington. BPA will either purchase the 7.5 acre site in fee or purchase an easement to use the property. Access to the site will be from Hactor Road, which runs along the southwest boundary of the site.

The substation will contain a control house plus electrical equipment, including power circuit breakers, disconnect switches, surge arrestors, capacitor voltage transformers, substation dead ends, and a 1300 MVA, 230/500 KV power transformer, all connected by metal tubing (known as “bus”).

To build the substation, the site will be graded and borrowed fill and rock will be used to level the area. Onsite material will be reused as much as possible, but if additional fill material is needed, a nearby supplier will be found. Any excess rocks or boulders would be kept onsite and used to stabilize drainage areas, ditches, or as landscaping features, depending on size.

The entire BPA substation site will be covered with crushed rock. On the rock area, all equipment will be on concrete pads for stability. Beneath the rock area, a cable trench system will connect various pieces of equipment to each other and to the substation control house.

The Wautoma-John Day 500-kV line will “loop into” the Rock Creek substation between structures 84/4 and 84/5. Two substation dead ends, each about 80 feet tall, will be constructed



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within the substation for this purpose. All other equipment within the substation will be less than 30 feet tall. Structures 84/4 and 84/5 will be replaced with transmission line dead end structures. A chain link fence, approximately 7 feet tall with barbwire bayonets on top, will surround the substation and provide security and a safety enclosure. A 20-foot double gate will provide vehicle access to the site.

The substation control house (approximately 60 feet by 30 feet) will house operations communications equipment. A 100 foot tall communications tower, which is a box-type tubular structure with one antenna disk about 6 feet wide, will be built next to the control house. Although unmanned, BPA personnel will visit the substation about once per week. There will be no water supply at the substation. A portable toilet will be available for personnel.

KCPUD will provide electrical service to the Rock Creek substation via a 12.5-kV line to be built by the KCPUD to the substation. This wood pole line will parallel Hoctor Road from the KCPUD's Goodnoe Hills Substation to the north side of the Rock Creek substation. The line will terminate outside the Rock Creek substation and a cable will connect the service from the line into the substation.

Construction of the Rock Creek substation will begin in May 2006 and is expected to be completed in fall 2007. Crews will work 8 to 12 hour days, during daylight hours, as needed to meet the schedule. About 10 to 15 workers will likely work at the site each day during construction.

Routine operations and maintenance activities will be conducted once the substation is operational. No hazardous substances will 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 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 damaged insulators, or when wind turbine generators are being maintained.

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

Consistent with BPA's strategy for tiering appropriate subsequent decisions to the BP ROD, public processes for the Wind Projects and the BPA proposed substation were conducted. SEPA and Klickitat County reviews of the Wind Projects provided several opportunities for public comment. Klickitat County received various comments through its process and addressed them through the addition or modification of non-discretionary conditions in the CUP.

Public participation opportunities for the Goodnoe Hills project included the following:

- On June 19, 2003, Klickitat County gave notice that a Mitigated Determination of Non-Significance (MDNS) was issued with a deadline for comment or appeal on July 3, 2003.
- On June 19, 2003, Klickitat County gave notice to adjacent property owners and other interested parties about the proposed CUP process.

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- On December 9, 2003, Klickitat County conducted a formal public hearing on the proposed CUP.
- On February 12, 2004, Klickitat County issued a Notice of Order granting the CUP.

Public participation opportunities for the White Creek project included the following:

- WCP held an informational public meeting on the proposed White Creek Project on December 29, 2004, in Roosevelt, Washington.
- On February 11, 2005, Klickitat County gave notice that a MDNS was issued with a deadline for comment or appeal on March 4, 2005. No comments or appeals were submitted.
- On March 14, 2005, Klickitat County gave notice to adjacent property owners and other interested parties about the proposed CUP process.
- On April 4, 2005, Klickitat County conducted a formal public hearing on the proposed CUP.
- On April 12, 2005, Klickitat County issued a Notice of Order granting the CUP.

BPA provided the following opportunities for public involvement related to the proposed BPA Rock Creek substation:

- On July 8, 2005, BPA sent written notice to adjacent property owners and interested parties describing the proposed construction of the Rock Creek substation and interconnection of the Wind Projects into the FCRTS. The notice requested comments on the proposal by August 8, 2005. This information was also posted on the Internet <http://www.transmission.bpa.gov/PlanProj/Wind/> and in BPA's monthly information periodical, the "BPA Journal." Two comments were received during the open comment period.
- On June 16, 2005, BPA initiated Section 106 consultation with the Washington State Historic Preservation Officer (SHPO).
- On June 16, 2005, BPA initiated Section 106 consultation with the Yakama Nation, and on June 24, 2005 with the Confederated Tribes of the Warm Springs Indian Reservation (CTWSR) and the Confederated Tribes of the Umatilla Reservation.
- On June 15, 2005, BPA requested a list from the U.S. Fish and Wildlife Service (USFWS) of threatened and endangered species that may occur in the area of the substation. A response, dated June 27, 2005, was received by BPA.

