Table 1-4: Summary of Impacts and Mitigation

Alternative	Impacts	Mitigation Measures
3.1 Earth Resources		
Proposed Action	***Construction*** Impacts on soils from project construction would result from clearing, excavation, and filling activities. A larger volume of cut and fill would be required for turbines larger than 1.5 MW because they would require wider roads. Because both scenarios would install the same number of turbines, the choice of scenario would not impact the amount of exported materials that would be generated. Significant erosion could occur within areas disturbed by project construction and corresponding cut and fill activities. Total site disturbance would be 211.2 acres. Construction (cut and fill) of access roads and project facilities would not occur on or under steep slopes, therefore, no sliding of soil and alluvial materials is expected during construction. ***Operations and Maintenance*** No significant impacts on soils or topography, including soil erosion impacts, are anticipated during operation and maintenance of the project. Because Ellensburg Blue agate is not unique to the project site and because the majority of the site is presently restricted from legal public access, operations and maintenance activities are not expected to significantly preclude the public's ability to hunt for and collect this resource. A large earthquake could affect wind power operations, disrupt the regional electrical distribution system, or possibly cause turbine towers to collapse. However, the likelihood of catastrophic impacts is remote. The main hazard to the project site from volcanic eruptions would be from volcanic ash. Measures inherent in the project design and implementation of onsite emergency plans to protect the public health, safety, and environment on and off the project site would minimize potential impacts. Project facilities would not be located on unstable slopes or landslide-prone terrain. The turbine structures would be built on relatively flat ground (not on edges or slopes).	***Mitigation Measures Proposed by Applicant*** <u>Erosion Control during Project Construction</u> • Prior to beginning of construction, a detailed Stormwater Pollution Prevention Plan (SWPPP) would be developed and approved by EFSEC for the project to minimize the potential for pollutant discharge from the site during construction and operation activities. The SWPPP would include both structural and non-structural best management practices (BMPs). • The SWPPP would be prepared along with a detailed project grading plan by the Engineering, Procurement, and Construction (EPC) contractor when design level topographic surveying and mapping are prepared for the project site. • Site-specific BMPs would be identified on the construction plans for the site slopes, construction activities, weather conditions, and vegetative buffers. The sequence and methods of construction activities would be controlled to limit erosion. Clearing, excavation, and grading would be limited to the minimum areas necessary to construct the project. Surface protection measures, such as erosion control blankets or straw matting, also may be required during construction before site restoration if the potential for erosion is high. • All construction practices would emphasize erosion control over sediment control by implementing activities such as straw mulching and vegetating disturbed surfaces; retaining original vegetation wherever possible; directing surface runoff away from denuded areas; keeping runoff velocities low by minimizing slope steepness and length; and providing and maintaining stabilized construction entrances. • Erosion control measures to be installed during work on the access roads include maintaining vegetative buffer strips between the affected areas and any nearby receiving waterways; installing sediment fence/straw barriers on disturbed slopes and other locations shown in the SWPPP; using straw mulch at locations adjacent to an affected road; providing temporary sediment traps and Sedimat-type mats downstream of seasonal stream crossings; installing silt fences on steep exposed slopes; and planting affected areas with designated seed mixes.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	The risk of seismic or precipitation-induced landslide in the soils and rock at the project site is minimal. ***Decommissioning*** Decommissioning would consist of removing aboveground equipment such as turbine and meteorological towers and their associated foundations to a depth of 3 feet below ground. If the overhead power lines could not be used by the applicable utility (PSE or Bonneville), all structures, conductors, and cables would also be removed. The Applicant proposes to leave the underground electrical collection system in place subject to landowner approval. The substations could revert to the ownership of the applicable utility. At the time of decommissioning, the Applicant would consult with the applicable landowner to determine the appropriate disposition of the O&M facility. The soil surface would be restored as close as reasonably possible to its original condition. Reclamation procedures would be based on site-specific requirements and would include regrading, adding topsoil, and revegetating all disturbed areas.	<u>Erosion Control during Project Operations</u> • 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. <u>Earthquakes</u> • Prior to final project design, a detailed geotechnical investigation and field survey would be performed to ensure that no turbine locations or other project components lie immediately above a high-risk fault. • The wind turbines would be equipped with vibration sensors that would automatically shut down the turbine in the event of a severe earthquake and current engineering standards applicable in Kittitas County (that is, the 1997 Uniform Building Code) would be used in the design of project facilities. • The Applicant would develop detailed emergency plans prior to project construction and operation to mitigate for potential hazards during an earthquake. <u>Volcanic Hazards</u> • In the event of damage from a volcanic eruption, the project facilities would be shut down until safe operating conditions return. • The Applicant would prepare onsite emergency plans to protect the public health, safety and environment on and off the project site in case of a major natural disaster such as a volcanic eruption. <u>Decommissioning Plans</u> • The Applicant would provide adequate financial assurances to cover all anticipated costs associated with decommissioning the project, including the costs of preparing and implementing a restoration plan. This plan, and the process for its funding, would be developed and submitted to EFSEC for review and approval prior to project construction.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
No Action Alternative	Under the No Action Alternative, the project would not be constructed or operated and the impacts described above would not occur. For example, if the project is not developed, prospector access to Ellensburg Blue agate at the project site would remain unchanged. However, development by others, and of a different nature, including residential development, could occur at the project site in accordance with Kittitas County's existing Comprehensive Plan and zoning regulations. Depending on the location, type, and extent of future development at the project site, impacts on earth resources could be similar to or even greater than the proposed action. If long-term energy needs are to be met, development of new renewable and nonrenewable generation sources might be required. It is estimated that a base load combustion turbine facility generating 60 average megawatts (aMW) of power could require approximately 14 acres for the plant site. Renewable generation sources might require substantially greater land area for a facility site. Construction of a base load gas-fired combustion turbine projects may result in greater disturbance of earth resources compared to the KVWPP because of the possible need to establish a gas pipeline to the facility and electrical transmission interconnections; each facility would result in potential earth resources impacts. The specific type, nature, and extent of earth resource impacts under the No Action Alternative, such as erosion and risk of earthquakes and volcanic eruption, would depend on the site-specific location of the energy plant and its associated facilities.	
3.2 Vegetation, Wetlands, Wildlife and Habitat, Fisheries, and Threatened and Endangered Species		
Proposed Action	***Construction*** <u>Vegetation</u> Impacts during construction would involve direct disturbance to vegetation. Construction-related impacts on vegetation would result in temporary habitat disturbance of 211.2 acres. Lithosol habitat is unique and sensitive and difficult to restore, therefore, loss of this habitat type would be considered an adverse effect of the project.	***Mitigation Measures Proposed by Applicant*** <u>Thorough Study and Analysis</u> • The Applicant has commissioned extensive studies by qualified biologists of plants and animals at the project site to avoid impacts on sensitive populations, including: rare plant surveys; habitat mapping; avian use surveys; aerial raptor nest surveys; wintering bald eagle surveys; non-avian wildlife surveys; biological assessment for threatened and endangered species; and stream and wetland surveys.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Temporary disturbance to lithosol habitat would be approximately 85.4 acres while permanent disturbance would be approximately 33.1 acres. Potential impacts on vegetation include colonization by invasive species, dust effects (i.e., particulate material coating plant leaves), and increased potential to ignite wildfires. <u>Wetlands</u> Road improvements would result in filling or grading approximately 165 square feet of wetlands. Impacts assume that all road crossing areas in the vicinity of wetlands would be no wider than 24 feet. <u>Wildlife and Habitat</u> The primary effect to wildlife from project construction would be the fragmentation, alteration, and removal of wildlife habitat. Overall, with implementation of proposed mitigation measures, impacts associated with project construction are not expected to result in a significant impact on native wildlife. <u>Fisheries</u> No direct impacts on fish associated with project construction would occur. Potential construction impacts on the stream channels, estimated at approximately 1,105 square feet, are expected to be short term and negligible with proper management. <u>Threatened and Endangered Species</u> No rare plant species were identified in the KVWPP area; therefore, there would be no impacts during project construction.	<u>Project Design Features</u> • Avoiding when possible, construction in sensitive areas such as riparian zones, wetlands, forests, etc. • Minimizing new road construction by improving and using existing roads and trails instead of constructing new roads. • Choosing underground (versus overhead) electrical lines wherever feasible to minimize perching and electrocution hazards to birds. • Choosing turbines with low rotations per minute and using tubular towers to minimize risk of bird collision with turbine blades and towers. • Using unguyed (freestanding) permanent meteorological towers to minimize potential for avian collisions with guy wires. • Equipping all overhead power lines with raptor perch guards to minimize risks to raptors. • Spacing all overhead power line conductors to minimize potential for raptor electrocution. <u>Construction Techniques and BMPs to Minimize Impacts</u> • Using BMPs to minimize construction-related surface water runoff and soil erosion. • Using certified “weed free” straw bales during construction to avoid introduction of noxious or invasive weeds. • Flagging sensitive habitat areas (e.g., raptor nests, wetlands, etc.) near proposed areas of construction activity and designation of such areas as “off limits” to all construction personnel. • Developing and implementing a fire control plan, in coordination with local fire districts, to minimize risk of accidental fire during construction and respond effectively to any fire that does occur. • Establishing and enforcing reasonable driving speed limits during construction to minimize potential for road kills. • Properly storing and managing all wastes generated during construction. • Requiring construction personnel to avoid driving over or otherwise disturbing areas outside the designated construction areas. • Monitoring raptor nests on site for activity prior to construction and modifying construction timing and activities to avoid impacts on nesting raptors.