1.0 SUMMARY AND PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

Whistling Ridge Energy LLC (the Applicant) proposes to construct and operate the Whistling Ridge Energy Project approximately seven miles north of the City of White Salmon in Skamania County, Washington (Figure 1-1). The proposed Whistling Ridge Energy Project would be an approximately 75-megawatt (MW) wind turbine facility located within an approximately 1,152-acre project site on land that is currently private commercial forest land. The facility would be located on north-trending ridges that range in elevation from about 2,100 to 2,300 feet above mean sea level (msl), and there is a proven wind resource at the site. The proposed project would consist of up to 50 wind turbines that could each range in size from 1.2 to 2.5 MW. The proposed project also includes an Operations and Maintenance facility, an electrical collector substation, underground collector lines and systems, and other ancillary facilities.

The Applicant has submitted an application to the Washington State Energy Facility Site Evaluation Council (EFSEC) for site certification that would allow the Applicant to construct and operate the Whistling Ridge Energy Project. The Application is included as Appendix A to this EIS. As part of its responsibilities for evaluating this application, EFSEC must conduct an environmental review of the proposed energy facility under the Washington State Environmental Policy Act (SEPA). The Applicant also has requested interconnection of the proposed project to the regional transmission system owned and operated by the Bonneville Power Administration (BPA), which is a federal agency. As part of its consideration of this request, BPA must evaluate the proposed interconnection under the National Environmental Policy Act (NEPA).

Accordingly, EFSEC and BPA have prepared this joint environmental impact statement (EIS) to be consistent with the requirements of both SEPA and NEPA. Because of the State of Washington's primary role in the siting of the proposed Whistling Ridge Energy Project, this EIS generally follows the EIS format and content guidance contained in Washington Administrative Code (WAC) 197-11, as adopted by EFSEC through WAC 463-47. However, the EIS format and content has been modified, adjusted, and expanded where appropriate to ensure compliance with NEPA, as well.

The remainder of this chapter of the EIS describes the purpose and need for action concerning the proposed project and further discusses the agencies' approach to SEPA and NEPA compliance and decision-making for this project. This chapter also summarizes the proposed project and alternatives, identifies public involvement activities, and summarizes project impacts and mitigation measures. An outline of the organization of this EIS is provided at the end of this chapter.

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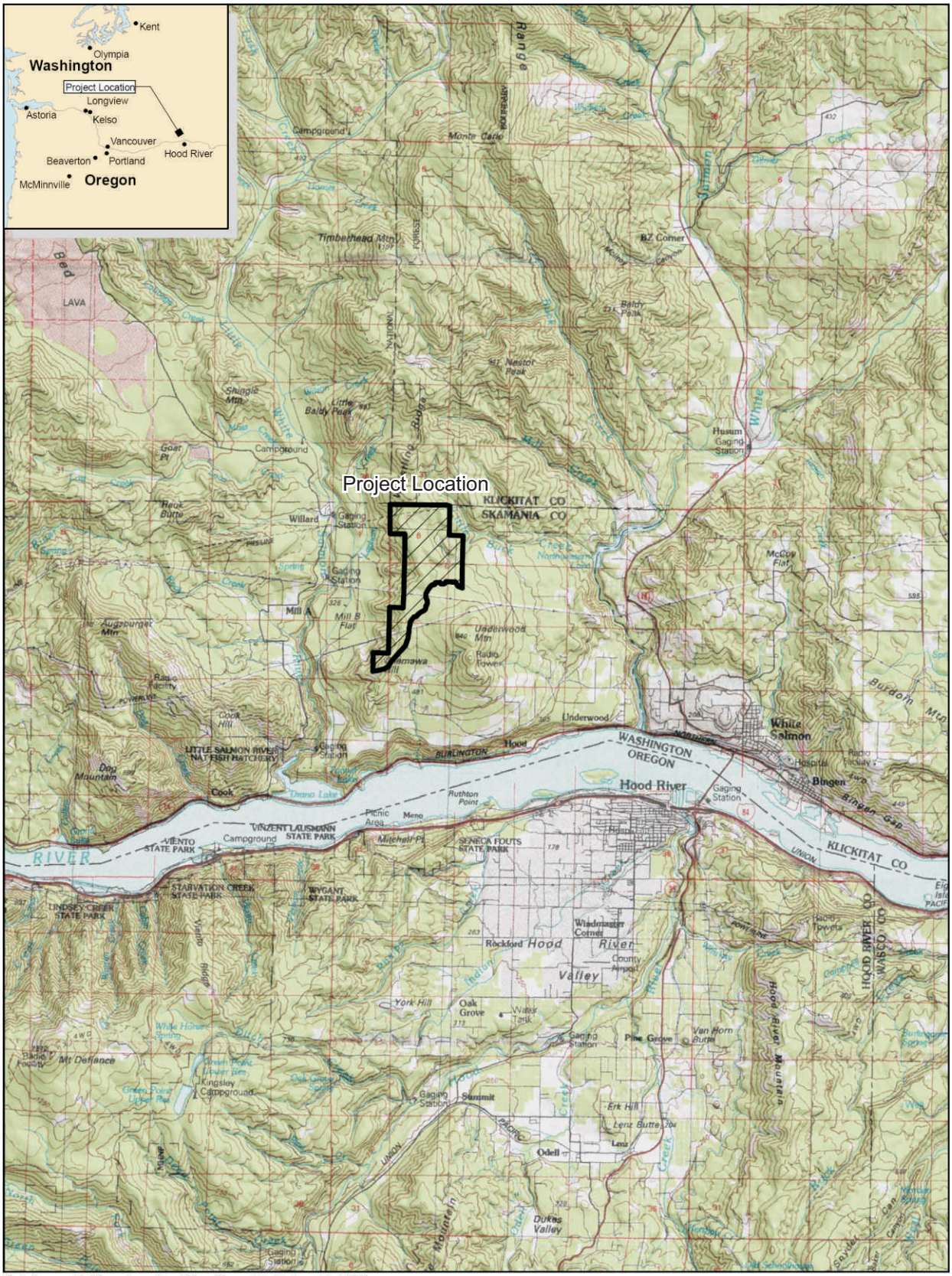

Figure 1-1

Location of Proposed Whistling Ridge Energy Project

1.2 PURPOSE AND NEED FOR ACTION

This section describes the respective need for action by EFSEC and BPA concerning the Applicant's proposed Whistling Ridge Energy Project, as well as purposes or objectives that these two agencies will consider in their respective decisions concerning the project. This section also identifies various needs that the Applicant is responding to in proposing the project.

1.2.1 EFSEC'S PURPOSE AND NEED FOR ACTION

On March 10, 2009, the Applicant submitted an Application for Site Certification (ASC 2009-01) to EFSEC to construct and operate the Whistling Ridge Energy Project in accordance with WAC 463-42. The Applicant chose to apply for certification of the proposed project according to the Revised Code of Washington (RCW) 80.50.060, under which EFSEC has siting jurisdiction over energy facilities, such as the proposed project, in the state of Washington.

EFSEC is a Washington State board comprised of a Chairman appointed by the Governor and representatives from five state agencies. The Council is augmented by representatives from the particular counties, cities, or port districts where potential projects may be located, as well as additional state agencies that can opt into the review of a new proposal. The Council is responsible for evaluating applications to ensure that all environmental and socioeconomic impacts are considered before a site is approved.

In accordance with RCW 80.50.040, EFSEC must review and act on the Application in the following ways:

- Prepare written reports to the governor which shall include: (1) A statement indicating whether the application is in compliance with the council's guidelines, (2) criteria specific to the site and transmission line routing, (3) a council recommendation as to the disposition of the application, and (4) a draft certification agreement when the council recommends approval of the application

- Prescribe the means for monitoring of the effects arising from the construction and the operation of energy facilities to assure continued compliance with terms of certification and/or permits issued by the council;

- Integrate its site evaluation activity with activities of federal agencies having jurisdiction in such matters to avoid unnecessary duplication;

- Present state concerns and interests to other states, regional organizations, and the federal government on the location, construction, and operation of any energy facility which may affect the environment, health, or safety of the citizens of the state of Washington; and

- Issue permits in compliance with applicable provisions of the federally approved state implementation plan adopted in accordance with the Federal Clean Air Act, as now existing or hereafter amended, for the new construction, reconstruction, or enlargement or operation of energy facilities.

1.2.2 BONNEVILLE POWER ADMINISTRATION PURPOSE AND NEED FOR ACTION

BPA owns and operates the federal transmission system in the Pacific Northwest. This system, which is referred to as the Federal Columbia River Transmission System (FCRTS), consists of more than 15,000 circuit miles of high-voltage (115-kilovolt [kV] and above) electric transmission lines. These transmission lines are used to move most of the power from Pacific Northwest generating facilities to power users throughout the Northwest and nearby interconnected regions.

BPA has adopted an Open Access Transmission Tariff, which is generally consistent with the Federal Energy Regulatory Commission's *pro forma* open access tariff. Under BPA's tariff, BPA offers transmission interconnection to the FCRTS to all eligible customers on a first-come, first-served basis, with a decision on whether or not to make this offer subject to environmental review under NEPA. Electricity generated by the project would be delivered to the BPA electric grid via a new transmission interconnection.

The Applicant has requested interconnection of its proposed project to BPA's existing North Bonneville-Midway 230-kV transmission line, a portion of the FCRTS that traverses the project site. BPA needs to respond to that request. BPA will consider the following objectives or purposes in deciding whether to grant the request:

- Maintain the electrical stability and reliability of the FCRTS
- Continue to meet BPA's statutory and contractual obligations
- Act consistently with BPA's environmental and social responsibilities
- Provide for cost and administrative efficiency

1.2.3 APPLICANT-IDENTIFIED NEEDS

The Applicant's purpose in proposing the Whistling Ridge Energy Project is to help meet the future need for energy resources, while at the same time enabling the Applicant to further diversify its business through a technically and economically feasible project. This section identifies the regional needs for this proposed project that have been identified by the Applicant, as well as the Applicant's needs that would be met by the project.

1.2.3.1 Regional Need for New Sources of Renewable Energy

The Fifth Northwest Electric Power and Conservation Plan was issued by the Northwest Power and Conservation Council (NPCC) in May 2005. The Plan found that Northwest electricity demand was projected to grow at an average annual rate of nearly 1 percent per year, resulting in an over 5,000-MW deficit by 2025 using the medium forecast.

The Fifth Power Plan states that: *"Renewable resources are also a priority resource in the Northwest Power Act. Like conservation, their potential and cost-effectiveness are sensitive to developing technology and the cost of more traditional generating alternatives. Renewables have potential risk reduction benefits related to their ability to hedge risks of fuel price volatility and the risks of possible measures to mitigate greenhouse gas emissions."*

In September 2009, the NPCC released the Draft Sixth Northwest Power Plan (NPCC 2009), which contains projections for regional power demand. The plan notes that regional population in Idaho, Montana, Oregon, and Washington is likely to increase from 12.7 million in 2007 to 16.3 million by 2030. This 3.6 million increase in population compares to a 3.8 million increase between 1985 and 2007. The population growth will be focused on older-age categories as the baby boom generation reaches retirement age.

The cost of energy of all types is expected to be significantly higher over the next twenty years than during the 1980s and 1990s. Cost increases will be driven by increasing demand and the fact that the cost of finding and producing new energy sources is higher than for conventional supplies. Carbon emission taxes or cap-and-trade policies are likely to further raise energy costs. The NPCC predicts that wholesale electricity prices are expected to increase from about $45 per MW-hour in 2010 to $85 by 2030 (2006$).