For the Goodnoe Hills project, Windtricity and the County received several comments. The Washington Department of Fish and Wildlife submitted comments that mainly focused on bird/bat mortality and lighting of towers, loss of shrub-steppe habitat, monitoring and mitigation of impacts, and clarification of certain project design elements. The Department of Natural Resources submitted comments requesting that wind turbine placement would not interfere with potential wind turbine placement on their land. The State Historic Preservation Office submitted

comments accepting the project findings, but disagreeing with disclosing findings in a public process.

After Klickitat County issued its MDNS for the Goodnoe Hills project in June 2003, the Yakama Indian Nation filed an appeal to the MDNS. During the December 9, 2003 hearing on the proposed CUP for the project, Klickitat County considered this appeal. On March 8, 2004, the Yakama Indian Nation appealed the County granting order to the Superior Court. On September 14, 2004, the Superior Court heard the appeal and issued a decision in favor of Klickitat County and Windtricity. This decision was appealed and in January 2005, Windtricity worked with the Yakama Indian Nation to further mitigate any basis for the appeal. As a result, Windtricity and the Yakama Indian Nation entered into a Settlement Agreement, which resulted in the withdrawal of the appeal, and made the County's MDNS final.

For the White Creek project, WCP and the County received only a few comments. During the December 29, 2004, informational meeting, surrounding landowners requested information and one landowner confirmed that he wanted to be contacted before contractors gained entry to his property. A group concerned with bat and bird issues met with WCP to voice concerns regarding tower lighting required by the FAA. The group also wanted more information on the verification of bird strikes/deaths. The group and WCP worked together to resolve all issues to avoid an appeal.

During its public involvement process, BPA received two comments. Klickitat County Public Works wanted more information on traffic and loads generated by construction of the substation, which BPA will provide after the substation design is complete. The Washington Department of Fish and Wildlife wanted BPA to consider mitigation for loss of habitat resulting from construction of the Rock Creek substation. BPA has considered this request and will not be providing additional mitigation for habitat loss because the habitat loss from the Rock Creek substation will be minimal, and the habitat type is of low quality and common in the region. In addition, after consultation with environmental and cultural consultants, the Washington Department of Fish and Wildlife and the Confederated Bands of the Yakama Nation, Windtricity is setting aside 80 acres in Rock Creek Canyon to mitigate any potential impacts on the project site to wildlife habitat. WCP will explore opportunities, including funding, with the local community, to enhance the bluebird nest box program and benefit the local bluebird nesting population within and adjacent to the project area but at safe distances from the turbines.

## **ENVIRONMENTAL ANALYSIS**

Consistent with the BP ROD, the BP EIS was reviewed to determine whether offering terms to interconnect the Wind Projects 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.

In light of the analyses contained in the BP EIS and RP EIS, interconnection of the Wind Projects falls within the scope of the BP EIS. Site-specific impacts that would result from the Wind Projects are of the type and magnitude reported in the BP EIS and the RP EIS. The following discussion describes the site-specific impacts that would result from the transmission interconnection (the substation) as well as the effects that would result from the Wind Projects, and provides additional information on potential cumulative impacts.

## **Rock Creek Substation Environmental Impacts**

### **Land Use and Recreation**

The Rock Creek substation site is entirely within an area zoned for agricultural use. The site is not presently cultivated and does not show signs that it has been cultivated in the past. Past use of the property as rangeland is evidenced by existing, weathered fences, but no cattle or evidence of cattle were present during a site visit. Rangeland is abundant in the area.

Current land use will be changed on the 7.5 acres developed for the substation. About one third of this acreage is already occupied by the existing transmission line ROW and although uses are limited under a BPA ROW, cattle grazing is allowed. An additional 10.5 acres would be temporarily impacted during construction of the substation. This acreage will be reseeded with native seed species and returned to its present use after construction.

The property may occasionally be used for hunting. Substation construction could limit this use since the substation area will be fenced and wildlife that may have occupied the area will be displaced.

To mitigate potential impacts, equipment operators and the construction crew will be instructed to leave any existing gates on private property as they are found, open or closed, to avoid disturbances to livestock, and to stay within the ROW as much as possible.

## **Geology and Soils**

The project area is located in the Columbia Hills in the south-central part of the Columbia Basin. The Columbia Hills are the southernmost of east-west trending ridges known as the Yakama Folds. In general, these basalt flows are topped with loess deposits transported by the wind.

