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*Report*

# **Dayton Wind Energy Project SEPA Checklist**

Prepared for  
**Blue Sky Wind, LLC, an affiliate of  
RES America Developments, Inc.**

September 2007

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## Attachments

- A Hopkins Ridge (Blue Sky) Wind Energy Project SEPA Checklist, October 2004
- B Hopkins Ridge Wind Project Mitigated Determination of Nonsignificance, Issued by Columbia County Planning Department, November 2004
- C Biological Resources Investigations for the Proposed Dayton Wind Project, Columbia County, Washington, January 2007
- D Wetland and Other Waters Delineation Report, Dayton Wind Energy Project, March 2007
- E Visual Simulations, Dayton Wind Project, March 2007
- F Mitigation Measures/Conceptual Mitigation Plan, March 2007

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# Acronyms and Abbreviations

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APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
BMP	Best Management Practice
BPA	Bonneville Power Administration
CO	carbon monoxide
CRMMP	Cultural Resources Mitigation Monitoring Plan
CRP	Conservation Reserve Program
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CUP	Conditional Use Permit
CWA	Clean Water Act
CY	cubic yards
DBA	Decibels measured on an A-weighted scale
FAA	Federal Aviation Administration
GIS	Geographic Information Systems
GMU	Game Management Unit
HPA	Hydraulic Project Approval
JARPA	Joint Aquatic Resources Permit Application
kV	kilovolts
MDNS	Mitigated Determination on Non-Significance
MW	megawatts
mph	mile per hour
NEPA	National Environmental Policy Act
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
O&M	operations and maintenance
OAHP	Washington Office of Archaeological and Historic Preservation
PCB	polychlorinated biphenyls
PM <sub>10</sub>	particulate matter less than 10 micrometers in aerodynamic diameter
REA	Rural Electric Association
RES	Renewable Energy Systems, Ltd.
RPM	revolutions per minute
SEPA	State Environmental Policy Act
SOC	species of concern

sq. ft.	square feet
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
USGS	United States Geologic Survey
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources



# Environmental Checklist

## State Environmental Policy Act (SEPA)

### WAC 197-11-960

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## Background

1. *Name of proposed project:*

Dayton Wind Project (the Project)

2. *Name of Applicant:*

Blue Sky Wind, LLC

3. *Address and phone number of applicant and contact person:*

Applicant

Blue Sky Wind, LLC

c/o RES America Developments, Inc.

9050 Capital Of Texas Highway  
Suite 390  
Austin, TX 78759

512-708-1538

Contact Person

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Vice-President  
RES America Developments, Inc.  
1 SW Columbia  
Suite 460  
Portland, OR 97210  
503-219-9000  
503-467-8355 (mobile)  
503-219-9009 (fax)

4. *Date checklist prepared:*

March 5, 2007

5. *Agency requesting checklist:*

Columbia County Planning Department

6. *Proposed timing or schedule:*

The proposed 90-megawatt (MW) Dayton Wind Project would be constructed and brought into service in one or more construction phases. Construction of the first phase could begin as early as the summer of 2007; each Project phase would be brought into service 9 – 12 months following the start of construction. Each phase of the Dayton Project is expected to be operational for a minimum of 25 years.

Table 1 shows an indicative Project schedule.

**TABLE 1**  
Indicative Project Schedule

Task/Milestone	Start	Finish
Obtain Threshold Determination on SEPA Checklist	03/07	03/07
Obtain CUP Approval	03/07	04/07
Receive FAA Determination	02/07	04/07
Obtain Building Permit Approval	04/07	05/07
Obtain NPDES Permit	04/07	06/07
Construction of substation, roads, foundations	07/07	11/07
Installation of turbines	03/08	05/08

7. *Do you have any plans for future additions, expansion, or further activity related to this proposal?*

Except as provided above for Project phasing, the applicant presently has no plans for future additions or expansions related to this proposal. However, the applicant plans to maintain existing wind energy leases and to continue to evaluate the wind resource on the periphery of the Project area. At this time, such potential expansions are considered speculative, requiring additional information, data, and analysis as to potential feasibility. Any future expansion would be a separately financed stand-alone project.

8. *List any environmental information that has/will be prepared related to this proposal:*

The following environmental documents and supplemental environmental studies were conducted in preparation for this Project:

- Hopkins Ridge (Blue Sky) Wind Energy Project SEPA Checklist, October 2004 (Attachment A), including:
  - Avian/wildlife surveys conducted from March 26, 2002 to March 14, 2003 for the adjoining Hopkins Ridge/Marengo Wind Project
  - Rare plant survey conducted from March 26, 2002 to March 14, 2003 for the adjoining Hopkins Ridge/Marengo Wind Project

- Hopkins Ridge Wind Project Mitigated Determination of Nonsignificance, issued by Columbia County Planning Department, November 2004 (Attachment B)
- Biological Resources Investigations for the Proposed Dayton Wind Project, Columbia County, WA, prepared in January 2007 (Attachment C)
- Wetland delineation conducted in January 2007 (Attachment D)
- Visual simulations prepared in February 2007 (Attachment E)
- Mitigation measures/conceptual mitigation plan prepared in February 2007 (Attachment F)

Washington Administrative Code (WAC) Title 197, Chapter 11, Section 600, describes when and how existing environmental documents may be used to meet an agency's responsibilities under SEPA. WAC 197-11-600 (2) states that "an agency may use environmental documents that have previously been prepared in order to evaluate proposed actions, alternatives, or environmental impacts. The proposals may be the same as, or different than, those analyzed in the existing documents." Existing environmental documents can be utilized through one or more of the following methods (WAC 197-11-600):

- a. "Adoption," where an agency may use all or part of an existing environmental document to meet its responsibilities under SEPA. Agencies acting on the same proposal for which an environmental document was prepared are not required to adopt the document; or
- b. "Incorporation by reference," where an agency preparing an environmental document includes all or part of an existing document by reference.
- c. An addendum, that adds analyses or information about a proposal but does not substantially change the analysis of significant impacts and alternatives in the existing environmental document.
- d. Preparation of a supplemental document if there are:
  - i. Substantial changes so that the proposal is likely to have significant adverse environmental impacts; or
  - ii. New information indicating a proposal's probable significant adverse environmental impacts.
- e. If a proposal is substantially similar to one covered in an existing EIS, that EIS may be adopted; additional information may be provided in an addendum or supplement (see (c) and (d) of this subsection).

*The Dayton Wind Energy Project SEPA Checklist updates and revises the Hopkins Ridge (Blue Sky) Wind Energy Project SEPA Checklist (Attachment A) in that additional analyses (Attachments C, D and E) were conducted for the Dayton Wind Energy Project to address the new Project area and associated Project components (see question 11). However, the majority of data analyzed (e.g., Attachments A and B), alternatives considered, and mitigation measures proposed for the Dayton Wind Energy Project are the same as or*

*similar to those addressed in the Hopkins Ridge SEPA Checklist. Similarly, implementation of the proposed mitigation measures is expected to result in environmental impacts that are below thresholds considered significant for the Dayton Wind Energy Project.*

Figure 1 outlines the area covered by the Hopkins Ridge SEPA Checklist and the area covered by the Dayton SEPA Checklist (supplement to the Hopkins Ridge SEPA Checklist). Where applicable, the Dayton SEPA Checklist, incorporates by reference, analyses conducted and/or mitigation measures proposed in the Hopkins Ridge SEPA Checklist.

Because the Dayton Wind Energy Project proposes a new project area not previously analyzed in the Hopkins Ridge SEPA Checklist, the applicant proposes that the County issue a supplement to the Hopkins Ridge MDNS or issue a new MDNS that incorporates applicable information from the Hopkins Ridge MDNS.

9. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal?*

No applications are pending for government approvals of other proposals affecting the property covered by this proposal.

10. *Government approvals or permits needed:*

The following government approvals or permits are or may be needed:

- The proposal requires a Conditional Use Permit (CUP) from the Columbia County Planning Department.
- A Building Permit would be needed and would be obtained from the Columbia County Building Department prior to commencement of site construction activity.
- A Road Access/Driveway Permit would be required from the Columbia County Roads Department/Engineer's Office for access from new, private Project-related roads onto existing county roads.
- An Electrical Permit and Inspection, issued and conducted by the Washington State Department of Labor and Industries, is likely to be required.
- A Department of Ecology National Pollutant Discharge Elimination System (NPDES) and State Wastewater Discharge General Permit for stormwater discharges associated with construction activities would be required.
- A Notice of Construction or Alteration would be filed with the Federal Aviation Administration (FAA), which requires such notice for structures taller than 200 feet.
- A Reclamation Permit for Site Quarry(s) from the Washington Department of Natural Resources (WDNR) would not be needed as long as quarries are less than 3 acres in size or have a working face less than 30 feet tall and slope steeper than 1 foot horizontal to 1 foot vertical (45°).
- A Joint Aquatic Resources Permit Application (JARPA) would be required for submission to the natural resource agencies. The JARPA is likely to include applications for the following:

- Corps of Engineers Section 404 Wetland Permit Application
- Department of Ecology 401 Water Quality Certification
- Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval
- Compliance with the Columbia County Critical Areas Ordinance

11. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site.*

The applicant proposes to develop, construct and operate a wind energy project near Dayton, Washington. As of February 2007, RES has developed and completed construction of 12 wind farms in North America alone (including the Hopkins Ridge Wind Project in Columbia County), representing a combined generating capacity of more than 1,200 MW. This is in addition to the construction of over 25 wind projects outside of North America.

## Project Description

The proposed Dayton Wind Project area would be situated on private land approximately 5 miles northeast of the city of Dayton, in Columbia County, Washington, east of Highway 12, between Turner and Patit Roads (Figure 2). The Project would produce up to 90 MW of electricity and would require construction of wind turbines on steel tubular towers up to 262 feet tall. Each turbine/tower combination would be up to approximately 415 feet tall (measured from the ground to the turbine blade tip at its highest point). Current land use in the proposed Project area includes wheat cultivation, grazing, and woodlots.

The Project would be constructed in one or more phases, with the first phase of construction beginning as early as the summer of 2007. Each Project phase would take approximately 9 – 12 months to construct. The Project would interconnect with Pacific Power’s existing 230 kV Dry Creek – Walla Walla transmission line at the Talbott switching station presently under construction for the Marengo Wind Project.