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Bald eagles in the area during the construction period are unlikely to occur within the construction zones due to disturbances and therefore are unlikely to be at risk of construction-related mortality. In addition, most construction is likely to take place during late spring, summer and fall months when bald eagles occur rarely or not at all in the area. The possibility of mortality effects to other bird species with state or federal protected status is considered negligible and very unlikely. Some suitable habitat for white-tailed and black-tailed jackrabbits and Merriam's shrew would be lost to turbine pads and road construction, but overall total impacts on habitat are relatively small and no significant impacts on these species are expected to occur. Bat species would likely avoid construction activity and no disturbance to roosting habitat would occur. Suitable habitat for amphibians is very limited in the project area and no significant impacts on protected amphibian species are expected to occur. Construction activity may affect protected reptiles (striped whipsnake and sharptail snake) through loss of habitat and direct mortality of individuals occurring in construction zones. The level of mortality associated with construction would be based on the abundance of these species on site. No impacts on fish species would occur under either of the scenarios. ***Operations and Maintenance*** <u>Vegetation</u> The project would result in permanent vegetation removal. The extent of impact would be greatest under the lower end scenario, which would result in permanent habitat disturbance of 108 acres. Operation impacts on vegetation communities would include shading associated with the turbine towers, as well as impacts caused by increased dust generated by travel on graveled roadways, potential changes in fire frequency patterns, and potential introduction of invasive species.	• Designating an environmental monitor during construction to monitor construction activities and ensure compliance with mitigation measures. • Implementing a trenching protocol during the installation of underground electrical facilities to allow for conservation of surface soils. <u>Post-Construction Restoration of Temporarily Disturbed Areas</u> • 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 prevent the spread of noxious weeds. • Temporary erosion control measures would be implemented, as appropriate, both during and after construction. • The Applicant would consult with the Washington Department of Fish and Wildlife (WDFW) and the TAC regarding the appropriate seed mixes for the project area. <u>Noxious Weed Control</u> • Cleaning construction vehicles prior to bringing them into the project area from outside areas. • Quickly revegetating habitats temporarily disturbed during construction with native species. • Actively controlling noxious weeds that have established themselves as a result of the project in consultation with the Kittitas County Weed Control Board. • Developing a noxious weed control plan prior to construction, and implementing the plan over the life of the project as mitigation. <u>Dust Control</u> The Applicant proposes to implement a comprehensive dust control program. See Section 3.11, Air Quality, for a detailed description of mitigation measures to minimize fugitive dust emissions.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Wetlands Project operations are not expected to have impacts on wetland resources if proper drainage, erosion-control plans, and stormwater management practices are implemented. Wildlife and Habitat Potential impacts on wildlife species associated with project operation include disturbance associated with vehicle traffic, avoidance of turbines, and collisions with turbines and meteorological towers. It is probable that some turbine avoidance effects may occur to the grassland/shrub-steppe avian species occupying the project area. The extent of these effects and their significance is unknown and hard to predict. Avoidance by avian species is expected to range from several hundred feet to no avoidance behavior. Impacts on avian species would be considered low. Operation of the proposed project would not affect raptor nests unless there were avoidance effects that caused raptors to not return to the nests close to the project site. Impacts would be considered low given the low density of nests observed in close proximity to the turbines and the species involved (red-tailed hawk). Based on the level of raptor use within the project area, raptor mortality is expected to be slightly higher compared to other wind projects with similar turbine types. Given that passerines make up the vast majority of the avian observations onsite, it is expected that passerines would make up the largest proportion of fatalities. Bat research at other wind power projects indicates that bat species are at some risk of collision with wind turbines, mostly during the fall migration season. It is likely that some bat fatalities would occur at the proposed project site. Due to the lack of knowledge regarding the potential impacts of wind energy development on big game, it is difficult to predict with certainty the project's effects on mule deer and elk. Given the amount of disturbance within the project area associated with existing residential development and roads, disturbance levels after project operation begins would not be greatly increased.	Fire Protection • Prior to construction, a comprehensive fire control plan would be developed, and implemented project-wide over the life of the project. See Section 3.4, Health and Safety. Monitoring and Adaptive Management Measures • The Applicant proposes to convene a Technical Advisory Committee (TAC) to evaluate the mitigation and monitoring program and determine the need for further studies or mitigation measures. The role of the TAC would be to coordinate appropriate mitigation measures, monitor impacts on wildlife and habitat, and address issues that arise regarding wildlife impacts during construction and operation of the wind power project. The post-construction monitoring plan would be developed in coordination with the TAC and approved by EFSEC prior to construction. • The TAC would evaluate the mitigation and monitoring program and determine the need for further studies and mitigation measures in accordance with the *Wind Project Habitat Mitigation Draft Guidance Document*. In accordance with WDFW's 2003 Wind Power Guidelines, the Applicant has proposed a minimum of one year of post-construction monitoring, which will be reviewed by the TAC. Following that period, the TAC would recommend to EFSEC whether additional monitoring is warranted. Acquisition and Enhancement of Onsite Habitat • The Applicant proposes to protect and restore replacement habitat for habitat temporarily and permanently disturbed by the project at an approximate 550-acre area between proposed turbine strings B and C. Overall, the parcel is in fair to good condition. However, there are several opportunities for enhancement at the mitigation parcel that would be expected to further raise habitat quality. These measures include implementing a grazing management plan and noxious weed control efforts, replanting shrubs in burned areas, and implementing a riparian replanting program.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	The Applicant has agreed that controlled hunting at the project site, including the mitigation parcel, would be allowed, if necessary, to manage big game herds and minimize animal damage. The Applicant has also agreed that its activities on leased State lands would not restrict or otherwise preclude controlled hunting on these parcels. No impacts are expected from the project to big game or reptile and amphibian movement or migration. Potential impacts on fish or fish habitat is unlikely due to the absence of potential fish habitat in the proposed project area. <u>Threatened and Endangered Species</u> Potential bald eagle mortality due to project operation would be confined to the winter and early spring seasons. Bald eagles are not expected to frequently occur within the project area and project operation should have minimal disturbance on bald eagles. The possibility of mortality effects to other federal and/or state protected bird species is considered very low or negligible. Per the requirements of Section 10 of the Endangered Species Act, a Habitat Conservation Plan (HCP) is being developed for potential impacts to bald eagles from the project. Through approval of the HCP, the USFWS can issue an incidental take permit for possible take of bald eagles at the project site. Some individuals of white-tailed and black-tailed jackrabbits and Merriam's shrew could be killed by vehicles on roads, but impacts should be minimal due to the limited nature of traffic expected within the project area. ***Decommissioning*** Impacts on vegetation from decommissioning would be similar to but lower than impacts identified for construction, assuming that all access roads remain in place. Decommissioning vehicles would travel on established roadways, which would not impact vegetation, except for the possible introduction and/or spread of noxious weeds. Vegetation around project facilities (i.e., turbine, meteorological, and transmission towers) to be removed would likely be impacted to the same extent as described for construction.	<u>Loss of Wetlands and Streams</u> • The impact to 0.03 acres of wetlands would be mitigated by preservation and enhancement of 8.0 acres of riparian land in the proposed mitigation parcel. Although this parcel has been determined to be in "fair" to "good" condition, there are several opportunities for enhancement that would be expected to raise habitat quality further. A grazing management plan will be developed that eliminates cattle pressure on the most sensitive portions, and allows for reestablishment of native vegetation in specific problem areas. • In the spring of 2004, the U.S. Army Corps of Engineers determined that to mitigate for the project's expected loss of jurisdictional wetlands and waters of the United States, the project is eligible for coverage under Nationwide Permit (NWP) 12 (Utility Line Discharges). NWP 12 (if applied) would authorize the KVWPP to place dredged or fill material into waters of the United States to construct utility line crossings and road crossings. The Corps extended this authorization in March 2006 for an additional two eyars. WDFW provided to EFSEC recommendations a Hydraulic Project Approval (HPA) for the proposed project on June 28, 2004 (Renfrow, pers. comm., 2004). WDFW recommends that the HPA provisions be incorporated into the Site Certification Agreement. The HPA specifies that proposed construction of road and utility crossings at intermittent streams in the project area may be conducted provided that: • Work is only undertaken during the period June- July to November 15th; and • Work is done only during a period when there is no surface flow in the watercourses or flow is so minimal that sediment cannot be transported downstream from the immediate work area of each crossing. The HPA also requires that temporary erosion control measures shall be implemented as necessary to prevent the discharge of earth and fine sediments to the stream channel at each work site.
	Potential impacts on wetlands resulting from decommissioning of the proposed project are unlikely.	WDFW recommended a Hydraulic Project Approval (HPA) for the proposed project on June 28, 2004. WDFW recommended to EFSEC that the provisions of the HPA be incorporated into the Site Certification Agreement.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Impacts on wildlife and habitat, fisheries, and threatened and endangered species from decommissioning would be lower than during construction, assuming that all access roads remain in place. Dismantling the project would eliminate avian mortality caused by the presence of wind turbines. Wildlife habitat would have the potential to return to pre-project conditions over time; therefore, impacts from decommissioning would be low. Vehicles would travel on established roadways which would not impact habitat for federal or state protected species. Mitigation for impacts on wildlife would follow procedures in use at the time of decommissioning.	The HPA specifies that proposed construction of road and utility crossings at intermittent streams in the project area may begin July 1, 2004 and shall be completed by November 15, 2006, provided that : • Work is only undertaken during the period from July 1st to November 15th in 2004, and from June 1st to November 15th of calendar years 2005 and 2006; and • Work is done only during a period when there is no surface flow in the watercourses or flow is so minimal that sediment cannot be transported downstream from the immediate work area of each crossing. The HPA also requires that temporary erosion control measures shall be implemented as necessary to prevent the discharge of earth and fine sediments to the stream channel at each work site. ***Additional Recommended Mitigation Measures*** <u>Post-Construction Restoration of Temporarily Disturbed Areas</u> Existing project design minimizes both permanent and temporary impacts from facilities construction. The Applicant proposes to reseed temporarily disturbed areas with an appropriate mix of native plant species as soon as possible after construction is completed (see Mitigation Measures Proposed by the Applicant, above). • WDFW recommends that reseeding occurs at the next suitable planting window after construction is completed and that a broadcast application (4 to 6 pounds per acre) of a lithosol origin biotype such as native Sandberg Bluegrass should be applied to restored areas. • The specific type of appropriate seed mixes to be used during site restoration, including within the sweep zone of each turbine, should be determined through consultation with WDFW and the TAC. Consideration should be given to seed mix that minimizes prey species use (i.e., rodents, rabbits, etc.) in the vicinity of the turbines. <u>Acquisition and Enhancement of Onsite Habitat</u> WDFW has encouraged the Applicant to avoid and minimize the impact on lithosols as much as possible. Lithosol habitat is difficult to restore. In lieu of direct avoidance, the following measure is recommended to minimize impacts on this unique and sensitive habitat: • Implement measures to protect and restore existing lithosol habitat along ridge tops in the mitigation parcel. If the appropriate amount of lithosol habitat is not identified at the mitigation parcel to mitigate for the loss of