The site sits on a ridgetop characterized by wind-blown barren imperfectly weathered rock or rock fragments with sparse vegetation. No surface water is present at the site. Soils, consisting of fine silt loams and sand, are shallow and prone to wind and water erosion. Slopes are no greater than 2 percent. To reduce impacts, the following steps will be taken:

- BPA will prepare a "Rock Creek Substation Environmental Requirements" document. The environmental requirements document will direct BPA site specific erosion and sediment control Best Management Practices (BMP) to manage water on-site and soil stabilization, and address hazardous material and petroleum product releases and notification procedures.
- During construction, any spills or leaks of hydraulic fluid or oil from construction equipment would be cleaned up in accordance with the environmental requirements document. Oil collection membranes installed beneath the transformer will 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.
- BMPs to prevent erosion and control run-off will be maintained and kept functional.

## **Vegetation**

The site is in a semi-arid region of Klickitat County, within the big sagebrush/bluebunch wheatgrass vegetation zone. Vegetation at the substation site is a rabbit brush/brome-dominated community with a variety of herbaceous forbs and other grasses, including yellow mustard, phlox, sulfur buckwheat, other buckwheat subspecies, lupine, pussytoes, yarrow, Indian paintbrush, Idaho fescue subspecies, brome, crested wheatgrass, meadow barley, and bluegrass subspecies. The site does not represent unusual or uncharacteristic vegetative communities for the area.

Construction of the substation will permanently remove about 7.5 acres of vegetation and temporarily disturb another 10.5 acres surrounding the substation. Temporarily disturbed areas will be reseeded with native seed species. No vegetation will be allowed to grow on the substation's permanent rock surface. BPA will manage any vegetation on the substation site in accordance with BPA's Transmission System Vegetation Management Program Environmental Impact Statement (DOE/EIS-0285, 2000).

### **Wetlands and Water Resources**

This windswept ridgetop location is at a high elevation and has no obvious water present. 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. No wildlife was observed during a site visit. 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, will be displaced temporarily during and after construction. Nearby populations will also be temporarily disturbed during construction. Any animals or birds that range through the area during winter may also be disturbed and will likely avoid the area during construction.

### **Threatened and Endangered Species**

Based on a literature review and field surveys, no federal, endangered, threatened or proposed species are known to occupy the habitat at the substation site. There are no priority, unusual, unique, rare, critical, or extraordinary habitats or desired or preferred bird nesting habitats or elevational perches on or near the site for ESA listed species. Based on this information, BPA has made a determination of no effect to federally-listed species.

### **Historic/Archeological Resources**

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

A pedestrian survey of a portion of the site was conducted on June 23, 2005. The contractor had previously surveyed the remaining portion of the site for the Goodnoe Hills Wind Project in 2003. No cultural resources or historic properties were found, and BPA made a determination of no effect. BPA submitted the results of the survey to the Yakama Nation for review. No comments were received. On August 30, 2005, the Washington OAHP concurred with BPA's determination of no effect.

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

### **Visual Resources**

The substation will be constructed beneath an existing 500-kV transmission line. The site is next to Hoctor Road and can be seen by passing motorists visiting the area. Traffic numbers are low. No residences are within sight distance of the site. The substation will not greatly alter existing visual resources in the area because it will be beneath the existing 500-kV line and will occupy a small area already impacted by utility development.

## **Noise**

Intermittent noise will be generated at the site during construction. Construction will be limited to daytime hours. Passing motorists on Hactor Road will be able to hear construction noise. This noise will be temporary and will cease once construction is complete.

Transmission lines and related facilities are classified as industrial sources under the Washington Administrative Code (WAC 173-60). The substation will generate noise (akin to a low frequency electrical hum) from the operation of the transformer but this continuing noise level will not be any greater than the noise (corona) already generated by the existing 500-kV transmission line. Brief, loud bursts of noise, similar to a gunshot, sometimes occur when circuit breakers operate. This would occur infrequently. The substation will comply with federal and Washington State Noise Standards.

## **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.

The substation will be surrounded by a fence to provide security and prevent the public from entering a dangerous area.

## **Socioeconomics and Public Services**

No increase in public services is anticipated from the construction and operation of the substation because of its small size and lack of need for services. During construction, the presence of 10 to 15 workers per day will cause a small, short-term economic benefit to the local community as the workers patronize local businesses.

## **Air Quality**

The site is located adjacent to Hactor Road. Travel to the site is on paved routes, which will minimize dust generation. Temporary amounts of dust will be created by earth moving 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

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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 Environmental Impacts**

The following summary of environmental impacts is based on information in the SEPA Checklists for the Wind Projects, as well as Klickitat County's MDNS for both projects. Mitigation requirements identified in the MDNS for both projects were subsequently incorporated into the CUPs for the Wind Projects. Sixty-six non-discretionary mitigation conditions were approved as part of the CUP for the Goodnoe Hills project. Ninety-six non-discretionary mitigation conditions were approved as part of the CUP for the White Creek project.

**Land Use and Recreation**

***Goodnoe Hills***

Klickitat County has zoned the site as Extensive Agriculture (EA). Wind turbine facilities are permitted subject to review as a conditional use. The property is currently open land used for seasonal grazing activities and some hay cultivation. No recreational opportunities were identified in the SEPA process.