Demand for electricity is expected to grow. The plan states that *"The Pacific Northwest consumed 19,000 average megawatts or 166 million megawatt-hours of electricity in 2007. That demand is expected to grow to 25,000 average megawatts by 2030 in the Council's medium forecast. Between 2007 and 2030, demand is expected to increase by a total of 6,500 average megawatts, growing on average by 270 average megawatts, or 1.2 percent, per year."*

According to the NPCC, much of the future demand for electricity in the region could be met through conservation. However, markets for renewable or "green" energy are still growing in the Pacific Northwest. One driver for this shift is the establishment of Renewable Portfolio Standards (RPS) at the state level, which requires that utilities obtain a percentage of their power from renewable sources. For example, in 2006, voters in the Washington passed Initiative 937, which requires that by 2020 large public and private utilities must obtain 15 percent of their electricity from renewable resources, and undertake cost-effective energy conservation. In 2008, California increased its RPS goal from 20 percent to 33 percent renewable energy by 2020.

In addition to the RPS requirements, Washington law requires larger utilities in Washington to offer a voluntary "qualified alternative energy product," essentially an electricity product powered by green resources, beginning January 2012. State law defines a qualified alternative energy resource as electricity fueled by wind, solar energy, geothermal energy, landfill gas, wave or tidal action, gas produced during the treatment of wastewater, qualified hydropower, or biomass. As of 2008, 15 of the 16 utilities covered by the report had an active green power program with customers participating, and five additional utilities not covered by the law reported to the state that they were operating green power programs. Estimated sales of green power for 2008 were up 17 percent over 2007. Wind powered electricity represented 83.3 percent of green power sales (WUTC and CTED 2008).

In recent reports to the Washington State Legislature, the Washington Department of Commerce (formerly the Department of Community, Trade and Economic Development, CTED) has found that: *"…the region should begin an aggressive program to capture the large amount of cost-effective conservation that is available and to lay the groundwork for building a large amount of wind generation…"* (Washington CTED 2005).

More recently, state policy has been driven by the electorate's enactment of an RPS that requires all but the state's smallest utilities to acquire new sources of renewable energy with which to

supply consumers with clean electricity. This policy, mandated by the voters, resembles similar (though more aggressive) standards in Oregon and California, and has spurred active development of potential wind energy resources within the state to serve in-state utilities.

The RPS, coupled with load growth in Washington's urban areas, has prompted investor-owned and public power utilities to seek new sources, most often developed by independent power producers, to meet their resource goals.

1.2.3.2 Need for Reliable Transmission for the Proposed Project

Power generation resources typically require interconnection with a high-voltage electrical transmission system for delivery to purchasing retail utilities. Goals and policies aimed at reducing greenhouse gas emissions are driving the need for new resources such as wind-powered projects, yet the location of such projects is constrained by the availability of high voltage transmission lines.

Transmission planning and construction can be the longest lead-time item in power plant development. While lead times for the development of new generation have become shorter, the lead time for major transmission improvements and their costs can be a major barrier to acquisition of needed and cost-effective resources. For some projects, the lead time for the development of new transmission can be as much as seven years, and the cost of the transmission can be somewhat more than half the total capital cost of a project.

In order to provide new energy resources within the next three to five years, it is critical to locate projects in areas where transmission lines currently exist. The Applicant thus needs to locate near existing high-voltage transmission, such as the FCRTS.

1.2.3.3 Business Needs of the Applicant

As stated in Section 1.1, the Applicant for the Whistling Ridge Energy Project is Whistling Ridge Energy LLC, which is a limited liability corporation operating in the State of Washington. Whistling Ridge Energy LLC has been formed by S.D.S. Co., LLC, which is an affiliated entity of SDS Lumber Company (SDS). SDS has owned and operated a wood products manufacturing facility in Bingen, Washington continuously since 1946. SDS operations include lumber and plywood manufacturing, log handling and transportation, marine transportation and construction, log chipping for the pulp and paper industry, biomass energy generation, and other land development and land use ventures in the Skamania and Klickitat County area.

When SDS started in 1946, there were 26 employees in its original crew. This number grew to a high of 450 employees during the 1970s when logging and lumber production were at a peak. Production has since slowed tremendously, as the supply of timber from national forests has sharply declined due to environmental legislation. For this reason, many of the mills in Skamania County have closed down. SDS was able to survive the crises and changes of the last 30 years and no longer relies on timber from national forests. SDS has scaled back operations, yet today SDS is one of the largest employers in Klickitat County, Washington, employing 325 people during busiest production times.

SDS has remained viable during changes in the market through expanding and diversifying its enterprises beginning in 1978 to include power produced in its steam-operated power plant, which creates energy from wood waste, a renewable, organic resource, and to include marine services in 1984. The proposed Whistling Ridge Energy Project is intended to provide another means of diversifying the holdings of SDS to ensure a continuation of a resource-based work force in Skamania County, to create new construction and operation jobs at a time when jobs in Washington State are being lost, and to help to diversify the tax base of Skamania County.

SDS also seeks to provide an additional renewable resource for electric utilities in Washington. As described above and enacted in November 2006 as Initiative 937, each Washington utility serving more than 25,000 customers is required to meet specific targets for using eligible renewable resources to produce electricity. Examples of eligible renewable resources include wind farms, solar panels, and geothermal plants. Each utility would have to use renewable resources to serve at least 3% of its load by 2012 through 2015; 9% of its load by 2016 through 2019, and 15% of its load by 2020.

As it has done in the past, SDS seeks to create new business and job opportunities through diversifying and maximizing the use of its existing holdings. A wind power project presents a new opportunity to SDS to provide green energy, but only if it fits with its existing business uses and its existing holdings, and is located in an area where generated electricity can be delivered to urban power markets.

1.3 SEPA/NEPA COMPLIANCE AND DECISION-MAKING

1.3.1 EIS LEAD AGENCIES

As discussed in Section 1.2.1, the Applicant has chosen to apply for site certification of the proposed Whistling Ridge Energy Project from Washington EFSEC, which has siting jurisdiction over energy facilities, such as the proposed project, in the state of Washington. Because of its primary role as the project siting authority, EFSEC is the SEPA lead agency for this EIS.

As discussed in Section 1.2.2, the Applicant also has requested interconnection of the proposed Whistling Ridge Energy Project to the FCRTS, which is owned and operated by BPA. As a federal agency, BPA must consider the environmental consequences of its proposed actions—in this case, the proposed interconnection of the project to the FCRTS—under NEPA prior to making a decision on whether to proceed with the proposed action. The proposed approval of the requested interconnection is the main federal proposed action related to the proposed Whistling Ridge Energy Project. BPA therefore is the NEPA lead agency for this EIS. No other federal agencies have been identified as cooperating agencies for this EIS at this time.

1.3.2 USES OF THIS EIS

This EIS will be used primarily to inform the lead agencies, the public, and other interested parties about the potential environmental consequences of the proposed Whistling Ridge Energy Project, as required by SEPA and NEPA. The draft EIS will be distributed to the public and other interested parties, and will be used to receive comments on the adequacy and accuracy of the environmental analysis contained in the EIS. Distribution of the draft EIS provides the

public with information about the project and its environmental effects, while simultaneously allowing an opportunity for meaningful public participation and comment on the draft EIS.

In addition to providing the public with updated environmental information, the final EIS will be used to inform agency decisions on whether or not to issue authorizations and approvals for the proposed project, consistent with the requirements of SEPA and NEPA. More specifically, EFSEC will use the final EIS to inform its decision on whether to recommend approval or denial of the Whistling Ridge Energy Project to the Governor of Washington. The governor then would make a decision on whether to approve or deny the proposed project.

BPA will use the final EIS to inform its decision on whether to grant the requested interconnection of the project to the FCRTS. BPA grants such requests by offering a final Large Generator Interconnection Agreement to a party requesting interconnection (such as the Applicant), pursuant to its tariff.

Other federal, state or local agencies also may have permitting or other approval authority for the proposed Whistling Ridge Energy Program (see Chapter 4). Those agencies may use this EIS in order to fulfill their NEPA or SEPA responsibilities.

1.3.3 INTEGRATION OF SEPA AND NEPA REQUIREMENTS

As indicated in Section 1.1, this EIS has been prepared as a joint SEPA/NEPA EIS. As such, it is intended to fulfill the format and content requirements, as well as the spirit, of both of these statutes and their implementing regulations and associated guidance documents. Preparation of a joint SEPA/NEPA EIS for a project that requires both state and federal approvals is encouraged by both the State of Washington and federal governments.

At the state level, the Washington Department of Ecology (Ecology), the state agency charged with issuing uniform SEPA rules and guidelines for the state, has prepared the SEPA Handbook (Ecology 1998) to provide guidance on implementing SEPA requirements. Chapter 9 of the SEPA Handbook specifically recognizes that the SEPA and NEPA lead agencies for a proposed project may agree to be co-lead agencies, and encourages the preparation of a combined, or joint, SEPA/NEPA EIS in such situations to meet the requirements of both SEPA and NEPA.

At the federal level, the Council on Environmental Quality (CEQ) NEPA regulations specifically provide that state and local agencies may act with at least one federal agency as joint lead agencies for an EIS (See 40 CFR § 1501.5[b]). These regulations also specify that federal agencies shall cooperate with state and local agencies to the fullest extent possible to avoid duplication between NEPA and comparable state requirements (See 40 CFR § 1506.2[c]). Under 1506.2(c), this cooperation shall include preparation of a joint state-federal EIS where both state and federal approvals are involved, and the state and federal lead agencies are to act as joint lead agencies for the EIS.

Much of the organization of this document is based on the SEPA EIS format and content specified in WAC 197-11-430 and 197-11-440, with adjustments made to ensure NEPA compliance as well.

1.4 DESCRIPTION OF ALTERNATIVES

Two alternatives are evaluated in this EIS: the Proposed Action (authorizing construction and operation of the proposed Whistling Ridge Energy Project and associated components) and the No Action alternative (not authorizing construction and operation of the proposed project and associated components). These alternatives are summarized below. Alternative wind energy technologies, alternative wind turbine locations, and off-site alternatives considered but eliminated from further study in this EIS also are described.

1.4.1 PROPOSED ACTION

Under the Proposed Action, the state of Washington (acting through Washington EFSEC and the Governor of Washington) would approve the Site Certificate for the proposed Whistling Ridge Energy Project and BPA would grant interconnection of the project to the FCRTS, thereby authorizing the Applicant to construct and operate the project. The proposed Whistling Ridge Energy Project would be located on an approximately 1,152-acre site approximately seven miles northwest of the City of White Salmon in Skamania County, Washington (Figure 1-1). The Applicant has identified this site for its proposed project based on many factors, including:

- The site has a proven, robust wind resource
- The site is large enough to accommodate enough wind turbines to produce a minimum of 70 MW of electricity
- The site is owned and controlled by the Applicant
- The site has a long history of commercial logging and associated absence of native habitat, reducing or eliminating the need to clear additional forest land
- The site is uniquely suited for its access to on-site high voltage transmission in proximity to urban power markets
- The site is in proximity to the mill site and business offices of SDS

This wind project would consist of wind turbine generators and associated components, and would have a total nameplate capacity of up to 75 MW. Approximately 384 acres would be developed for the wind turbine foundations, connecting roadways, and overhead and underground transmission lines. Information about the proposed wind turbines and other project components is summarized below.

1.4.1.1 Wind Turbines

The project would consist of up to 50 wind turbine generators, each of which would likely range in size from 1.2 to 2.5 MW. Each turbine would be up to approximately 426 feet tall (262-foot hub height and 164-foot radius blades, measured from the ground to the turbine blade tip), and would be mounted on a concrete foundation. Wind turbines would be grouped in “strings,” each spaced approximately 350 to 800 feet from the next (or approximately 1.5 to 2.5 times the diameter of the turbine rotor).