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		lithosols, the TAC should study and consider whether any, additional lithosol habitat should be identified and acquired for preservation. <u>Lighting</u> The FAA has jurisdictional authority over tower structure lighting requirements and the project must comply with FAA rules. Nonetheless, the following mitigation measures to reduce lighting effects on avian species are recommended by WDFW: • The use of lights on towers, in accordance with federal, state and local requirements, should be minimized whenever possible, because they may attract birds and bats to the vicinity of the turbines in certain conditions. Further, the US Fish and Wildlife Service recommends that only white (preferable) or red strobe lights be used at night, and that these should be the minimum number, minimum intensity, and minimum number of flashes per minutes (longest duration between flashes) allowable by the Federal Aviation Administration (FAA).
No Action Alternative	Under the No Action Alternative, the project would not be constructed or operated. However, development of a different nature could occur under Kittitas County's existing Comprehensive Plan and zoning regulations for the project area. Depending on the location, type, and magnitude of future developments at the project site, impacts on vegetation, wetlands, or to threatened or endangered plant and animal species could be similar to or even greater than the proposed action. However, potential impacts on birds would be expected to be less under the No Action Alternative assuming that no tower-like structures are constructed. Other power generation facilities could be constructed and operated in the region to meet the long-term need for power. Constructing a base load gas-fired turbine generator, developing and extracting natural gas, and constructing natural gas pipelines to provide fuel to the generating facility could create impacts on vegetation, wetlands, wildlife, and threatened and endangered species. The significance of such impacts would depend on the site-specific location and design of the facility.	

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
3.3 Water Resources		

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
Proposed Action	***Construction*** Precipitation during construction could result in sediment laden surface runoff because of ground disturbance and exposed soils. Construction of the project would require water for road construction, concrete preparation, dust control, and other activities. The amount of water use during construction is not expected to vary significantly under any of the scenarios because of the temporary nature of the impact and the availability of adequate water supplies. Encountering significant amounts of groundwater during construction of the turbine foundations is not expected. The overall impact on groundwater is expected to be temporary and unlikely to affect water wells in the project area. Because of the differences in depth between the majority of existing groundwater wells and proposed foundation sites, proposed blasting activities during construction are not anticipated to cause significant well damage. However, mitigation is recommended to ensure that project construction does not adversely affect the continued operation of these wells. ***Operations and Maintenance*** No significant erosion or sedimentation impacts on project-area surface waters are expected as a result of operation and maintenance of the KVWPP. Operation of the project would require a domestic well to serve the limited needs of the O&M facility. No significant impacts on groundwater supplies are expected because of facility operations. ***Decommissioning*** Impacts on water resources and water quality from decommissioning of the project would be similar to those described for construction. Water would be needed for dust control. There would be potential for soil erosion and impacts on stormwater quality. Impacts are expected to be minimal, however, because appropriate construction BMPs would be followed during decommissioning.	***Mitigation Measures Proposed by Applicant*** <u>Surface Runoff Pollution during Construction</u> • The Applicant proposes to develop and implement, as required by the National Pollutant Discharge Elimination System (NPDES) General Stormwater Permit for Construction Activities, a detailed SWPPP to minimize the potential for discharge of pollutants from the site during construction. See Section 3.1, Earth Resources, for a detailed description of proposed SWPPP activities and measures to be implemented during construction. <u>Surface Runoff Pollution during Operations</u> • The Applicant proposes to develop and implement, as required by the NPDES Industrial Stormwater General Permit, a detailed SWPPP to minimize the potential for discharge of pollutants from the site during operations and maintenance activities. See Section 3.1, Earth Resources, for a description of proposed SWPPP activities and measures to be implemented during project operations and maintenance. <u>Water Supply</u> • A licensed well driller would install a potable water well to serve the O&M facility. The well would be installed consistent with Kittitas County Environmental Health Department and Ecology requirements. ***Additional Recommended Mitigation Measure*** <u>Disruption to Existing Groundwater Wells</u> To ensure that project construction does not adversely affect the continued operation of local groundwater wells, the following measures, to be implemented by the Applicant, are recommended: • Develop a groundwater well monitoring plan. The plan should: 1) identify potentially disturbed wells in the vicinity of proposed construction activities; 2) identify monitoring parameters (e.g., timing of monitoring, length of monitoring, monitoring methodology); 3) record the results of baseline monitoring (i.e., the condition of wells before construction commences); and 4) record the results of construction monitoring. The Applicant should be responsible for repairing any well damage caused by blasting or other disruptive construction activities.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
No Action Alternative	Under the No Action Alternative, the project would not be constructed or operated. However, development by others, and of a different nature, including residential development, could occur at the project site in accordance with Kittitas County's existing Comprehensive Plan and zoning regulations. Depending on the location, type, and extent of future developments at the project site, impacts on water resources could be similar to or even greater than the proposed action. If the proposed project were not constructed, the region's base load power needs could de delivered through development of other generation facilities, most likely a gas-fired combustion turbine. Gas-fired combustion turbine projects could expose more soil to potential erosion because of the possible need to establish a gas pipeline to the facility and electrical transmission interconnections. Also, substantial amounts of water, estimated at 200 acre-feet (65 million gallons) per year, would be needed for cooling water during plant operation. Operation of a water-cooled combustion turbine facility would also result in discharge of large volumes of wastewater. Development of other wind energy projects would result in impacts similar to those of the proposed action.	
3.4 Health and Safety		
Proposed Action	***Construction*** There is a risk of unintentional or accidental fire or explosion during project construction. The highest expected fire risks are grass fires during the hot, dry summer season. Natural risk of unintentional fire or explosion, such as from a lightning strike would be the same regardless of proposed action scenario. Fuel and lubricating oils from construction vehicles and equipment are potential sources of hazardous materials that could accidentally leak or be spilled during project construction. Mineral oil used to fill substation transformers is another potential source of hazardous materials. ***Operations and Maintenance*** There is a risk of unintentional or accidental fire or explosion during project operations and maintenance. Accidental fires could result from human activities such as cigarette smoking, use of vehicles off established roadways, and mechanical fires. Lubricating oils and hydraulic fluids used in the individual wind turbine generators and mineral oil used to fill pad-mounted and substation transformers are potential sources of hazardous materials that could	***Mitigation Measures Proposed by Applicant*** <u>General Measures to Protect Health and Safety</u> • The Applicant and its subcontractors would comply with all applicable local, state and federal safety, health, and environmental laws, ordinances, regulations, and standards. <u>Fire and Explosion Risk Mitigation Plan (Construction and Operations)</u> • All onsite service vehicles would be fitted with fire extinguishers. • Fire station boxes with shovels, water tank sprayers, etc. would be installed at multiple locations onsite along roadways during summer fire season. • A minimum of one water truck with sprayers would be present on each turbine string road with construction activities during fire season. • No gasoline-powered vehicles would be allowed outside graveled areas. • Mainly diesel vehicles (i.e., w/o catalytic converters) would be used on site. • High clearance vehicles would be used on site if used offroad. • Smoking would be restricted to designated areas (outdoor gravel covered

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	accidentally be spilled during project operations. A risk assessment evaluated the potential for serious injury or death from ice throws, blade throw, or tower collapse. The risk assessment revealed that the probability of a wind turbine at the proposed project killing or seriously injuring a member of the public as a result of ice throw (or blade throw or tower collapse) is less than 1 in 1 billion (Kammen, Prefiled Testimony, Exhibit 39).	areas). • Only state-licensed explosive specialist contractors would be allowed to perform blasting work. • Vegetation from the general footprint area surrounding the excavation zone to be blasted would be cleared. • Standby water spray trucks and fire suppression equipment would be present during blasting activities. • All equipment would be designed to meet National Electric Code and National Fire Protection Association standards. • Graveled areas with no vegetation would surround substations, fused switch risers on overhead pole lines, junction boxes, and pad switches.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Potential public health and safety risks caused by ice falling off rotating blades could occur within 50 to 328 feet of an operating turbine tower but would be unlikely. According to the Applicant, potential collapse of wind turbine towers or blade throw (i.e., blade fragments thrown from a rotating machine) are not anticipated, however, minimum setbacks incorporated into the project layout, compliance with engineering design and manufacturing safety standards, and inspection procedures during construction, would reduce these safety risks. Shadow-flicker caused from low-angle sun shining through rotating wind turbines would affect several residences living in close proximity to the project site, and residents may perceive these effects to be significantly disruptive The rotors would be located between 100 and 115 feet above ground level and ground level airflow disturbance (i.e., dust generation) would be negligible. The potential for vandalism of project facilities would be negligible due to site security measures incorporated into the project design. Electric and magnetic fields (EMF) generated by proposed overhead high-voltage equipment at the substations would diminish to background levels at nearby residences and would not pose a health or safety risk. The electrical system at the substations would be designed to minimize risks associated with ground faults, lighting, and switching surges that may result in high voltage hazards. ***Decommissioning*** Potential health and safety impacts during the project decommissioning process would be similar to risks identified during project construction.	• Fire suppressing rock filled oil containment troughs would be constructed around substation transformers. • Specially engineered lighting protection and grounding systems would be included at wind turbines and substations. • Footprint areas around turbines and substation would be graveled with no vegetation. • Generators would not be allowed to operate on open grass areas. • All portable generators would be fitted with spark arresters on exhaust system. • The immediate area surrounding any welder/torch activity would be wetted with a water sprayer. • Fire suppression equipment would be present at the location of welder/torch activity. • Electrical designs and construction specifications would meet or exceed requirements of National Electric Code and National Fire Protection Association. <u>Additional Measures to Reduce Risk of Fire and Explosion during Construction</u> • The Construction Manager would be responsible for staying abreast of fire conditions in the project area by contacting Washington State Department of Natural Resources (DNR) and implementing necessary fire precautions. • Fire risk reporting by the Washington DNR would be actively posted at the construction job site during the high-risk season. • A Fire Protection and Prevention Plan would be developed and implemented, in coordination with the Kittitas County Fire Marshall and other appropriate agencies. • Potential hazards associated with use of flammable liquids such as construction equipment fuels would be reduced by compliance with a Construction Health and Safety Plan. <u>Additional Measures to Reduce Risk of Fire and Explosion during Operations</u> • The Applicant has committed to developing and implementing emergency response procedures and employee training. • The project O&M group and third party contractors would receive regular emergency response and safety training to ensure that effective and safe action would be taken to reduce and limit the impact of an emergency (including fires and explosions) during project operations.
		• The wind turbine generators would be equipped with specially engineered lightning protection systems that connect the blades, nacelle, and tower to a grounding system at the base of the tower. The blades