The Project would utilize the following facilities either already in place or to be constructed during spring, summer and fall months:

- Wind turbine generators erected on tubular steel towers
- Individual turbine step-up transformers to increase the voltage of electricity generated to 34.5-kV
- A 34.5-kV electrical system used to collect energy from the wind turbine generators. At this time, the 34.5-kV electrical system between wind turbines and within the Dayton Project area is expected to be underground, although short stretches of overhead 34.5-kV cabling may be necessary for crossing certain topographic features. A 34.5-kV overhead line will connect the Dayton Project to the Project substation to be constructed adjacent to the Marengo Project substation currently under construction.
- A substation to further increase the voltage of the electricity generated to that of the existing PacifiCorp transmission line (230 kV). The substation will be located

adjacent to the Marengo Wind Project substation (currently under construction) on previously permitted lands in the Marengo Project area.

- The overhead transmission line, currently under construction for the Marengo Project, to transmit electricity from the Dayton Project substation to the existing PacifiCorp transmission line.
- The Talbot interconnection switching station (currently under construction for the Marengo Wind Project) for connecting the Dayton Project to the existing PacifiCorp transmission line
- Buried communication system cabling
- An existing control room/operations and maintenance (O&M) building situated adjacent to the existing Marengo Project substation.
- Access roads and other minor civil works
- Permanent meteorological masts

Figure 3 presents an indicative layout for the Project. The applicant proposes that the turbine corridors be approved, rather than any specific turbine locations, allowing the applicant flexibility to site individual turbines within the corridors in response to site-specific conditions, such as geological, topographical and environmental features. As further described below, the applicant requests that, in making the threshold determination based on the SEPA Checklist, the Columbia County Planning Department afford the applicant flexibility in siting wind turbines and other Project facilities.

As illustrated in Figure 3 and further documented in this SEPA Checklist, the proposed Project includes the following:

- Approximately 11 miles of new turbine string corridor (20-foot-wide permanent roads plus turbine foundations and turbine crane pads) and access roads: a permanent impact of approximately 28 acres.
- Approximately 1.75 acres for the Project substation (to be located within the permitted Marengo Project area). The Dayton Wind Project will introduce no new footprint for its interconnection switching facility, as it is already under construction for the Marengo Wind Project.

The sections below provide additional information about Project facilities mentioned above, including the wind turbines, electrical system, access roads, and meteorological towers. A description of the construction process is also provided.

## Wind Turbines

Blue Sky Wind is considering several wind turbine models for the Project at this time. In general, final turbine selection does not occur until a few months before beginning construction because of factors such as timing of financial close, the most cost-effective turbine model for the Project and turbine availability from manufacturers. Nevertheless, the applicant is able to specify the range of turbines that may be used for the Project. As a result, the Project is likely to consist of wind turbines with generating capacities from 1.8 to 2.3

MW. The indicative Project layout in Figure 3 assumes that the Project would consist of 50 x 1.8 MW wind turbines (i.e., the maximum number of turbines that would be located in the Project area); wind turbines have been numbered as shown in Figure 3. Each turbine would be mounted on a tubular steel tower extending up to 262 feet above the ground.

Each turbine/tower combination would be up to approximately 415 feet tall (measured from the ground to the turbine blade tip at its highest point), and would be mounted on a reinforced concrete foundation as further described below (see Construction Process). Spaced about 505 feet apart, the turbines would be grouped in strings or linear groups of approximately 2 to 8 turbines connected by an electrical collector cable system. The turbines would operate at wind speeds ranging from 8 to 56 miles per hour (mph).

The applicant has determined the approximate location and the end points of each turbine string corridor. However, the number of turbines in each string, and the spacing between each turbine, may vary depending on which turbine supplier is selected. As noted above, the applicant requests that in making the threshold determination on the proposed Project, the Columbia County Planning Department permit the applicant flexibility in the precise spacing and number of turbines within each turbine string corridor. Final turbine siting, spacing, and clear areas will be in accordance with industry standards and safety measures, as discussed later in this document.

Wind turbines consist of three main aboveground components: the turbine tower, the nacelle, and the turbine blades. The turbine tower supports and provides access to the nacelle, which is the enclosure that houses the turbine's main shaft, gearbox, generator, brakes, bearings, cooling systems, and other components. Turbine blades attach to the main shaft of the turbine via a blade hub. A typical configuration for a wind turbine and tower is shown in Figure 3 of Attachment A.

### Turbine Towers

Depending on which turbine manufacturer is selected, towers would be up to approximately 262 feet tall. With the nacelle and blades mounted, the total height of the wind turbine (to the turbine blade tip) would be approximately 375 to 415 feet, depending on the turbine selected. The towers would be tapered, hollow tubular structures, approximately 14 feet in diameter at the base and weighing approximately 165 tons each. The towers would be painted a neutral color (typically off-white or pale gray). A controller cabinet would be located at the base inside each tower. Cables and a ladder would ascend to the nacelle to provide access for turbine maintenance. A locked door would provide access to the base of the tower.

The typical wind turbine and tower would be mounted on a concrete foundation with a diameter of approximately 20 feet. The turbine and tower would be placed within a cleared, compacted area of approximately 23 feet in diameter. Tower foundations would be spread footing or pier-type footings as described below (see Construction Process).

### Nacelle

The nacelle houses several of the turbine components, including the turbine's main shaft (if applicable), gearbox, brakes, bearings, cooling system, hydraulic systems, yaw gears, generator, and, in some cases, step-up transformer. The weight of the nacelle, including its

components but excluding the blades, will be approximately 41 tons. An anemometer is positioned on top of the nacelle and provides wind direction data to an electronic controller that in turn controls a yaw mechanism that uses electrical motors to turn the nacelle and rotor so that the turbine faces into the wind.

In addition, selected turbines would have lights approved by the FAA positioned on the top of the nacelle. Turbines likely to be equipped with lights would be the turbines positioned at each end of each turbine string as well as every third (3rd) to sixth (6th) turbine, depending on FAA guidance. Lights would likely be required by the FAA to flash white during the day and to flash red at night.

### **Turbine Blades and Rotor**

Three turbine blades attach to the turbine's main shaft via a blade hub. The combined weight of the three blades and blade hub would range from approximately 40 to 80 tons. While generating electricity, the turbines would be situated "upwind" of the nacelle and tower. Depending on the turbine model selected for the Project, the turbine blades would be made of carbon fiber or laminated fiberglass. Blade length would vary from 131 to 153 feet long. The diameter of the circle created by the rotors (i.e., the rotor diameter) would be approximately 262 to 306 feet, depending on which turbine is selected.

The rotor's rotational speed ranges from 10 to 20 revolutions per minute (rpm). The turbines operate on a variable pitch principal in which the rotor blades rotate about their axis to maintain an optimum position to maximize electrical output for wind speeds while maintaining a constant rotational speed. At speeds exceeding 56 mph, the blades feather along their axis and the rotor stops turning.

### **Electrical System**

The generator located in each wind turbine's nacelle would generate electricity at 690 volts. Depending on the turbine selected, the electrical system of the Project would consist of five key elements: (1) individual step-up transformers to increase the voltage of electricity generated by each turbine from 690 volts to 34.5-kV, (2) an electrical collector system, which would collect electricity at 34.5-kV from each wind turbine, primarily using underground cabling and one span of overhead cabling, and deliver it to (3) a substation, which would further increase the voltage of the electricity from 34.5-kV to 230-kV, (4) a single, existing 230-kV overhead transmission line to deliver power from the substation to (5) an existing interconnection switching station located adjacent to the existing 230-kV PacifiCorp transmission line at the Talbot switching station.

### **Step-Up Transformers**

Each wind turbine would generate power at 690 volts. For each turbine, an associated step-up transformer would increase the voltage of the electricity from 690 volts to 34.5-kV. In some turbine models, the step-up transformer is housed in the nacelle located at the top of the tower. In other models, the step-up transformer is located approximately 5 feet away from the tower foundation on a reinforced concrete pad approximately 9 feet by 9 feet square and 12 inches thick.

## Collector System

From each step-up transformer, power would be transmitted via 34.5-kV electric cables. At this time, the applicant believes that within the Project area, electrical cable would be buried directly in the soil approximately 3 to 4 feet below the ground surface in a trench up to 3 feet wide with selected fill surrounding the cables for protection. However, the applicant does request that the threshold determination allows flexibility for the applicant in siting a limited amount of overhead 34.5-kV cabling over geological and/or topographic features for which underground cabling is not practical. Trenches would generally parallel existing, widened, and new roads used for the Project (see Roads below). In areas where collector cables from several strings of turbines follow the same alignment, multiple sets of cables would be installed within each trench where possible. Trenches would be backfilled, topsoil would be replaced on top, and the area would be returned to its original use. Approximately 11 acres would be temporarily impacted by the construction of underground collector cable trenches.

In addition to the underground cabling within the Project area, approximately 2.2 miles of overhead collection line would connect the Dayton Project with the Dayton Project substation within the Marengo Project area.

## Substation

The substation for the Project would increase the voltage of electricity from 34.5-kV to 230-kV for interconnection with the Pacific Power's existing Dry Creek - Walla Walla 230-kV line. The substation would be located in the permitted Marengo Project area approximately 1 mile northeast of the Dayton Project adjacent to the Marengo Wind Project substation under construction as of February 2007. The substation site would be a graveled, fenced area with transformer and switching equipment and an area to park utility vehicles. Transformers would be non-polychlorinated biphenyl (PCB) oil-filled types.

## Overhead Transmission Line

The overhead transmission line currently under construction for the Marengo Wind Project would connect the Dayton Project substation to the Talbot switching station at the point of interconnection with the PacifiCorp transmission line. The voltage of the overhead transmission line is 230-kV, the same as that for the existing PacifiCorp transmission line.

## Switching Station

The overhead transmission line would transmit electricity from the substation for the Dayton Project to the Talbot interconnection switching station under construction for the Marengo Wind Project as of February 2007. The area would be graveled and fenced, contain switching equipment, and include an area to park utility vehicles.

## Communication System

In addition to underground and overhead electric cabling, the Project would include underground fiber optic or copper communication line between (1) the wind turbines and substations, and (2) the O&M facility (see Operations and Maintenance Facility below). 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. The

communication lines would generally parallel the route of the 34.5 kV electrical collector system.

## **Operations and Maintenance Facility**

The Project will likely utilize an existing O&M facility at the Marengo Project.

## **Roads**

Access to the Project area would be provided via State Highway 12 and a combination of Nichols, Johnson Hollow, Bruce and Covello Roads, as well as other existing county roads that intersect the Project area. The Project would not be accessed from Tucannon Road.

The Project would require the construction of new gravel roads and the improvement of some existing roads to facilitate access for construction and O&M vehicles.