Each wind turbine would consist of four main components: the turbine tower, the nacelle, the rotor hub, and the blades. Each turbine tower would be a tapered, hollow tubular structure, approximately 14 feet in diameter at the base and weighing approximately 30 tons. The towers would likely be painted a flat neutral gray or white color. Each tower would be mounted on a concrete foundation with a diameter up to approximately 60 feet. Tower foundations would be spread footing or pier-type footings. To the extent required by the Federal Aviation Administration, turbine towers would be furnished with blinking lights visible to aircraft.

The remaining three turbine components are all mounted at the top of each turbine tower. The nacelle is encased in fiberglass, and is mounted on top of the tower to house the gearbox, the generator, and the control system. The rotor hub is attached to the nacelle, and holds the blades in place. Each turbine has three laminated fiberglass blades, each approximately 129 to 164 feet long, depending on which turbine is selected. The diameter of the circle swept by the rotors would be approximately 264 to 320 feet, depending on which turbine is selected. The wind turbines would operate at wind speeds from 9 to 56 miles per hour (mph), with a rotor speed range of 10 to 20 revolutions per minute (rpm).

1.4.1.2 Electrical Collector System

The project would include an electrical collector system to collect energy generated at approximately 575 volts (V) from each wind turbine, transform the voltage of this energy to 34.5-kV using a pad-mounted transformer, and deliver the energy via underground cables to the proposed project substation. Each turbine's 575-V to 34.5-kV transformer would be located on a transformer pad adjacent to each tower, or enclosed in the nacelle, depending on the turbine model. From there, power would be transmitted via underground 34.5-kV electric cables. These cables would be buried by digging trenches up to 5 feet wide and approximately 3 to 4 feet deep, placing the cables in these trenches, and then filling the trenches back in with the excavated soils. In areas where collector cables from several strings of turbines follow the same alignment (for example, near the proposed substation), multiple sets of cables would be installed within each trench where possible. There would be approximately 8.5 miles of underground collector cable trenches. In areas where environmental constraints, geologic features, or cultural features necessitate, minor aboveground placement of collector cables may occur.

1.4.1.3 Project Collector Substation and Interconnection to the FCRTS

The project also would include a project collector substation, which would further transform the energy delivered by the underground electrical collector system from 34.5-kV to 230-kV, so that it would be suitable for delivery to the FCRTS. The proposed collector substation would occupy a portion of a fenced 5-acre area at the southwest end of the project site, immediately adjacent to BPA's transmission line. A 50-foot cleared area would be maintained around the substation. The substation site would be a graveled, fenced area with transformer and switching equipment and an area to park utility vehicles.

Additionally, the project would include the construction of a new BPA substation located within the project area which would interconnect the project into BPA's North Bonneville-Midway 230-kV transmission line. The proposed BPA substation would cover an area of approximately 430 feet by 430 feet or approximately 4.25 acres. This area would be fenced, graded and graveled. Inside the fence, there will be a control house, six 230-kV disconnect switches, three

230-kV power circuit breakers, steel structures and towers, insulators and bus work. There will be a graveled access road to the site as well as access roads running underneath the additional transmission line structures that will be built. This development of 4.25 acres would be sufficient for future installation of equipment if required for future development.

The interconnection would be made through a loop-in of BPA's North Bonneville-Midway 230-kV transmission line to the proposed BPA substation. The loop-in would require several steel lattice and wood pole structures (some of the wood pole structures may be guyed) to be placed adjacent to both the North Bonneville-Midway 230-kV and Underwood Tap to Bonneville Powerhouse 1-North Camas 115-kV transmission lines. The Underwood Tap to Bonneville Powerhouse 1-North Camas 115-kV line adjacent to North Bonneville-Midway 230-kV transmission line would require a new steel lattice structure to raise the conductors such that the 230-kV line can cross underneath for this interconnection.

1.4.1.4 Operations and Maintenance Facility

A permanent Operations and Maintenance facility would be constructed on an approximately 5-acre area located at one of the following two locations: (1) adjacent to the proposed substation; or (2) west of the project site along West Pit Road. The Operations and Maintenance building would have approximately 3,000 square feet of enclosed space, including office and workshop areas, a kitchen, bathroom, shower, and a utility sink. It would be constructed of sheet metal, and would be approximately 16 feet tall (to the roof peak). A graveled parking area for employees, visitors, and equipment would be located adjacent to the building. The entire area would be fenced and have a locked gate.

1.4.1.5 Water Supply and Wastewater

During project construction, approximately 1.7 million gallons of water would be consumed for road compaction, dust control, wetting concrete and other construction purposes. The construction contractor would supply water used during construction. Water needed for construction would be purchased by the Applicant's construction contractor from an off-site vendor with a valid water right and transported to the site in water-tanker trucks.

The project would not be connected to a sewer system. Sanitary wastes would be collected in portable toilets during construction. Disposal of sanitary wastes would be managed through a contract with a portable toilet vendor. The contractor would incorporate applicable state capacity requirements based on the construction worker population on the project site at any given time. Collected wastes would be managed and disposed of by the contracted vendor.

Project operations would not require the use of any water for cooling or any other use aside from the limited needs of the Operations and Maintenance facility. Potable water intake would be in the form of a well accommodating the Operations and Maintenance facility's needs. The Applicant would seek and obtain approval for the new well from EFSEC, in consultation with Skamania County Environmental Health Department and Ecology.

There would be no industrial wastewater stream from operation of the project. Wastewater discharge would come from the Operations and Maintenance facility discharging to an on-site

septic system. Less then 5,000 gallons per day is anticipated for kitchen and bathroom use. No wastewater would be used, discharged, or recycled for wind turbine operations.

1.4.1.6 Site Access for Construction and Operation

From State Route (SR) 14, access would be provided via county roads (Cook-Underwood Road to Willard Road) and then via a new connection to West Pit Road, an existing private logging road that connects to a network of existing logging roads on the project site.

Because the project site already has a network of logging roads, relatively few new roads would have to be constructed. Approximately 7.9 miles of existing private logging roads would be improved. In areas where there are no existing logging roads near proposed wind turbine strings, approximately 2.4 miles of new gravel access roads would be constructed. All new roadway construction would occur on private lands.

In addition to the permanent access roads described above, temporary access may be required to construct some facilities. For example, constructing the underground collector cables would require that heavy equipment be able to access trench locations where they are not directly adjacent to roads. Generally, equipment would be driven across open ground to accomplish this construction. In some locations minor grading may be required to allow safe access to construction locations (that would be determined only after final pole locations have been selected). These temporary access roads would be re-graded and re-seeded as necessary to restore vegetation after the construction phase is over.

After the project is constructed, use of the improved and new access roads on private lands would be limited to the landowner and to project maintenance staff.

1.4.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the state of Washington would deny the Applicant's application for a Site Certificate for the proposed Whistling Ridge Energy Project, and/or BPA would not grant interconnection of the project to the FCRTS. As a result, the proposed Whistling Ridge Energy Project would not be constructed or operated under this alternative. This alternative would not help the state of Washington in achieving the renewable energy goals mandated by the state's RPS. Furthermore, this alternative would not help to meet the region's need for additional power in coming years. If the proposed project is not constructed, it is likely that this need would be addressed by some combination of energy efficiency and conservation measures, existing power generation sources, and/or the development of other new renewable and non-renewable generation sources.

In addition, it is reasonable to expect that under the No Action alternative, the proposed project site would continue to be used for logging and other timber harvest activities. This site has been in commercial forestry use for the last century, during which the site has been logged over a series of approximately 50-year logging rotations. If the proposed wind project is not approved and built, the Applicant and others would continue to use the site for commercial forestry production. Ongoing timber management activities at the project site under this alternative would include regular tree clearing, harvesting, replanting, and development of additional access roads as necessary.

1.4.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

The Applicant has proposed a particular type of generation facility (wind) at a specific site. The lead agencies, Washington EFSEC and BPA, need to respond to the Applicant's requests for authorizations and approvals for the proposed wind project at this site. While this EIS focuses on the alternatives of either granting or not granting the Applicant's requests, various other alternatives also have been considered for the proposed project. These alternatives include alternative locations for the proposed project, different project sizes, alternative wind generation technologies, and different project configurations. For potential alternatives, the Applicant has identified a number of criteria that must be met in order for the Applicant to have a technically and economically feasible project:

- The project must be located in an area with a steady supply of robust wind power, and on a site on which construction can reasonably occur (no significant geotechnical constraints)

- To reduce startup costs, the project must be located on land the Applicant owns and controls, and land that can serve a dual purpose of commercial forestry and power production

- To enable the power to reach urban markets and eliminate the cost and time required to construct new transmission lines, the project must be located in proximity to existing high-voltage transmission lines

- The costs of construction must be outweighed by the potential return on investment, requiring a minimum number of potential megawatts to be achieved by the project

- The project output must be at a competitive price and of adequate supply to be attractive to utilities looking to fulfill their Renewable and Alternative Energy Portfolio Standards

The following discussion describes alternatives that were considered but eliminated from detailed study in this EIS because of technical or economic feasibility issues, not meeting the identified purpose and need for proposed action, or clearly greater environmental impacts:

1.4.3.1 Alternative Project Locations

SDS owns and manages 70,000 acres of timberland in Washington and Oregon. SDS manages its forestlands with the objective of producing as much high quality wood as possible without compromising the future economic and environmental benefits of their forests. In reviewing its lands for location of a wind project, SDS sought:

- Areas of Applicant-owned property found to have a steady source of robust wind

- Applicant-owned land that contained high ridges on which to place wind turbines with little impact to the continued underlying use of the land for commercial forestry

- Land in proximity to existing high voltage transmission lines

No other sites were identified that are under the ownership of the Applicant or as close to transmission infrastructure facilities.

1.4.3.2 Larger or Smaller Generation Facility Size

During the project planning process, the Applicant considered the feasibility of constructing and operating a larger generation facility, both in terms of more wind turbines and a larger area, involving the proposed project site. Regarding more turbines, the site does contain a series of ridge lines that are conducive to locating wind turbines but at the same time are limiting as to where those turbines can be placed. In general, placement of turbines in areas substantially below the ridge lines would not effectively make use of the wind resource at the project site, thereby compromising the economic feasibility of the proposed project. Accordingly, the constrained topography has necessitated a restricted power plant design.

Regarding a larger area for the proposed project, the project site is located between the Columbia River Gorge National Scenic Area on the south and land owned by the Washington State Department of Natural Resources (DNR) on the north. Land to the east and west was not considered, as those lands are at a lower elevation and do not include the north-trending ridge lines that existing on the proposed site. While the Applicant did not consider locating turbines within the Scenic Area due to its sensitivities, consideration was given to locating turbines on the DNR lands directly north of the site. These lands have topographical characteristics similar to the proposed project site, and also have been logged through commercial forestry activities. However, use of these lands for project turbines was rejected from further consideration due to comments from the public and DNR's own reluctance to consider leasing the site to the Applicant.

The Applicant also considered the feasibility of a smaller generation facility at the proposed project site, either by removing turbines or utilizing a smaller project site. However, the project is proposed as an "integrated whole"—in other words, as a single power plant, not pieces of a whole, where some turbines may be eliminated. It proposes a defined output, based on site and design characteristics and market demand and Applicant objectives. These objectives include providing a minimum level of generation to be attractive to utilities seeking to fulfill their RPS requirements, as well as providing a return on investment to the Applicant. In order to provide this return, the Applicant has determined that the project must be capable of producing a minimum of 70 MW. The number of wind turbines at the project site already has been minimized to the extent practicable in light of the Applicant's objectives. Accordingly, if any turbines are removed from the project design, other locations must be found to replace those turbines to maintain the minimum necessary capacity. The constrained site location and topography limits the ability to relocate turbines within the project site.

In sum, the project size was selected to optimize project energy output and economic feasibility. A smaller wind turbine facility would be unlikely to offset project development costs. A larger project would require additional infrastructure capacity and transmission capacity.