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		would be constructed with an internal copper conductor and an additional lightning rod that extends above the wind vane and anemometer at the rear of the nacelle. • The turbine control system would detect overheating in turbine machinery. Internal fires would be detected by these sensors, causing the machine to shutdown immediately and to send an alarm signal to the central Supervisory Control and Data Acquisition (SCADA) system which would notify operators of the alarm by cell phone or pager. • The proposed substations would be equipped with specially engineered lightning protection systems to minimize the risk of fire during substation operations. • Permanent meteorological monitoring towers would be installed with a grounding system that protects the meteorological sensors and loggers from electrostatic discharge and provides lightning protection to the tower. • Only qualified personnel would perform maintenance on the electrical cables. Sufficient clearance would be provided for all types of vehicles traveling under the overhead segments of the electrical lines. <u>Measures to Reduce Potential Releases of Hazardous Materials to the Environment during Construction</u> • To avoid spills, fueling trucks would be equipped with auto shut-off valves and other safety devices. The fuel trucks would be properly licensed and would incorporate features in equipment and operation, such as automatic shut-off devices, to prevent accidental spills. • The oil truck used to fill substation transformers would be properly licensed and would incorporate several special features in equipment and operation, such as automatic shut-off devices, to prevent accidental spills. • The details of how lubricating oils and other materials would be stored and contained at the construction staging area would be documented in a construction spill prevention and control plan developed and approved by EFSEC prior to commencement of construction. This plan would show storage, detention, and response procedures for all potential chemicals used onsite. • The EPC contractor would be responsible for compliance with applicable federal, state, and local laws, ordinances, regulations, and standards to ensure that the risk of release does not create an adverse health and safety or environmental impact. The EPC contractor would also be responsible for training its personnel in spill prevention and control. Spills would be addressed in accordance with the construction spill prevention plan.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		Measures to Reduce Potential Releases of Hazardous Materials to the Environment during Operations • The wind turbines would be equipped with sensors to automatically detect loss in fluid pressure and/or increases in temperature; these sensors would enable the turbines to be shut down in case of a fluid leak. The turbines would be designed with fluid catch basins and containment systems to prevent accidental releases from leaving the nacelle. The pad-mounted transformers would be designed to meet stringent electrical industry standards, including containment tank weldment and corrosion protection specifications. These transformers would also be equipped with oil level indicators to detect potential spills. • The substation transformers would have a specifically designed containment system to ensure that any accidental fluid leak does not result in discharge to the environment. • Waste fluids would be stored in appropriate containers on a concrete surface inside the O&M facility for collection by a licensed collection service for recycling or disposal. The storage area inside the O&M facility would be surrounded by a berm or trough to trap any leaks or spills. Measures to Minimize Risk of Ice Throw • Potential impacts at the project site associated with risk of ice throw would be minimized through implementation of standard safety setbacks. Proposed safety setbacks for the KVWPP turbines include a setback of at least 1,320 feet from any residences. This proposed safety setback is consistent with setback distances implemented at other wind power projects operating across the country. • For additional safety, selected turbine rows within 328 feet of public roads would also be equipped with a fail-safe icing sensor system, which would shut the turbines down and activate a local alarm during rare icing events. The affected machine(s) would remain dormant until icing conditions are no longer present.
		Measures to Minimize Risk of Tower Collapse and Blade Throw • The Applicant proposes setbacks of at least the height of the tower plus the blade (overall tip-height) from any public roads and a 1,320-foot setback from neighboring residences. These proposed safety setbacks are consistent with setback distances implemented at other wind power projects operating across the country. The size of the tip-height setback would vary depending on the selected proposed action scenario. • The wind turbines would meet international engineering design and manufacturing safety standards. This includes tower, blade, and

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		generator design. There is an international quality control assurance program for turbines, and a number of relevant safety and design standards. <u>Measures to Minimize Exposure to Shadow Flicker</u> • The Applicant has committed to turning off those turbines that cause shadow-flicker annoyance effects during the times the annoyance occurs. This mitigation measure would be implemented for non-participating landowners whose residence falls within 2,500 feet of a turbine and has a line of sight view of the turbine in question. <u>Measures to Minimize Exposure to EMF</u> • Proposed high voltage transmission lines would be designed and built according to industry standards to avoid EMF impacts. <u>Measures to Minimize Electric Shock</u> • The substations would be designed and constructed to have a robust grounding grid that would divert stray surges and faults. <u>Measures during Decommissioning</u> • An audit would be performed of the relevant operation records and a project site survey would be conducted to determine if a release of hazardous material has occurred. A review of all facilities would be performed to determine if hazardous or dangerous materials (as then defined by regulation) are present as construction materials or materials used in the operation of any facility components such as cleaning and maintenance fluids, lubricating oils, and gases. The project site inspection would determine and record the location, quantity, and status of all identified materials. ***Additional Recommended Mitigation Measures*** In addition to the mitigation measures proposed by the Applicant above, the following measures would further reduce health and safety related impacts and risks. <u>Fire and Explosion Risk Mitigation Plan (Construction and Operations)</u> • The Applicant's proposed Fire Explosion and Risk Mitigation Plan should be developed with, approved by, and implemented in

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		coordination with the Kittitas County Fire Marshal and other appropriate agencies. The Plan should be approved prior to construction of the facility. <u>Measures to Reduce Risk of Fire and Explosion during Operations</u> • A Fire Protection and Prevention Plan for project operations should be developed with, approved by, and implemented in coordination with, the Kittitas County Fire Marshal and other appropriate agencies. The Plan should be approved prior to facility operations. <u>Measures to Minimize Risk of Ice Throw</u> • The Applicant proposes to equip selected turbines within 328 feet of public roads with a fail-safe icing sensor system. However, some of the residents in the project area travel on private roads to access their properties. Because some roads appear to be close to the proposed turbines, the Applicant should install a similar icing sensor system on any turbine located within 328 feet of private roads. <u>Measures to Minimize Risk of Tower Collapse and Blade Throw</u> The Applicant proposes setbacks of at least the turbine tip-height from public roads and residences as a safety measure to reduce the risk of tower collapse or blade throw. However, some of the residents in the project area travel on private roads to access their properties. Because some roads appear to be close to the proposed turbines, the Applicant should adjust the siting of individual turbines, as necessary, to avoid encroaching upon a 260- to 410-foot tip height setback from established and frequently used private roads. These setbacks would not apply to new private roads constructed by the Applicant specifically for the project.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
No Action Alternative	Under the No Action Alternative, the project would not be constructed or operated and the existing risk of fire caused by natural sources or human activities not associated with the project would remain. However, development by others, and of a different nature, including residential development, could occur at the project site in accordance with Kittitas County's existing Comprehensive Plan and zoning regulations. Depending on the location, type, and extent of future development at the project site, health and safety impacts could be similar to or even greater than the proposed action. However, the risks associated with tower collapse and detachment or failure of turbine parts would not occur if development other than a wind power project were proposed. It is assumed that a power-generating facility would need to be built at another location should the KVWPP not be built. This would likely be a base load gas-fired combustion turbine facility. An example of greater potential for health and safety risks associated with a base load gas-fired combustion turbine plant is the higher risk of fire or explosion associated with the transmission and use of large quantities of natural gas.	
3.5 Energy and Natural Resources		

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
Proposed Action	***Construction*** • Portable generators would produce the electricity required for construction activities. • Estimated fuel consumption during construction would be approximately 25,000 gallons (diesel and gasoline). • Between 5 and 6.4 million gallons of water would be consumed for dust suppression and other construction purposes. • If lignin (a non-toxic, non-hazardous compound derived from trees) or another dust palliative is used, it is anticipated that between 2.0 and 2.6 million gallons of water would be required. • Approximately 8,650 tons of steel would be required. • Approximately25,000 cubic yards of concrete would be required. • Approximately 129,442 cubic yards of gravel would be required. ***Operations and Maintenance*** • The project would generate between 154,685 and 309,369 megawatt hours (MWh) of electricity annually and would result in an increase in the availability of renewable energy in the Pacific Northwest, a beneficial effect. • The projected increased demand for electricity would be approximately 800 MWh per year. • Fuel consumption is estimated to be about 8,500 gallons per year. • Project operations are expected to consume less than 1,000 gallon of water per day. • Lubricating oils, hydraulic fluids, and other nonrenewable resources used to operate project equipment and to maintain the wind turbine generators would not result in impacts on the availability of these resources locally or regionally. ***Decommissioning*** • Impacts attributable to energy consumption during project decommissioning would be similar to those described for the construction phase of the project. Energy consumption, predominantly in the form of gasoline, diesel fuel, and electricity, would be required to operate equipment such as cranes, trucks, tools, and vehicles used to dismantle and remove most project facilities and reclaim disturbed areas. Demolition or removal of equipment and facilities would occur, to the extent necessary, to salvage economically recoverable materials such as steel towers	***Mitigation Measures Proposed by Applicant*** • Use lignin (a non-toxic wood byproduct) as a dust palliative to reduce water consumption for dust suppression during construction; • Encourage carpooling of onsite construction crews; • Use high-efficiency electrical fixtures and appliances in the O&M facility and substation control house; and • Use low-water-use flush toilets in the O&M facilities.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
No Action Alternative	The No Action Alternative assumes that future development at the site would comply with existing zoning requirements for the project area, which is zoned Agriculture-20 and Forest and Range. Depending on the location, type, and magnitude of future developments at the project site, impacts on energy and natural resources could be similar to or even greater than the proposed action. If the proposed action were not constructed, it is likely that the region's power needs would be addressed by user-end energy efficiency and conservation measures, by existing power generation sources, or by the development of new renewable and nonrenewable generation sources. Base load demand would likely be filled through expansion of existing, or development of new, thermal generation such as gas-fired combustion turbine technology. A base load natural gas-fired turbine facility would have to generate approximately 60 aMW of power to replace an equivalent amount of power generated by the project. Impacts on energy and natural resources would depend on the type, location, and magnitude of facility proposed. The significance of such impacts would depend on the site-specific location and project design.	
3.6 Land Use and Recreation		