### **Existing Roads**

Existing roads in the Project area are generally 8 to 16 feet wide. Some road improvements would be needed to allow use by construction vehicles. Improvements would generally involve widening selected portions of the existing roads. The finished road width would include a gravel, all-weather surfaced roadbed up to 20 feet wide with an additional 5 feet of shoulder on either side, for a temporarily disturbed road width of 30 feet. During construction, some roads may need to be temporarily widened by an additional 5 feet on each side. Roads would be reclaimed to a width of 20 feet upon the completion of construction (see Construction Process below). Some existing culverts across intermittent streams would be replaced with larger-diameter or longer culverts as necessary, and drainage improvements would be made (pursuant to a Project Erosion Control Plan NPDES permit, Building Permit(s), etc. as necessary to control runoff). Widened roads would be maintained throughout the Project's life so as to limit erosion.

### **New Permanent Roads**

In areas where existing roads do not provide access, new graveled roads would be constructed. Generally, these new roads would be up to 20 feet wide, with an additional 5 feet on either side for a permanent shoulder. An additional 5-foot-wide shoulder on either side would be temporarily disturbed, but restored to its current use following construction (see Construction Process below). New roads would be constructed parallel to the proposed turbine strings. New roads would be maintained throughout the Project's life so as to limit erosion.

### **Temporary Access Roads**

In addition to the permanent access roads described above, temporary access may be required for constructing some facilities. For example, constructing the underground collector cables may require heavy equipment to access trench locations not directly adjacent to roads. Generally, equipment would be driven across open ground to accomplish this construction. In some locations (that would be determined only after final pole locations have been selected), minor grading may be required to allow safe access to construction locations. These temporary access roads would be regraded and reseeded as necessary to

restore vegetation after construction is completed. In constructing the temporary access roads, topsoil would be stripped, segregated, stockpiled, and restored to the property.

## Permanent Meteorological Towers

One or more permanent meteorological towers may be placed within the Project area. The meteorological towers would collect meteorological data. The towers would be up to approximately 220 feet tall. Permanent meteorological towers 200 feet tall or higher would comply with FAA lighting regulations. In addition, new permanent meteorological towers would be freestanding, non-guyed structures to limit impacts to avian species (see Animals below).

## Construction Process

As mentioned above, construction of the initial phase of the proposed Project may begin as early as summer 2007; construction of each Project phase will take approximately 12 months. Construction would involve the following tasks:

- **Construction of Roads:** Existing roads would be widened and new and temporary access roads would be constructed as described above. Widened existing roads and new roads would be maintained throughout the Project's life so as to limit erosion.
- **Establishment of Temporary Construction Staging Areas:** Five to ten temporary staging areas would be established throughout the Project area to serve as temporary storage areas for tower sections, nacelles, blades, and other Project components. Each staging area would be approximately 2 acres in size.

In addition, there would be an additional 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 would each be approximately 1 acre in size.

Temporary construction staging areas would be graded and reseeded to their original use (for example, wheat, native grasses) to return the area to its original condition.

- **Establishment of Turbine Laydown Areas and Crane Pads:** At each turbine location, an area of approximately 1,400 square feet would be temporarily established for setting turbine and tower components prior to installation. In addition, a pad would be established for supporting a crane to be used to erect the towers and turbines. Temporary laydown areas and crane pads areas would be graded and reseeded to their original use (for example, wheat, native grasses) to return the area to its original condition.
- **Construction of Turbine Foundations:** Foundations would be either spread-footing foundations or pier-type foundations. With spread-footing type foundations, a 40-foot by 40-foot hole would be excavated and filled with a layer of backfill, a 3.5-foot layer of reinforced concrete, a 3-foot-high reinforced concrete pedestal, 2.5 feet of additional backfill, and 6 inches of topsoil. With pier-type footings, a hole would be dug 25 feet deep and 16 feet in diameter. Two concentric corrugated metals cylinders would be placed in the hole. The space between the two forms would be filled with

- reinforced concrete and the space inside the inner cylinder would be filled with backfill.
- **Tower and Turbine Installation:** Tower sections, then nacelles, then rotor/blade assemblies would be erected using a construction crane.
  - **Trenching and Installation of Electrical and Communication Cables:** For the underground cabling, trenches would be excavated 3 to 4 feet deep and 3 feet wide. Electrical cable and communication lines would be buried directly in the trench up to 3 feet wide with selected fill surrounding the cables for protection. Approximately 2.2 miles of overhead 34.5 kV electrical cabling would be constructed to connect the Project to the Project substation in the Marengo Project area. The overhead line would likely be constructed with wood poles spaced approximately 500 feet apart.
  - **Construction of the Project Substation:** A 2-acre substation site would be cleared and graded for the Project. One or more concrete pads would be formed for electrical equipment and transformers and other facilities would be installed. Construction of the Project substation will take place within the previously permitted Marengo Project area, adjacent to the Marengo substation under construction as of February 2007.
  - **Construction of the Overhead Transmission Line:** The Dayton Project will utilize a 230-kV overhead transmission line presently under construction for connecting the Marengo Project substation with the Talbot switching station. Minor construction activities will occur to connect the Dayton Project substation to the 230 kV overhead line presently under construction for the Marengo Project.
  - **Construction of the Interconnection:** The Dayton Project will utilize PacifiCorp's Talbot switching station (under construction as of February 2007), to which PacifiCorp's 230-kV overhead line for the Marengo Wind Project will connect.
  - **Constructing the O&M Building and Control Center:** The Project would likely utilize the existing O&M facility in the Marengo Project area.
  - **Final Testing:** Final testing would involve inspections to ensure that systems are working properly and in accordance with design and guarantees.
  - **Final Road Grading, Final Erosion Control, and Site Cleanup:** Erosion control procedures would be implemented in accordance with the NPDES permit, its Stormwater Pollution Prevention Program, and Project Erosion Control Plan. A final site cleanup, including removal of waste materials, would also occur.

## Decommissioning

Upon termination of the Project, the applicant will remove - at its sole cost and expense - all wind turbines, step-up transformers (if applicable), the substation, overhead transmission lines and support structures, control rooms/O&M buildings, and meteorological masts (if any). Footings and foundations will be removed to a level of three (3) feet below the surface of the ground. Damage as a result of such removal will be repaired, property restored to grade, and erosion and control devices and procedures implemented. This

decommissioning approach is required of Blue Sky Wind LLC under its wind energy ground leases with the landowners owning property within the Project area.

12. *Location of the proposal.*

The Project area lies approximately 5 miles northeast of Dayton, Washington, in Columbia County (U.S. Geological Survey [USGS] Tucannon, Turner, Dayton, and Cahill Mountain 7.5-minute quadrangle maps). Specific locations are as follows:

- Township 10N, Range 39E, Sections 1, 2 and 12
- Township 10N, Range 40E, Sections 4, 7, 8, 9, 16, 17 and 18

## Environmental Elements

### Earth

a. *General description of the site:*

The general Project area is located on a plateau above Patit, Willow, and Whetstone creeks, northeast of Dayton, Washington, in Columbia County. This land platform consists of creeks, plateaus, and ridges. The proposed Project site consists of rolling hills with elevations ranging from 2,100 to 3,000 feet. The site is dominated by agricultural land mixed with some grassland steppe vegetation. Stands of deciduous trees and riparian wetlands of various sizes exist along the Bruce Creek corridor situated in the central portion of the site, the Patit Creek corridor situated in the southeast corner of the site, and tributaries to each of these creeks.

b. *What is the steepest slope on the site and the approximate percentage of the slope?*

The Project area maintains slopes as steep as 60 percent. These areas are generally in the draws sloping away from the higher, flatter, and well-exposed ground where wind turbines and other Project improvements will be placed. The average slope is approximately 15 percent, and Project facilities would be largely limited to slopes of less than 10 percent.

c. *What general types of soils are found on the site (e.g., clay, sand, gravel, peat, muck)? Please specify the classification of agricultural soils and note any prime farmland.*

The Project site is dominated by silt loam soils, occasionally gravelly, and rangeland silt loam. These soils are the principal soils in a large area bordered by the Tucannon Valley on the north, Whetstone Hollow on the west, and the foothills of the Blue Mountains on the southeast. Athena soils are associated with Gwin and Tucannon soils on the uplands and with Covello, Mondovi, and Patit Creek soils on the bottomlands. Based on NRCS soil survey data for Columbia County, the Project area includes 5 soil series, including Athena silt loam, Palouse silt loam, Gwin extremely rocky silt loam, Tucannon silt loam, and Mondavi silt loam (see Figure 2 in Attachment D). These soils are commonly cultivated.

Athena silt loams, are deep, well-drained soils found on canyons, hills, and plateaus. These soils formed in loess mixed with volcanic ash, have moderate permeability, and typically have depths of 2 to 3 feet. Athena soils in the Project area range from 0 to 55 percent slopes.

Palouse soils are deep, well-drained silt loams, 60 inches deep except in areas where bedrock is between 40 and 60 inches. Palouse soils in the Project area range from 0 to 55 percent slopes.

Tucannon silt loam ranges from 30 to 40 inches in depth on 15 to 40 percent slopes. This severely eroded soils comprises well-drained silt loams formed in loess over basalt bedrock. Most of the original surface layer has been removed by erosion and the subsoil exposed by tilling.

A small portion of the Project consists of Gwin extremely rocky silt loam, which is 10 to 20 inches thick on 30 to 65 percent slopes. The Gwin series consists of well-drained gravelly and cobbly silt loams formed in weathered basalt and loess. There also exists a small amount of Mondavi silt loam, a well-drained soil common on valley bottoms with slopes from 0 to 3 percent. The soil is generally 5 feet deep.

*d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, please describe.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*e. Describe the purpose, type, and approximate quantities of any filling or proposed grading. Also, indicate the source of fill.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*f. Could erosion occur as a result of clearing, construction, or use? If so, please describe.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*g. What percentage of the site will be covered with impervious surfaces after the project construction (e.g., asphalt or buildings)?*

It is estimated that less than one-hundredth of one percent (less than 0.01 percent) of the site would be constructed with an impervious surface (less than 1 acre of the 4,346-acre Project site). The majority of the site would be untouched; most of the disturbed area would be covered by permeable gravel surface.

*h. Proposed measures to reduce or control erosion, or other impacts to the earth include:*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A) for a list of general mitigation measures and Attachment F (Mitigation Measures) for proposed mitigation measures specific to the Dayton Project.

## **Air**

*a. What types of emissions to the air would result from this proposal (e.g., dust, automobile, odors, industrial wood smoke) during construction and after completion? Please describe and give approximate quantities.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*b. Are there any offsite sources of emissions or odor that may affect your proposal? If so, please describe.*

There are no known offsite sources of emissions that would affect the proposed Project.

c. *Proposed measures to reduce or control emissions or other impacts to air:*

Please refer to Attachment A for a list of proposed mitigation measures.

