

Chapter 3

Revisions to the Draft EIS

Section 3.1 EARTH

Revisions to sub-sections within Section 3.1 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant or Washington Energy Facility Site Evaluation Council (EFSEC). The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Mitigation Measures reflect those contained in the DEIS and in the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.1.3 Impacts of Alternatives

3.1.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Short-term impacts to soils during project construction and decommissioning include clearing and grading, excavation, and fill for access roads, underground cable trenching, and turbine pads on approximately 340 acres. Erosion could potentially result in increased sedimentation to surface water features, gully erosion, slope instability, and slope failures such as earth slumps, debris flows/slumps, and rock falls. Three turbine locations are near areas area of high landslide hazard, and would require site-specific geotechnical studies and measures if not moved. The increased risk of erosion and landslides would be addressed by the following measures:

- BMPs such as sediment and erosion control measures,
- Stabilization measures for potential landslides;
- Setbacks,
- Micro-siting, and
- Additional geological studies.

[...]

The proponent for the Desert Claim Project proposes that the amount of fill that would need to be imported be estimated after the type of selection of foundation is chosen for each turbine. Based on the fact that the Desert Claim Project proposes a similar number of turbines as the Wild Horse Wind Power Project (WHWPP), and an estimated requirement for 27 miles of access roads, it is likely that fill

requirements would be similar to those for the WHWPP. Fill may be imported from off-site sources, if insufficient native materials are available.

3.1.4 Mitigation Measures

3.1.4.1 Erosion Control during Project Construction

The following Mitigation Measures are proposed by the Applicant.

Before construction begins, a detailed Stormwater Pollution Prevention Plan (SWPPP) would be developed by the Applicant and approved by EFSEC for the project to reduce the potential for erosion and pollutant discharge from the site during construction and operation activities. The SWPPP would be designed to meet the requirements of the Washington State Department of Ecology (Ecology) General Permit to Discharge Storm Water through its stormwater pollution control program (Chapter 173-230 WAC) associated with construction activities and an Ecology General sand and gravel permit. Requirements of a National Pollution Discharge Elimination System (NPDES) Stormwater Construction Permit would also be followed.

The SWPPP would include both structural and non-structural Best Management Practices (BMPs). Examples of structural BMPs include installation of silt fences and other physical controls to divert flows from exposed soils or otherwise limit runoff and pollutants from exposed portions of the site. Examples of nonstructural BMPs include materials handling protocols, disposal requirements, and spill prevention methods.

The SWPPP would be prepared along with a detailed project grading plan by the Engineering, Procurement, and Construction (EPC) contractor when design-phase topographic surveying and mapping are completed for the site. The EPC would implement the construction BMPs, with enforcement by the project's environmental monitor, who would be responsible for implementing the SWPPP.

Site-specific Best Management Practices (BMPs) would be identified on the construction plans for site slopes, construction activities, weather conditions, and vegetative buffers. The sequence and methods of construction activities would be controlled to limit erosion. Also, the majority of areas that would be disturbed by the project are sloped at 20% or less (Wind Ridge Power Partners LLC 2004). Clearing, excavation, and grading would be limited to the smallest areas necessary to construct the project. Surface protection measures such as erosion control blankets or straw mulching may also be required during construction or before restoration if the potential for erosion is high in a particular portion of the site.

All construction practices would emphasize erosion control through such measures as:

- Using straw mulch and vegetating disturbed surfaces,
- Retaining original vegetation wherever possible,
- Directing surface water runoff away from denuded areas, keeping runoff velocities low by minimizing slope steepness and length, and
- Providing and maintaining stabilized construction entrances.

Work on the access roads would include grading and resurfacing (with additional gravel) existing roads and constructing new roads. The site would generally have gravel roadways with a low-profile design,

allowing water to flow over them in most areas. Erosion control measures to be installed during work on the access roads include the following:

- Maintaining vegetative buffer strips between the affected areas and any nearby receiving waterways;
- Installing sediment fence/straw bale 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 synthetic mats downstream of seasonal stream crossings;
- Installing silt fences on steep, exposed slopes; and
- Planting affected areas with designated seed mixes.

At each turbine location, a crane pad area of approximately 3,000 square feet would be graded and covered with crushed rock. During construction, silt fences, hay bales, or matting would be placed on the down-slope side of the crane pad. Wind turbine equipment such as blades, tower sections, and nacelles would be transported and off-loaded at each turbine location near the foundation and crane pad. After construction, disturbed areas at and around all crane pad staging areas would be reseeded as necessary to restore the area as closely as possible to its original condition.

Design specifications and further details for excavation, blasting, and other activities associated with the removal and preparation of quarry materials for project construction will be included in the project plans and specifications. This information and a reclamation plan for the rock quarries will be provided to EFSEC for review and approval prior to start of construction.

3.1.4.2 Erosion Control during Project Operation

The project operations group would be responsible for monitoring the SWPPP measures that are implemented during construction to ensure that they continue to function properly. Final designs for the permanent BMPs would be incorporated into the final construction plans and specifications prepared by the engineering team's civil design engineer. The EPC contractor's civil design engineer and the project's engineering team will prepare an operations manual for permanent BMPs. The permanent stormwater BMPs would include erosion and sedimentation control through site landscaping, grass, and other vegetative cover. The final designs for these permanent BMPs would conform to either 1) the Washington State Department of Ecology Western Washington Stormwater Management Manual, with adjustment for conditions in eastern Washington, or 2) a similar Stormwater Management Manual that is expected to be published by Ecology in the summer of 2004.

Operational BMPs will be adopted, as part of the SWPPP, to prevent stormwater pollution by implementing good housekeeping, preventative, and corrective maintenance procedures; steps for spill prevention and emergency cleanup; employee training programs; and inspection and record-keeping practices as necessary. Examples of good operational housekeeping practices identified by the Applicant that would be used by the project include the following:

- Prompt cleanup and removal of spillage,
- Regular pickup and disposal of garbage,
- Regular sweeping of floors,

- HAZMAT data sheet cataloguing and recording, and
- Proper storage of containers.

The project operators would periodically review the SWPPP against actual practice. The plant operators would determine if the controls identified in the plan are adequate and if employees are following them.

3.1.4.3 Earthquakes

The Applicant proposes to design and construct project facilities in accordance with engineering standards in effect at the time of construction, which would be either the Uniform Building code (UBC) or the International Building Code (IBC) requirements. The wind turbines would be equipped with vibration sensors that would automatically shut down the turbine in the event of a severe earthquake (Wind Ridge Power Partners LLC 2004, Section 3.1).

Additional mitigation measures that would minimize risks from earthquakes would also be implemented and are discussed below.

Prior to final project design, a detailed geotechnical evaluation and field survey would be completed so that no turbine locations or other project elements lie immediately above a high-risk fault. Geotechnical explorations would be conducted at each location where a deep foundation is required (i.e., at each turbine and meteorological tower location) and at the substations and Operations and Maintenance (O&M) facility.