The developer estimates that construction activities would disturb from 50 to 75 acres of grassland. Access roads would overbuild many existing farm roads and should not exceed 45 acres. No paved roads are planned. Turbine foundations are estimated to cover less than 1 percent of the total site area for a total of no more than 5 acres. The remaining amount of permanently disturbed area would result from construction of the proposed substation and communication and transmission line facilities. Additional temporary disturbance would occur during installation of these facilities. The project would result in few changes to existing agricultural practices because farming and grazing would continue in and around the turbines and other project facilities.

***White Creek***

The proposed project is on approximately 64 acres extending from White Creek in the northwest to Old Lady Canyon in the southeast. Current land use within this area consists of wheat production and grazing.

Klickitat County zoning regulations designate most of the northern portion of the project as EA and most of the southern portions as Rural Residential (RR). Wind generation facilities are allowed as a conditional use in the EA zone. They are allowed as conditional uses in the RR zone if they would be no more detrimental to the adjacent properties than, and of the same type and character as, those uses listed as conditional in the RR zone.



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The project area is located on agricultural land. Most of the farmland currently is cultivated for wheat or in the Conservation Reserve Program (CRP)<sup>3</sup>, along with some undeveloped rangeland used for livestock grazing. Farming and grazing would continue to occur in and around the turbines and other facilities. 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.

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—fewer than 50 vehicle trips per day.

The land in the project site and vicinity does not have any formal or recreational opportunities associated with it. However, hunting is permitted by various gun clubs on properties throughout the project area.

The limited hunting that occurs in the area appears to concentrate in draws and drainages, rather than in fields and high areas where the project facilities will be concentrated. Little if any displacement is expected.

### **Geology and Soils**

#### ***Goodnoe Hills***

The project site is located in a semi-arid region of Klickitat County. Fine silt loams and sandy soils at the site are prone to wind and water erosion. A portion of the project is along the top of the Columbia Hills. This area has minimal slopes. Other portions of the project have steep slopes, but those under consideration for turbine location do not exceed 7 percent.

Construction activities would include grading for access roads, turbines, staging areas, a substation, transmission line, and trenching for communication and transmission lines. While there were no surface indications or history of unstable soils identified, potential for erosion is greatest during late fall-winter rains and spring snowmelt. The potential for wind erosion would be greatest from mid-summer through fall when the area is driest. Properly engineered roads, turbine foundations, drainage systems, and the use of BMPs and compliance with Washington Department of Ecology National Pollutant Discharge Elimination System (NPDES) permit conditions is expected to minimize erosion during construction.

#### ***White Creek***

The general project area is located on the plateau above the Columbia River, southeast of Goldendale, and south of Bickleton, Washington in Klickitat County. This land platform consists

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<sup>3</sup> The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners. Through CRP, a landowner can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. Source: <http://www.fsa.usda.gov/dafp/cepd/crp.htm>.

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of a major canyon southeast of the project site (Old Lady Canyon), several small incised creeks, and extensive plateaus and ridges. The proposed project site is sloped, with elevations ranging from 1,429 to 2,644 feet.

Some locations within the general project area have slopes steeper than 40 percent. These areas are generally in the draws sloping away from the higher, flatter, and well-exposed ground. A few project improvements would be implemented in these steeper areas, including an access road in the southern portion of the site and several turbines in this same general area.

The project site is dominated by silt loam soils, frequently cobbly, and rangeland silt loam. These soils are generally well-drained soils that formed in mixed alluvium, loess and residuum weathered from basalt. Thickness typically is less than 4 feet.

Existing roads would be used for access to the project site where possible. Approximately 21 miles of new turbine access road would be required for the project. WCP will follow the specifications of the approved NPDES permit and its Stormwater Pollution Prevention Plan to reduce the potential for erosion. This plan would include both timing and staging of construction practices to minimize erosion, and would use BMPs to prevent any soils from leaving the project site. Wetting of gravel surfaces with a water truck would be implemented to control dust and wind erosion at the site. Widened existing roads and new roads would be maintained throughout the project's life so as to limit erosion.

**Vegetation**

***Goodnoe Hills***

The project area has been used for grazing. Primary vegetative habitats include agricultural fields in planted grasses and alfalfa for use as hay, and grassland. Grasslands include a mix of grass and forb species including bluebunch wheatgrass, Idaho fescue, bulbous bluegrass, squirrel-tail, needle and thread grass, cheatgrass, lupines, balsamroot, buckwheat, biscuitroot, longleaf and Hood's phlox, yarrow, brodiaea and others.

No rare plant species were found during a field survey of the project area.

Construction activities would disturb these habitats, increasing the potential for erosion and the introduction of weed species. To reduce impacts, Windtricity will use erosion control BMPs, limit construction disturbance by preparing and using a site access plan, monitor the area during construction, and develop a reseeding/restoration and weed management plan in consultation with the Klickitat County Weed Control Board.