1.4.3.3 Alternative Wind Generation Technologies

Alternative technologies for the generation of power from a wind resource were considered. Several types of wind energy conversion technologies have been developed over the past three

decades and include 1) vertical axis Darrieus wind turbines, 2) two-bladed downwind wind turbines, 3) smaller three-bladed upwind wind turbines (500 to 750 kilowatt [kW]), and 4) larger 3-bladed upwind wind turbines (1 to 3 MW). The three-bladed, upwind, horizontal axis is currently the preferred technology, based on proven reliability and commercial viability.

1.4.3.4 Alternative Project Configurations

As discussed above, the proposed project site contains a series of ridge lines that are conducive to locating wind turbines but at the same time are limiting as to where those turbines can be placed. This means that there are limited options for locating wind turbines within the site. Alternative turbine configurations were considered, but were eliminated from further study because they either did not appropriately utilize the wind resource present at the site or compromised the economic feasibility of the proposed project.

1.4.3.5 Alternative Interconnections

Alternatives for interconnecting the proposed wind project with the existing high voltage transmission lines that currently cross the proposed project site were considered. Initially, an option of interconnecting at a point within the wind project site directly east of the currently proposed interconnection point was identified. This alternative interconnection point was located between structures 22/6 and 23/1 on the North Bonneville-Midway 230-kV transmission line. However, this option would have required the development of interconnection facilities within the Columbia River Gorge National Scenic Area because structure 22/6 is on the border of, and structure 23/1 within, the Scenic Area. Given the high sensitivity of the Scenic Area, construction of an interconnection alternative within its boundaries was eliminated from further study.

An alternative interconnection also was considered off of the wind project site, approximately 1.5 miles west of the currently proposed interconnection point. BPA's transmission engineers identified a potential alternative interconnection site between structures 21/4 and 22/1 on the North Bonneville-Midway 230-kV transmission line. This site is located in a relatively flat, lower-elevation area that may have easier access in the winter than the currently proposed interconnection site. However, this alternative would have required the Applicant to construct and operate a new 1.5 mile section of 230-kV transmission line from the wind project site to this interconnection point. Development of such a new line would have required the clearing of an approximately 125-foot-wide right-of-way corridor for the line, as well as the clearing and construction of additional new transmission line access roads. The Applicant also has stated that the additional costs of constructing this new line likely would make the project no longer economically viable. Because of the much greater potential for environmental effects as compared to merely developing the currently proposed interconnection within the already planned wind project site, as well as the significant additional cost implications, this alternative was considered but eliminated from detailed study in this EIS.

An interconnection with the other existing BPA transmission line that crosses the wind project site also was considered but rejected from further study because the line is a 115-kV line and does not have sufficient capacity to transmit the energy from the Whistling Ridge Energy Project.

1.4.3.6 Alternative Access Roads

Finally, different alternatives for accessing the proposed project site were assessed. There are three potential ways to access the project site. All are via county roads from SR 14 to Cook-Underwood Road. In addition to the proposed access route from Cook-Underwood Road, which is included as part of the Proposed Action, the project site could be accessed by:

- **Route 1:** Ausplund Road to a private logging road vacated by Skamania County in 1987, which crosses private property (not owned by the Applicant) that is currently used for residential, agricultural orchards, and commercial timber production and harvest

- **Route 2:** Kollock-Knapp Road to Scoggins Road to a private logging road called the CG2930 road on County Assessor's maps, which crosses property owned by the Applicant that is currently used for commercial timber production and harvest

The private logging road in Route 1 was made a County right-of-way in 1923. It was vacated for public use in 1987 by resolution of the Skamania Board of County Commissioners; however, the rights to use the road by abutting property owners remain. Additionally, road improvements to this route would be required for access to construct the wind energy facility and for ongoing Operations and Maintenance traffic. Impacts to a non-project landowner from these activities would occur if Route 1 were used. Therefore, Route 1 has been eliminated as a construction roadway access alternative.

Route 2 would require minor roadway improvements that would not directly impact any non-project landowners. However, these roadway improvements would require construction within the Columbia River Gorge National Scenic Area. Therefore, Route 2 has been eliminated as a construction roadway access alternative.

1.5 SUMMARY OF PUBLIC INVOLVEMENT, CONSULTATION, AND COORDINATION

1.5.1 PUBLIC AND AGENCY SCOPING

Both SEPA and NEPA require opportunities for public involvement and comment during the preparation of an EIS. The initial phase of public involvement is the draft EIS "scoping" phase, during which the lead agencies request public input on the scope of the draft EIS to be prepared, including the range of alternatives, potential environmental impacts, and possible mitigation measures. The lead agencies notify the public of the draft EIS scoping phase through various media (e.g., sending letters, publication notices, and internet postings), provide for a public scoping comment period, and hold public meetings to accept scoping comments. This section summarizes the public involvement and agency coordination activities that have been conducted to date for this EIS.

- **Initial EFSEC Public Notice.** On April 6, 2009, EFSEC mailed out a notice to the public concerning the Applicant's March 10, 2009 Application for Site Certification Agreement for the Whistling Ridge Energy Project. Among other things, this notice included a summary of the proposed project, a determination that an EIS was required, and information concerning the scoping process for the joint SEPA/NEPA EIS to be

prepared by EFSEC and BPA. The notice also requested all scoping comments by May 11, 2009 and provided the date, time, and location for the initial public information and scoping meeting for the EIS.

- **BPA Scoping Letter.** On April 17, 2009, BPA mailed a letter to people potentially interested in the proposed Whistling Ridge Energy Project that explained the proposal, BPA's role, the EIS process including scoping, and how to participate. A comment sheet was included so people could mail their comments to BPA. This letter also was posted on a BPA website created specifically for posting information and updates related to the EIS.

- **Revised EFSEC Public Notice.** On April 21, 2009, EFSEC issued a revised public notice that added a second public information and scoping meeting for the EIS. This notice also extended the date for submitting scoping comments to May 18, 2009.

- **BPA Notice of Intent.** On April 21, 2009, BPA published a Notice of Intent (NOI) to prepare an EIS in the *Federal Register*. Like the BPA scoping letter, this NOI explained the proposal, BPA's role and proposed action related to the proposal, the EIS process including scoping, and how to participate.

- **Agency Scoping Meeting.** An agency scoping meeting was held at the Rock Creek Center in Stevenson, Washington during the afternoon of May 6, 2009. The meeting was attended by representatives from EFSEC, BPA, the US Forest Service (USFS), the State Attorney General's office (i.e., the Counsel for the Environment) and the general public. The primary agency comments received during the agency scoping meeting were provided by USFS.

- **First Public Information and EIS Scoping Meeting.** On May 6, 2009, EFSEC and BPA hosted an evening scoping meeting at the Rock Creek Center in the Skamania County Fairgrounds in Stevenson, Washington. The meeting included presentations by (1) EFSEC, explaining the process that will be followed for preparation of the EIS, (2) BPA on its role, and (3) the Applicant on the project itself. Members of the public asked questions and were given the opportunity to provide oral and written scoping comments on the EIS.

- **Second Public Informational and EIS Scoping Meeting.** On May 7, 2009, EFSEC hosted an afternoon scoping meeting at the Underwood Community Center in the community of Underwood, Washington. Similar to the May 6 meeting, the meeting included presentations by (1) EFSEC, explaining the process that will be followed for preparation of the EIS, (2) BPA on its role, and (3) the Applicant on the project itself. Members of the public asked questions and were given the opportunity to provide oral and written scoping comments on the EIS.

- **Mailing List.** EFSEC and BPA have developed and are maintaining a mailing list of interested parties for the EIS. All public notices and announcements concerning the project are mailed to all parties on the mailing list.

- **EIS Scoping Report.** Following closure of the public scoping comment period on May 18, 2009, EFSEC and BPA jointly reviewed all of the comments received from the public, tribes, public agencies, interest groups, and other parties and developed the scope of issues to be evaluated in the EIS. An EIS Scoping Report was prepared by EFSEC, in consultation with BPA, and made publicly available on August 25, 2009.

EIS scoping comments were received both at the EIS scoping meetings and through written submittals. A total of 122 people attended the two scoping meetings, and 79 speakers provided verbal comments. By the close of the comment period, a total of 421 EIS scoping letters or e-mails had been received from public agencies, tribes, environmental organizations, interested citizens, and others. Fifty-one of these submittals were duplicate letters or cover letters/e-mails attached to supporting documentation that did not include substantive comments. A total of 1,803 individual comments from the remaining 370 submittals were identified for consideration in this EIS. The EIS Scoping Report, which is incorporated by reference, provides additional information on the EIS scoping comments that were received.

1.5.2 APPLICANT MEETINGS AND CONSULTATION

In addition to the EIS public scoping activities, the Applicant has been actively involved in meeting and consulting with local and state agency personnel and with Tribal leaders during the preparation of studies supporting this Application. The key contacts made to date are summarized in this section.

1.5.2.1 Local Government

- **City of Bingen (January 2009).** Consulted with city administrator to obtain information stating that there are currently no load restrictions in place for Maple Street in the City of Bingen, Washington. Additional information was provided, stating that there is a significant increase in traffic volumes during the summer months due to recreational activities in the local area.

- **Klickitat County Public Works Department (January 2009).** Obtained the County "Resolution to Designate Haul Routes" document that could be used as a haul route agreement template for the project by Skamania County. The document was forwarded to Skamania County for review.

- **Skamania County Planning Department.** Held three pre-application conferences between 2004 and 2008 with staff (including meetings on March 24, 2006 and August 22, 2007).

- **Skamania County Public Works Department.** Held pre-application meeting on August 22, 2007 with the County Road Engineer, and Building Inspector, also attended by the Planning Department. In addition, the Skamania County Public Works Department Manager, the County Engineer, and the Maintenance Superintendent were consulted to better understand existing roadway conditions, the proposed haul route, and traffic patterns. Meetings and consultation included:

- Meeting with Skamania County Public Utility District and Embarq, the local telephone service provider on utility availability

- A determination on weight restrictions for the tracks that cross Maple Street in the City of Bingen, Washington from the Burlington Northern Santa Fe Railroad

- Obtained average daily traffic on Cook-Underwood Road at approximately milepost 12 and location of the Cook-Underwood Road and Kollock-Knapp Road intersection at approximately milepost 10 to 10.5.

- Recommendation that right of way ownership and easements be determined early on in the planning process

- Requirement that both pre and post construction roadway inspections would need to be conducted along the haul route and that one additional roadway inspection would be required at one year post construction

- **Skamania County Assessor.** Conducted phone and office discussions regarding tax benefits to Skamania County from a potential wind energy project.

- **Skamania Economic Development Council.** Held various meetings and discussions regarding economic development and wind energy.

- **Skamania Public Utility District.** Met with Commissioners and General Manager regarding Skamania Public Utility District system vulnerability to interruption by BPA and benefits to be realized by a potential wind energy project in Skamania County.

- **Underwood Fire District.** Met with Fire Commissioners to discuss service agreement for potential wind energy project.

- **Mill A Volunteers.** Met with members to discuss possible formation of Fire District and inclusion of potential wind energy project.

1.5.2.2 State Government

- **Washington Department of Archeology and Historic Preservation**. Conducted file search for historic and cultural properties within or near the project site.

- **WDFW.** Meetings with WDFW included:

  - February 26, 2004 meeting with WDFW and US Fish and Wildlife Service (USFWS) staff to discuss survey methods and results of wildlife surveys completed to date, and to discuss future surveys

  - November 16, 2007 meeting and site tour to discuss survey methods and results of additional wildlife surveys completed to date.

  - Several information exchanges with Area Habitat Biologist to discuss project impacts, review survey results, and discuss survey protocols.

- Several follow-up meetings with WDFW staff during June, July and August of 2009 to continue the discussion and consultation on wildlife.

- Meeting with WDFW staff on December 8, 2009 to review results of wildlife surveys.