In addition, current engineering standards applicable in Kittitas County (the 1997 UBC) would be used in design of the project facilities, to assure that the facility performance is acceptable during a design earthquake. Given the relatively low level of earthquake risk for the site, application of the UBC in project design would provide adequate protection for the project facilities and for human safety (Wind Ridge Power Partners LLC 2004, Section 3.1).

The Applicant would prepare on-site emergency plans to protect the public health and safety and environment on and off the project site in case of a major natural disaster such as an earthquake. The Applicant proposes that detailed emergency plans developed prior to project construction and operation contain the following measures to mitigate for potential hazards during an earthquake (Wind Ridge Power Partners LLC 2004):

- Personnel would seek safety at the nearest protected location.
- Personnel would take cover to avoid falling debris.
- Personnel would check the immediate area to identify injuries and equipment failures and report to the site construction manager, O&M manager, or designee.
- Personnel would be instructed to report to a protected area, as necessary, or would continue monitoring the operating equipment.
- A determination would be made about missing personnel, and a search and rescue effort would be initiated if safe and appropriate.
- If the conditions warranted, the Kittitas County Emergency Communications Center and Bonneville Power Administration (BPA) or Puget Sound Energy (PSE) (the electric transmission line operator) would be notified.

- Turbines could also be shut down manually as required depending on the severity of the earthquake and brought back online after they have been cleared for restart.
- Off-duty personnel would report to the site, if they are able, as designated in the emergency plan.
- If the structures are intact and other plant safety issues are under control, the O&M manager would approve re-entry of personnel to any turbines for search and rescue efforts.

3.1.4.4 Volcanic Eruptions

In the event of damage or potential impact from a volcanic eruption, the project facilities would be shut down until safe operating conditions return. If an eruption occurred during construction, a temporary shutdown would most likely be required to protect equipment and human health (Wind Ridge Power Partners LLC 2004).

To help protect against the impacts of dust and ash all key outdoor project facilities would be coated with corrosion-resistant materials. The turbine rotor blades and other fiberglass shrouds, such as those on the nacelles for example, are resistant to wind-blown dust and precipitation. The turbine towers would have venting and filtering in the doors to prevent wind blown dust from reaching the internal electrical equipment and machinery.

The Applicant would prepare on-site emergency plans to protect the human health and safety and the environment on and off the project site in case of a major natural disaster such as a volcanic eruption. The Applicant proposes the following actions be taken to reduce potential impacts from a volcanic eruption (Wind Ridge Power Partners LLC 2004).

- Close all O&M facility vents to prevent ash from entering buildings.
- Cover data processing equipment and computers not required for safe project operation or shutdown, and shut down other electronic equipment sensitive to dust (ash).
- If the dust load is heavy, shut down the project facilities.
- If the conditions warrant, notify the Kittitas County Emergency Communications Center and BPA or PSE (the electric transmission line operator).
- Determine whether employees should be sent home immediately before roads become unsafe or if personnel must be sheltered on-site.
- Initiate ash cleaning operations by personnel wearing protective equipment.
- Coordinate all ash disposal activities with local Kittitas County officials.

3.1.4.5 Landslides

The Applicant proposes to locate project facilities in areas with relatively low-gradient topography with a thin cover of soil that overlies basalt bedrock. No project facilities would be constructed on unstable slopes or landslide-susceptible terrain. A sufficient setback distance would be provided between the landslide identified in the southern portion of the project site and the nearest project facilities.

In addition, the following mitigation measure would be implemented. Prior to project construction, additional geotechnical explorations, including drilling and ground-penetrating radar (GPR) surveys, would be completed as necessary to delineate the limits of the landslide area to verify that the turbines are not placed in potentially unstable terrain and to provide final recommendations for safe setback distances from known or suspected slide areas.

3.1.4.6 Unique Features

In the unlikely event that unique physical or unique geological features such as petrified ginkgo deposits were discovered at the site during construction, the Applicant has stated that construction personnel would stop work at that location and notify the project manager. The project manager would immediately contact appropriate personnel at EFSEC and the Washington State Historic Preservation Office to coordinate an appropriate response.

3.1.4.7 Contaminated Soils

The Applicant commissioned KTA of Seattle, Washington, to conduct a Phase I Environmental Site Assessment of the site to be developed. The Phase I Environmental Site Assessment was performed in accordance with the scope and limitations of American Society of Testing and Materials Practice E 1527. The results of the Phase I Environmental Site Assessment indicated no evidence of environmental contamination within the project site. Based on these findings, the potential for encountering environmental contamination during project construction or operation is low. In the unlikely event that contaminated soils are encountered, the Applicant has stated that they will notify EFSEC and appropriate personnel with the Ecology (Wind Ridge Power Partners LLC 2004). Contaminated soils would be handled and disposed of according to state and local requirements.

3.1.4.8 Decommissioning Plans

Prior to commencement of construction the Applicant would obtain EFSEC approval, and in consultation with Kittitas County, establish a detailed Initial Site Restoration Plan pursuant to WAC 463-42-655. The plan shall be developed with the active participation of the County, in consultation and coordination with EFSEC, and shall be submitted to the County for its review and approval, provided however, such approval shall not be unreasonably withheld.

If the project were to terminate operations, the Applicant would obtain the necessary authorization from the appropriate regulatory agencies to decommission the facilities. A Final Site Restoration Plan would be developed and submitted to EFSEC for review and approval.

All foundations for above-grade facilities would be removed to a depth of 3 feet below grade and unsalvageable material would be sent to authorized sites for disposal. The soil surface would be restored

as close as reasonable possible to its original condition. The projects substation(s) is generally valuable and, as is often the case on older power projects, the substation would revert to the ownership of the utility (PSE and/or BPA). If the overhead transmission feeder lines could not be used by the utility, all structures (including the portion of pole foundations within 3 feet below the ground surface), conductors and cables would be removed.

Section 3.2 AIR QUALITY

Revisions to sub-sections within Section 3.2 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Table 3.2-1 included in this Section reflects only those items with revisions. Table entries in the DEIS that were not changed are not repeated here. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.2.2 Impacts of Proposed Action

Table 3.2-1. Summary of Potential Air Quality Impacts

Source	104 Turbines/3 MW	136 Turbines/1.5 MW (Most Likely Scenario)	158 Turbines/1 MW
Construction Impacts			
Fugitive dust emissions during construction of turbine generator strings	No significant impact, fugitive dust generated by 289 total acres disturbed	No significant impact, fugitive dust generated by 356 total acres disturbed. The turbines would be far from the facility boundary, so it is not expected that the emissions would exceed ambient concentrations to approach the allowable ambient standards.	No significant impact, fugitive dust generated by 401 total acres disturbed
Odors	Similar to Most Likely Scenario	Limited and negligible. Construction operations would not emit significant amounts of odorous substances.	Similar to Most Likely Scenario
Impacts during construction of substations and transmission facilities	Similar to Most Likely Scenario	Temporary, localized impacts caused by fugitive dust during construction. Construction operations would seldom occur for a long duration at any given location, so it is unlikely emissions would cause ambient concentrations to approach the allowable ambient standards.	Similar to Most Likely Scenario

Source: Wind Ridge Power Partners LLC 2004

3.2.3 Impacts of Alternatives

3.2.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Impacts of the Desert Claim alternative would be similar to those described for the Wild Horse Wind Power Project (WHWPP) and the Kittitas Valley alternative due to the similarities in construction, operations, and maintenance activities associated with the proposed projects.