***White Creek***

The project area lies within the Columbia Basin Eco-region, which supports sagebrush grassland steppe consisting mostly of wheatgrass and some bluegrass and fescue. Some of the project area, has been converted from these native habitats and is under agricultural production of small grains (wheat) and CRP grasslands. Wheat fields are left to rest (fallowed) every other year.

Habitats and vegetation cover types that would be most affected by the proposed project are grassland/lithosol, cropland, and CRP grassland (64 acres permanent footprint).

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Field surveys conducted by WCP did not find any USFWS Endangered, Threatened, Proposed, or Candidate plant species. Likewise, no potential habitat was found for such species. Additionally, the field surveys did not locate any Washington State Endangered, Threatened, Extirpated, or Review plant species. No listed Threatened or Endangered plant species are expected to be impacted as a result of the proposed activities.

To mitigate impacts, WCP will avoid sensitive areas, retain topsoil for final surface application, re-vegetate disturbed areas with an appropriate seed mix, and control undesirable plants during and after construction.

**Wetlands and Water Resources**

***Goodnoe Hills***

No surface water bodies, including wetlands, are on or near the project site.

***White Creek***

Several small intermittent drainages occur within the project site.

Wetland field surveys conducted in December 2004 and January 2005 did not identify any jurisdictional wetlands within 300 feet of proposed project impact areas. Five potentially jurisdictional water crossings are within the project site.

In addition, a cursory survey of the transmission line route revealed several potential wetlands and a perennial water body (Rock Creek) along the line's corridor. Construction within the buffer areas of these features would be avoided or minimized. When the final placement of transmission line structures is determined, confirming field surveys would be done to achieve avoidance or determine whether mitigation is necessary.

There would be no impacts to wetlands and minimal (0.01 acres/441 square feet) impacts to surface water would occur as part of this project. Shorelines and floodplains would not be impacted. There would be no discharges to groundwater from project operations other than wastewater from the O&M facility, which would be discharged to a domestic septic tank/drainfield installed pursuant to the requirements of Klickitat County Health Department.

Construction activities would be regulated by an NPDES 1200-C general construction permit that would require BMPs to minimize possible impacts from erosion or other impacts to soil. Permanent erosion control measures would be implemented with final design of the project.

**Fish and Wildlife, including Avian Species**

***Goodnoe Hills***

There are no species of fish in the vicinity of the project because there are no water bodies on or near the project site. Wildlife that may be found in the project area include mule deer, black-tailed deer, badgers, coyotes, red fox, porcupines, pocket gophers, ground squirrels (California), rabbits, voles, and mice. Some big game may move through the area during the winter.

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The development area falls within the predicted distribution of the Townsend's big-eared bat, but wind plants would pose little risk to non-migratory bat populations in the study area. The most probable impact to bats species is collision with project facilities.

The most probable impact to birds resulting from the project is direct mortality or injury due to collisions with the turbines or guy wires of temporary or permanent meteorological towers. Collisions may occur with resident birds foraging and flying within the project area, or with birds migrating through the area. Other impacts could include abandonment of the area due to disturbance caused by project construction or operation, and mortality or injury due to collisions with construction vehicles or other equipment.

During operation, Windtricity will monitor birds and bats to determine actual impacts.

During construction, wildlife could be displaced temporarily from the site as a result of human presence and construction related disturbance. Once construction is complete it is expected that wildlife would become habituated to the wind turbines and reoccupy former habitat.

After consultation with environmental and cultural consultants, the Washington Department of Fish and Wildlife and the Confederated Bands of the Yakama Nation, Windtricity is setting aside 80 acres in Rock Creek Canyon to mitigate any potential impacts on the project site to wildlife habitat.

***White Creek***

Overall, no impacts to fish are likely to occur as a result of this project. The only fishery in the project vicinity is Wood Gulch Creek, north and east of the project site, which is known to support summer steelhead trout (*Oncorhynchus mykiss*). The closest turbine to Wood Gulch Creek would be about 0.5 mile away.

Project activities have been located to minimize the project's impact to water bodies and mitigation is planned to reduce impacts.

Raptor mortality for the White Creek project is expected to be about 6 to 7 total raptor fatalities annually. Species most likely affected include red-tailed hawk and American kestrel. Northern harrier, rough-legged hawk, and prairie falcon are at some risk of collision, but based on results of other regional studies, few fatalities during the life of the project will occur. Raptor nest surveys conducted in 2002 documented four red-tailed hawk, one great-horned owl, and one inactive raptor nest within 0.5 mile of proposed turbine locations. If these nests are active after the project is constructed, the nesting birds may be at higher risk of collision mortality.

Bluebirds are a species of community concern, the western bluebird is a state Monitor species, and there has been an extensive community effort to enhance bluebird populations in the Bickleton and Roosevelt area. A total of 21 bluebird nest boxes were installed alongside roads in the project area. Bluebirds were fairly commonly observed in the project area during the avian use point count surveys.