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
Proposed Action	***Construction*** Conflicts between proposed construction activities and existing grazing operations are anticipated, and cattle or other livestock would need to be removed from areas where blasting or heavy equipment operations are taking place Temporary impacts on private landowner-approved recreational activities such as hunting or rock hounding could occur during project construction. Potential conflicts between recreation users on DNR property and wind turbine construction activities could impair the use and enjoyment of recreational activities such as hunting and hiking in the project area. This impact would be greatest under the upper end scenario. Project construction would not likely have significant adverse direct effects on offsite recreation resources or their users. Furthermore, it is anticipated that there would be an adequate supply of recreational lodgings to accommodate the temporary increased demand for facilities by the project's transient workforce. ***Operations and Maintenance*** Proposed project facilities would result in the conversion of 108 acres of land from cattle grazing/rangeland to energy production. Impacts on private landowner-approved recreation activities such as hunting or rock hounding could occur during project operations. However, these impacts are expected to be minimal. The presence of wind turbines on publicly accessible DNR property could impair the use and enjoyment of recreational activities in the project area.	***Mitigation Measures Proposed by Applicant*** • During project construction, it would be necessary to remove cattle from areas where blasting or heavy equipment operations are taking place. The Applicant proposes to make arrangements with property owners and livestock owners to keep livestock out of these areas during those periods. • After construction is completed, disturbed areas would be returned as closely as possible to their original state, excluding service and access roads, which would remain in place for the life of the facility. ***Additional Recommended Mitigation Measures*** • If DNR determines that potential conflicts between turbine construction and/or operations and existing recreational uses on DNR property would occur, the agency could take steps to limit access to its property. For example, DNR could post appropriate signs on its property limiting public pedestrian and/or vehicle access to portions of the project area during construction or operations.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Operating wind turbines would be visible from the southern portion of the Wenatchee National Forest and from the John Wayne Trail but it is unlikely that views of the new wind turbines would have significant adverse impacts on the experience of recreational users in the project vicinity. Because of the small size of the operating work force, there would be no significant increase in the demand for recreational services and opportunities in the project area. ***Decommissioning*** If the KVWPP facility were decommissioned, temporary land disturbance of the type and magnitude described for project construction would be anticipated. Temporarily disturbed lands would be restored to their original condition through grading and planting. Upon decommissioning, land use impacts from facility operations would be largely reversible. No permanent land use impacts would result from decommissioning. Limited impacts on recreational activities on the site could occur during project decommissioning activities. However, once the site is reclaimed to pre-project conditions, recreational use in the affected area could resume.	
No Action Alternative	Under the No Action Alternative, the project would not be constructed and existing land and recreation uses in the project area would continue without the influence of the proposed project. The specific type, nature, and extent of future developments at the project site are unknown, and would depend primarily on county growth trends. The Kittitas County Comprehensive Plan and Zoning Code would govern development at the project site. Under the No Action alternative, the region's power needs could be addressed through development of other energy facilities. Such development could occur at appropriate locations throughout the state of Washington. The specific type, nature, and extent of land use impacts under the No Action Alternative would depend on the location of the projects.	
3.7 Socioeconomics		
Proposed Action	***Construction*** A maximum of 177 new workers would be temporary residents (in-migrants) in the project area. It is anticipated that there would be an adequate local housing supply available to accommodate project-related	No mitigation measures are required or have been identified for potential socioeconomic impacts.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	demand for temporary rental and short-term (transient) housing. The direct construction employment impact of the project would be approximately 253 new temporary jobs. The total number of direct construction jobs in Kittitas County would be 40. The total indirect and induced workforce associated with the construction stage of the project in Kittitas County is predicted to be 14 and 28 jobs, respectively. Construction jobs created by the project would result in short-term benefits to overall county and regional employment. Total income (direct, indirect, and induced) generated during the construction phase of the project is estimated to be $10.15 million (in 2002 dollars) in Kittitas County, a temporary but beneficial effect to the Kittitas County economy. ***Operations and Maintenance*** Project operation is projected to require between 12 to 14 full-time employees. It is estimated that approximately one-half of the total permanent workforce employed would be represented by local workers from Kittitas County. The projected increase in demand for local housing would be nominal and the permanent jobs created would result in long-term benefits to overall county employment.	
	The comprehensive statistical analysis provided in the May 2003 study evaluating the correlation between wind development projects and nearby property values in the U.S. by the Renewable Energy Policy Project (REPP) provides no evidence that wind development had harmed property values within the viewshed of the projects (defined as properties within 5 miles of the outermost turbines in a wind power project). The conclusions of the REPP study are supported by the project site property value study conducted by DeLacy in 2004. Therefore, no long-term impacts on property values are expected as a result of the proposed project. During operations, it is estimated that 9 local workers from Kittitas County would be employed to operate and manage the wind project. The total indirect and induced employment impact during project operations is predicted to be 1 and 8 jobs, respectively, for a total of 18 additional jobs in Kittitas County. The project is also projected to result in nearly $1.5 million per year in added income in Kittitas County. Impacts from employment induced through a potential increase in local tourism are not considered to be significant, although local businesses are likely to experience increases in income.	

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Decommissioning Upon decommissioning, if subsequent economic uses of the project site were not developed, facility closure would represent a long-term loss of employment and associated economic activity for the local and regional economy and a loss of tax base. However, the number of jobs eliminated would be small compared to the number of jobs in Kittitas County as a whole, therefore, a very minor adverse impact on County employment would be anticipated. If facilities were removed from the study area, property tax revenues would decrease accordingly. This loss of revenue would likely have a slight adverse impact on the local economy. Decommissioning would require removing most project facilities and reclaiming disturbed areas. These activities would result in beneficial but temporary employment similar to that projected for facility construction.	
No Action Alternative	Under the No Action Alternative, the project would not be constructed or operated and the region's socioeconomic conditions would remain unchanged from current patterns and trends. Local providers of transient housing and other goods and services would not experience temporary increases in demand for their facilities, and the County would not benefit from the tax revenues and employment opportunities resulting from the proposed project. Under the No Action Alternatives, development by others and of a different nature could occur at the project site in accordance with the County's existing Comprehensive Plan and zoning regulations. Permitted land uses in the project area include ranching, resource management uses such as agricultural practices, and residential. If the project were not constructed, the region's power needs could be delivered through development of other generation facilities. The socioeconomic impacts of other facilities would largely depend on the revenue generated, and the temporary and permanent direct and indirect employment generated.	
3.8 Cultural Resources		