Air quality impacts resulting from the modified project configuration evaluated in the Desert Claim FEIS would be essentially the same as for the proposed action evaluated in the Desert Claim DEIS.

Construction, operation, and decommissioning impacts would be the same in type, intensity and duration as described in the DEIS. As compared to the project layout evaluated in the DEIS, the modified project configuration analyzed in the FEIS would result in very subtle shifts in the location or extent of potential air quality effects, with somewhat less project activity in the southeast corner of the project area and somewhat more activity in the northwestern portion of the project area.

A potential additional mitigation measure could include the application of dust palliatives, such as calcium chloride, to road surfaces to reduce the amount of dust created by vehicle traffic on unpaved roads. Use of dust palliatives might obviate the need for repeated watering of project access roads. Conversely, some resource agencies have expressed concern over possible ecological impacts from dust-palliative compounds transported in stormwater runoff; this issue would need to be addressed before use of dust palliatives could be recommended.

3.2.4 Mitigation Measures

The Applicant proposes the following mitigation measures for construction-related air emissions and dust:

- All vehicles used during construction will comply with applicable federal and state air quality regulations for tailpipe emissions;
- Operational measures such as limiting engine idling time and shutting down equipment when not in use will be implemented;
- Active dust suppression will be implemented on unpaved construction access roads, parking areas and staging areas, possibly using water-based dust suppression materials in compliance with state and local regulations;
- Housekeeping measures around batch plant and rock crushing facilities to prevent buildup of fine materials;
- Traffic speeds on unpaved access roads will be kept to 25 mph to minimize generation of dust;
- Carpooling among construction workers will be encouraged to minimize construction-related traffic and associated emissions;
- Disturbed areas will be replanted or graveled to reduce wind-blown dust; and

- Erosion control measures will be implemented to limit deposition of silt to roadways.

In addition to these mitigation measures, the following will be implemented:

- The air quality permit for the temporary rock crusher and the temporary concrete batch plant will require the use of emission control devices to reduce dust generated by these processes. Water sprays will be used on the rock crusher and the concrete batch plant dry loading operations, and a fabric filter will be used for the Portland cement silo.
- If, during periods of high winds, the dust suppression equipment on the rock crushing or batch plants is rendered ineffective, the machinery would be halted to prevent excessive fugitive dust plumes.

No air quality mitigation is proposed for project operations as there would be no air or odor emissions generated by stationary sources. Dust abatement measures implemented during operation would be continued as appropriate.

Section 3.3 WATER RESOURCES

Revisions to sub-sections within Section 3.3 of the Draft Environmental Impact Statement (DEIS), presented below, are provided for clarification in response to comments submitted on the DEIS. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Table 3.3-3 included in this Section reflects only those items with revisions. Table entries in the DEIS that were not changed are not repeated here. Mitigation measures reflect those presented in the DEIS, the Development Agreement between the Applicant and Kittitas County (Appendix A), and the Settlement Agreement between the Applicant and the Washington State Department of Fish and Wildlife (WDFW) (Appendix B).

3.3.2 Impacts of Proposed Action

No surface waters would be directly impacted by the proposed action, but precipitation during construction could result in sediment-laden surface runoff because of ground disturbance and exposed soils. If not properly mitigated, development under any of the three project scenarios could adversely affect nearby surface waters. This impact would be greatest under the 158-turbine/1-MW scenario, which would result in the largest amount of ground disturbance during construction (401 acres), see Table 3.3-1. However, all design scenarios will adhere to the surface water setbacks, best management practices (BMPs) will be employed on site, and compliance with applicable permits regarding runoff and sediment control will be maintained in all design scenarios. No project access roads cross any stream or riparian areas. Thus, it is anticipated that these measures and the facility design will minimize potential impacts that may result from construction of the project.

Table 3.3-3. Summary of Potential Water Resources Use and Potential Impacts

Project Component	104 Turbines/3 MW	136 Turbines/1.5 MW	158 Turbines/1 MW
Construction Impacts			
Drainages	None	None	None
Operations and Maintenance Impacts			
Drainages	None	None	None

Source: Wind Ridge Power Partners LLC 2004

3.3.2.1 Construction Impacts

Surface Water, Runoff, and Erosion

Wetlands in the form of seeps, ponds, and springs are described above, within the project area; however, all project facilities would be located a considerable distance from them. The proposed action would not directly impact any wetland or surface water. Project facilities would be located outside the designated buffers of any wetlands or creeks, as required by Section 17A.04.020 “Buffer width requirements” of the Kittitas County Code. The closest project facility is a turbine access road with an underground collector cable, a low intensity use, which would be located approximately 200 feet away from a small, unnamed spring just east of turbine C-5. The maximum setback that would be required by Washington Department of Ecology (Ecology) guidelines and Washington Energy Facility Site Evaluation Council’s (EFSEC) proposed rules for combustion turbine standards would be 50 feet. The construction methods and control measures discussed below in Construction General Stormwater Pollution Prevention Measures would serve to minimize impacts and protect all wetlands and riparian corridors. No project facilities, transmission feeder line poles, rock quarry/concrete batch site, or trails would be built in or near any streambed, riparian corridor, or wetlands.

3.3.3 Impacts of Alternatives

3.3.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Turbine construction would affect 16 stream segments and temporarily disturb 3,700 linear feet of streams and a total of 3.0 acres of stream and riparian area. Project facilities would permanently occupy approximately 1,200 linear feet of streams, mostly at road crossings, and less than 1 acre of riparian area. The proponent intends to conduct further micro-siting analyses of proposed turbine and road locations to avoid or minimize impacts to surface water bodies.

The project would not require surface water withdrawals or diversions during construction or operation; impacts on surface water quantity and quality are expected to be minor and temporary. BMPs will be used during construction to address water quality impacts. The volume of water required during construction for dust suppression and construction operations was not quantified. Mitigation measures to minimize potential adverse impacts of vibration on groundwater flow to wells or to operation of water wells due to blasting include verification of well locations and compliance with existing regulations for blasting design and allowable explosive weights.

[...]

Impacts on surface water and ground water during operation of the facility would therefore be minimal. Localized impacts to ground water quality from product spills would be minimized through required use of a spill prevention, containment and control plan.