Based on the analysis of observational data and monitoring results at other wind projects where bluebirds occur, mountain and western bluebirds do not appear to be at risk of collision.

No impacts are expected to occur to the 21 nest boxes installed along public roads in the project area. Opportunities will be explored with the local community, including providing funding, to enhance the nest box program within and adjacent to the project area but at safe distances from the turbines. With the additional nest boxes in the landscape, there could potentially be a net benefit for the local bluebird nesting population.

Mammals observed in the project area include striped skunk, coyote, marmots, California ground squirrel, mule deer, badger, and pocket gopher. There is no mapped big game winter range within the turbine development area. Construction of the project would not directly impact big game winter range, and most of the development would occur more than 1 mile from mapped big game winter range.

Predicted bat mortality for 133 turbines is expected to range from 98 to 426 annually for the whole project, with an average of 160 per year based on the regional ranges and average annual mortality rate of 1.2 bats per turbine per year. On a per-megawatt basis, the annual project bat fatality is predicted to range from 160 to 500, with an average of 340 fatalities. Species composition would likely be similar to that at other Columbia Basin wind projects, with silver-haired and hoary bats comprising most of the fatalities. No threatened or endangered bat species are known to occur in the White Creek project area.

### **Threatened and Endangered Species**

#### ***Goodnoe Hills***

The bald eagle, which is listed as threatened under the Endangered Species Act, has been documented as wintering near the project site. No nesting sites have been documented within 2 miles of the site. Two bald eagle nocturnal roosts were documented and one was suspected within 2 miles of the site. Based on research from other wind plants, the overall risk to bald eagles is expected to be low, though some bald eagles may collide with the turbines.

There are no federally-listed plants in the project area.

#### ***White Creek***

No listed threatened or endangered animal species are expected to be impacted by the project. Field surveys documented one state endangered bird species, sandhill crane (14 flying over during spring), and one federal and state threatened bird species, bald eagle (one in winter during point counts, one nearby the site during winter driving transects). One state threatened bird species (one ferruginous hawk in spring) was documented. Other special status wildlife species documented during the surveys were state candidate species. There are no nest sites for bald eagles within 27 miles of the project and there is very limited suitable nesting habitat in the general landscape within 8 to 10 miles of the project. Although 25 bald and 13 golden eagles were observed during the winter driving surveys, the closest bald eagle observed was over 2 miles from the nearest turbine string, and the closest golden eagle was over 1 mile from the nearest turbine string. Only one bald eagle was observed during avian use point count studies conducted in 2002-2004, and just one was observed outside the project site during winter eagle surveys conducted in a broader area. Therefore, it is extremely unlikely that eagles will collide with turbines at the White Creek project.

There are no federally-listed plants in the project area.

### **Historic/Archeological Resources**

#### ***Goodnoe Hills***

Cultural resources were discovered during a survey of the project site. Resources would be avoided during construction and operation of the project.

#### ***White Creek***

Cultural resources were discovered during a survey of the project site. Resources would be avoided during construction and operation of the project.

Prior to construction WCP would develop a Cultural Resources Mitigation Monitoring Plan (CRMMP) in consultation with affected Tribes and the Washington OAHP. The CRMMP would provide procedures to follow if unanticipated discoveries are made during construction. It would include notification procedures and procedures for issuing stop-work orders to construction contractors if certain discoveries are made. In addition, it would outline possible mitigation measures (treatment plans) that would be employed if significant cultural resources are discovered. The CRMMP would also include procedures to deal with the unanticipated discovery of Native American skeletal remains consistent with applicable state and federal laws and regulations, and specify any needed measures during operation and maintenance of the project and its components.

Should evidence of historic, scientific, archaeological, or cultural importance be discovered during construction, work would be temporarily halted in the area of the find and the OAHP and any affected Native American Tribe would be contacted.

### **Visual Resources**

#### ***Goodnoe Hills***

The project will be visible and alter views from several locations and from Huctor Road, State Route-14, and Interstate-84. To reduce impacts, paint colors for turbines will be coordinated; non-reflective paints will be used to reduce glare, and lighting for security will be minimized and directed away from adjacent properties.

#### ***White Creek***

There are no inhabited residences within the project site; however, there are residences within the project vicinity from which turbines will be visible. Turbines constructed as part of the proposed Big Horn Wind Project would substantially reduce the visibility of the White Creek turbines depending on viewing location from the north. However, depending on weather conditions and light, the turbines could be seen from I-84 in Oregon, East Road (northeast of Bickleton) and from Bickleton. The turbines would also be visible to the limited number of travelers who use the main roads (Dot and Newell Roads) within the project area.

The wind turbine structures would be painted a non-reflective neutral color such as white or off-white to reduce impacts.

## **Noise**

### ***Goodnoe Hills***

The project area and surrounding vicinity are sparsely populated, and there are no residences nearby. Noise would originate from the sound of wind pushing against the turbine blades when the turbines are operating. To reduce noise, Windtricity will insulate the gearbox and generator; use a sound reduced gearbox; use a noise reduced nacelle, and use rotor blades with a minimized noise level. Because of the distance of residences from the project, no impacts due to noise are expected during operation.