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
Proposed Action	***Construction*** There are two prehistoric archaeological sites recorded at the project site. The Applicant has agreed to avoid ground-disturbing activity within 100 feet of all documented cultural resource sites. Therefore, no direct impacts to known archaeological sites are expected as a result of project construction. Tribal consultation with the Yakama Nation is ongoing. If significant resources are identified that would be directly or indirectly affected by the project, appropriate mitigation measures should be devised before construction begins. ***Operations and Maintenance*** No direct impacts on any known cultural resources would occur during normal operation and maintenance of the project. Project operations would not result in indirect impacts on potentially significant cultural resources in the project area.	***Mitigation Measures Proposed by Applicant*** The Applicant has agreed to avoid ground-disturbing activity within 100 feet of all documented cultural resource sites. A qualified archaeologist would monitor the ground-disturbing activities; the Yakama Nation would be contacted prior to these activities and invited to have representatives present during all ground disturbances. If intact archaeological resources or human burials are encountered during construction, the construction foreman would immediately direct activities that could further disturb the deposits away from their vicinity. The construction foreman or Sagebrush Power Partners would then contact Dr. Robert G. Whitlam, Washington State Archaeologist, the Yakama Nation, and other pertinent parties who would determine how the materials should be treated. The area would be secured and placed off limits for anyone but authorized personnel. In addition, if any future changes to the project layout occur that involves impacts to areas not previously surveyed for cultural resources, additional surveys would be conducted to document and avoid archaeological sites. ***Additional Recommended Mitigation Measures*** • Because tribal consultation is on-going and cultural resources significant to the Yakama Nation may yet be identified, mitigation measures appropriate for these resources should be developed by the Applicant, and approved by EFSEC and the Yakama Nation, before construction begins. It is recommended that the Yakama Nation be involved in establishing procedures to be followed in the event of any unanticipated finds during the construction and decommissioning phases of the proposed project. For example, the project area may contain plants that are important to the Yakama Nation. Protection of these resources as a significant cultural property would be addressed through the formal government to government consultation process, and sensitive areas nominated and documented as TCPs. Areas that contain eligible TCP's would then be avoided using the same protocol that is in place for protection of archaeological sites. Furthermore, the Applicant intends to offer members of the Yakama Nation the ability to use the project's approximate 550-acre mitigation parcel for cultural and spiritual practices, including the gathering of traditional foods and medicines, throughout the lifetime of the project.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Decommissioning Impacts from decommissioning of the project would be similar to those described for construction activities. The two recorded prehistoric sites at the project site would be avoided during facility removal to prevent any damage to the sites.	
No Action Alternative	Because no construction is proposed under this alternative, no impacts on cultural resources would occur, as long as land use in the project area remains the same. Other energy generation facilities would likely be constructed in the region and could cause impacts on cultural resources but specific impacts would depend on the location and design of the facility and the density of cultural resources on the affected site(s)	
3.9 Visual Resources		
Proposed Action	***Construction*** In close-up views, particularly those seen by travelers on the segment of US 97 that passes through the project site and those seen from the closest residences, the visual changes associated with the construction activities would be highly visible and would have a moderate to high visual impact. From more distant locations, the visual effects would be relatively minor and would have little or no impact on the quality of views. Some construction activities may occur during evening (dusk) or nighttime hours, and lighting may be needed. The effects of construction lighting would be temporary, lasting only during the specific activity period (for turbine erection, estimated at six months). ***Operations and Maintenance*** The project has the potential to create high levels of visual impact at several locations, including from vantages along US 97, from the ridgelands east of US 97, and from the ridgelands west of US 97. The use of brown turbines (as opposed to gray) would accentuate the visibility of the turbines and corresponding visual impact in views where they are seen against the sky.	***Mitigation Measures Proposed by Applicant*** • During the construction period, active dust suppression would be implemented to minimize the creation of dust clouds. • When construction is complete, areas disturbed during the construction process would be restored to natural conditions. • The wind turbine towers, nacelles, and rotors used would be uniform in design throughout the project. • The turbines would have neutral gray finish to minimize contrast with the sky backdrop. Because the turbines are most frequently seen against the sky, particularly in close-range views where visual concerns are the greatest, the gray finish is the most effective choice for minimizing project aesthetic impacts. • A low-reflectivity finish would be used for all surfaces of the turbines to minimize the reflections that can call attention to structures in a landscape setting. • Because of the prevailing wind conditions and the high level of reliability of the equipment being used, the rotors would be turning approximately 80-85% of the time, minimizing the amount of time that turbines would appear to be not operating. • The small cabinets containing pad-mounted equipment that would be located at the base of each turbine would have an earth-tone finish to help them blend into the surrounding ground plane. • The only exterior lighting on the turbines would be the aviation warning lighting required by the FAA. The warning lighting would be the minimum required intensity to meet the current FAA standards. • Most of the project's electrical collection system would be buried.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	The nighttime flashing red lights would be a new visual element into the project area's nighttime landscape. They would be most noticeable within 1 mile of the project and are likely to have an adverse effect on views from residential properties in these areas. The proposed project facilities, including turbines, substation equipment, aboveground electrical collection system, and the O&M facility have the potential to be constructed of materials that could create a new source of glare in the project area. ***Decommissioning*** Decommissioning would consist of removing aboveground equipment such as turbines and meteorological towers and their associated foundations to a depth of 3 feet below ground. Wind turbine foundations greater than 3 feet below the ground surface would remain. The ground surface would be regraded to natural appearing contours and revegetated to a natural condition. A close examination of the sites for several years after decommissioning would reveal that the surface had been disturbed. The visual impact of aboveground facilities not removed during decommissioning would remain. During the decommissioning process, similar impacts on those experienced during construction would occur but to a lesser extent because less construction material would be removed than was delivered to the wind turbine sites.	• The 1.2-mile aboveground segment of the electrical collection system would include wood poles, low-reflectivity conductors and nonreflective insulators. The aboveground segment would be located along two sets of existing overhead high voltage transmission. • To the extent feasible, existing road alignments would be used to provide access to the turbines, minimizing the amount of additional surface disturbance required. The roads would have a gravel surface and would have grades of not more than 15% to reduce unsightly soil erosion. • The O&M facility would have a low-reflectivity earthtone finish to reduce visual contrast with the surrounding landscape. • The colors of the asphalt and gravel used for circulation and parking areas at the O&M facility would be selected to minimize contrast with the site's soil colors. • Outdoor night lighting at the O&M facility and substations would be the minimum necessary for safety and security. All lights would be shielded to reduce offsite light trespass. • All substation equipment would have a low-reflectivity neutral gray finish to reduce visual impact. • All insulators in the substations and on takeoff towers would be nonreflective and nonrefractive. • The control buildings located at each substation would have a low-reflectivity earthtone finish. • The chain-link fences surrounding the substations would have a nonreflective, dark finish to reduce their contrast with the surroundings. • In the areas surrounding the O&M facility and substations, naturalistic groupings of indigenous trees and shrubs would be established to provide partial screening and to help visually integrate the facilities into the landscape. • An information kiosk and public viewing area would be constructed near the proposed O&M facility off Bettas Road. Signs would be provided to direct tourists to this viewing area. There is evidence from viewer survey results that people who have an understanding of the technology and characteristics of wind energy facilities are less likely to find views of turbines in the landscape as objectionable.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
No Action Alternative	Under the No Action Alternative, the visual character of the project area would remain rural assuming that land uses would continue to follow recent trends and that no area-wide rezoning would occur in the near future. However, even under the current zoning, the rural character could slowly become more urban if large parcels are subdivided and residences are constructed on smaller lots. The demand for electrical power in the region would increase and some other energy production facility would likely be constructed elsewhere in the region. The visual impacts of another facility are not predictable and would range from incompatible to acceptable depending on the type and location of the facility.	
3.10 Transportation		
Proposed Action	***Construction*** Assuming gravel is imported from an offsite source located in or around Ellensburg or from another location(s) south of the project area, construction traffic generated by the lower end (i.e., worst case) scenario would result in LOS D operations on US 97 north of I-90 during the PM peak hour. However, the portion of US 97 north of I-90 most likely to experience LOS D conditions would be at or near the 4-way intersection of US 97 and Dolarway Road in the City of Ellensburg; this area is classified as an urban-principal arterial. Therefore, for the urban portion of US 97 north of I-90 the project's construction-generated traffic would not exceed the County standard of LOS D for urban areas. Assuming a peak workforce of 160 people, the worst-case scenario (assuming no carpooling) would require approximately 2 acres for parking. This parking area requirements would be the same under the two proposed action scenarios. The EPC contractor would use fuel trucks to refuel construction vehicles and equipment onsite but there would not be significant safety risks associated with hazardous materials transport. Some of the construction delivery trucks would have a gross vehicle weight that would exceed the state's legal load limit, which in turn could degrade the condition of existing roadways in the project area. This potential impact would be greatest for the lower end scenario because it would require the greatest number of heavy duty truck trips. Given the magnitude of truck trips generated during construction, the additional traffic could temporarily increase the risk of accidents in the project area.	***Mitigation Measures Proposed by Applicant*** <u>Construction Traffic Control</u> • The Applicant would prepare a Transportation Management Plan (TMP) that would be reviewed and approved by the Washington State Department of Transportation (WSDOT) and Kittitas County. The TMP would direct and obligate the contractor to implement procedures that would minimize traffic impacts; • The TMP would include coordination between project-related construction traffic and WSDOT planned construction projects; • Any oversize or overweight vehicles would comply with applicable state and county requirements, as permitted by WSDOT and Kittitas County. • The Applicant would provide notice to landowners when construction takes place to help minimize access disruptions; • The Applicant would provide proper road signs and warnings of "Equipment on Road," "Truck Access," or "Road Crossings"; • When slow or oversized wide loads are in transit to and from the site, advance signs and traffic diversion equipment would be used to improve traffic safety. Pilot cars would be used as WSDOT codes dictate depending on load size and weight. Permits would be obtained for these oversized or overweight vehicles as required by WSDOT and Kittitas County; • The Applicant would construct necessary site access roads and entrance driveways that would be able to service truck movements of legal weight; • The Applicant would encourage carpooling for the construction workforce to reduce traffic volume; • In consultation with Kittitas County, the Applicant would provide detour plans and warning signs in advance of any traffic disturbances;

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Temporary construction equipment such as cranes and derricks that would be used to erect turbine towers could pose a hazard to aviation safety during the construction period. However, the FAA has reviewed and approved use of proposed construction equipment at the site and has issued "Determinations of No Hazard to Air Navigation" for the project. ***Operations and Maintenance*** All roadways would operate at LOS C or better during evening peak conditions. The proposed O&M facility parking lot may not be sufficient to accommodate future parking needs of both project employees and potential visiting tourists.	• The Applicant would employ flaggers as necessary to direct traffic when large equipment is exiting or entering public roads to minimize risk of accidents; • One travel lane would be maintained at all times. • During construction the Applicant would not restrict the flow of traffic for more than 20 minutes. • The Applicant would apply for County driveway access permits for entryways, which would be wide enough to accommodate large loads during construction. • The Applicant proposes to place signs in key locations to direct construction traffic away from SR 10 and the southern portion of Hayward Road. <u>Hazardous Materials Transport</u> • Transportation of hazardous materials would be conducted in a manner that protects human health and the environment and is in accordance with applicable federal and WSDOT requirements.
	During project operations waste fluids would need to be changed infrequently, and therefore would not result in a safety risk associated with hazardous materials transport. Vehicles used during operations and maintenance of the proposed project would consist primarily of employees commuting to and from the site and are not expected to be in excess of state or county legal roadway load limits. Projected traffic volumes during project operations could result in increases in the number of accidents at the intersection of US 97 and Bettas Road. This potential impact would be greatest under the upper end scenario because it would involve the greatest number of trips. The proposed KVWPP would not have an impact on protected airspace at Bowers Field. All traffic using existing approach and departure procedures to and from Bowers Field stay well clear of the KVWPP project area. The FAA reviewed plans for the proposed project and concluded that the project would not interfere with aviation operations. Turbine maintenance roads would be available for the use of the fee owners of the affected parcels. The Applicant would also provide a master key to local emergency responders to allow access to all project	<u>Access Road Construction</u> • The access road from US 97 would be constructed with slopes and culverts designed according to WSDOT and Washington State access management standards under Title 468 WAC and Chapter 47.50 RCW. Access from county roads (Bettas or Hayward) would also be constructed with the appropriate slopes and culverts in accordance with Kittitas County standards. <u>Roadway Maintenance</u> • The Applicant proposes to upgrade the northern portion of Hayward Road prior to construction to allow passage of heavy equipment and trucks and to restore this portion of Hayward Road to a condition equal to or better than its present condition after construction is completed. • The Applicant would consult with the Kittitas County Department of Public Works to determine the specific requirements for any improvement and restoration to Hayward Road (and any other county roads used by the project.) • The Applicant proposes to take responsibility for ongoing maintenance to the northern portion of Hayward Road (approximately one mile of road) during project construction and operation to ensure that any damage to the road due to the project is repaired. • The Applicant would also be responsible for maintaining turbine string access roads, access ways, and other roads built to construct and operate