- **Washington State Department of Natural Resources.** Held a meeting and discussions with DNR staff regarding application to lease adjoining DNR property for wind energy purposes.

- **Washington State Department of Transportation, Goldendale Office.** Discussed information relating to over-size and over-weight vehicles traveling on SR 14. They stated that the current prohibition for loads in excess of 125 feet (including the trailer and load) between mileposts 19.00 and 83.53 could be overruled for trucks traveling between the SDS facility and the junction of SR 14 and Cook-Underwood Road. The Goldendale office must be contacted prior to any over-size hauls. Pilot cars would be required and Washington State Patrol involvement may be required.

- **Washington State Department of Transportation, Southwest Region Office.** Discussed information relating to road and bridge restrictions for over-size and over-weight motor vehicles traveling on SR 14 and over-size and over-weight load permit requirements.

1.5.2.3 Federal Government

- **U.S. Army Corps of Engineers at Bonneville Dam (January 2009).** Obtained information on lockage length and width parameters as well as average daily usage numbers for the months of May through October.

- **US Fish and Wildlife Service.** Meetings with USFWS included:

  - February 26, 2004 meeting with USFWS and WDFW staff to discuss survey methods and results of wildlife surveys completed to date, and to discuss future surveys.

  - Ongoing consultation with USFWS staff to discuss survey work and results.

1.5.2.4 Tribal Government

- Letter sent to Yakama Nation Cultural Resources Department.

- Site tour and consultation with local Tribes of Yakama Nation (see Section 3.10).

- Communication with Yakama Nation Cultural Resources Program concerning consultation and survey assistance.

- Site tour and survey by representatives of the Yakama Nation Cultural Resources Program.

1.5.2.5 Railroad

- **Burlington Northern Santa Fe Railroad.** Transportation Technology Services provided rail car length, width, and weight parameters as well as transport restrictions between the Port of Longview and the SDS facility.

1.5.3 DRAFT EIS COMMENT PERIOD AND PUBLIC MEETING

After completion of the draft EIS, EFSEC and BPA will hold a minimum 45-day comment period and distribute the document for public comment and review. During the comment period, the public will have the opportunity to review and submit comments on the draft EIS to EFSEC and BPA both in writing and at a public meeting. EFSEC and BPA then will prepare a final EIS that considers and responds to these comments and makes any necessary corrections or revisions to the EIS text.

1.6 SUMMARY OF POTENTIAL PROJECT IMPACTS AND MITIGATION MEASURES

Table 1-2 summarizes the potential impacts, design measures, and mitigation measures to be implemented by the project. This table is organized by the various elements of the environment. For each element, the potential impacts of the alternatives are summarized. Specific design measures that would reduce or eliminate impacts to which the Applicant has committed are also listed, as are other mitigation measures that have been identified.

Table 1-1
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
Earth	Construction • Potential erosion during grading and foundation construction • Minor to moderate changes in topography Operation • Low potential for liquefaction • Small potential for surface rupture • Low probability for ash deposition during volcanic event • No obvious recent mass wasting features • No anticipated impacts from Class III Landslide Hazard Areas	Same potential impact levels as for proposed project with the exception that the site identified for the alternative Operations and Maintenance facility on West Pit Road is at a lower elevation and is a more level site so erosion potential may be less.	Existing potential for erosion would continue from logging operations	Construction: • A detailed geotechnical investigation would be performed to identify any subsurface conditions • A Construction SWPPP would be submitted for EFSEC approval and would include measures to control erosion • Foundations and building would be designed for Seismic Zone 2 Operation • Erosion and Sedimentation Control Plan, Environmental Protection Control Plan, and Stormwater Pollution Prevention Plan would be submitted to EFSEC for approval, and all would include BMPs to minimize erosion • Visual inspection would be conducted following any seismic activity to look for incipient mass movement
Air Quality	Construction • Exhaust emissions from construction vehicles and equipment • Odors from diesel equipment and vehicles • Dust from construction operations Operation • Minor dust and emissions from Operations and Maintenance vehicles • Avoided emissions from fossil fuel power plants, including of greenhouse gasses and other pollutants	Impact would be the same as for the construction and operation of the Operations and Maintenance facility located within the project area.	• Existing potential for fugitive dust and emissions would continue from logging operations. Construction of fossil-fuel power plants to meet regional demand could impact air quality through releases of SO2, NO, CO2 and other pollutants	Construction • All vehicles used during construction would comply with applicable Federal and state air quality regulations • Operational measures such as limiting engine idling time and shutting down equipment when not in use • Active dust suppression on unpaved construction access roads, parking areas and staging areas, using water-based dust suppression materials in compliance with state and local regulations • Dust control program to minimize any potential disturbance from construction-related dust. Dust suppression would be accomplished through application of either water or a water-based, environmentally safe dust palliative such as lignin. • Traffic speeds on unpaved project roads would be kept to 25 mph to minimize dust generation • Carpooling among construction workers would be encouraged • Disturbed areas would be replanted or graveled to reduce wind-blown dust • Erosion control measures would be implemented to limit deposition of silt to roadways • Temporary rock crushers or concrete batch plants would be required to submit a Notice of Construction to the Southwest Clean Air Agency and to comply with all permit requirements. Operation • No mitigation proposed
Water	Construction • On site development would not impact ground water, surface water, public water supplies, floodplains or wetlands • Off site, improvements to West Pit Road would potentially impact surface water Operation • Operation of the project would not impact ground water, surface water, public water supplies, floodplains or wetland	Impact would be the same as for the construction and operation of the Operations and Maintenance facility located within the project area.	Existing patterns of ground and surface water use and impacts would continue	Construction • Discharge of stormwater runoff from the project would be regulated by EFSEC, based on Ecology's stormwater pollution control program. • EFSEC may require the project to obtain coverage under the Construction Stormwater General Permit, since it would disturb more than 1 acre of land. • Final design would conform to the applicable Ecology Stormwater Management Manual in effect at the time or as instructed by EFSEC.

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
				• Unless it is instructed by EFSEC that it is not necessary to do so, the Applicant would file an NOI to obtain coverage under the Construction Stormwater General Permit and the Industrial Stormwater General Permit. • Applicant has committed to design and implement the same BMPs as required in Ecology's permits to prevent and minimize the discharge of pollutants in its stormwater runoff, and to prepare SWPPPs for the construction and operation of the project in substantially the same form and content. • All plans would be submitted to EFSEC for approval prior to construction. Implementation of the construction BMPs would be carried out by the site work contractor, with oversight by environmental monitors. • Site-specific BMPs for temporary erosion and sedimentation control during construction would be identified on the construction plans submitted to EFSEC. See Section 3.3.3.1 for a list of proposed construction BMPs. Operation • Permanent stormwater management requires construction of appropriate stormwater hydraulic and treatment facilities, routine maintenance thereof, and prevention of chemical pollution through source control. • The constructed permanent stormwater BMPs would include: - Vegetated drainage ditches - Culverts with stabilized inlets and outlets - Permanent erosion and sedimentation control through site landscaping, grass, and other vegetative cover - Runoff treatment BMPs facilities would be designed to conform to the applicable Stormwater Management Manual • Due to the small area of impervious surface in the project site, no detention storage is required. • Operational BMPs would be adopted as part of the SWPPP to implement good housekeeping, preventive and corrective maintenance procedures, steps for spill prevention and emergency cleanup, employee training programs, and inspection and record keeping practices as necessary to prevent stormwater pollution. • At least annually, facility operators would receive spill response training and training in the applicable pollution control laws and regulations. • Storage of chemicals onsite would be minimal; however, the site development plan would require a SPCC Plan that would protect groundwater.
Biological Resources	Construction • Temporary impact to approximately 53.6 acres of grass/forb, brushfield/shrub, conifer-hardwood forest and conifer forest habitat	Impact would be the same as for the construction and operation of the Operations and Maintenance facility located within the project area.	• Existing pattern of habitat fragmentation from logging would continue Potential impacts from construction of fossil fuel power plants	Design Features Include: • Micrositing of turbines and associated facilities would allow any sensitive resources discovered during construction to be avoided • Avoiding and minimizing the use of overhead collector lines which

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
	• Permanent impact to approximately 60.7 acres of grass/forb, brushfield/shrub, conifier-hardwood forest and conifer forest habitat • Potential loss of suitable habitat, potential fatalities during clearing or grading of the construction area, and disturbance/displacement from construction activity and personnel occupying the site. • Potential mortality to birds through nest disturbance during clearing for turbine strings and new roads Operation • There would likely be some mortality to birds and bats due to turbine collision and displacement, though not in sufficient quantities to affect population viability • No impacts to listed species			create areas where birds may congregate and perch, thus decreasing the potential for turbine collisions • Use of tubular turbine towers, avoiding the lattice type towers which creates areas where birds may congregate and perch thus decreasing the potential for turbine collisions • Use of un-guyed meteorological towers, reducing the potential for bird collision with wires • Minimization of turbine lighting on the project site, thereby reducing the potential for birds and bats to be disoriented by lights or attracted to turbines • Installation of newer generation up-wind turbines • As per the WDFW Wind Power Guidelines, completion of extensive pre-project assessment of wildlife, habitat and plants on the project site, including review of existing information and databases, habitat mapping, general avian use surveys, bat surveys, and surveys for threatened or endangered species. Construction • Use of certified "weed free" straw bales during construction to avoid introduction of noxious weeds • All temporarily disturbed areas would be reseeded with an appropriate mix of native plant species as soon as possible after construction is completed to accelerate the revegetation of these areas and to avoid the establishment and spread of noxious weed species. • Implementation of a noxious weed control program, in coordination with the Skamania County Noxious Weed Control Board, to control the spread and prevent the introduction of noxious weed species. • In order to avoid or minimize impacts to any raptors potentially nesting on or near the project site, a raptor nest survey would be conducted during the breeding season, approximately April to July, prior to construction activities that would remove forest cover and/or require heavy equipment substantial enough to potentially disturb nesting activities. • Convene a Technical Advisory Committee to evaluate the mitigation and monitoring program and determine the need for further studies or mitigation measures. The Technical Advisory Committee would be composed of representatives from WDFW, USFWS, Skamania County, and the Applicant. The role of the Technical Advisory Committee would be to coordinate appropriate mitigation measures, monitor impacts to wildlife and habitat, and address issues that arise regarding wildlife impacts during construction and operation of the project, including potential adaptive management opportunities. The post-construction monitoring plan would be developed in coordination with the Technical Advisory Committee. • For potential impacts to big game species (deer and elk), coordination with WDFW will occur if appropriate.