Construction activities will create temporary noise in the immediate area, far from residences. However, to minimize noise impacts, construction activities would be limited to daylight hours.

### ***White Creek***

The project would meet the applicable noise standards for Washington. During construction, nearby residences would be exposed to increased noise from construction equipment. Typical construction equipment likely to be used during construction of the facility would include bulldozers, front-end loaders, trucks, graders, portable generators, cranes, concrete pumps, and tractors. Construction equipment typically produces noise levels of 80 to 90 decibels on an A-weighted scale (dBA) at a distance of 50 feet from the construction activity. Noise levels from construction equipment would vary and would be temporary. Construction would occur during daylight hours and is anticipated to last approximately 9 to 12 months. Some construction phases may occur concurrently, so that all of the phases may not take as long as 36 months. Once the project is operational, when the wind speed is sufficient to rotate the turbine blades, the noise level from the project would not exceed 50 dBA at any residential dwelling (as required by WAC 173-60).

To minimize noise impacts, construction activities would be limited to daylight hours (7 a.m. to 7 p.m.) and equipment would have sound-control devices.

Because no currently occupied house exists within the project area, noise impacts to residences are not anticipated during operation.

## **Public Health and Safety**

### ***Goodnoe Hills***

Minimal new toxic substances or hazardous waste (small amounts of lubricants and solvents) would be used during construction and operation of the project. 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 project.

***White Creek***

Minimal new toxic substances or hazardous waste (small amounts of lubricants and solvents) would be used during construction and operation of the 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 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. Onsite vehicles would be monitored for petroleum leaks. Spills would be cleaned up immediately upon discovery, and reported to the appropriate agency. Hazardous waste material generated by project construction and operation would be disposed of in a manner specified by local and state regulations or by the manufacturer. Cleanup materials would be kept readily available onsite, either at the equipment storage area or on the contractor's trucks.

**Socioeconomics and Public Services**

***Goodnoe Hills***

No new public services will be required because of the project. There would be no significant increase in permanent population as a result of construction and operation of the project. During construction most workers would be from the local area (up to 250 workers over the course of construction). Operation will not require a large number of people (6-12 permanent full-time or part-time employees). The 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 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 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.

***White Creek***

During project construction, the construction and operational workforce, estimated to be up to 250 people, would come primarily from the local area. However, temporary workers may require overnight accommodations.

The number of people expected to be transient to the project area would be small enough that adequate temporary and permanent housing, and other lodging, would be available to meet project needs.

Only 10-25 full-time O&M staff would be employed from the local community. There would be no significant increase in permanent population as a result of construction and operation of the project.



The project would not result in a significant increased need for public services, such as fire protection and police services because of the small number of people employed.

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.

In addition, an analysis of microwave communication paths was conducted in the project area. The analysis determined that interference with existing tight beam directional communications transmitters and receivers would not occur.

## **Air Quality**

### ***Goodnoe Hills***

Temporary emissions consisting of exhaust from construction vehicles and equipment and dust would occur during construction. 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.

### ***White Creek***

Dust and heavy-duty vehicle emissions would be produced during construction. These emissions would include nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and particulate matter (PM<sub>10</sub>), and would be temporary. Although the quantity of these emissions is unknown at this time, it would be limited because of the limited number of vehicles that would be used and the relatively short duration of the construction period. There also would be an increased potential for dust during construction, as soil is excavated for placement of turbines. This potential would be greatest during dry, windy weather but would be mitigated by applying water for dust control and by gravelling the access roads. BMPs would be employed to reduce or control dust and emissions during construction such as keeping vehicles and equipment properly maintained; watering roads to prevent dust; installing erosion control measures to reduce erosion.

When the 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 Overlay Final EIS discusses potential cumulative impacts of wind energy development throughout the County. As stated in the FEIS, 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). The Klickitat County FEIS analyzed impacts based on the development of four wind power projects with a total generating capacity

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of 1,000 MW. WCP was required to provide a cumulative impact analysis as part of its SEPA process, and much of the following analysis is taken from that existing SEPA documentation<sup>4</sup>.

Two other wind projects have been proposed in the vicinity of the Goodnoe Hills and White Creek wind projects. The Wind Turbine Company has received a CUP for a 15-MW project at the Roosevelt Landfill, about 8.5 miles south and east of the White Creek project. PPM Energy has a CUP for a potential 250-MW project (Big Horn) immediately north of the White Creek project. Other potential projects (such as a PPM project for an additional 100 MW and Cannon Power for a 250 MW facility immediately west of the Goodnoe Hills project) have been discussed at various times in different forums, but have not been formally proposed or submitted to the County for CUPs. Although these developers could request to connect to BPA's Rock Creek substation, they have not formally proposed their projects. Limited information about these projects is available, and so the potential impacts from them are not covered in this Tiered ROD. If these projects are later formally proposed and information becomes available, BPA will do an appropriate NEPA analysis of impacts and document its analysis and decision in a separate Tiered ROD.