## Water

### a. Surface

1. *Is there any surface water body on or in the vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe the type and provide names and into which stream or river it flows.*

A very small portion of one perennial stream, Patit Creek, flows within the proposed Project area, approximately 0.75 miles from the nearest Project facility. Most of this creek is situated to the south of the Project. The creek flows west and then southwest to join the Touchet River, a tributary of the Walla Walla River. Bruce Creek, a perennial stream with headwaters in the middle of the Project site, flows offsite to the north. Other tributaries associated with these drainages exist within the study area and are identified as intermittent streams on the USGS 7.5 minute topographic quadrangle maps.

One freshwater emergent wetland (PEM1A) is mapped on the National Wetlands Inventory (NWI) within the northwest portion of the Project area, but it is not situated on lands slated for improvement. The NWI wetland is associated with an intermittent stream channel. In addition to the NWI-mapped wetlands, wetland field surveys conducted in January 2007 identified two jurisdictional wetlands within 300 feet of then-proposed Project impact areas. The Project facilities layout was since modified to avoid these wetlands.

See Attachment D (Wetlands Delineation Report) for a detailed discussion of wetlands within the Project area.

2. *Will the project require any work within 200 feet of the described waters? If yes, please describe and attach available plans.*

Work would likely be conducted within 200 feet of jurisdictional waterways at up to 3 crossings of ephemeral or intermittent stream channels that occur within and outside of the Project boundary. These crossings are shown as culverts B-10 – B-12 on Figure 3 in Attachment D, the Wetland Delineation Report for the Dayton Project. Crossings (culverts) of seasonal or intermittent streams would be improved as necessary to ensure that the Project equipment can safely cross the waterways without causing culvert failures and associated impairments to water routing processes. Improvements would generally involve widening selected portions of existing roads, and improving and/or lengthening culverts.

To address work within 200 feet of Project area waterways, a JARPA would be submitted to permitting agencies. The JARPA is likely to include applications for the following:

- Corps of Engineers Section 404 Wetland Permit Application
- Department of Ecology 401 Water Quality Certification
- WDFW Hydraulic Project Approval (HPA)

- Compliance with the Columbia County Critical Areas Ordinance

3. *Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of the fill material.*

For the improvement of each crossing, up to 6 cubic yards of fill material may be removed from an area not to exceed 80 sq. ft. Material may be removed from and placed in waterways, but only when the water course is not flowing. Total estimated removal and fill material will be less than 25 cubic yards. See Figure 3 in Attachment D for exact stream crossings locations.

4. *Will the proposal require surface water withdrawals or diversions? Please provide description, purpose, and approximate quantities:*

The proposed Project would not require surface water withdrawals or diversions.

5. *Does the proposal lie within a 100-year floodplain? If so, please note the location on the site plan.*

The proposed Project does not lie within or near to a 100-year floodplain.

6. *Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.*

The proposed Project does not involve any discharge of waste materials to surface waters.

#### **b. Ground**

1. *Will ground water be withdrawn, or will water be discharged to ground water? Please give description, purpose, and approximate quantities.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

2. *Describe waste material that will be discharged into the ground from septic tanks or other sources: (e.g., domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the size and number of the systems, houses to be served; or, the number of animals or humans the systems are expected to serve.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

#### **c. Water Runoff (Including Stormwater):**

1. *Describe the source of runoff (including storm water) and method of collection and disposal. Include quantities, if known. Describe where the water will flow, and if it will flow into other water.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

2. *Could waste materials enter ground or surface waters? If so, please describe.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

**d. Proposed Measures to Reduce or Control Surface, Ground, and Runoff Water Impacts, if Any:**

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A) for a list of general mitigation measures and Attachment F (Mitigation Measures) for proposed mitigation measures specific to the Dayton Project.

**Plants**

a. Check or circle types of vegetation found on the site:

Vegetation found onsite is as follows:

*Deciduous tree:* black cottonwood (*Populus trichocarpa*) and Douglas’ hawthorn (*Crataegus douglasii*)

*Evergreen tree:* Ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*)

*Shrubs:* wild rose (*Rosa woodsii*), snowberry (*Symphoricarpos* sp.), ocean-spray (*Holodiscus discolor*), and rabbitbrush (*Chrysothamnus* spp.)

*Grass:* bluebunch wheatgrass (*Agropyron spicatum*), Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa sandbergii*), cheatgrass (*Bromus tectorum*), and crested wheatgrass (*Agropyron cristatum*)

*Pasture:* No

*Crop or grain:* Dryland wheat and beans

*Wet soil plants:* None

*Water plants:* None

*Other types of vegetation::* An abundance of invasive, non-native grasses and forbs, such as reed canary grass (*Phalaris arundinacea*), cheatgrass (*Bromus tectorum*), sulfur lupine (*Lupinus sulphureus*), yarrow (*Achillea millefolium*), balsamroot (*Balsamorhiza* sp.), and bracken fern (*Pteridium aquilinum*).

See Attachment C for further discussion of plants within the Project area.

b. What kind and amount of vegetation will be removed or altered?

The Project area lies within the Columbia Basin ecoregion, which supports sagebrush/wheatgrass steppe and grasslands consisting mostly of wheatgrass and some bluegrass and fescue (see Attachment C). The vast majority of the land in the Project area has been converted from these native habitats and is under agricultural production of small grains, beans, and Conservation Reserve Program (CRP) grasslands. Two turbines would be situated on CRP land (see Figure 3 in Attachment C).

Five vegetation communities are found within the Project area: cropland, grassland, CRP, coniferous trees, and deciduous trees (see Attachment C for a detailed assessment of these vegetation types and for maps showing their location throughout the Project area). These plant communities are described below:

**Cropland.** This vegetation type consists of all lands within the study area used for the

production of crops, primarily wheat and beans. This vegetation type makes up 76.6 percent of the Project area. These areas provide foraging and cover areas for some common wildlife species, notably birds such as upland game birds and songbirds. Cropland also provides foraging areas for raptors due, presumably, to a concentration or abundance of small mammals.

**Grassland.** The grassland vegetation type encompasses those areas where native grass species are dominant, along with a mix of forbs and small shrubs. In the Project area, grasslands primarily occur on slopes that are too steep to farm. Grasslands make up 10.3 percent of the Project area. Common species found in this vegetation community include bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, and the non-native cheatgrass. Common forbs and shrubs observed include sulphur lupine, yarrow, balsamroot, and rabbitbrush. The grasslands provide cover, breeding habitat, and forage for a variety of birds and other wildlife and are frequently grazed by livestock.

**CRP.** CRP lands are areas included in the Conservation Reserve Program administered by the U.S. Department of Agriculture, Farm Service Agency. Approximately 7.6 percent of the Project area is CRP land. The Conservation Reserve Program is a voluntary long-term land retirement program that provides farmers and ranchers an annual rent to establish land cover on erodible cropland. CRP contracts are generally from 10 to 15 years. CRP lands in the Project area appear to have been planted in crested wheatgrass and bluebunch wheatgrass, but over time, other species have invaded these areas. CRP lands provide valuable cover for upland game birds.

**Coniferous Trees.** Coniferous trees or pine forests occur in small disjunct patches throughout the Project area. Pine forests make up 3.0 percent of the Project area. The pine forests are dominated by Ponderosa pine and Douglas-fir. The understory consists of a variety of shrubs and forbs including wild rose, snowberry, ocean-spray, and bracken. The pine forests provide food, cover, and nesting areas for wildlife. Some of the coniferous tree types appear to have been planted in stands and are in various stages of growth.

**Deciduous Trees.** Deciduous trees or forests occur in disjunct patches through the Project area and somewhat concentrated in the southern portions (Figure 3 in Attachment C). Deciduous trees make up 2.5 percent of the Project area. The deciduous trees are dominated by black cottonwood and hawthorn. The understory consists of a mix of grassland and shrub species including bluebunch wheatgrass, Idaho fescue, crested wheatgrass, wild rose, snowberry, and tree saplings. Deciduous trees provide food, cover, and nesting sites for wildlife.

Vegetation removal in the Project area would result from the construction of new access roads and turbine foundations, collector lines, and to a smaller extent, overhead transmission lines and improvement of existing roads. Permanent impacts to vegetation would include the removal of approximately 28.0 acres; additional temporary impacts would be approximately 48.9 acres (Table 2). Based on the indicative facilities layout presented in Figure 3, the majority of permanent vegetation impacts will occur in cropland with lesser amounts in native grassland and CRP (Table 2). Most of the permanent vegetation impacts would be from access road construction which would total

approximately 27.2 acres. The remainder of the permanent vegetation impacts would be primarily from the turbine pads (approximately 0.62 acre) and improvement of existing roads (approximately 0.16 acre). The overhead transmission line will result in minor permanent impacts (<0.01 acre) and the collector lines will only result in temporary impacts.

Table 2 shows estimated permanent and temporary impacts by habitat type based on the indicative Project layout presented in Figure 3.

**TABLE 2**  
Estimated Permanent and Temporary Impact by Habitat Type  
(Reported in Acres)

Habitat Type	Permanent Impact	Temporary Impact	Total Impact
Cropland	25.8	45.3	71.1
Grassland	1.2	2.1	3.2
CRP	0.4	0.6	1.1
Coniferous Trees	0.2	0.2	0.4
Coniferous Trees	0.4	0.7	1.1
<b>Totals</b>	<b>28.0</b>	<b>48.9</b>	<b>76.9</b>

*c. List threatened or endangered species known to be on or near the site.*

According to the Washington Natural Heritage Program, a total of 12 rare plant species potentially occur in Columbia County. Based on a review of these species habitat requirements and documented occurrence, five species could potentially occur in the Project area. However, none of the species are federally listed as threatened or endangered. Surveys for these species were conducted for the Hopkins Ridge/Marengo Project area, and none were found, primarily due to the lack of suitable habitat within the impacts areas (see Attachment C). Thus, no impacts to rare plants are anticipated from construction of the Dayton Project. The majority of vegetation loss will occur in cropland and CRP, which are not considered habitat for the rare plants potentially occurring in the area (Table 2).

*d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A) for a list of general mitigation measures and Attachment F (Mitigation Measures) for proposed mitigation measures specific to the Dayton Project.

## Animals

*a. Circle or check any birds and animals which have been observed on or near the site or are known to be on or near the site:*

**Birds** – golden eagle, red-tailed hawk, Swainson’s hawk, northern harrier, American kestrel, prairie falcon, Cooper’s hawk, osprey, great-horned owl, and long-eared owl.

A number of natural resources studies were conducted in or near the Project area. Study results are summarized in the following subsections.