3.3.4 Mitigation Measures

Mitigation measures proposed by the Applicant are described in the following sections. Additional mitigation was identified in the settlement agreement between WDFW and the Applicant. As such, roads, underground cables, turbine foundations, transmission poles and other associated infrastructure will not be located within any riparian areas or streams and will not involve the use of any heavy equipment in stream beds or riparian areas. BMPs will be implemented to retain sediment from disturbed areas and minimize areas of disturbance.

The proposed design of the project incorporates numerous features to avoid and/or minimize impacts on water resources. The project layout (Figure 1-2) has been designed to avoid any impacts on surface waters and groundwater. Features of the project that are designed to avoid or minimize impacts include:

- minimizing new road construction by improving and using existing roads and trails instead of constructing new roads;
- not developing wells on site, and using only off-site sources of water for construction and operation; and
- locating roads, underground cables, turbine foundations, transmission poles and other associated infrastructure outside any surface water or other sensitive resources.

Other mitigation measures include avoiding drainage crossings to the maximum extent feasible; complying with federal, state, and local ordinances; and implementing a formal Stormwater Pollution and Prevention Plan (SWPPP) and BMPs during construction.

3.3.4.1 **Construction General Stormwater Pollution Prevention Measures**

Stormwater Pollution Prevention Plan

A detailed Construction SWPPP will be developed for the project to help minimize the potential for discharge of pollutants from the site during construction activities. The SWPPP will be designed to meet the requirements of the Ecology General Permit to Discharge Stormwater through its stormwater pollution control program (Chapter 173-220 WAC) associated with construction activities. A SWPPP meeting the conditions of the Stormwater General Permit for Construction Activities will be prepared and submitted to EFSEC along with a Notice of Intent (NOI) for construction activities prior to the start of project construction. Similar to the Construction SWPPP, an Industrial SWPPP meeting the conditions of the Stormwater General Permit for Industrial Activities will be prepared along with an NOI for industrial activities prior to the start of project operation. The project National Pollutant Discharge Elimination System (NPDES) permit application is included in Appendix A [DEIS]. The project will meet the control requirements of the NPDES permit by complying with permit guidelines and statutory requirements.

Ecology's *Stormwater Management Manual for Western Washington* would be used for developing the SWPPP and BMPs, with modifications applicable to Eastern Washington conditions, as Ecology's *Stormwater Management Manual for Eastern Washington* has not been finalized or adopted.

The SWPPP will include both structural and nonstructural BMPs. Examples of structural BMPs could include the installation of silt curtains and/or other physical controls to divert flows from exposed soils or

otherwise limit runoff and pollutants from exposed areas of the site. Examples of nonstructural BMPs include management practices such as implementation of appropriate materials handling, disposal requirements, and spill prevention methods.

The SWPPP will be prepared along with a detailed project grading plan designed by the Engineering, Procurement, and Construction (EPC) Contractor when design-level topographic surveying and mapping are prepared for the project site. The final configuration of proposed improvements will be overlaid onto the detailed topographic maps, and the project civil design engineer will establish the locations and types of construction BMPs to be required of the EPC Contractor. These details will be included on an overall map of the project site and submitted to EFSEC prior to construction.

A narrative section of the SWPPP will describe the intended installation sequence and function of the selected BMPs, and present the sizing calculations. The plan will also identify the selected minimum standards to which each of the BMPs is to be constructed or installed. When prepared at this level of detail, the document would meet the requirements of the Stormwater Construction Activity NPDES permit system, and would accurately describe to the EPC Contractor and the project site construction management team the improvements and actions required during construction. When complete and submitted to EFSEC, the SWPPP will then be included in the construction bid and contract documents. The EPC Contractor will implement the construction BMPs, with enforcement supervised by the project's environmental monitor, who would be responsible for implementing the SWPPP.

General Stormwater Pollution Control Measures

Site-specific BMPs will be identified on the construction plans for the site slopes, construction activities, weather conditions, and vegetative buffers. The sequence and methods of construction activities will be controlled to limit erosion. Clearing, excavation, and grading will be limited to the minimum areas necessary for construction of the project. Surface protection measures, such as erosion control blankets or straw matting, also may be required prior to final disturbance and restoration if potential for erosion is high.

All construction practices will emphasize erosion control over sediment control through such non-quantitative activities as:

- straw mulching and vegetating disturbed surfaces,
- retaining original vegetation wherever possible,
- directing surface runoff away from denuded areas,
- keeping runoff velocities low through minimization of slope steepness and length, and
- providing and maintaining stabilized construction entrances.

A more detailed description of the materials, methods, and approaches used as part of the BMPs for effective stormwater pollution prevention and erosion control are as follows:

- **Rain Level Monitoring**—The environmental monitor will be responsible for checking and recording precipitation levels at the project site using a rain gage. This benchmark will be used to determine the performance of the SWPPP measures that have been implemented during construction. After construction, the Operations and Maintenance (O&M) group will also continue to monitor rainfall amounts and monitor the in-place erosion control systems while re-seeded areas become more

established. Modifications will be performed where needed by the O&M group after project construction is completed.

- **Mulching**—Loose straw will be spread and punched into the ground in all areas where vegetation has been cleared.
- **Temporary Straw Bale and Silt Fence Sediment Barriers**—Temporary straw bale barriers and sediment fences will be inspected by the Contractor immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs, relocations, or additions will be made promptly. No more than 1 foot of sediment will be allowed to accumulate behind straw bales or silt fence sediment barriers. Sediment will be removed and re-graded into slopes. New lines of barriers installed uphill of sediment-laden barriers will be considered based on the rate at which the 1 foot of sediment accumulates.

Silt fences and straw bale sediment barriers will be maintained throughout the construction period and beyond, until disturbed surfaces have been stabilized with vegetation. Silt fence construction specifications, including fabric type, support spacing, and total length will be determined by actual construction conditions during final design of the facilities.

- **Check Structures and Sediment Traps**—Check structures, such as rock dams, hay bale check dams, dikes and swales will be used, where appropriate, to reduce runoff velocity as well as to direct surface runoff around and away from cut-and-fill slopes. Swales and dikes may also be used to direct surface water toward sediment traps.
- **Matting and Erosion Control Blankets**—Depending on weather conditions during the construction period, straw or jute matting or other suitable erosion control blankets will be used on the pad slopes and the drainage channel slopes if direct rainfall on the slopes would result in erosion prior to stabilization (see Figure 3.3-2).
- **Control of Excavation Dewatering**—Although no dewatering is anticipated, excavation work requiring dewatering discharge will be directed to the surrounding upland areas, away from sensitive resources (e.g., wetlands, drainages, and seeps). Dewatering water will be pumped through a hose that will be moved as the water is pumped out to distribute the groundwater over a large surface area to allow it to evaporate and/ or infiltrate and avoid causing increased erosion or stormwater pollution. There will be no direct discharge to surface waters or riparian areas from dewatering activities.