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
				• Prepare a SWPPP for both the construction and operation phases of the project, and submitted to EFSEC for approval. • Coordinate and consult with BPA to ensure that any potential impacts to fish are prevented, as part of the interconnection agreement. Operation • Prepare and follow a post-construction monitoring plan (developed in coordination with the Technical Advisory Committee described above). • Implement a two year minimum post-construction avian mortality study • Prepare a SWPPP for both the construction and operation phases of the project, and submitted to EFSEC for approval.
Energy and Natural Resources	Construction Construction of the project would require approximately: • 19,250 gallons of fuel (diesel and gasoline) for construction equipment • 3,700 tons of steel for turbine towers • 1,000 tons of steel for tower foundation reinforcement • 100,000 yards of gravel (aggregate) for roads and crane pads • 10,000 cubic yards of concrete for turbine foundations • 1.7 million gallons of water for road compaction, dust control, wetting concrete, etc., assuming plain water is used for dust control (this amount could be reduced through the use of lignin or other dust palliative if permitted by EFSEC) Operation • Fuel for Operation and Maintenance vehicles (approximately 8,500 gallons annually) • Minor quantities of lubricating oils, greases and hydraulic fluids for the wind turbine generators • Electricity for project operations (less than approximately 600 kilowatt hours per wind turbine generator per month) • Water for use at the Operations and Maintenance facility and periodic maintenance of turbine blades (less than 5,000 gpd)	Impact would be the same as for the construction and operation of the Operations and Maintenance facility located within the project area.	• Energy and water use for the Operations and Maintenance facility would not take place. Base load demand would likely be filled through expansion of existing, or development of new, thermal generation such as gas-fired combustion turbine technology. Other wind sources could also be developed.	Adverse impacts to energy and natural resources are expected to be minimal and therefore no mitigation measures would be required.
Environmental Health	Construction • Project construction could temporarily increase the risk of fire at the project site and in the broader project area, as a result of the operation of vehicles and power equipment, which may cause fires through contact with dried plants during dry summer weather. • Blasting may be used where solid rock is encountered during construction of turbine foundations or trenches for the underground electrical collection system. Blasting could also create a fire hazard during dry weather. • The risk of releases to the environment that would impact health would be similar to any large construction project. The primary potentially hazardous materials used during construction would be diesel fuels, lubricating oils, hydraulic fluids, and mineral oil.	The West Pit Road site would have a lower fire risk and shorter response times for emergency services since the facility would be along a county road.	• The risk of fire due to lightning strikes or human activity in the general area would continue at their present levels, as would the risk of hazardous waste release, vandalism, and traffic accidents. • The electrical energy that would otherwise be produced by the project would need to be obtained from another generating source. The most likely alternative method for meeting the region's electricity needs would be use of a fossil fuel-powered generating facility. Such facilities have a higher risk of fire and explosion than wind energy due to their reliance on natural gas or oil rather than wind as fuel.	• Prior to construction of the project, Whistling Ridge Energy LLC would develop agreements related to emergency planning with Skamania County Department of Emergency Management. • An Emergency Plan will be prepared with components applicable to both construction and operation. The plan will include the following elements: - Fire Protection and Prevention Plan - Personal Injury Response Plan - Safety Plan - SPCC Plan - Hazardous Waste Management Plan • All conditions affecting the safety of the project would be reported to EFSEC, including any condition, event, or action that might

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
	• Vandalism of project facilities and theft of equipment may occur during construction. • Project construction could lead to a slight increase in the chance of traffic accidents, due to the presence of a peak of 265 construction workers traveling to the site, along with the transport of construction materials and the turbine components. This impact would last a maximum of one year, with peak impacts limited to a several-month period in the summer. • The risk of turbine structural failure during construction would be very small. Operation • Turbine fires are possible, however with the types of modern wind turbines proposed for the project, turbine malfunctions leading to fires in the nacelle are extremely rare. • Operation of the project would not result in the generation of regulated quantities of hazardous wastes. Since no fuel would be burned to power the wind turbine generators, there would be no spent fuel, ash, sludge or other process wastes generated. The only materials used during project operations that present any potential for accidental spills are lubricating oils and hydraulic fluids used in the wind turbine generators and transformers • Vandalism of project facilities and theft of equipment during operation is similar to that expected during construction. • The risk of traffic accidents during operation would be low. • Structural failure of the turbine tower is very rare, though some instances of turbine failure have been documented in older turbine models. • Cases of blade throw are rare and have generally been linked to improper assembly or exceedance of design limits. • The risk of impacts from ice throw is minimal. • At a distance beyond 2,500 feet, shadow flicker is considered to be imperceptible. Even if shadow flicker were a proven impact, none of the planned turbines are within 2,500 feet of existing residences. • EMF from the project will be lower than those of many common household appliances and would have no health and safety impacts.			compromise the safety, stability, or integrity of any facility or the ability of any equipment to function safely; or that might otherwise adversely affect life, health, or property. • Whistling Ridge Energy LLC and its contractors would comply with all applicable local, state and federal safety, health, and environmental laws, ordinances, regulations, and standards. • Site security measures including fencing and outdoor lighting. Fire or Explosion The project would use the following measures to mitigate the risk of fire or explosion: - The construction manager would be responsible for staying abreast of fire conditions in the project area by contacting WDNR and implementing any necessary fire precautions. - A Fire Protection and Prevention Plan would be developed for EFSEC approval and implemented by the Applicant, in coordination with the Skamania County Fire Marshall and appropriate agencies. - Both the wind turbine generators and the substation would be equipped with lightning protection systems. • A full time security plan would be implemented during project construction to reduce the potential need for increased police services to the project site. • A TMP that would direct and obligate the contractor to implement procedures to minimize traffic impacts would be prepared in consultation with both WSDOT and Skamania County and submitted to EFSEC for approval.

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
Noise	Construction • Construction noise at the three closest residential properties is anticipated to be between 66 and 72 decibels. • The large distances between much of the project area and potentially affected residences, the temporary nature of construction, and the restriction of construction activities to daytime hours would serve to minimize potential noise impacts from construction activities. Based on the anticipated noise levels and the timing aspects of these impacts, construction noise impacts are expected to be low. Operation • During project operations, nighttime noise levels are anticipated to increase from existing 34 dBA to 38 – 39 dBA at Receiver 1, from existing 35 dBA to 40 dBA at Receiver 2, and from existing 35 dBA to 41 -43 dBA at Receiver 3. Daytime noise levels are anticipated to increase from existing 38 dBA to 40 – 43 dBA. • Because predicted project operation sound pressure levels at the nearest noise-sensitive receivers are at least 7 dBA lower than the 50 dBA L_{eq} compliance threshold, none of these above conditions is expected to result in the project operation exceeding noise regulations. • Modern turbine designs have been modified to reduce or eliminate low frequency sound. • Recent studies performed for the Canadian Wind Energy Association have described usage of 85–90 dBG as a criterion for human perception of infrasound and, by reasonable extension, the likely threshold for infrasound complaint. The horizontal distances of the project wind turbines to the nearest noise-sensitive receivers are at least 615 meters, which provides sufficient attenuation to offset the amount of decibels that one might add to account for the quantity of wind turbines of the project. Thus, the expected infrasound at the nearest existing receivers (R1 and R2) would remain under an estimated value of 70 dBG, which is 15 dBG less than the previously stated criteria.	Noise impacts from construction and operating the Operations and Maintenance Facility on West Pit Road, as compared to the facility located within the project area would be higher due to the closer proximity to residences west of the project site. Noise levels are anticipated to be below state and local standards.	*Existing sound levels from the site vicinity include agricultural activities, which would continue in the future with or without the Proposed Action. No known noise impacts currently occur from these agricultural activities, and none would be anticipated to occur in the future.*	Construction • Construction would generally occur only during daytime hours to reduce the potential for noise impacts. • All noise-producing project equipment and vehicles using internal combustion engines would be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features. • Mobile or fixed “package” equipment (e.g., arc-welders, air compressors) would be equipped with shrouds and noise control features. • All mobile or fixed noise-producing equipment used on the project that is regulated for noise output by a local, state, or federal agency, would comply with such regulation while in the course of project activity. • The use of noise-producing signals, including horns, whistles, electronic alarms, sirens, and bells, would be for safety warning purposes only. • Unless required for such safety purposes, and as allowable by applicable regulations, no construction-related public address, loudspeaker, or music system would be audible at any adjacent noise-sensitive land use. • The construction contractor would implement a noise complaint process and hotline number for the surrounding community. • Whistling Ridge Energy LLC would have the responsibility and authority to receive and resolve noise complaints. Operation The noise modeling analysis indicated that the noise levels at the three closest residences (located 0.38, 0.48 and 0.8 mile away) would be 37 to 42 dBA for the 9 m/sec wind speed case, at and above which the wind turbine generators are expected to produce the most noise. The cumulative increase over ambient noise conditions would remain below applicable thresholds, and would result in no need for operation noise mitigation.

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
Land Use and Recreation	Construction • Construction-related noise and dust could temporarily affect nearby homes and businesses located along the site access route, though this impact would not be sufficient to change existing land use patterns • Construction activities could impact some recreation users through temporary increases to traffic, and from construction-related dust and noise, such as users of the Underwood Park and Community Center located along Cook-Underwood Road. These impacts would be temporary and are expected to be minor. Operation • Operation of the project would not cause changes to existing land uses or land use activities or development patterns. • Operation of the facility would not result in a sufficient increase in population or traffic to impact local recreational facilities. • The only potential impact of the project to recreation resources, including users of the CRGNSA, would be the minor to moderate impacts to the visual experience of visitors in some locations discussed in Section 3.9 Visual Resources. • The project would not impact any Wild and Scenic Rivers	For the Operations and Maintenance facility located at the West Pit site, earth movement and construction-related traffic would generate slightly more noise and dust along West Pit Road over anticipated levels for roadway construction without the facility. The additional noise and dust could temporarily affect nearby homes along Willard Road. Other impacts are anticipated to be similar for both alternative locations.	The existing pattern of land use would continue, including the use of the project site for commercial forestry and the surrounding area for commercial forestry, agriculture and rural residences	No substantial impacts to land use are anticipated, and no mitigation measures are required. The only potential impact to recreation users from operation would be the minor to moderate impact to visual resources from some viewpoints. As discussed in Section 3.9 Visual Resources, the primary mitigation measure proposed is to paint the turbines and blades a flat grey color to decrease visibility.
Visual Resources	Construction • Large earth-moving equipment, trucks, cranes, and other heavy equipment would be visible from some nearby areas. • At times, small, localized clouds of dust created by road building and other grading activities may be visible at the site. • In close-up views, the construction activities would be highly visible and would have a moderate to high visual impact. From more distant locations, the visual effects of construction would be relatively minor and would have little or no impact on the quality of views. • Construction impacts would be short-term, lasting no more than the one-year construction period. Operation • The turbines would be visible from some viewpoints, including some within the CRGNSA. The project has the potential to create low to moderate levels of visual impact at key viewpoints. • The project would be required to comply with FAA's aircraft safety lighting requirements for structures greater than 200 feet tall, which includes turbines and meteorological towers. The exact number of turbines that would require lighting would be specified by FAA after it has reviewed final project plans. These lights would be visible as small blinking points of red light; they would not light up the sky or the surrounding landscape.	The alternative site at West Pit Road would be more visible to local traffic but would not cause a substantial visual impact.	The existing visual landscape would continue, including openings in tree cover from clear cutting and agricultural operations	Construction • No mitigation measures are proposed during construction. Operation • The turbines would be painted a non-reflective flat neutral grey or light color to minimize visual impacts. • Lights typically used to meet Federal Aviation Administration requirements would to some extent be shielded from ground level view due to a constrained (3–5 degree) vertical beam. The Federal Aviation Administration will independently review the lighting of individual turbines during the micrositing process and consult on mitigation. However, the project must comply with the safety lighting requirement.