### **Avian Use Surveys**

Results from pre-construction studies conducted at the nearby Hopkins Ridge/Marengo Wind Project indicate that the avian use within the area was dominated by a few species common in dryland agriculture vegetation such as horned lark and western meadowlark (see Attachment C and Attachment A to Attachment A). Species diversity within the Hopkins Ridge/Marengo study area was lower than other wind projects that have been studied in eastern Washington and Oregon primarily due to the monotypic nature of the Project area vegetation (dryland agriculture). Overall, 57 species were recorded over the year-long pre-construction study at the Hopkins Ridge/Marengo Project site with species use and diversity greatest in the southern portions of the Project where vegetation diversity was greater (Attachment C and Attachment A to Attachment A). Avian use at the Dayton Project is expected to be similar to that at the Hopkins Ridge/Marengo area. However, avian species diversity may be less within the Dayton Project area due to vegetation types being less diverse than those of the Hopkins Ridge / Marengo Project area (see Attachment C for more detail).

### **Raptor Nest Surveys**

Two raptor nests surveys were conducted for the Hopkins Ridge/Marengo Project area. The first survey was conducted in April and May 2002 for the baseline studies. A second survey was conducted in May and June 2005 at the time of construction of the first phase of development to look for and monitor active nests potentially affected by construction. Species of raptors found nesting in the area included great horned owl, red-tailed hawk, Swainson's hawk, ferruginous hawk, and golden eagle (Figure 5 in Attachment C). In addition, at least one great blue heron rookery and several common ravens are also known to nest in the Project vicinity. The majority of nests were located along the Tucannon River corridor, which is dominated by cottonwood riparian habitat, suitable raptor nesting habitat.

While neither raptor nest survey covered the entire proposed Dayton Project area, the initial 2002 survey area encompassed approximately one-half of the Project area (Figure 5 in Attachment C). During the 2002 survey, only one active red-tail hawk nest was located in the portion of the Dayton Project area that was surveyed. There were also five inactive nests found (Figure 5 in Attachment C).

In addition to the above-mentioned pre-construction 2002 and 2005 surveys, an additional raptor nest survey will be performed in March 2007 in the Marengo Project Area, as that project will be under construction in the primary raptor nesting season. The applicant plans to conduct raptor nest surveys in the Dayton Project area at the same time such studies are being carried out for the Marengo Project area. Results from such surveys will be factored into the design of the Dayton Project.

## Potential Impact of the Project on Avian Species

Previous studies suggest that the per-turbine avian mortality rate for the proposed Project can be expected to be between approximately 0.5 and 2.5 birds per turbine per year (see Table 3 in Attachment C). The first year of avian mortality monitoring is currently on-going at the existing Hopkins Ridge Project, and preliminary results indicate avian mortality rates that are very similar to those across the Pacific Northwest (see Attachment C for more detail). Actual levels of mortality that would result from the proposed Project are unknown and could be higher or lower depending on patterns of movements through the area. Previous studies suggest that, because of the relatively monotypic vegetation type (agriculture) in which the turbines are proposed, avian mortality would primarily comprise passerines with only a few raptors per year.

While some nesting habitat is located in the Project area in the form of deciduous and coniferous trees, the area is dominated by dryland agriculture, which is not considered suitable raptor nesting habitat. Further, there are no large areas of suitable habitat in the Project area (e.g. cottonwood riparian habitat). Project construction will not impact any of the vegetation types dominated by trees (Figure 3 in Attachment C). Thus, there will be no loss of raptor nesting habitat as a result of the proposed Dayton wind Project.

Potential impacts to nesting raptors would be limited to possible disturbance or displacement effects. However, given the limited raptor nesting habitat in the Project area, there are not expected to be many nesting raptors in the Project area and potential disturbance impacts are expected to be minimal and insignificant. No construction activities or disturbance would occur within a 0.25-mile radius of any active raptor nest. Raptor nests are typically active during a 2- to 3-month period beginning in April when raptors are incubating birds and nesting young.

During the pre-construction avian surveys for the Hopkins Ridge/Marengo Project area one bald eagle, a federally threatened species, and two state listed species, a single peregrine falcon (state endangered) and two ferruginous hawks (state threatened) were observed within the vicinity of the Project area (see Attachment C). The very low numbers of these species indicated that they were likely transients or migrants moving through the area and would not likely be affected by the Project.

### *Mammals – elk, mule deer, and white-tailed deer*

Three species of big game were commonly observed in the Hopkins Ridge/Marengo Project area during the baseline studies for Hopkins Ridge/Marengo: elk, mule deer, and white-tailed deer (Attachment A to Attachment A). In general, white-tailed and mule deer were seen throughout the year, but most elk were observed in the fall and winter, and the number of mule deer observed also increased in the fall and winter. Deer were generally seen throughout the Project area, but elk were most common in the southern portions of the Hopkins Ridge/Marengo Project area near the bands of conifer trees in the transition zone to the Blue Mountain physiographic region.

The same three species of big game are expected to occur in the Project area, except that numbers of elk are likely to be less given the low diversity of vegetation communities. There are less forested areas and areas with large trees, which create shelter for big game (e.g. Tucannon River corridor). An area designated by WDFW as mule and white-tailed

deer winter range, with medium to high density winter use, occurs south of Patit Creek, outside the southeast boundary of the Project area.

Impacts to big game species from wind projects may include temporary disturbance and displacement during construction. Although little information exists regarding wind plant effects on big game species, a study conducted at the Foote Creek Rim Wind Plant in southeastern Wyoming showed that construction and operation of the wind facility appeared to have no lasting effect on pronghorn (*Antilocapra americana*). Pronghorn occurred in the area in low numbers and continued to use the wind plant area following construction (Johnson et al. 2000). Big game species are expected to become habituated to the wind turbines over time and are expected to continue to occupy the area over the long term. In general, due to the lack of good cover habitat and greater distance from the Blue Mountain physiographic region and Tucannon River corridor (Figure 3 in Attachment C), the proposed Project is not expected to impact an abundance of big game species.

The primary disturbances to big game associated with operation and maintenance of the proposed Project would be vehicle and associated human traffic. While construction activities on site may periodically displace elk and mule deer, it is expected that they would return to the site. The level of use could be lower during the first few years of operation; however, it is likely that over the long-term, they would become habituated to the presence of the Project facilities and ongoing operations and maintenance activities and would use areas in and around the wind plant.

In addition, bat species may occur in or near the Project area. Nocturnal radar studies for detecting the presence of bat species were not conducted. In the opinion of the applicant, such studies do not adequately distinguish between bat species and other nocturnal flying species, including insects and birds, and thus have questionable benefit. The applicant proposes to monitor the avian and bat mortality for 1 year following initial operation of the Project, using accepted protocols for wind projects, including standardized carcass searches, and scavenging and searching efficiency trials.

### *Fish*

Fish occur in waters adjacent to and near the Project area. Patit Creek, which intersects the extreme southeastern corner of the Project area, is habitat for federally listed threatened fish species (summer steelhead and spring Chinook), and the river is designated critical habitat for federally listed bull trout (CH2MHILL 2004). Also, according to WDFW, several of the lakes outside of the Project area adjacent to the Tucannon River (to which off-site creeks flow) are stocked with rainbow trout (CH2MHILL 2003). In addition, hatchery steelhead are stocked at or below Marengo. Fish occur within the Tucannon River, including summer steelhead, spring Chinook, and other resident fish and the area is designated critical habitat for bull trout (CH2MHILL 2003).

The Project is located on the bluffs above Patit Creek, and construction activities would occur no closer than 0.5 miles to the creek. For this reason, and due to the Project's distance from other fish bearing watercourses, it is highly unlikely that the Project would have any effect on the resident fish.

*b. List any threatened or endangered species known to be on or near the site.*

Other than a single sighting of a single bald eagle, no federally listed threatened or endangered species were observed in the Hopkins Ridge/Marengo Project area during the 12-month pre-construction study period. State-listed species recorded during the studies included golden eagle, ferruginous hawk, peregrine falcon, and merlin.

Patit Creek, also discussed above, is habitat for federally listed threatened fish species (summer steelhead and spring Chinook) and the river is designated critical habitat for federally listed bull trout (CH2MHILL 2004). Patit Creek fish habitat would not be impacted because Project elements would be located on the bluffs above the river. Sediment and erosion control measures will be installed to prevent any sediments from entering the riparian area.

*c. Is the site part of a migration route? If so, explain.*

Based on the results of the pre-construction fixed-point avian surveys conducted at the adjacent Hopkins Ridge/Marengo Project, there is no evidence that the Project area is part of a migratory route for raptors or waterfowl (see Attachment C and Attachment A to Attachment A). Data from HawkWatch International confirm this conclusion for raptors (CH2MHILL 2004).

*d. Proposed measures to preserve or enhance wildlife, if any:*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A) for a list of general mitigation measures and Attachment F (Mitigation Measures) for proposed mitigation measures specific to the Dayton Project.

## Energy and Natural Resources

*a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.*

The proposed Project would require electrical energy during construction and operation and would use the existing Columbia Rural Electric Association (REA) and/or Pacific Power distribution network(s). Minimal electricity would be required for construction equipment associated with the assembly of each turbine's hardware components. During Project operation, electricity would be required for each turbine's computer system. This electricity would come from a high-voltage transmission line connected to the Project.

*b. Would your project affect the potential use of solar energy by adjacent properties?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts:*

Please refer to Attachment A for conservation features and a list of proposed mitigation measures.

## Environmental Health

*a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

1. *Describe special emergency services that might be required.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

2. *Proposed measures to reduce or control environmental health hazards, if any:*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*b. Noise*

1. *What types of noise exists in the area which may affect your project (e.g., traffic, equipment, operation, other)?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

2. *What types and levels of noise are associated with the project on a short-term or a long-term basis (e.g., traffic, equipment, operation, other)? Indicate what hours the noise would come from the site.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

3. *Proposed measures to reduce or control noise impacts:*

The Project is located approximately 5,800 feet from the nearest residence, so the impact of turbine operational noise on residences is expected to be negligible. Please refer to Attachment A for a list of proposed mitigation measures.

## **Land and Shoreline Use**

- a. What is the current use of the site and adjacent properties?*

The proposed Project is located on approximately 6 square miles of land north of Patit Creek. Current land use within the area consists primarily of wheat production and grazing, with several rural residential properties located adjacent to the Project area. Parcels adjacent to the proposed Project facilities are used for farming, grazing, rural residential uses, and commercial uses (i.e., the existing Hopkins Wind Energy Project directly to the north).

- b. Has the site been used for agriculture? If so, please describe.*

The majority of the Project area is located on agricultural land. Most of the farmland currently is cultivated for wheat. There is some CRP land in the southeastern portion of the Project Area; two turbines will be located on the CRP land (see Figure 3 in Attachment C). The proposed Project would not preclude existing agricultural activities from occurring.