No project facility would be located closer than approximately 200 feet from a riparian area, although the maximum setback that would be required by Ecology guidelines would be only 50 feet.

- **Stormwater Pollutants (Waste, Debris, Chemicals)**—In addition to erosion and sedimentation control on the project site, it is important to reduce potential for chemical pollution of surface waters and groundwaters during construction. Source control is the most effective method of preventing chemical water pollution. All potential pollutants, including waste materials and demolition debris, that occur on site during construction will be handled and disposed of in a manner that does not cause contamination of stormwater.

The only potential water pollutants that would be transported and used in significant quantities during construction are diesel fuels and gasoline, which will be transported and stored in accordance with state and federal regulations by appropriately licensed and trained petroleum transport professionals. Other potential water pollutants include lubricating and mineral oils, chemical cleaners, and herbicides in small quantities below state and federal regulatory thresholds. Handling of these materials will be conducted in a manner that is protective of the environment and in accordance with

applicable federal and state requirements and with the BMPs and the Spill Prevention, Containment, and Control Plan described in Section 3.15.2, “Health and Safety—Impacts of the Proposed Action.”

In the unlikely event of a fuel, oil, or chemical spill, project personnel will activate the Spill Prevention, Containment, and Control Plan described in Section 3.15.2, “Health and Safety—Impacts of Proposed Action.”

- **Environmental Monitor**—The proposed environmental monitor will be responsible for locating any necessary clean fill disposal sites for excess excavation spoils. To control the release of sediment from the disposal sites, silt fencing with a straw bale barrier will be installed on the downslope side of all disposal areas if additional sediment or erosion control measures are determined to be necessary. The site environmental monitor will be responsible for planning, implementing, and maintaining BMPs for:
 - neat and orderly storage of any construction chemicals and spent containers in lined, bermed areas;
 - materials handling and spill prevention procedures; and
 - regular disposal of construction garbage and debris using on-site dumpsters.
- **Revegetation**—All areas that are affected by the construction outside of the graveled areas and rock quarries will be seeded when there is adequate soil moisture. They will be re-seeded if healthy cover vegetation does not grow. The sediment fence and check dams will remain in place until the affected areas are well vegetated and the risk of erosion has been eliminated. The project operations group will remove the sediment fence at this time.
- In addition the following specific facility control measures and BMPs for effective stormwater pollution prevention and erosion control measures will be implemented as part of the SWPPP:
- **Foundation Construction Stormwater Pollution Control Measures**—Foundation construction would require significant excavation at each wind turbine location as described in Section 3.1.2, “Earth—Impacts of the Proposed Action.” Excavation materials will be stored adjacent to the foundation holes as the forms, rebar and bolts are assembled and as the concrete cures after it is cast in place. Sediment fences, hay bales or matting will be installed on steeper down slopes near the storage piles as necessary. Once the concrete cures, excavated materials would be used for backfilling. In affected areas adjacent to pads, mulch will be spread and the area will be re-seeded. Cobbles and rocks too large for backfilling will be crushed for gravel and used in rock check dams or to support other on-site erosion control measures.
- **Access Roads Stormwater Pollution Control Measures**—Work on the access roads would include grading and re-graveling existing roads and constructing new roads. The site would have gravel roadways that generally would be a low-profile design, allowing water to flow over them in most areas. Erosion control measures to be installed during the work on the access roads include:
 - maintaining vegetative buffer strips between the affected areas and any nearby waterways;
 - installing sediment fence/straw bale barriers on disturbed slopes and other locations shown on the SWPPP;
 - using straw mulching at locations adjacent to the road that have been affected;
 - providing temporary sediment traps and sediment type mats downstream of seasonal stream crossings;

- installing silt fencing on steeper exposed slopes; and
 - planting designated seed mixes at impacted areas.
- **Turbines**—At each turbine location, a crane pad area of approximately 4,000 square feet would be graded in place and covered with road rock. During construction, silt fences, hay bales, or matting will be placed on the down slope side of the crane pad areas. Wind turbine equipment such as the blades, tower sections, and nacelles would be transported and off-loaded at each turbine location near the foundation and crane pad. After construction, disturbed areas around all crane pad staging areas will be re-seeded with an appropriate seed mix.
- **Underground Cable Trenching Stormwater Pollution Control Measures**—Underground electrical and communications cables would be placed in 3- to 5-foot-wide trenches along the length of each wind turbine string corridor. In some cases, trenches would run from the end of one turbine string to the end of an adjacent turbine string to link turbines via the underground network. Trenches would be excavated from 1.5 to 4 feet deep, depending on the underlying soil/rock conditions. Excavated materials would be piled alongside the cable trenches for backfilling after cable installation. The excavated materials typically would remain in an exposed state for approximately 2 weeks. Sediment fences, hay bales, or matting will be installed on steeper downslopes near the storage piles. After backfilling is completed, excess excavated soils will be spread around the surrounding area and contoured to the natural grade. Cobbles and rocks too large for backfilling will be crushed for gravel and used in rock check dams or to support other on-site erosion control measures. Finally, the area will be re-seeded with an appropriate seed mix.
- **Overhead Collector Line Construction Stormwater Pollution Control Measures**—Construction of the overhead pole lines would require excavation for setting the poles. Excavated materials would be piled alongside the excavations for backfilling after pole installation. Pole excavations are typically in an exposed state for approximately 1 week. Sediment fences, hay bales, or matting will be installed on any steep downslopes near the storage piles. After backfilling, excess excavated soils will be spread around the surrounding area and contoured to the natural grade. Cobbles and rocks too large for backfilling will be crushed for gravel and used in rock check dams or to support other on-site erosion control measures. Finally, the area will be re-seeded with an appropriate seed mix.
- **Substation Construction Stormwater Pollution Control Measures**—The substation is generally flat, and the base area would be graded and covered with a sub-base rock and a graveled surface on top. Foundation and underground trenching excavation spoils would be handled in the same manner as described in the above sections regarding foundations and underground cable trenches. Disturbed areas surrounding the substation perimeter will be contoured to the natural grade, covered in straw mulch, protected for erosion control, and re-seeded as appropriate to the adjacent slopes. The main substation transformers, which are filled with mineral oil, are equipped with an oil level meter and float switch. Oil containment catch trenches would surround the outer foundation perimeters of transformers, as described in more detail in Section 2.2.3, “Project Facilities.”
- **Final Road Grading and Site Clean Up Stormwater Pollution Control Measures**—The project would use dumpsters or drop boxes from a local waste management company to collect recyclable materials and dispose of waste materials that cannot be reused. A final site cleanup will be made before turning the project over to the O&M group. In accordance with the Erosion and Sediment Control Plan for access road improvement and construction, County roads will be restored to at least their preproject condition and to the satisfaction of the County Public Works Department.
- **Cement Batch Plant Stormwater Pollution Control Measures**—The cement batch plant would be located on site at a central location within a flat area approximately 500 feet square, surrounded by a 1-foot-high earth berm to contain spilled water runoff (see Proposed Layout of Most Likely Scenario

(136 Turbines/1.5 MW) in Figure 1-2).