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	maintenance roads. Tourists would probably visit the project area. The specific number of vehicle trips that would be associated with the project as a tourist attraction is unknown. However, the Applicant's proposed kiosk and other proposed measures would minimize potential tourist-generated traffic impacts on state and county roads. ***Decommissioning*** Impacts from decommissioning activities would be similar to those for construction. However, assuming that the roadways would remain in place, heavy vehicle trips would consist primarily of trucks carrying wind turbines and transformers and the resulting workforce and vehicle trips would be smaller. Mitigation at the time of decommissioning would be implemented, and would likely be similar to that recommended for construction.	the project. • • If snow removal is required to support project construction or operations, it shall be performed only by snow removal equipment operators with a valid county permit and conducted to ensure that it is performed safely and in a manner that does not degrade road conditions. • The Applicant proposes to perform a joint inspection with the County Department of Public Works to photograph and video record Hayward Road conditions before and after construction. The purpose of this inspection is to ensure that after construction is complete this road is reinstated to as good or better condition as it existed prior to construction activities. Specifically, at the intersection of Hayward and Bettas Roads, the Applicant proposes to widen the radius and build-out this section of gravel road, at the expense of the project, to allow large construction vehicles to safely maneuver around this corner. After construction is complete, the Applicant proposes to reinstate this gravel intersection to comply with Kittitas County Road Standards, also at the expense of the project. • The Applicant plans to submit an Application for Proposed Use of right-of-way (ROW) to Bonneville for joint use of the one mile section of ROW between Hayward Road and the proposed Bonneville substation and turbine string E. The Applicant proposes to upgrade this section of ROW from dirt to gravel surface and to assume responsibility for its maintenance. <u>Tourism-Induced Traffic</u> • The Applicant proposes to construct an information kiosk and public viewing area near the proposed O&M facility off Bettas Road. Signs would be provided to direct tourists to this site. • The Applicant also proposes to monitor traffic levels before and after project construction to determine if the project results in a traffic increase above the 150 average daily traffic (ADT) level on Hayward Road. In the event the project boosts local tourist traffic above 150 ADT as measured by a third party, the Applicant agrees that the project would be responsible for making provisions to first attempt to reduce this amount of traffic to below 150 ADT within the first year following project operation. If it is not possible to achieve a reduction to below 150 ADT through signage or other means, the Applicant would agree to pay a pro rata share of the costs to improve Hayward Road. The cost would be based on the amount of additional new traffic introduced solely by the project above the 150 ADT level on this road. • The Applicant proposes to place signs in key locations to direct tourist traffic away from SR 10 and the southern portion of Hayward Road.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		Additional Recommended Mitigation Measures <u>Construction Traffic Control</u> • The Applicant should consult and coordinate with WSDOT and Kittitas County to identify additional temporary measures that could be implemented to improve LOS along US 97 north during the construction period. <u>Parking</u> • The Applicant should monitor the volume of tourists visiting the proposed viewing area to determine if overflow parking is required. If additional parking is needed, the Applicant could identify and create an adjacent overflow parking area. The specific location of an overflow parking area should be sited so that tourist traffic does not conflict with employee access into and out of the O&M facility, and no additional environmental impacts are caused. <u>Traffic Safety</u> • WSDOT would monitor the incidence of traffic accidents at the intersection of US 97 and Bettas Road. If, within a five-year time period, WSDOT determines that channelization improvements at the intersection of US 97/Bettas Road are necessary to reduce accidents caused by additional turning traffic, the Applicant should be responsible for all costs associated with the safety improvement. The safety improvement would be limited to a northbound left-turn lane, a southbound right-turn lane, or both. The time period for monitoring would begin at the time of development approval. If a development is proposed during the five year period that would contribute significant turning traffic at Bettas Road, WSDOT would encourage the County to assess a proportionate share of the financial responsibility for the turn lane improvement. Otherwise, if the turn lane is warranted during the five year period, and no other development activity has occurred, WSDOT expects the applicant to fund the entire cost of the improvement (Holmstrom, pers. comm. 2004). <u>Aviation Safety</u> • If the Applicant's final proposal differs from the proposal submitted to, reviewed, and approved by the FAA in terms of number, siting, or size of proposed turbines, the Applicant should notify the FAA of these

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		changes and secure any additional "Determinations of No Hazard to Air Navigation," as warranted.
No Action Alternative	The No Action Alternative assumes that future development would comply with existing zoning requirements for the project area, which is zoned Agriculture-20 and Forest and Range. It is estimated that during the peak hour in 2004, all roadways in the project vicinity would function at LOS C or better without the project. If the proposed project is not constructed, additional renewable and nonrenewable energy facilities may have to be constructed to meet the region's need for power. The intensity and significance of transportation impacts would depend on the design and location of such projects and current transportation services available in the vicinity of the sites.	
3.11 Air Quality		
Proposed Action	***Construction*** Heavy trucks and construction equipment powered by gasoline and diesel engines would generate carbon monoxide (CO), hydrocarbons, nitrogen oxides (NOx), and particulate matter in exhaust emissions. Construction would also create fugitive dust emissions from construction-related traffic and additional wind-blown dust as a result of ground disturbance. The Applicant proposes to secure gravel from local offsite quarries, resulting in heavy truck transportation of materials to the project site. Fugitive dust emissions would occur due to ground disturbance. ***Operations and Maintenance*** During project operations, travel on the new and upgraded private gravel access roads would generate limited amounts of fugitive dust and CO, hydrocarbon, NOx, and particulate matter emissions. The number of vehicle trips associated with workers commuting to and from the O&M facility on paved state and county roads would range from 28 to 40 daily trips.	***Mitigation Measures Proposed by Applicant*** • All vehicles used during construction would comply with applicable federal and state air quality and vehicle emission regulations; • Operational measures such as limiting engine idling time and shutting down equipment when not in use would be implemented; • Active dust suppression would be implemented on unpaved construction access roads, parking areas and staging areas, using water-based dust suppression materials in compliance with state and local regulations; • Traffic speeds on unpaved access roads would be kept to 25 mph to minimize generation of dust; • Carpooling among construction workers would be encouraged to minimize construction-related traffic and associated emissions; • Disturbed areas would be replanted or graveled to reduce wind-blown dust; and • Erosion control measures would be implemented to limit deposition of silt to roadways.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	The proposed project would not generate regulated air pollutants. The specific process of generating electricity with wind turbines does not produce air emissions because no fuel is burned to produce energy. Although operation of the proposed wind turbines themselves would not produce emissions, the project could still contribute to generation of greenhouse gas emissions taking into consideration its "total fuel cycle," which includes the processes of manufacturing and transporting project parts and equipment. The actual effect on global warming caused solely by project emissions, either from fabrication, transport, construction, or operations, is unknown. However, the project would likely displace emissions from other sources of power generation such as coal or natural gas-fired power plants that would have otherwise been built or operated to produce an equivalent amount of electricity. ***Decommissioning*** Potential air quality impacts during project decommissioning would be similar to those described for construction. However, access roads may be left in place so impacts could be lower.	
No Action Alternative	The No Action Alternative assumes that future development at the site would comply with existing zoning requirements for the project area, which is zoned Agriculture-20 and Forest and Range. The specific type, nature, and extent of future developments at the project site are unknown, and would depend primarily on county growth trends. If the proposed project were not built, regional electricity needs would either not be filled, leading to long-term shortages, or would be filled through the development and operation of additional renewable and nonrenewable energy facilities. Construction related emissions would be commensurate with the land area being disturbed for such projects. If the proposed project were not built, a base load natural gas-fired turbine facility generating 60 aMW might replace the power that would have been produced by the proposed project. Estimated carbon dioxide emissions from such a facility would be in excess of 2,000,000 tons per year, nitrogen dioxide emissions would be in excess of 30 tons per year, and CO emissions would be in excess of 50 tons per year.	
3.12 Noise		
Proposed Action	***Construction*** Noise generated by construction equipment is expected to vary, depending on the construction phase. Temporary blasting noise would be the most noticeable imapct. Due to the intermittent and temporary nature of proposed construction activities and the distance of the project site from residents, noise from these activities would not be expected to	***Mitigation Measures Proposed by Applicant*** • Substation transformers and high-voltage switching equipment would be specified or designed to comply with the 70 dBA limit at all Class C environmental designation for noise abatement (EDNA) property lines and 50 dBA at all Class A EDNA structures. • Blasting notification signage and temporary traffic control zones would

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	substantially impair nearby residential land uses. Construction vehicles traveling on local roadways and other nearby roads would temporarily increase noise levels. These impacts would be temporary and are not anticipated to be an adverse impact. ***Operations and Maintenance*** Assuming a turbine sound power level of approximately 103 dBA, noise modeling results indicate that noise levels during project operations would be below the most restrictive nighttime regulation of 50 dBA. However, given that a sound level between 98 and 108 dBA is representative of the range of noise test data for turbines under consideration for the project, the estimated noise levels at structures and property lines may increase or decrease by 5 dBA depending on final turbine selection. There are no state or Kittitas County regulatory limits regarding an allowable increase above background noise levels caused by industrial projects. However, there is the possibility that changes in background noise levels could be perceived as adverse depending on the magnitude of that change and the nature of the receptor. Corona noise associated with operation of high-voltage transmission lines at the substation would not pose a significant noise impact.	be implemented along stretches of road within 1,000 feet of proposed blasting activities modeled after current WSDOT blasting notification standards. ***Additional Recommended Mitigation Measures*** <u>Construction</u> • Implement work-hour controls so that noisy activities occur between 7 a.m. and 10 p.m., which would reduce the impact during sensitive nighttime hours. • Maintain equipment in good working order and use adequate mufflers and engine enclosures to reduce equipment noise during operation. • Turn off engines when not in use to eliminate needless engine idle noise. • Locate stationary equipment away from receiving properties to help reduce the noise through increased distance between source and receiver. • Organize construction vehicle travel to reduce the times passing by sensitive receivers. • Schedule noisy activities to occur at the same time since additional sources of noise generally do not add a significant amount of noise. <u>Operations and Maintenance</u> Prior to construction, an acoustical analysis of the final turbine layout should be prepared for all wind turbines to be located within one mile of an existing residence prior to project construction. The analysis should be conducted using noise level data for the final turbine type, size, and layout and would demonstrate compliance with the WAC (173-60). If compliance is not demonstrated, turbines should be relocated or removed, to the extent necessary, so that the project meets applicable regulatory thresholds.