- c. Describe any structures on the site.*

No homes are located within the Project area. There are several buildings that do not appear to be consistently used. The Project would not have direct or indirect impacts on these structures.

- d. Will any structures be demolished? If so, please describe.*

No structures would be demolished as a result of this Project.

*e. What is the current zoning classification of the site?*

The General Plan for Columbia County and the relevant zoning regulations designate the Project site as Agricultural Zone A-1. On October 23, 2000, the Columbia County Board of Commissions adopted Resolution 19, amending the Columbia County Zoning Ordinance 95-01. Specifically, Resolution 19 provides that “Columbia County does allow as a conditional use ‘alternative energy facilities’ inclusive and not limited to, wind power generators, solar, and fuel cell energy in the A-1, A-2 and AR-2 Zones.” The applicant would seek a CUP from Columbia County, in accordance with county procedures. The County has plans to revise and update its comprehensive plan in 2007.

Wind project use is not itself an agricultural use, but it is consistent with adjacent agricultural uses and with the continued use of the Project area for wheat production and grazing. The Project also would provide economic return for land that is currently in agricultural use, and therefore tends to support continuation of the agricultural use.

The wind generation projects that are operating in the Pacific Northwest have demonstrated that wind energy is highly compatible with agriculture, which is the underlying permitted use in Agricultural Zone A-1. Permanent Project facilities would occupy approximately 28 acres of the 4,346 acres of parcels on which the Project is located. Farming and grazing would continue to occur in and around the turbines and other Project facilities. Wind lease payments to landowners would provide a supplementary source of income that would help farmers retain their farms when other sources of farm income are reduced.

Although construction would temporarily increase traffic on roads in and around the Project parcels, impacts on agricultural activities would be minimized by coordinating construction schedules and equipment access with landowners in the Project area. Once the Project is constructed, operation of the Project would involve a negligible increase in vehicle traffic for Project operations staff, which would be about 15 vehicle trips per day to the Project area.

Parcels adjacent to the proposed Project facilities also are used for farming, grazing, and rural residential uses. The Project would have little to no effect on these adjacent uses. As noted above, during construction, there would be a temporary increase in vehicular traffic, but impacts on agricultural activities would be minimized by coordinating construction schedules and equipment access with landowners in the Project area. Once construction is complete, operations traffic would be minimal. Farming and grazing on parcels adjacent to the Project facilities would not be affected by Project operations. Several houses are located around the parcels that make up the Project. However, no house is closer than 1,640 feet from any proposed turbine location, and residents would likely experience no adverse effect from Project operations. The Project would comply with Washington State noise rules.

*f. What is the current comprehensive plan designation of the site?*

The comprehensive plan designation of the proposed Project area is Large Acreage Agriculture.

*g. What is the current shoreline master program designation of the site?*

The proposed Project disturbance would not be located over, in, or within 300 feet of any Shoreline Management Act Zone. Therefore, the shoreline master program is not applicable to the proposed Project area.

*h. Has any part of the site been classified as an “environmentally sensitive” area? If so, please specify.*

“Critical areas” designated by the Columbia County *Critical Areas and Resource Lands Ordinance* (2003) are discussed below. Jurisdictional waters are present within the proposed Project area. Impacts to these waters would be mitigated in accordance with the Columbia County Performance Standards, including federal and state requirements.

### **Jurisdictional Wetlands and Waters**

Although several jurisdictional wetlands exist within the Project area, the Project facilities have been microsituated such that there would be no impacts related to facility construction or operation to jurisdictional wetlands or their buffers.

As noted previously, construction would potentially impact jurisdictional waterways at up to 21 crossings of ephemeral or intermittent stream channels that occur within and outside of the Project boundary. These crossings are shown on Figure 3 in Attachment D, the Wetland Delineation Report for the Dayton Project. Culverts crossing seasonal or intermittent streams would be replaced with larger or longer culverts as necessary to ensure that the Project equipment can safely cross the waterways without causing culvert failures and associated impairments to water routing processes. Improvements would generally involve widening selected portions of existing roads, and improving and/or lengthening culverts. Construction work would be required for up to 21 road crossings, although it is unlikely that all 21 crossings would require improvement.

### **Critical Fish Habitat Conservation Areas**

Patit Creek, which intersects the extreme southeastern corner of the Project area, is habitat for federally listed threatened fish species (summer steelhead and spring Chinook) and the river is designated critical habitat for federally listed bull trout (CH2MHILL 2004). Patit Creek fish habitat would not be impacted because Project elements would be located on the bluffs above the river. Sediment and erosion control measures will be installed to prevent any sediments from entering the riparian area. Fish-bearing areas adjacent to the Project area would also not be impacted.

### **Critical Wildlife Habitat Conservation Areas**

These areas include a habitat of local importance, and areas with which a primary known federal or state endangered, threatened, or sensitive species has a primary association.

The WDFW Priority Habitats and Species database indicated that the Tucannon River riparian corridor, in particular along the river’s lower reaches, may be an important bald eagle winter habitat. Winter surveys conducted in 2002 and 2003 did not locate any bald eagles in this area (Attachment A). One bald eagle was observed onsite during the pre-construction fixed-point avian surveys for the Hopkins Ridge/Marengo Project area. The WDFW personnel also have indicated occasional bald eagle activity at the Tucannon Fish Hatchery located just south and east of the Project area. Based on the data collected, it

appears as if bald eagles occasionally may use the Project area and Tucannon River area but do not occur there in substantial numbers.

An area designated by WDFW as mule and white-tailed deer winter range occurs south of Patit Creek. The designated winter range is outside the Project boundary and will not be impacted.

### Geologically Hazardous Areas

Several areas within the Project boundary maintain a severe erosion hazard designation and slopes greater than 25 percent. However, turbine construction would not be located in these areas. Available GIS and topographic maps do not indicate any unusual features or landslides in the immediate Project vicinity. Further, following the specifications of the Project's approved SWPPP would reduce the potential for erosion.

### Aquifer Recharge Areas

There are no wellhead protection areas or sole source aquifers within the Project area.

### Floodplain

The proposed Project does not lie within or near to a 100-year floodplain.

*i. How many people would reside or work in the completed project?*

The wind turbine facility would be computer controlled and would require minimal O&M staff support. Approximately 6 to 10 employees would work full-time within each phase of the proposed Project area. No more than 25 employees would work full-time on the entire Project. The O&M staff would work out of the O&M facility described above.

*j. How many people would the completed project displace?*

There would be no displacements as a result of this Project.

*k. Please list proposed measures to avoid or reduce displacement impacts:*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*l. List proposed measures to ensure the proposal is compatible with existing and projected land uses and plans:*

Please refer to Attachment A for a list of proposed mitigation measures.

### Housing

*a. Approximately how many units would be provided? Indicate whether it's high, middle, or low-income housing.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*b. Approximately how many units, if any, would be eliminated? Indicate whether it's high, middle, or low-income housing.*

No housing units would be eliminated.

*c. List proposed measures to reduce or control housing impacts.*

Please refer to Attachment A for a list of proposed mitigation measures.

## Aesthetics

- a. *What is the tallest height of any proposed structure(s), not including antennas? What is proposed as the principal exterior building materials?*

The height of each wind turbine structure would be up to 415 feet tall, measured from ground level to the tip of the turbine blade at its highest vertical point. The towers would be made of steel and the nacelle and turbine blades would be made of carbon fiber or fiberglass.

- b. *What views in the immediate vicinity would be altered or obstructed?*

Views from well-exposed and higher elevation properties within the vicinity of and within at least a 15-mile radius of the Project area would be altered as a result of installation of the wind turbines and other improvements. A “line of sight” exists between proposed turbine locations and portions of Dayton, primarily from the north/west side of State Highway 12, about 5.5 miles from the Project area. Additionally, a line of sight to proposed turbines locations also exists from higher-elevation points in or near the following areas: Umatilla National Forest (about 6 miles from the Project area), Kendall Monument (about 7.5 miles from the Project area), Wooten Game Reserve (about 9 miles from the Project area), Camp Wooten State Park (about 9.5 miles from the Project area), Wooten State Wildlife Recreation Area (about 9.5 miles from the Project area), Tucannon Game Reserve (about 11 miles from the Project area), and the Snake River (about 14 miles from the Project area). However local trees and other vegetation are likely to greatly reduce the visibility of the Project from these locations. In addition, the proposed Project would not be visible from portions of the Umatilla National Forest, specifically the Wenaha-Tucannon Wilderness, or the various fishing holes near mileposts 21 to 24 on Tucannon Road (e.g., Spring Lake, Blue Lake, Rainbow Lake). Visual simulations of the proposed Project from several local roads, including State Highway 12 at the northern extent of Dayton, Johnson Hollow Road, Bruce Road, and Kendall Skyline Road, appear in Attachment E.

- c. *Proposed measures to reduce or control aesthetic impacts.*

Since a wind farm is currently located adjacent to the proposed Project, impacts should not be significant to landowners in the vicinity. These impacts include:

- The proposed Project would not be visible from most recreational/scenic areas, except along higher-elevation portions of several state parks, refuges, and rivers. Most visitors to these parks would stay in public areas, and not traverse the tops of peaks or along ridges, therefore no mitigation is proposed.
- There would not be a line of sight from the proposed Project to most areas along State Highway 12, except for a 4-mile stretch from Lewis and Clark Trail State Park through Dayton, and along canyon intersections including Johnson Hollow and Whetstone Hollow roads. Buildings, trees and other vegetation would limit the visibility of the Project from these areas. Where such conditions do not exist, views of turbines would be minimal.

- The proposed Project would not be visible from the towns of Pomeroy, Starbuck, Waitsburg, or Walla Walla, Washington. A line of sight to the Project may exist from portions of Dayton, especially on the north/west side of State Highway 12. Most views within Dayton are most likely obstructed by buildings and other structures, therefore, minimal impacts are expected to occur in the town.
- The Project area and the immediate vicinity have a relatively low population density. Landowners who would be participating in the Project would have impacted views of the Project area and immediate vicinity.

## Light and Glare

*a. What type of light or glare will the proposal produce? What time of day would it mainly occur?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*b. Could light or glare from the finished project be a safety hazard or interfere with views?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*c. What existing off-site sources of light or glare may affect your proposal?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

*d. Proposed measures to reduce or control light and glare impacts.*

Please refer to Attachment A for a list of proposed mitigation measures.