The batch plant would use outdoor stockpiles of sand and aggregate. These stockpiles would be located to minimize exposure to wind. Sediment fences, hay bales, or matting will be installed near the storage areas as necessary. Cement would be discharged via screw conveyor directly into an elevated storage silo without outdoor storage. Construction managers will exercise good housekeeping practices and conduct regular cleanings of the plant, storage, and stockpile areas to minimize buildup of fine materials.

Following completion of construction activities the Applicant's contractor will rehabilitate the sites by dragging the top of both of the 500-square foot crushing and batch plant areas with a blade machine and re-seeding the area with a designated seed mixture.

- **Rock Quarry Stormwater Pollution Control Measures**—A total of three temporary on-site rock quarries are planned for the project (see Proposed Layout of Most Likely Scenario (136 Turbines/1.5 MW) in Figure 1-2). Each rock quarry would have a disturbance footprint of approximately 5 acres, and the depth would be approximately 10–20 feet, depending on the type of rock encountered at each location. Sediment fences, hay bales, or matting will be installed near the quarries to control stormwater run on and runoff, as necessary.

A rock crusher would be located at one of the three on-site quarry pits for the duration of the construction period. The crusher would be located in an area approximately 500 feet square, surrounded by a 1-inch high earth berm to contain spill water runoff. This area will be sprayed by a water truck several times each day for dust suppression. The crusher will contain several dust-suppression features, including screens and water spray. Effective dust-control measures will be operating at all emission points during operation, including start-up and shut-down periods. During periods of sustained high winds, contractors will shut down operation of the rock crusher if reduced visibility poses a safety hazard.

It is not anticipated that surface runoff control facilities beyond the control measures described above would be required. Project engineers will determine specific siting of the control measures after final design has been completed. The Applicant will provide design assumptions, including storm events and plans, when they have been completed.

3.3.4.2 Operational General Stormwater Pollution Prevention Measures

As described above, the Applicant will prepare and define a SWPPP as part of the final design. The project operations group will be responsible for monitoring the SWPPP measures that were implemented during construction to ensure they continue to function properly. Final designs for the permanent BMPs will be incorporated into the final construction plans and specifications prepared by the civil design engineer. An operations manual for the permanent BMPs will be prepared by the EPC Contractor civil design engineer and the project's engineering team.

Operational BMPs will 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 recordkeeping practices, as necessary, to prevent stormwater and groundwater pollution. Examples of good operational housekeeping practices, which will be employed by the project, include the following:

- prompt cleanup and removal of spillage;
- regular pickup and disposal of garbage;
- regular sweeping of floors;
- HAZMAT data sheet cataloging and recording; and
- proper storage of containers.

No project facility would be located closer than approximately 200 feet from a riparian area, although the maximum setback that would be required by Ecology guidelines. The County does not require a setback.

The project operations group will periodically review the SWPPP against actual practice. The plant operators will ascertain that the controls identified in the plan are adequate and that employees are following them.

Transformer Oil Containment

The oil containment system for the substations would consist of a perimeter containment system, large enough to contain the full volume of transformer mineral oil with a margin of safety, surrounding the main substation transformers. The trough would be poured as part of the transformer concrete foundation or would consist of a heavy oil-resistant membrane that is buried around the perimeter of the transformer foundation.

The trough and/or membrane would drain into a common collection sump area that would be equipped with a sump pump designed to pump rainwater out of the trough to the surrounding area away from nearby surface waters or sensitive areas (e.g., wetlands, springs, seeps). In order to prevent the sump from pumping oil out to the surrounding area, it will be fitted with a sensor that would shut off the sump if oil is detected. A failsafe system with redundancy is built into the sump controls—the transformers are also equipped with oil-level sensors. If the oil level inside a transformer drops as a result of a leak in the transformer tank, it would also shut off the sump pump system to prevent it from pumping oil, and an alarm would be activated at the substation and in the main project control (SCADA) system. The trough would be large enough to contain the full volume of oil plus 10% reserve volume.

Discharges from the containment system would be directed to upland areas and away from nearby surface waters or sensitive areas (e.g., wetlands, springs, seeps). Discharge from the containment system will be in compliance with laws governing the discharge of oil as specified in the Code of Federal Regulations (CFR) under 40 CFR Part 110.3:

§ 110.3 Discharge of oil in such quantities as "may be harmful" pursuant to section 311(b)(4) of the Act. [See below Note]

For purposes of section 311(b)(4) of the Act, discharges of oil in such quantities that the Administrator has determined may be harmful to the public health or welfare or the environment of the United States include discharges of oil that:

(a) Violate applicable water quality standards; or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. [61 FR 7421, Feb. 28, 1996]

Note: Act means the Federal Water Pollution Control Act, as amended 33 U.S.C. 1251 et seq., also known as the Clean Water Act.

Water in the containment system that shows obvious indicators of potentially violating appreciable water quality standards, i.e., the water exhibits an oily sheen as specified under 40 CFR Part 110(b), will be removed from the containment system and disposed of in accordance with applicable federal, state and local laws.

Section 3.4

VEGETATION AND WETLANDS

Information contained in this section has been revised since the issuance of the Draft Environmental Impact Statement (DEIS) in response to 1) comments submitted on the Draft, 2) information, corrections, or updates provided by the Applicant, 3) the settlement agreement between the Washington State Department of Fish and Wildlife (WDFW) and the Applicant (Appendix B), and 4) the Development Agreement between Kittitas County (County) and the Applicant (Appendix A). The revisions to the information contained in the DEIS are presented below.

3.4.1 Affected Environment

The above descriptions of generalized vegetation zones and associations are based on climax communities, which typically develop over time. Within most of the shrub-steppe region, including the project area, many of the plant communities have been modified as a result of numerous disturbance factors. Livestock grazing, introduction of nonnative and invasive plant species, and ground disturbance from recreational activities have resulted in a shift in plant community composition in the project area from the climax communities described above. Notable in the project area is a lower percentage of native grass species and grass cover in general compared to climax communities, attributable to livestock grazing (Stream pers. comm.). Although the project area contains some weedy and nonnative plant species, native species overwhelmingly dominate the project area.

The proposed project site is contiguous with undeveloped lands and wildlife areas. As such, the project area is part of a larger expanse of shrub-steppe habitat. Adjacent lands include those managed by WDFW, Washington State Department of Natural Resources (DNR), and the U.S. Bureau of Land Management (BLM). The Quilomene Wildlife Area is situated to the north of the proposed project site. A portion of the project area is located within the Whiskey Dick Wildlife Area, which extends to the east (see Section 3.5, Wildlife).