### **Land Use and Recreation**

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

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 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.

Wind projects and associated facilities would have little direct impact to recreation in agricultural areas. Dispersed hunting that may occur in the area 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. The new substation and any other substations needed in the future could increase the potential for erosion, but standard control and containment measures would limit permanent impact.

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<sup>4</sup> LMEC, August 2005. White Creek Wind Energy Project Expanded SEPA Checklist.

## **Vegetation and Wildlife**

Additional projects in the area combined with the acreages already planned for development would increase the total acreage in the county used for wind development. The permanent footprint (during operations) of wind projects is small compared to the total project acreage. 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, such as the Goodnoe Hills project, will set aside acreage to mitigate impacts to wildlife habitat.

Throughout the U.S, at projects where studies have been conducted and can be compared, the average number of all bird (all species combined, native and non-native) avian collision fatalities per turbine is 2.3 per year. The average for the Pacific Northwest is 1.9 bird fatalities per turbine per year. Because of the wide variety of types of turbines in operation and proposed, the future effects of wind development on birds and bats is difficult to predict. The range in total bird mortality predicted for the development of 300 turbines for the Big Horn and White Creek projects combined would be approximately 570 to 690 birds per year and would be composed primarily of passerines. The addition of the Goodnoe Hills, Cannon Power and PPM projects would likely increase these numbers. The avian species most likely to be found as a fatality is horned lark, a common grassland and fallow-ground species found throughout the project area year-round. For all species, annual fatalities may be up to about 1000. Similar fatalities may occur at other projects.

Bat mortality for the Big Horn and White Creek projects combined may be 765 with a range from 360 to 1,125 (using individual regional wind project ranges from 0.8 to 2.5 bats per megawatt per year). The addition of the Goodnoe Hills, Cannon Power and PPM projects would likely increase these numbers. Fatalities may contain a high percentage of hoary and silver-haired bats. These species are not state-sensitive status or have federal protection.

These additional cumulative mortalities in the Pacific Northwest region are relatively insignificant compared to the total bird and bat populations anticipated to be present in the general area at various times of the year.

Bluebirds are a species of community concern, the western bluebird is a state Monitor species, and there has been an extensive effort to enhance bluebird populations in the Bickleton and Roosevelt area. A review of flight height data collected during pre-construction studies at nine other wind resource areas in the Pacific Northwest indicates that bluebirds very rarely fly at turbine rotor-swept heights. Collisions would likely be rare and wind projects would not have negative impacts on bluebird populations in the area.

Mitigation and monitoring opportunities such as habitat restoration and fatality monitoring studies proposed for wind projects will reduce impacts to local birds and bats and their habitat. The cumulative impacts are not anticipated to have a significant effect on bird or bat populations.

### **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. Wind projects can be located to avoid these resources.

### **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 County, the impacts are not likely to be concentrated, so loss of cultural artifacts from an entire cultural source is unlikely. Wind projects can be located to avoid these resources.

### **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 County, visual impacts of wind energy would be experienced 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).

### **Noise**

Significant noise issues associated with wind generation projects are limited to the construction period of the project. If 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, operation, and maintenance of the project would be incidental and comparable to other construction projects.

### **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.

## **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.

## **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 County Public Works Department could work with both projects to ensure shared responsibility for any road improvements or repair.

## **MITIGATION**

Specific resource mitigation conditions to avoid or minimize environmental harm from the proposed BPA 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 Projects were identified through the SEPA and County CUP processes and are present in the mandatory CUP conditions which 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 Goodnoe Hills and White Creek Wind Energy Projects 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](http://www.efw.bpa.gov).

## **CONCLUSION**

BPA has decided to offer contract terms for interconnection of the Goodnoe Hills and White Creek Wind Energy Projects into the FCRTS at the Rock Creek substation in Klickitat County, Washington. The Large Generation Interconnection Agreement (LGIA) provides for interconnection of the Wind Projects with the FCRTS, the operation of Goodnoe Hills and White Creek Wind Energy Projects in the BPA Control Area (including control area services such as generation imbalance service), and the maintenance of reliability of the FCRTS and

***Record of Decision for the Electrical Interconnection of the  
Goodnoe Hills and White Creek Wind Energy Projects***

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interconnected systems. It also provides for the construction, operation and maintenance of the interconnection facilities (i.e., the Rock Creek substation). As described above, BPA has considered both the economic and environmental consequences of taking action to integrate power from the Wind Projects 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 Projects into the FCRTS. BPA adopts and will undertake the mitigation identified in this ROD for the Rock Creek substation.

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

Issued in Portland, Oregon.

/s/ Stephen J. Wright

Stephen J. Wright  
Administrator and  
Chief Executive Officer

Date: November 9, 2005