## Recreation

*a. What designated and informal recreational opportunities are in the immediate vicinity?*

Recreational opportunities within a 15-mile radius of the proposed Project include camping, hiking, swimming, boating, fishing, and hunting at: the Umatilla National Forest (about 6 miles from the Project area), Kendall Monument (about 7.5 miles from the Project area), Wooten Game Reserve (about 9 miles from the Project area), Camp Wooten State Park (about 9.5 miles from the Project area), Wooten State Wildlife Recreation Area (about 9.5 miles from the Project area), Lewis and Clark Trail State Park off of State Highway 12/Patit Road (about 10 miles from the Project area), Tucannon Game Reserve (about 11 miles from the Project area), and the Snake River (about 14 miles from the Project area). Additionally, Bluewood Ski Area is located about 25 miles southwest of the Project area. The Project area is located in the WDFW's Marengo Game Management Unit (GMU) (GMU 163) and adjacent to the Dayton GMU (GMU 162) and the Tucannon GMU (GMU 166) where hunting is allowed.

*b. Would the project displace any existing recreational uses? If so, please describe.*

The Project would not displace any of the existing recreational uses mentioned above, although it would have some effect on hunting within the Marengo GMU and to a much lesser degree within the Dayton and Tucannon GMUs. The Dayton GMU, excluding National Forest land and the Rainwater Wildlife Area, is also an Elk Area (Elk Areas 1010, 1011, and 1012) and a Deer Area (Deer Area 1010). Additionally, a portion of the Tucannon GMU is an Elk Area (Elk Area 1014).

Of the approximate 4,346 acres within the Project area, only 160 acres is open to licensed hunters via WDFW's Feel Free to Hunt Program, where landowners receive an annual rent for opening their property to hunting and are eligible to receive a "crop damage" payment from WDFW for damage caused by big game. Hunting for the general public on the balance of the acreage within the Project area is currently granted by written permission only. Regardless of the degree of hunting access provided by the landowners, hunting within the Project area has been one of the key mechanisms used by WDFW for managing big game populations in the area to maintain herd objectives.

Under the landowners' wind energy leases with the Blue Sky Wind, LLC, the landowners have explicitly indemnified the applicant for damages to the Project property caused by the landowners and their guests, licensees, and permittees on the property. The effect of this portion of the wind energy leases is that the landowner would be responsible for damage to Project improvements caused by hunters that the landlord has permitted on the property via the Feel Free to Hunt Program or otherwise.

In general, the applicant's proposed approach to controlling the Project's impact on big game hunting is to facilitate continued hunting access that would help maintain recreational opportunities and WDFW's ability to manage big game populations by shifting the responsibility of damage to Project improvements from the landowners to the hunters. Landowners would be encouraged to provide access in ways that are less likely to result in damage to Project improvements. More specifically, the impacts to big game hunting in the Project area would be minimized through a series of proposed efforts, as follows:

- The applicant would provide landowners with hunting access agreements that can be issued to hunters wishing to hunt on the property; such access agreements would include liability forms as well as hunting rules. As a condition of access to the property, hunters would need to agree to be responsible for damage that they cause to Project improvements. Hunters provided access would be issued identification cards indicating that written permission has been granted and to facilitate field inspections.
- Project O&M personnel would receive training on fish and wildlife offenses and would police the Project area for violations. Any violations would immediately be reported to WDFW law enforcement.

## Historic and Cultural Resources

- a. *Are there any places or objects on or near the site which are listed or proposed for national, state, or local preservation registers? If so, please describe.*

On January 18, 2007, a site file and literature search was conducted at the Washington Department of Archaeology and Historic Preservation (DAHP) in an effort to determine if previously documented archaeological sites and historic properties were known to exist within a one mile radius of the Project's Area of Potential Effect (APE). The APE comprises the geographic areas within which a project may cause changes in the character or use of historic properties, if any such properties exist there. For this study, the APE includes turbine locations, access roads, and other ancillary facilities or structures. The APE may also include any underground collection or overhead transmission lines, as required, as well as the viewshed of significant historic properties. This research revealed that only three

archaeological sites have been documented in the Project vicinity. None of these sites is listed or proposed for any historic registers.

Archaeological sites identified during the site file and literature review are described below:

**Historic Site, 10N 40E 22/01**

Historic 10N 40E 22/01 is a linear site composed of several white ceramic insulators and segments of wire lines nailed onto trees, likely representing the remains of an old electric fence. This site is within one mile of the proposed Project, but lies outside of the APE and would not be affected by Project activities.

**Historic Site, 10N 40E 00/01**

Historic Site 10N 40E 00/01 is composed of cross arms from power poles and the hardware that was used to attach insulators to them. Other site constituents include metal strapping and a few 'ball-and-socket' type brown ceramic insulators. This site is within one mile of the proposed Project, but lies outside of the APE and would not be affected by Project activities.

**Historic Site, Washington DAHP report #1345518**

This site consists of a string of 1940s-era power poles. It has not been evaluated for inclusion on the NRHP, but the Bonneville Power Administration has made a determination of 'no adverse effect' for interaction with its own power line replacement activities. This site is within one mile of the proposed Project, but lies outside of the APE and would not be affected by Project activities.

In addition, the literature review suggests that Historic farmsteads and historic isolates are the resource types most likely to be present within the APE.

A cultural resource inventory of the proposed Project area was initiated on February 5<sup>th</sup>, 2007. Professional archaeologists from Tetra Tech EC, Inc. (TtEC) conducted pedestrian surface surveys of proposed turbine footprints, collector lines, and access roads, employing parallel transects spaced at no greater than 30 meter (98 ft.) intervals. On February 8<sup>th</sup>, 2007, the pedestrian surface survey was postponed due to adverse weather conditions, with approximately 50 percent of the Project area inventoried. In all, 8.1 miles of 300-500 foot wide APE corridor (or about 303.25 acres in all) was surveyed for the presence or absence of cultural resources.

Moist seasonal conditions limited vehicular access on some existing dirt roads and produced deep mud in tilled agricultural areas, making foot travel and pedestrian survey extremely difficult. In addition, dense fog often limited visibility to less than 160 feet. Such conditions can lessen the ability to see surface artifacts and discern historic structures and objects (e.g. abandoned machinery).

Surface visibility was very poor in approximately 25 percent of the surveyed area as harvested wheat stalks (averaging 16 inches in height) and underlying ruderal vegetation completely obscured the ground surface. Surface visibility generally improved in the tilled/plowed agricultural fields, but impeding environmental circumstances (i.e. soil moisture content) rendered overall visibility and survey conditions less than ideal. The

majority of the APE has been impacted heavily by agricultural activities. For this reason, it is unlikely that intact prehistoric cultural resources exist within the Project area.

No cultural resources were observed or identified during the pedestrian survey. Archaeological survey of the remaining unexamined portions of the APE, as well as spot checks of previous coverage, will be conducted prior to construction activities, when weather conditions are more amenable. Once the APE has been surveyed in its entirety, TtEC will prepare and submit a standard report of findings to the DAHP, as well as any necessary Archaeology Site Inventory Forms.

*b. Please describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.*

Three archaeological sites (described above) were identified during the site file and literature review, and are located within one mile of the proposed Project. None of these sites are within the area of potential effect for the proposed Project. Pedestrian surface survey conducted on approximately 50 percent of the APE failed to identify any additional cultural resource properties.

The Confederated Tribe of the Umatilla Indian Reservation (CTUIR) conducted an oral history study of the Hopkins Ridge Wind Resource Area, directly to the north of the Project area. The purpose of the study was to identify customary and/or traditional uses of the Project area. Results of this study indicate that the CTUIR believe that the area, or portions thereof, are eligible for inclusion in the National Register of Historic Places (NRHP) based on the presence of Traditional Cultural Properties (TCP), although they do not specifically identify the location or nature of these properties. Further, the CTUIR have specified that they would not divulge the location or nature of potential TCPs, nor seek their nomination to any historic register citing concerns related to the public disclosure of culturally sacred sites and areas.

TCPs are properties associated with cultural practices or beliefs of a living community that are rooted in the history of the community, and are important in maintaining the continuing cultural identity of the community. TCPs may be determined eligible for the NRHP, and as such, are considered under the Section 106 process.

Examples of TCPs include: 1) locations where Native American or other groups traditionally gather wild foods or medicines; 2) ethnic neighborhoods whose cultural character is important to those who live in them; 3) rural landscapes reflecting traditional patterns of agriculture or social interaction; and 4) landforms associated with Native American traditions and religious practices.

The potential for the Project to affect TCPs that may be eligible to the NRHP has yet to be determined. It is possible that portions of the Project area are within the areas considered TCPs by the CTUIR. Without specific location information, impacts to TCP resources cannot be evaluated. The applicant will notify the CTUIR in writing of the development plans prior to construction.

*c. Proposed measures to reduce or control impacts, if any:*

- Design the Project to avoid recorded sites and isolates, thus mitigating impacts.

- Provide basic educational training to construction crews that include a clear statement that, in the event of a discovery of unanticipated impact to cultural resources, construction may be halted and/or redirected.

Prior to any ground disturbing activities, the applicant will confirm that the Project APE has not been altered or amended. Should the Project layout change, the applicant will conduct additional archaeological survey for the expanded APE areas before initiating construction.

## Transportation

- a. *Identify the public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.*

The streets and highways serving the region and site are shown on Figures 1 and 3. Access to the site would be from Highway 12 and a combination of Turner, Nichols, Patit, Johnson Hollow, Covello and Whetstone Roads. No access would be provided to the Project area from Tucannon Road.

Transportation of major equipment and construction traffic would span approximately 9 to 12 months for each Project phase. As stated above, there would be an onsite peak workforce of about 150 workers for each Project phase. During the peak construction period, construction workers would generate an estimated 75 trips daily (assuming one truck per every two workers), half of which would occur during the evening peak hour. The trip estimate includes trip reductions resulting from carpooling. In addition to worker traffic, there would be an estimated five light-duty delivery trucks daily for the peak of the construction period, resulting in 10 daily trips. The total number of light-duty vehicles at construction peak would be in the region of 30 to 40 trucks daily.

Construction-related traffic increases would consist of deliveries of Project equipment and construction materials (such as concrete and steel) by truck. Truck deliveries are anticipated to occur between 8 a.m. and 4:30 p.m. on weekdays. In total, 4,000 heavy-duty truck deliveries are expected during the 9- to 12-month construction period for each Project phase. Assuming 200 workdays (10 months at 20 workdays per month), an approximate average of 20 trucks per day or 40 daily truck trips would occur.

- b. *Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

- c. *How many parking spaces would the completed project have?*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

- d. *Will the proposal require new roads or streets, or improvements to existing roads or streets, not including driveways? If so, please describe and indicate whether it's public or private.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

- e. *Will the project use water, rail, or air transportation? If so, please describe.*

Please refer to the Hopkins Ridge SEPA Checklist (Attachment A).