3.4.1.1 Existing Vegetation Communities

Riparian Communities

Table 3.4-1 describes the general cover types and vegetation conditions found along the proposed turbine strings. A habitat quality assessment was conducted at each turbine string. Ratings of habitat quality are qualitative, based on direct visual observations of patterns of plant community composition, the amount of nonnative plant species, and overall vegetative structure. Assessments of habitat quality were made using the Natural Resource Conservation Service (NRCS) "Range Condition Classes," as recommended by WDFW, which classify range condition as "excellent," "good," "fair," or "poor," based on a

comparison of the existing community composition to the climax community composition. Based on NRCS guidelines (USDA SCS 1973), rangeland with 75 to 100% species composition of its climax vegetation is in “excellent” condition. Rangeland with 50 to 75% species composition of its climax vegetation is in “good” condition. Rangeland with 25 to 50% species composition of its climax vegetation is in “fair” condition, and less than 25% species composition is in “poor” condition. WDFW reviewed and approved this study methodology and determined the studies conducted for the Wild Horse Wind Power Project (WHWPP) are appropriate and consistent with WDFW’s Wind Power Guidelines.

3.4.1.2 Wetlands

Several springs are scattered throughout the project area, but none are in close proximity to any project facility. Whiskey Dick Creek, an intermittent stream, flows through the project area, but not in close proximity to any proposed project facility. The proposed Bonneville Power Administration (BPA) feeder line crosses Parke Creek, an intermittent stream, west of the main project area. The crossing location was investigated and no wetlands appear to be associated with Parke Creek at this location. The area supports a woody riparian zone with trees such as alder (*Alnus incana*) and aspen (*Populus tremuloides*) in the overstory and mixed shrubs (e.g., snowberry [*Symphoricarpos* sp.], golden current [*Ribes aureum*], willow [*Salix* sp.]) and forbs in the understory. Although riparian vegetation was present, the vegetation did not meet any of the indicators for a wetland. No hydrology indicators were observed as well. Parke Creek is somewhat channelized at this location and there was no evidence of periodic flooding or a high water table. The location is within a pasture and is heavily grazed by livestock.

No project access roads cross any wetlands, streams, or riparian areas (see Section 3.3, Water Resources), including the project access road located outside the project boundary through Sections 9 and 4.

3.4.2 Impacts of Proposed Action

3.4.2.1 Construction Impacts

Wetlands

No wetlands occur in or near areas where project facilities are proposed or construction activities would occur, including the project access road located outside the project boundary and through Sections 9 and 4, under any of the three scenarios. Therefore, no construction impacts on wetlands are anticipated. In addition, no construction would take place within 200 feet of the stream bank at the proposed crossing of Parke Creek.

3.4.2.2 Operation and Maintenance Impacts

Invasive plant species could also be introduced during project operation and maintenance activities. New access roads could provide a route for migration of nonnative and invasive plant species into areas of newly disturbed soils or into previously weed-free areas of sparse vegetation. The potential for this impact would be greatest under the 158-turbine/1-MW scenario since approximately 401 acres would be disturbed and vulnerable to weed introduction and establishment if revegetation efforts failed. See

Section 3.4.4.3, Mitigation Measures, for noxious weed control and mitigation for disturbed sites, as well as revegetation that would be implemented in consultation with WDFW.

3.4.3 Impacts of Alternatives

3.4.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Approximately 88 acres of existing vegetation would be permanently removed for project facilities at the Desert Claim site. Permanent loss of vegetation would occur in shrub-steppe, grassland, riparian shrub, riparian forest, and wet meadow habitats. The majority of construction impact, over 90%, would occur in shrub-steppe and grassland. Approximately 5 acres of land currently used for agricultural purposes would also be permanently converted to land occupied by the project facility. In addition, 342 acres of vegetation would be temporarily disturbed. Mitigation measures similar to those proposed for the Wild Horse site would be implemented, including construction timing, a detailed reclamation and site restoration plan in consultation with a Technical Advisory Committee (TAC) with standards based on undisturbed reference areas, and temporary erosion control measures employed during reseeding efforts.

Approximately 3.2 acres of wetland area would be permanently displaced by project facilities, with an additional 17 acres temporarily disturbed by construction. The proponent intends to conduct further micro-siting analyses of proposed turbine and road locations to avoid or minimize impacts to surface water bodies. Wetland impacts would be subject to compensatory mitigation.

3.4.4 Mitigation Measures

Shrub steppe is considered a priority habitat by WDFW. As such, the Applicant has proposed to mitigate all permanent and temporary impacts on vegetation caused by the proposed project in accordance with the guidelines outlined in the WDFW Wind Power Guidelines (WDFW, August 2003) for siting and mitigating wind power projects east of the Cascades. A mitigation parcel has been identified within the 8,600-acre project area. The mitigation parcel is located in T18N, R21E, Section 27 and is approximately 600 acres in size. A portion of this section (String L follows a ridgeline that dissects Section 27 from north to south) would be excluded from mitigation and developed as part of the project. The WDFW has indicated that the Applicant's proposed mitigation is responsive to discussions with WDFW (WDFW 2004; see Appendix A [DEIS]). The 600-acre mitigation parcel would meet or exceed the required habitat replacement ratios under the WDFW Wind Power Guidelines for any of the three scenarios proposed. The Applicant has agreed to fence this parcel to exclude livestock grazing, if grazing practices continue on adjacent properties at the time the project goes into operation. In addition to Section 27, the Applicant proposes to fence several springs within the project area to eliminate livestock degradation. Fencing used for the mitigation parcel and the springs will be designed to keep livestock out but allow game species to cross. The Applicant intends to coordinate with WDFW regarding fence specifications.

As noted above, WDFW has prepared a set of guidelines for wind power projects east of the Cascades to provide guidance for siting and mitigation. These guidelines were followed during selection of Section 27 as a mitigation site for the project. Section 27 provides opportunity for "like-kind" replacement habitat of equal or higher habitat value than the impacted area and it occurs in the same geographical

region as the impacted habitat. Furthermore, the Applicant has an option to purchase the property if the project goes forward, and the Applicant will provide legal protection and protection from degradation for the life of the project. Consistent with WDFW's guidelines, permanent impacts on habitat would be replaced at a ratio equal to or greater than 1:1 for grassland and 2:1 for shrub-steppe.

Use of Section 27 as a mitigation parcel would result in protection of an approximately 1-mile segment of Whiskey Dick Creek near its headwaters. Protection of waterways and their adjacent riparian habitat provide additional benefits beyond replacement of like-kind habitat at agreed upon ratios. Protection of this segment of Whiskey Dick Creek provides benefits for water quality, wildlife, and species diversity. In addition, Section 27 is adjacent to state-owned lands. The DNR administers Section 34 to the south and WDFW administers Section 26 to the east. Use of Section 27 for mitigation will provide continuity of habitat with these adjacent state-owned sections. Finally, a variety of habitat types that occur in the general project area are found in Section 27, so a diversity of habitat types would be preserved. These include shrub-steppe (moderate and dense), herbaceous, herbaceous/rock outcrop, and woody riparian.