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	The projected minor increase in traffic along US 97 and project access roads during project operations would not be expected to generate substantial adverse noise effects. The proposed project would not result in any significant impacts from ground-borne vibration. Low-frequency noise impacts are not anticipated because of project design features including turning the rotor into the wind to place the generator and tower behind the blades, streamlining towers and nacelles, and increasing nacelle soundproofing. ***Decommissioning*** Decommissioning activities would be similar in type but shorter in duration compared to those anticipated for the construction phase. Noise generated during decommissioning activities would be conducted between 7 a.m. and 10 p.m. No blasting would be required, resulting in lower noise levels than for construction. The same mitigation measures recommended during construction could also be used during the decommissioning phase.	
No Action Alternative	The No Action Alternative assumes that future development at the site would comply with existing zoning requirements for the project area, which is zoned Agriculture-20 and Forest and Range. Agricultural activity and low-density housing would generate no significant noise impacts at residences. Any proposed mining or quarrying activity, which is allowed under Forest and Range zoning, would be subject to noise restrictions under Chapter 173-60 WAC, Maximum Environmental Noise Levels. If the project is not constructed, it is likely that the region's need for power would be addressed by developing other generation sources.. The construction and operation of a base load gas-fired combustion turbine would create more noise than the proposed wind generation project. Construction impacts from a conventional gas turbine plant can exceed 110 dBA at 100 feet during steam blowdown activities, and operational noise levels can exceed 80 dBA at 100 feet. The noise impacts of a gas turbine generator would depend on its location and design. In some settings, it could be considered highly incompatible with the existing environment; however, in the appropriate location, noise impacts could be minor. Development of renewable energy facilities could result in similar noise levels of the KVWPP, the impacts depending on the proximity to homes.	
3.13 Public Services and Utilities		
Proposed Action	***Construction*** <u>Law Enforcement</u>	***Mitigation Measures Proposed by Applicant*** <u>General</u>

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	There likely would be additional calls for response from law enforcement agencies during the construction phase, primarily because of increased traffic and accident potential. Other law enforcement concerns during construction include construction site security against theft and vandalism. Because the construction period is short, the increased service calls are not anticipated to be sufficient in number to require additional law enforcement staff resources in the project area. <u>Fire Protection</u> Project construction could temporarily increase the risk of fire at the project site and in the broader project area. This risk would be greatest for the upper end scenario. Fire District No. 1's ability to provide adequate fire protection services would be restricted by the unimproved condition of the southern portion of Hayward Hill Road. Another concern is its ability to provide emergency rescue services to project personnel working on the wind turbines. The County Fire Marshal has raised the concern that the demand for fire protection services would occur before project tax revenues are realized, resulting in a temporary negative fiscal impact to the fire districts. <u>Emergency Medical Services</u> The local demand for emergency medical services (EMS) could increase slightly due to construction accidents that could occur at the project site or vicinity. <u>Schools</u> There would be no significant impacts to school facilities expected during the construction phase of the project. <u>Water Supply</u> Due to the temporary nature of water demand during construction, no impact is expected on the availability of adequate water supplies. <u>Wastewater</u> No significant impacts to community wastewater disposal systems are anticipated because the project would not be connected to a sewer system during construction.	• Tax revenues generated by the Applicant's project would mitigate potential impacts to public services and utilities. Should there be construction impacts requiring additional staffing levels during construction or other impacts or costs related to services that would not be covered in a timely manner by tax revenues, the Applicant would enter into agreement(s) with the appropriate local governmental agency for prepayment of taxes for mitigation of the cost impacts. This would include fire, police, and county roads. • If emergency fire protection services are required during project operations prior to having an agreement in place, local fire officials informed the Applicant that the costs of these services could be billed to the project on a cost-recovery basis. • The Applicant 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. <u>Law Enforcement</u> • The Applicant would consult with the county regarding the impact on county law enforcement staffing. If additional staffing is required, the Applicant proposes to mitigate by prepaying taxes in a sufficient amount to provide adequate staffing levels during construction. • A full time security plan would be implemented during project construction to reduce the potential need for increased police services to the project site. • The plant operations group would prepare a detailed security plan to protect the security of the project and project personnel. Site visitors including vendor equipment personnel, maintenance contractors, material suppliers, and all other third parties would require permission for access from authorized project staff prior to entrance. <u>Fire Protection</u> • Fire risk potential is constantly tracked and reported during the summer fire season by the DNR; fire danger levels would be actively posted at the construction job site during the high-risk season. • The construction manager would be responsible for monitoring fire conditions in the project area by contacting Washington DNR and implementing necessary fire precautions. A Fire Protection and Prevention Plan would be developed and implemented, in coordination with the Kittitas County Fire Marshall and other appropriate agencies. • All turbines and towers and the substations would be built with

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
		engineered lightning protection systems and the footprint areas around these facilities would be graveled with no vegetation. • All onsite operations employees would be responsible for contributing to ongoing fire prevention in the project area. • Onsite emergency plans would be prepared for the project in case of a major natural disaster or accident relating to or affecting the project. The plans would describe the emergency response procedures to be implemented during various emergency situations that may affect the project or surrounding community or environment.
	Solid Waste There is adequate capacity in the Ryegrass Landfill to accommodate the anticipated amount of construction and demolition debris generated. Garbage generated by construction workers in the project area would not have a significant impact on the capacity of the Greater Wenatchee Regional Landfill. ***Operations and Maintenance*** Law Enforcement Project operation would not be expected to have a significant effect on local long-term demands for law enforcement services. Fire Protection Impacts from fire, either from turbine nacelles due to mechanical failures or wildland fire at the project site, could increase or be more difficult to control unless provisions are made for fire fighters to have easy access to the project site. Emergency Medical Services Project operation would not have significant impacts on emergency medical service providers. Schools Because enrollment capacity is available in the region, no operational impact to local schools is expected. Water Supply No significant impacts to water supply are anticipated because the project	• The Applicant would also be responsible for the following fire protection and prevention measures: - Contract with fire district(s) for protection services during construction; - Provide special training to fire district personnel on how to respond to fires related to wind turbines, and to EMS personnel in how to use a rescue basket that would be kept at the O&M facility for the purpose of removing injured employees from the towers; - 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; and - Coordinate with DNR when the fire danger is high. Emergency Medical Services • Onsite 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. • In the event that operations personnel are seriously injured and require evacuation from a remote location within the project area, the Applicant would make arrangements with the Kittitas Valley Community Hospital for helicopter transportation service. Schools • Approximately $5.6 million dollars would be generated by the project

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	would not be connected to a public water utility, and would have its own source of water. Wastewater No significant operational impacts on wastewater services are anticipated.	and diverted into a state trust fund for school construction over the life of the project. This funding could be used to help offset the capacity issues being faced by the local school districts. Water Supply A licensed well contractor, in compliance with the requirements and standards of Chapter 173-160 WAC (Department of Ecology Minimum Standards for Construction and Maintenance of Wells) would install the domestic water well.
	Solid Waste There is sufficient existing capacity at the local transfer stations to accommodate increased solid waste under project operations. Communication Systems *Microwave Communication Pathways* It is not known how the location and dimension of turbines would affect microwave paths in the project area. *Television Reception* Based on the location of television transmitters in relation to proposed project turbines, impacts to televisions that rely on standard antennas are not expected in Kittitas County population centers such as Ellensburg, Cle Elum, Roslyn, Kittitas, Thorp, and Vantage. However, it is possible that the project could affect television reception in a small, sparsely populated area immediately northwest of the project site known as Swauk Prairie. It is anticipated that this area would still be able to receive reception from at least three unobstructed off-air broadcasters after the project is built. *Cell Phone Interference* Degradation of existing cell phone service resulting from the project is unlikely. There is no documented evidence that wind turbines or towers interfere with cellular phone service or coverage. Maintenance personnel at wind power projects routinely use both cell phones and two-way radios when they are out among the turbines for communicating with other staff on and offsite.	Wastewater • The Applicant would coordinate with Kittitas County and comply with the county's septic tank and subsurface disposal field design, installation, and maintenance requirements for systems with designed flows of less than 3,500 gallons/day pursuant to Kittitas County Code Title 13.04. Communications Systems • Once the specific location and configuration of the turbines is identified on paper, the Applicant proposes to conduct final field measurement test surveys of communication microwave paths. If the results of these final surveys identify that the proposed turbines would interfere with or obstruct communication microwave paths, the Applicant would adjust the tower location, accordingly, to avoid line-of-sight interference. • The Applicant plans baseline field studies to more precisely determine the existing quality of television reception in the Swauk Prairie prior to construction of the project. After the project is built, the Applicant plans follow-up field studies to determine if the quality of television reception could be degraded by project operations. In the event that the project creates significant television reception problems for residents in this area, the Applicant would consult with affected residents to develop an appropriate solution. ***Additional Recommended Mitigation Measures*** General The Applicant proposes to 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. Additional measures recommended by Kittitas County Community Development Services include the following:

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
	Radio Interference The proposed wind turbines would not cause significant disturbance to radio operations in the project area in excess of what is typical for suburban areas from either electromagnetic interference or as a physical obstruction.	• Provide applicable emergency response information to local agencies prior to project construction; and • Review and update employee contact information annually and provide any changes to the appropriate agencies. <u>Fire Protection</u> Additional mitigation measures recommended by the County Fire Marshall but not specified by the Applicant include the following: • Comply with equipment rules and regulations required by DNR for work conducted in wildland/forested lands (e.g., fire extinguishers and shovels would be required on each piece of equipment); • Limit parking areas for vehicles; • Provide garbage containers; and • Implement restrictions on burning.
	Decommissioning Potential fire risks and fire prevention measures associated with decommissioning are similar in nature to those for project construction. Anticipated effects on provision of other public services and utilities would be expected to be similar to those described for during project construction. Any solid waste generated during the facility shutdown or decommissioning process would be disposed of, as necessary, to comply with Kittitas County solid waste regulations.	<u>Communication Systems</u> If the Applicant's follow-up studies determine that the project creates significant television reception problems in the area, additional mitigation measures to minimize television interference impacts to be implemented by the Applicant are recommended below: • Improve the receiving antenna system; • Install a remote antenna; • Install an antenna for TV stations less vulnerable to interference; • Connect affected residents to an existing cable system; or • Connect affected residents to an existing satellite system. •
		•

Table 1-4: Continued

Alternative	Impacts	Mitigation Measures
No Action Alternative	Under the No Action Alternative, the project would not be constructed or operated. However, development by others, and of a different nature, including residential development, could occur at the project site in accordance with Kittitas County's existing Comprehensive Plan and zoning regulations. Depending on the location, type, and magnitude of future development at the project site, impacts to public services and utilities could be similar to or even greater than the proposed action. If the proposed project were not constructed, the region's power needs could be delivered through development of other generation facilities. The public service and utility impacts of a base load gas-fired combustion turbine would depend on its location, but would require a greater amount of water for project operations compared to the KVWPP. The impacts to public services and utilities of other renewable energy facilities would largely depend on the type and location of the facilities.	