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
Historic and Cultural Resources	Construction • Potential impact to the remnants of the Haran Farmstead through ground disturbance during construction of the new project road and turbine and transformer pads along Turbine String D. The degree of impact would depend on the final location of the road and turbines. This site has been recommended as ***ineligible*** for nomination to the NRHP. • Potential impacts to other, currently undiscovered cultural or historic resources. Based on the extensive inventories conducted, the likelihood of encountering additional sites is low. Operation • Ongoing maintenance of the road along Turbine String D has the potential to cause additional impact to the Haran Farmstead site or other, currently undiscovered resources.	No historic or cultural resources are anticipated at the alternative site at West Pit Road.	The current potential for disturbance to undiscovered cultural resources from logging operations would continue	Construction • The primary mitigation method for construction impacts to the Haran Farmstead site would be to locate the new road for Turbine String D and the turbine and transformer pads a sufficient distance from the Haran Farmstead site so that impacts would not occur. However, if the Haran Farmstead is confirmed as ineligible for nomination to the NRHP, no mitigation will be required. • Appropriate BMPs will be used to minimize impacts. These BMPs include preparation and use of an Inadvertent Discovery Plan, which would establish procedures to deal with unanticipated discovery of cultural resources before and during construction. The plan, among other provisions, will require immediate work stoppage and appropriate notification in the event of discovery of previously unknown cultural or historic materials. Operation • Design and location of the road, turbine and transformer locations to avoid and minimize impacts during construction would also avoid and minimize impacts resulting from regular maintenance operations. No additional mitigation would be required.
Transportation	Construction • Improvements to County and private roads between SR 14 and the project site would be necessary to support the long and heavy loads that would be required for the delivery of the wind energy components. The specific improvements required would depend primarily upon truck size, load size, and axle loading. • New roadway construction would be required for access to all proposed wind tower locations. In addition to approximately 7.9 miles of existing private logging roads that would require improvement, approximately 2.4 miles of new private gravel access roads would need to be built. • Temporary construction equipment such as cranes and derricks that would be used for the construction of the proposed towers could pose a hazard to aviation safety during the construction period. A "Determination of No Hazard to Air Navigation" would need to be obtained for the proposed project site. • Project construction would last approximately one year. During that time, there would be an increase in traffic activity in and around the project site due to the construction workforce, equipment deliveries, and empty trucks returning to SR 14. Traffic delays could occur on project area roads due to the maneuvering of large vehicles carrying heavy and/or long loads. • It is expected though that at the peak of construction (a period of three to five months) during the AM peak hour, approximately 210 construction vehicles would travel through either junction of SR 14 and Cook-Underwood Road. During the PM peak hour, as many as 10 construction vehicles could travel through this junction.	Construction impacts would be the same as for the construction and operation of the Operations and Maintenance facility located within the project area. During operation, the alternative site at West Pit Road would have shorter travel times for project staff.	Current transportation patterns would continue, including the current levels of service and the use of the project area roads for commercial timber harvest	Construction • A TMP that would direct and obligate the contractor to implement procedures to minimize traffic impacts would be prepared in consultation with both WSDOT and Skamania County and submitted to EFSEC for approval. The TMP would include requirements for coordination of project-related construction traffic and WSDOT planned construction projects, along with requirements for coordination of project-related construction traffic and Skamania County, City of Bingen, and City of White Salmon summer recreational traffic. • Whistling Ridge Energy LLC and its contractors would be required to comply with State and County permitting requirements for over-size and over-weight vehicles. • Whistling Ridge Energy LLC would be required to notify land owners in the project vicinity prior to construction of transportation routes that would be used for construction equipment and labor. • Approved State and/or County advanced warning construction signs would be placed prior to and during construction • Certified flaggers would be used when necessary to direct traffic when over-size and over-weight trucks either enter or exit public roads, to minimize risk of accidents • Pilot cars would be used both in front of and behind all trucks transporting over-size or over-weight loads on all public roadways • Traffic flow would not be restricted for more than 20 minutes during the construction phase • All loads over 10 feet wide traveling on SR 14 from east of the proposed project site between MP 76.77 and 76.91 would require

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
	• During the same construction peak, an increase of as many of 275 vehicles total would be southbound on Cook-Underwood Road from the project site during the PM peak hour. The actual proportion of vehicles using each of these junctions is not known at this time, consequently the estimated traffic volumes are based on a worst case scenario, where all construction vehicles related to project construction would travel through either the east or the west junction Cook-Underwood Road with SR 14. • Estimated 2011 traffic volumes, including construction vehicles, would have minimal impact on the LOS at either junction of SR 14, which would maintain LOS A. For vehicles turning left or right from Cook-Underwood Road at either the west or the east junctions of Cook-Underwood Road with SR 14, delays would increase up to approximately six seconds per vehicle over estimated 2011 conditions. • The southbound approaches on Cook-Underwood Road at both the west and east junctions with SR 14 would experience degradation in LOS from A to B during the AM peak hour over estimated 2011 operations. • LOS B operations would be maintained at both the west and east junctions of Cook-Underwood Road with SR 14 during the PM peak hour with no change in LOS over year 2011. • Potential moderate impacts to travel safety could occur due to the turning movements of over-size and over-weight trucks onto and off of Cook-Underwood Road during the peak construction period of approximately three to five months. • Construction impacts to river transportation would be minimal to low. Operation • Operation of the project would produce minimal impacts to transportation.			three pilot cars, two in front and one in the rear. The two front pilot cars would be required to maintain a minimum 500-foot separation. The lead pilot car in front of the load would warn oncoming traffic of the over-size load, and the pilot car immediately in front of the over-size load would be responsible for stopping all oncoming traffic. Construction of Access Roads • All sections of the access roadway system that would require improvements or new construction would be designed and built according to WSDOT and Washington State access management standards. Hazardous Materials Transport • Transport of hazardous materials would be conducted in a manner that would protect both human health and the environment and would be in accordance with applicable State, Federal and WSDOT requirements. Roadway Maintenance [During Construction] • Pre- and post-haul construction visual assessments of roadway surface conditions would be conducted identifying weak or deteriorated areas along the haul route that may require mitigation • Following the end of construction, a mitigation design program would be developed as needed to repair all pavement sections to pre-construction conditions or better • Whistling Ridge Energy LLC would be responsible for maintaining turbine string access roads, access ways, and other roads built on site to construct and operate the proposed project Operation • All snow removal would be performed in a safe manner that would not degrade roadway conditions
Public Services and Utilities	Construction • The use of construction workers from outside the immediate area could result in a minor and temporary increase in the demand for public services including police departments, providers of emergency medical services, and local fire departments. • The impact of project construction on local schools would be at most minor and temporary, as few out-of-area construction workers are likely to be accompanied by families for this temporary construction project. • Construction-related impacts to local utilities providing telephone, electric or solid waste pickup are also expected to be minor and temporary. Most workers would not be in the area for long enough to obtain these services; those who stayed in temporary housing in the area would not remain for more than a few months.	The West Pit Road site would have a shorter response times for emergency services since the facility would be along a county road.	The current pattern of use of public services and utilities would continue	Construction • Whistling Ridge Energy LLC would provide applicable emergency response information to local agencies prior to project construction and would review and update employee contact information annually and provide any changes to the appropriate agencies. • A full time security plan would be implemented during project construction to reduce the potential need for increased police services to the project site. Provisions could include temporary fencing with a locked gate around the construction site; the use of site trailers for the temporary storage of special equipment or materials; and the use of outdoor lighting and motion-sensor lighting. • Emergency plans would be prepared to protect the public health, safety, and environment on and off the project site in the case of a major natural disaster or industrial accident relating to or affecting the project.

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
	• The presence of construction vehicles on area roads would not impact the response times for emergency providers. Construction trucks would represent additional volume on area roads, but transportation LOS would remain at LOS A or B (delays of less than 15 seconds), and thus would not cause substantial delays to emergency response vehicles. Operation • Operation of the project would create a potential positive impact to public services and utilities. The project's assessed value could be as much as $87.5 million, and this would generate approximately $800,000 per year in tax distributions to municipal, county and other local jurisdictions. Although impacts are expected to be minimal, a portion of these funds could nevertheless be used to upgrade existing public services and utilities in Klickitat County. • The project would have eight to nine on-site employees during operation. Given this small number, and considering the use of on-site services and emergency response plans, the project is expected to have minimal adverse impact on local public services and utilities			• The construction specifications would require that the contractors prepare and implement a Construction Health and Safety Program that included an emergency plan. The Construction Health and Safety Program would include the following provisions: o Construction Injury and Illness Prevention Plan o Construction Written Safety Program o Construction Personnel Protective Devices o Construction Onsite Fire Suppression Prevention o Construction Offsite Fire Suppression Support • In the event that operations personnel were to be seriously injured and require evacuation from the project area, Whistling Ridge Energy LLC would make arrangements with Skamania County Emergency Medical Service or Skyline Ambulance for transport. Operation • Tax revenues generated by the project would mitigate potential impacts to public services and utilities. • Whistling Ridge Energy LLC would provide all local police, fire, and emergency medical agencies with emergency response information for the project including employee contact information, procedures for rescue operations to the nacelles, and location of rescue basket. Fire protection • The construction manager would be responsible for staying abreast of fire conditions in the project area by contacting DNR and implementing any necessary fire precautions. • A Fire Protection and Prevention Plan would be developed for EFSEC approval and implemented, in coordination with the Skamania County Fire Marshall and appropriate agencies. • Both the wind turbine generators and the substation would be equipped with lightning protection systems. • All onsite operations employees would be responsible for contributing to ongoing fire prevention in the project area through the following programs: o Operational Safety Program o Operations Written Safety Program o Emergency Action Plan o Fire Prevention Plan In addition, Whistling Ridge Energy LLC would: • Provide detailed maps that show all access roads to the project • Provide keys to a master lock system that would enable emergency personnel to unlock gates that would otherwise limit access to the project • Use spark arresters on all power equipment, e.g., cutting torches and cutting tools • Inform workers at the project site of emergency contact phone numbers and train them in emergency response procedures • Carry fire extinguishers in all maintenance vehicles

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
				• Coordinate with DNR when the fire danger is high • Comply with equipment rules and regulations required by DNR for work conducted in wildland/forested lands Construction and Operation During both construction and operation, fire risk would be mitigated through BMPs including: • All on-site service vehicles fitted with fire extinguishers • Fire station boxes with shovels, water tank sprayers, etc. installed at multiple locations on site along roadways during summer fire season • Minimum of one water truck with sprayers must be present on each turbine string road with construction activities during fire season • No gas powered vehicles allowed outside of graveled areas • Mainly diesel vehicles (i.e. w/o catalytic converters) used on site • Use of high clearance vehicles on site if used off-road • Smoking restricted to designated areas (outdoor gravel covered areas) • Only state licensed explosive specialist contractors are allowed to perform this work – explosives require special detonation equipment with safety lockouts • Clear vegetation from the general footprint area surrounding the excavation zone to be blasted • Standby water spray trucks and fire suppression equipment to be present during blasting activities • All major construction equipment used is to be diesel powered (i.e. w/o catalytic converters) • Specially engineered lightning protection and grounding systems used at wind turbines and at substation • Footprint areas around turbines and substation would be graveled with no vegetation • Generators not allowed to operate on open grass areas • All portable generators to be fitted with spark arrestors on exhaust system • Immediate surrounding area would be wetted with water sprayer • Fire suppression equipment to be present at location of welder/torch activity • Electrical designs and construction specifications meet or exceed requirements of the National Electric Code and National Fire Protection Agency
Socioeconomics	Construction • During the one-year construction period approximately 330 full-time and part-time workers would be employed at some point during construction. Some of these jobs would not last the entire construction period. The on-site construction work force would peak at approximately 265 workers over the construction period and average 143 workers over the 12 months. An estimated 65	Impact would be the same as for the construction and operation of the Operations and Maintenance facility located within the project area.	Current patterns of employment and housing would continue, including the reliance on the agricultural and timber economy for employment	Construction • Socioeconomic impacts are expected to be beneficial, in the form of additional jobs, increased sales, and increased tax revenues. • Construction contractors would be required to advertise positions locally and to employ local workers to the greatest extent possible. Operation • No mitigation measures would be required

Table 1-1 (Continued)
Summary of Environmental Consequences and Design and Mitigation Measures

Element of the Environment	Impact of Proposed Project: Construction and Operation of Facility, Transmission Interconnection, and Access Road	Impact of Alternate Operations and Maintenance Facility on West Pit Road	Impact of No Action Alternative	Design and Mitigation Measures
	to 75 percent of the construction labor force would likely be hired from outside the three-county area, and 25 to 35 percent would be residents of the area. • Indirect and induced value added from construction is estimated to be approximately $3.9 million. Also, project construction would result in 71 indirect and induced jobs. • The local area contains sufficient temporary housing for out-of-area construction labor, and the project is not expected to impact housing values, rents or new home starts. • Fiscal impacts are expected to be positive, with a total $150 M in construction expenditures, of which approximately $13.2 M would be spent in the local area. Most sales tax revenue would go to Skamania County. • Construction is not expected to impact property values or property tax revenues. Operation • Economic impacts would be positive due to increased tax revenues, employment and local expenditures. • Sales, use and other indirect business taxes to state and local governments attributable to project operation are estimated at approximately $50,000 per year. • The proposed project would have an estimated value of $87.5 million, which would represent an increase of 6.5 percent in assessed value in the County. At current tax rates, the increase in property tax revenue to the County would be $731,500 annually. • The project would employ eight to nine employees; most would be hired from the local area. This work force would not impact local housing supply or prices. • Based on a review of available studies, operation of the project is not expected to create adverse impact to property values.			