- f. How many vehicular trips per day would be generated by the completed project? Indicate when peak traffic volumes would occur.*

Please refer to Attachment A for the proposed number of trips per day and peak traffic volumes.

- g. Proposed measures to reduce or control transportation impacts, if any:*

Please refer to Attachment A for a list of proposed mitigation measures.

## Public Services

- a. Would the project result in an increased need for public services (e.g., fire protection, police protection, health care, schools, other)? If so, please describe.*

The Project would not result in a significant increased need for public services, including fire protection. These existing services have adequate personnel and equipment to respond to basic emergency needs during construction and operation of the Project. However, certain Project-related activities could affect the ability of emergency service providers to perform their duties. For instance, during construction, large vehicles and temporary road closures could block emergency vehicle access to nearby residences. This is not anticipated to be a significant problem because of the small number of residents within the Project area, the general availability of alternate access routes, and correspondence and coordination that would occur between construction managers and local police departments. The Project also could experience vandalism and/or trespass problems that would require involvement of local police. Based on experience with other wind power projects, this is not anticipated to be a significant impact.

No significant public health or safety problems requiring local emergency service providers are anticipated to result from Project construction or operation given the small number of construction workers and operation workers. The wind turbines are located at least 1,640 feet from existing residences. This is well outside of any area that could be affected in the unlikely event of a tower fall or blade failure. Nevertheless, construction and operation of the proposed Project could result in accidents that result in personal injury and/or property damage. Local emergency service providers have experience in responding to fire and accidents in remote locations.

The Project is not anticipated to result in a significant increase in the demand on educational facilities. No impacts are expected to occur during construction. The operating Project would require 6 to 10 full-time employees, who may send children to area schools and thereby generate the need for additional bus service.

- b. Proposed measures to reduce or control direct impacts on public services, if any.*

There are no proposed measures to reduce or control direct impacts on public services, because the Project would not result in an increased need for public services.

The applicant would work with the appropriate local personnel to address any emergency access issues and establish a plan for alternative transportation and emergency evacuation routes, if necessary, during the construction phase. Generally, any emergency/fire situations at a wind turbine site or substation would be the responsibility of the applicant

and its employees. Construction and maintenance personnel would be trained and would have the equipment to deal with emergency situations that may occur at the Project (e.g., tower rescue, working in confined spaces, high voltage). The Project would be constructed in accordance with applicable state and local health and safety regulations.

## Utilities

- a. *Circle the utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.*

Please refer to Attachment A for a list of the existing utilities available at the site.

- b. *Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.*

Please refer to Attachment A for a list of the utilities proposed for the project.

## Resources

Avian Power Line Interaction Committee (APLIC). 1996. *Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 1996*. Edison Electric Institute and the Raptor Research Foundation. Washington, D.C.

CH2MHILL 2004. Hopkins Ridge (Blue Sky) Wind Energy Project SEPA Checklist. Prepared for Blue Sky Wind, LLC, an affiliate of RES America Developments, Inc. December 2004.

Columbia County Planning Department. 2003. *Critical Areas and Resource Lands Ordinance*. February 2003.

Johnson, G., D. P. Young, Jr., W. E. Erickson, C. E. Derby, M. D. Strickland, and R. E. Good. 2000. Final Report Wildlife Monitoring Studies, 1995 – 1999. Seawest Windpower Project, Carbon County Wyoming. Prepared for SeaWest Energy Corporation, San Diego, California & Bureau of Land Management, Rawlins District Office, Rawlins, Wyoming.

U.S. Geological Survey (USGS) Turner, Dayton, Tucannon, and Cahill Mountain 7.5-minute maps.

Washington Department of Fish and Wildlife (WDFW). *Windpower Guidelines*. August 2003.

# Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: \_\_\_\_\_

Date Submitted: \_\_\_\_\_

## SEPA Checklist Figures

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**ATTACHMENT A**  
**Hopkins Ridge (Blue Sky) Wind**  
**Energy Project SEPA Checklist**  
**October 2004**

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**ATTACHMENT B**  
**Hopkins Ridge Wind Project Mitigated**  
**Determination of Nonsignificance**  
**November 2004**

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**ATTACHMENT C**  
**Biological Resources Investigations for the Proposed**  
**Dayton Wind Project, Columbia County, Washington**  
**January 2007**

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**ATTACHMENT D**  
**Wetland and Other Waters Delineation**  
**Report, Dayton Wind Energy Project**  
**March 2007**

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**ATTACHMENT E**  
**Visual Simulations**  
**March 2007**

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**ATTACHMENT F**  
**Mitigation Measures / Conceptual Mitigation Plan**  
**February 2007**

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# ATTACHMENT F

## Mitigation Measures / Conceptual Mitigation Plan, February 2007

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<b>Environmental Element</b>	<b>Potential Impact</b>	<b>Mitigation Measure</b>
<b>Earth</b>	Erosion resulting from construction and maintenance of the Project.	Please refer to Attachment A.
	Introduction of impervious surfaces.	Impervious surfaces would be limited to foundations for turbines, step-up transformers, substations, interconnection facilities, and control room/O&M building and will amount to less than one-hundredth of one percent of the Project area (less than 1 acre of the 4,346-acre Project area).
<b>Air</b>	Dust resulting from vehicular traffic on graveled roads.	Please refer to Attachment A.
	Limited heavy-duty vehicle emissions.	Please refer to Attachment A.
<b>Water</b>	Fill not to exceed 25 cubic yards may be placed in jurisdictional waters as a result of upgrading culverts at jurisdictional watercourse crossings.  No jurisdictional wetlands will be impacted.	Please refer to Attachment A.
<b>Water, cont.</b>	Use of approximately 13 million gallons of water for Project construction	Please refer to Attachment A.
	Runoff into surface or ground water.	Please refer to Attachment A.
	Waste materials entering ground or surface water.	Please refer to Attachment A.

<b>Environmental Element</b>	<b>Potential Impact</b>	<b>Mitigation Measure</b>
<b>Plants</b>	The Project will have a permanent footprint of 28 acres including 26 acres in cropland, 1 acre in grassland, and >1acre in Conservation Reserve Program (CRP) ground.	To mitigate the permanent impact to grassland and CRP ground, legal protection (through acquisition in fee, a conservation easement or other means) and continued protection of 1 acre of like-kind or higher-value habitat in the same geographical region of the Project and for the life of the Project. Acreage to be protected will be agreed upon by the applicant and the Washington Department of Fish and Wildlife (WDFW). In lieu of such mitigation, the applicant and WDFW may agree financial compensation to WDFW as was done as mitigation for the Hopkins Ridge Project and as is planned for the Marengo Wind Project.
	During construction, the Project will have a temporary footprint of 49 acres, including 45 acres in cropland, 2 acres in grassland, and >1acre in CRP ground.	Please refer to Attachment A.
<b>Animals</b>	Mortality of 0.5 to 2.5 birds per turbine per year	Please refer to Attachment A.
		Over 95% of wind turbine generators to be placed in agricultural fields, with the balance placed in CRP ground. No wind turbines will be placed in shrub-steppe or other high-value habitat.  No construction activities or disturbance within a 0.25 mile radius of any active raptor nest (2- to 30-month period typically beginning in April when raptors are incubating birds and nesting young).
<b>Energy and Natural Resources</b>	None: The Project is an electric generating facility using a renewable energy resource.	None
<b>Environmental Health</b>	Minimal use of new toxic substances and hazardous waste, limited to small amounts of lubricants and solvents would be used on the site.	Please refer to Attachment A.
	Increased noise levels from construction and operation of the Project due to construction equipment on roadways and noise from the turbines.	Please refer to Attachment A.
<b>Land and Shoreline Use</b>	None: The proposed wind energy Project would be consistent with the existing and projected agricultural use of the area, which is zoned A-1.	None.

Environmental Element	Potential Impact	Mitigation Measure
<b>Housing</b>	None: The Project does not require the building or destruction of any housing. Temporary housing would be required for workers, and permanent housing would be required for 6 to 10 operation employees.	None.
<b>Aesthetics</b>	Altered views as a result of the installation of wind turbines and other improvements.	<p>Visual impacts would be limited to well-exposed, higher elevation property with low population density and within the vicinity of the Project area.</p> <p>There may be lines of sight between the Project and sensitive viewing areas, but the views of these turbines would be minimal and potentially blocked by other structures, trees and other vegetation in the area.</p> <p>The Project would not be visible from most areas with higher population densities. However, a line of sight will exist between the Project and portions of Dayton. However, views are most likely blocked by trees, buildings and other structures/vegetation.</p> <p>A line of sight will not exist between the Project and most areas along State Highway 12, although the Project may be seen from some areas along Highway 12. However, these areas would be viewed in short duration.</p>
<b>Light and Glare</b>	Lights on wind turbine nacelles as required by the FAA.	Please refer to Attachment A.
	Exterior lighting at O&M building, substations, and interconnection facilities.	Please refer to Attachment A.
<b>Recreation</b>	Hunting access restricted by landowners so as to limit their liability to damage of Project improvements.	<p>Encourage landowners to provide hunting access by written permission. Assist landowners with developing written agreements to be signed with interested hunters.</p> <p>Project O&amp;M personnel would receive training on fish and wildlife offenses and would police the Project area for violations. Any violations would be immediately reported to WDFW.</p>
<b>Historic and Cultural Resources</b>	Disturbance of archaeological resource beneath the surface.	Provide educational cultural resources awareness training to construction crews
	Disturbance of identified archaeological sites and isolates.	<p>Cultural resource inventory of the Project APE to determine the presence of cultural resources.</p> <p>Design Project to avoid identified cultural resources</p>

<b>Environmental Element</b>	<b>Potential Impact</b>	<b>Mitigation Measure</b>
	Disturbance of archaeological sites and isolates not yet identified.	Prior to construction of the Project, applicant will verify that areas to be disturbed have been surveyed. If any areas subject to ground disturbance have not been surveyed, applicant will arrange for survey before constructing in the area(s).
	Disturbance or impact to Traditional Cultural Properties	The applicant will notify the CTUIR of the proposed facility layout prior to construction. If the CTUIR provide location information regarding sensitive cultural sites or TCPs, the applicant will evaluate potential impacts and consult with the CTUIR and the DAHP regarding appropriate mitigation measures.
<b><i>Transportation</i></b>	During construction (mainly) and operation, traffic would increase on State Highway 12 and local area roadways.	Please refer to Attachment A.
<b><i>Public Services</i></b>	None: Given the small number of workers, the existing public services should be sufficient.	The Project would be constructed in accordance with applicable state and local health and safety regulations.
<b><i>Utilities</i></b>	None: No known utilities exist in the Project area and once the site is constructed, general utilities would be required.	None.

N/A = Not applicable.