1.7 SUMMARY OF UNAVOIDABLE ADVERSE IMPACTS

Table 1-3 summarizes the potential unavoidable adverse impacts remaining after application of mitigation measures.

Table 1-2
Summary of Unavoidable Adverse Impacts

Element of the Environment	Unavoidable Adverse Impacts
Earth	The primary unavoidable impacts are the potential for landslide and erosion. Both can be mitigated through appropriate design and the application of mitigation measures.
Air Quality	The proposed project would produce minor impacts to air quality, similar to existing logging operations. By producing electricity without generating air emissions, the project would contribute to a beneficial impact on overall air quality.
Water	Construction and operation of the project would only result in negligible to minor impacts to water resources because the impacts are localized and the disturbance is short-term.
Biological Resources	The project would result in the permanent loss of approximately 56 acres of habitat which would be converted to new project roads, turbines and pads, substation and Operations and Maintenance facility. These impacts, while unavoidable, would take place in landscape of managed timber lands which has for many years and will continue to be a fragmented environment with ongoing disturbance. During construction, direct mortality to birds could occur through nest disturbance. The project would result in some ongoing mortality to birds and bats through turbine collisions. This level is not expected to be high enough to impact species viability. The project is unlikely to cause mortality to any threatened or endangered species.
Energy and Natural Resources	The project would have minor unavoidable adverse impacts to energy or natural resources. The overall impact of the project to energy and natural resources would be positive, since it would provide the region with low-cost, clean, renewable energy, in accordance with state and national policies and priorities.
Public Health and Safety	Unavoidable adverse impacts to environmental health are anticipated to be minimal. Unlike thermal power plants, wind power projects pose a much smaller risk of explosion or fire potential, as there is no need to transport, store, or combust fuel to generate power. The risk of unintentional or accidental fire or explosion or discharge to the environment during both construction and operations would be minimal. The risk of accident during construction would be no higher than for any large construction project and would be minimized through standard construction safety requirements and procedures. The risk of accident during operation would be minimal.

Element of the Environment	Unavoidable Adverse Impacts
Noise	Construction noise is exempt so long as it occurs during daytime hours, and operation noise is predicted to be less than the nighttime threshold of 50 dBA L_{eq} per Washington State and Skamania County regulations. The analysis of noise impacts was based on specific design features of the proposed project that were current as of the date of this DEIS. These features, such as the turbine manufacturer and model selection, the layout of the turbines on the project site and their corresponding distances to identified closest noise-sensitive receivers, can greatly influence the analysis results. However, assuming that final turbine selections and siting locations are comparable to those features used in this analysis, no substantial adverse construction or operation noise impacts are anticipated for the project.
Land Use	The proposed project would not produce substantial impacts on land use or recreation. The 1,152-acre project site would continue to be predominantly used for commercial forestry operations. A maximum of approximately 56 acres of forestry land (under 5 percent of the project site) would be converted to energy facility use for the life of the project. This conversion would not constitute a substantial change to area land use patterns given the area of the project retained for active forestry operations, and given the acreage surrounding the project in both private and state ownership that will be maintained in commercial forestry operations.
Visual Resources	The project would cause some visual impact to surrounding areas where turbines were visible, including some areas inside the Columbia River Gorge National Scenic Area. The visual impact analysis showed that the anticipated level of visual impact would not be higher than low to moderate at any of the viewpoints examined.
Historic and Cultural Resources	With the use of appropriate mitigation measures, the proposed project is not expected to produce any unavoidable impacts to historic or cultural resources.
Transportation	No major unavoidable adverse impacts to traffic and transportation have been identified. Construction of the project is anticipated to have very minor impacts to LOS standards, and to have a potential very minor impact on traffic safety. Operation of the project is anticipated to have little to no impact to transportation.
Public Services and Utilities	The project would have no unavoidable adverse impacts to public services and utilities. The small amount of additional services and utilities that would be needed would be offset by the increased tax revenue.
Socioeconomics	The proposed project would result in beneficial impacts, primarily from employment during construction and operation. Minimal adverse impacts are expected.

1.8 CUMULATIVE IMPACTS

Cumulative impacts are the incremental impacts of a proposal when considered in the context of other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time. This section summarizes the information contained in Section 3.14.

1.8.1 PROJECTS CONSIDERED

1.8.1.1 Existing Development

The general project area is characterized by agriculture, commercial forestry, rural residential development, and a small number of commercial enterprises. The proposed project site is located in the state of Washington approximately two miles north of the Columbia River and directly north of the Columbia River Gorge National Scenic Area. The National Scenic Area extends along the Columbia River for about 85 miles and includes 292,500 acres in parts of three Oregon and three Washington counties. Although both the project site and the proposed access road are located completely outside the National Scenic Area, the proposed project area does extend south to its northern boundary. The Gifford Pinchot National Forest is located north of the project site.

On both the Washington and Oregon sides of the Columbia River, land use is predominantly commercial forestry and residential in numerous small, unincorporated communities. There is some limited agriculture located within the National Scenic Area. South of the Scenic Area, on the Oregon side, land uses include commercial forestry, agriculture, and some residential.

Portions of the Whistling Ridge Energy Project would be visible to drivers along I-84, located on the Oregon side of the Columbia River. For the purpose of assessing cumulative impacts to visual resources, views of other wind projects from I-84 were considered. From Cascade Locks, Oregon (located southwest of the project site on the Oregon side of the Columbia River) to the intersection with I-82 which leads north to the Tri-Cities, I-84 extends for a distance of approximately 127 miles. Along this segment, there are ten existing wind projects, all located within a distance of approximately 70 miles east of the Whistling Ridge Energy Project site (to approximately Arlington, Oregon).[1] These ten projects could potentially be viewed by drivers along I-84 within a driving time of approximately one to one-and one-half hours and were considered in the analysis of cumulative impacts to visual resources described in Section 3.14.

1.8.1.2 Reasonably Foreseeable Future Development

Reasonably foreseeable projects were identified through searches of the web sites of Skamania, Klickitat and Hood River Counties, Columbia River Gorge Commission, Washington State Department of Transportation (WSDOT), Oregon Department of Transportation, EFSEC, the Oregon Department of Energy, and the Ports of Skamania County, Klickitat County, The Dalles, and Cascade Locks. A total of nine reasonably foreseeable future projects, including three proposed wind power projects, were identified. Of the three wind projects, the proposed Juniper Canyon and Summit Ridge projects were assessed to be too far away (generally more than 20 miles) from the Whistling Ridge Energy Project site to result in cumulative impacts. One wind project, the proposed Middle Mountain project, is included in this cumulative impact analysis. The Middle Mountain wind project is proposed to be located on the south side of the Columbia River, approximately seventeen miles south of the Whistling Ridge Energy Project. The

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[1] See map at http://www.nwcouncil.org/maps/power/Default.asp.

remaining six projects included transportation improvements, communications facilities, and power line improvements. Of these, only the Oregon Department of Transportation bridge replacements now in progress along I-84 were considered close enough to the project area to be included in the cumulative impact analysis. The other five transportation, communication, and power line improvement projects were considered to be too far from the Whistling Ridge project site to result in cumulative impacts.

Thus, the Middle Mountain Wind Project and the I-84 Bridge Replacement Project are the only two reasonably foreseeable future projects with a potential for cumulative impacts with the Whistling Ridge Energy Project. These two projects were analyzed in addition to the visual impacts of the ten existing wind projects.

1.8.2 RESULTS OF CUMULATIVE IMPACTS ANALYSIS

The cumulative effects that the Proposed Action, in combination with the past, present, and reasonably foreseeable future actions identified above, would have on the various environmental resources are discussed in Section 3.14 of this EIS. Cumulative impacts from the combination of these actions could occur for each of the environmental resources. However, the contribution of the Proposed Action to these cumulative impacts would vary, with the greatest contribution occurring in cumulative impacts on visual resources as constructing and operating the Whistling Ridge Energy Project would add a view of an additional wind power project to travelers in the Gorge. In addition to the existing projects east of the project area, long-distance travelers in either direction along I-84 could see some elements of the Whistling Ridge Project, for approximately 12.5 miles traveling west and 6.5 miles traveling east. Travelers along SR 14 would not see the Proposed Action, which would be blocked by the bluff to the north of the road. As discussed in more depth below in Section 3.14.3.10, the visual impact of the Whistling Ridge Project along I-84 would be variable, with the number of turbine strings visible changing with topography. In many places only a few turbines would be visible, and the area where the most turbines would be visible (directly across the Columbia River from White Salmon and Bingen) would also be the area where the viewer would be the farthest from the project area (See Figure 3.9-1). This would constitute a small cumulative impact when considered in combination with views of other wind projects located from 35 to 70 miles to the east.

The proposed action would contribute incrementally, though in a minor way, on cumulative impacts to soil erosion and water quality in the project area, as well as to vegetation, terrestrial wildlife species, and bird and bat species in the region. Low levels of adverse cumulative impacts have also been identified for energy and natural resources from the use of steel, concrete and vehicle fuel for construction, and for transportation (traffic safety and increased risk of accidents during construction periods of the Whistling Ridge Energy Project and the I-84 bridge replacement projects, if they should overlap). Simultaneous construction projects may create a beneficial cumulative socioeconomic impact to local communities. Finally, by introducing up to 75 MW of clean renewable energy into the regional electrical grid, the project will positively contribute to efforts to combat the cumulative impacts of climate change, and also contribute to efforts to improve air quality in the Columbia River Gorge vicinity.

1.9 ORGANIZATION OF THIS EIS

Much of the organization of this document is based on the SEPA EIS format and content specified in WAC 197-11-430 and 197-11-440, with adjustments made to ensure NEPA compliance as well. The remainder of this EIS is organized as follows:

- **Chapter 2, Proposed Action and Alternatives.** This chapter describes in detail the Proposed Action and alternatives, including the No Action Alternative and alternatives to elements of the proposed project that are evaluated.

- **Chapter 3, Affected Environment, Impacts, and Mitigation.** This chapter describes the existing environment without construction and operation of the Whistling Ridge Energy Project. The chapter also includes analyses of the environmental effects of constructing and operating the Whistling Ridge Energy Project and determines of whether there is the potential for environmental impacts to occur. If impacts could occur, they are evaluated to determine if could be avoided. Mitigation measures to lessen or eliminate impacts also are listed.

  Chapter 3 has been subdivided into separate sections, one for each element of the environment (for example, biological resources, land use, historic and cultural resources, etc.) and an additional section describing cumulative impacts. This chapter also includes certain sections required by NEPA regulations.

- **Chapter 4, Environmental Consultation, Review and Permitting Requirements.** This chapter describes the permits and approvals that must be obtained for the construction and operation of the Whistling Ridge Energy Project.

- **Chapter 5, Distribution List.** This chapter lists individuals and organizations that have received a copy of the Draft EIS.

- **Chapter 6, List of Preparers.** This chapter lists the individuals who contributed to the preparation of this EIS. It also includes their organization affiliation and a brief description of their professional backgrounds.

- **Chapter 7, Index.** This chapter contains an index for the EIS

- **Appendices.** The appendices provide supporting technical information to the EIS.

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