In addition to the above-mentioned mitigation parcel, additional mitigation measures contained in the WDFW guidelines would be implemented. These guidelines include implementing a WDFW approved restoration plan for the impacted areas that will include:

- Site preparation,
- Reseeding with appropriate vegetation,
- Noxious weed control, and
- Protection from degradation
- Best management practices (BMPs) will be implemented during construction, as discussed in Sections 3.1 Earth and 3.3 Water, to control erosion and surface water runoff, and as presented below for noxious weed control.
- In further consultation with WDFW, and since the DEIS was issued in August 2004, the Applicant has agreed to construction timing to protect vegetation and soils and to establish a reference site for restoration efforts. To the greatest extent possible, construction activities outside permanently disturbed areas would be conducted during the months of May through October when soil moisture is low. Working during winter months would be minimized to avoid or minimize impacts to vegetation and soils subject to thawing conditions. However, trenching of underground electrical collection cables may be performed outside this time window, as the soil cover in those areas would be disturbed regardless of the season and will need to be restored and reseeded.
- The Applicant will develop a restoration plan and conduct habitat reseeded programs when optimal germination and establishment conditions are present, as determined in consultation with a TAC (see Section 3.5 Wildlife) and WDFW, and not necessarily immediately following ground disturbance activities. Temporarily disturbed areas will be covered in accordance with erosion control measures set forth in this Final EIS (see Section 3.3, Water Resources), at such time site conditions are deemed favorable. In cooperation with WDFW and the TAC, the Applicant will evaluate the success of restoration efforts using an agreed-upon reference site that would provide insights to future restoration efforts at other projects, and will ensure effective erosion and weed control. The Applicant is not required to provide additional mitigation should restored habitat at the project site differ in quality from the reference standard.

3.4.4.1 Wetlands

There are a few Class 3 wetlands in the form of seeps and springs within the project area; however, all project facilities will be located a considerable distance from them to prevent any impacts to these wetlands. Roads, underground cables, turbine foundations, transmission poles and other associated infrastructure will not be located within any riparian areas or streams and will not involve the use of any heavy equipment in stream beds or riparian areas. BMPs will be implemented to retain sediment from disturbed areas and minimize areas of disturbance.

3.4.4.2 Special-Status Plants

The only special-status plant species that may be impacted by the project is hedgehog cactus, a Washington State Review List species. Access to the site will be controlled during both construction and operations, which should provide greater protection than is currently afforded to this species. As collection of this species for gardens has been cited as a reason for its decline, if such collection becomes a problem at the project site, the Applicant will post a sign at the visitor's kiosk indicating that collection of any plants in the project area is prohibited.

3.4.4.3 Noxious Weeds

To avoid, minimize, or reduce the impacts of noxious weeds, the Applicant proposes the following mitigation measures:

- The contractor will clean construction vehicles prior to bringing them in to the project area from outside areas.
- Disturbed areas will be reseeded as quickly as possible with native species.
- Seed mixes will be selected in consultation with WDFW and Kittitas County Weed Control Board.
- If hay is used for sediment control or other purposes, hay bales will be certified weed free.
- Access to the site will be controlled which may result in a lower level of disturbance and fewer opportunities for noxious weeds to be introduced and/or spread.
- Noxious weeds that may establish themselves as a result of the project will be actively controlled in consultation with the Kittitas County Weed Control Board.

Section 3.5 WILDLIFE

Information contained in this section has been revised since the issuance of the Draft Environmental Impact Statement (DEIS) based on the following: 1) requests for additional information by commenters on the DEIS; 2) additional information from the Washington State Department of Fish and Wildlife (WDFW) regarding sage grouse occurrence in the project area; 3) information contained within the Applicant's pre-filed testimony before the State of Washington Energy Facility Site Evaluation Council; 4) the settlement agreement between the WDFW and the Applicant (Appendix B); and 5) and the Development Agreement between Kittitas County and the Applicant (Appendix A). The revisions to the information contained in the DEIS are presented below. In addition, only those portions of the DEIS tables (rows or subsection) that incurred changes to information are contained in the tables presented in this section. Table entries that did not require revision are not repeated here.

3.5.1 Affected Environment

One seasonal pond occurs on the project site. This pond is thought to generally be dry by late May, although this may vary between years. There is evidence of use this pond by both livestock and wildlife.

The Wild Horse Wind Power Project (WHWPP) site is located to the west of the Whisky Dick Wildlife Area and to the South of the Quilomene wildlife area, and is part of a large and contiguous patch of shrub-steppe habitat, a habitat type that is considered a priority habitat by the WDFW and which supports a diverse number species. Shrub-steppe habitat within the project area is described in detail in Section 3.4, Vegetation and Wetlands.

Based on the habitat types available, the project site would be expected to provide habitat primarily for species associated with shrub-steppe habitat, with some riparian and forest dependent species also potentially occurring. To establish baseline information about wildlife use of the project site against which to evaluate impacts, the Applicant's consultant conducted a variety of wildlife surveys, including surveys for avian use, raptor nests, sage grouse, and big game. Avian use surveys included fixed-point surveys conducted over a one-year period and incidental/in-transit observations in which birds observed while traveling between fixed-points were recorded. The locations of the fixed-point survey stations are shown on Figure 3.5-1. A raptor nest survey was conducted in which the project site and lands within a 2-mile buffer were searched from a helicopter and all observations of raptor, raven, and American crow nests were recorded. Both aerial and ground surveys were conducted for sage grouse, with ground surveys focused on areas of known historical occurrence and other areas of similar habitat. Sage grouse survey protocols were developed in consultation with WDFW, and are consistent with WDFW's Wind Power Guidelines. Big game surveys were conducted simultaneously with the fixed-point, in-transit, and aerial raptor nest and sage grouse surveys. All fieldwork completed by the Applicant's consultant was conducted on the project site between May 10, 2002 and May 22, 2003.

WDFW Priority Habitats and Species (PHS) data for the project site was also reviewed for documented species occurrences and priority habitat identification. Priority habitats within and adjacent to the project area are shown in Figure 3.5-2.

3.5.1.1 Species Occurrence

Birds

Spatial patterns of raptor use were observed. The ridge along Whiskey Dick Creek near station G is effectively perpendicular to prevailing winds. There appears to be a pattern of raptor flight paths parallel to the western side of the ridge, which is consistent with behavior observed in similar situations. The one bald eagle observed was flying along the Whiskey Dick drainage. There appears to be little pattern in the flight paths in the areas of the project with less topographic relief, such as near stations D and E. The raptor flight paths near station C at the highest point of the project sometimes follow the main Whiskey Dick Mountain ridgeline and other times cross the ridgeline. The main ridgeline in this case is not perpendicular to the prevailing wind direction, likely affecting patterns of use in this area. The turbine arrangement near station C with gaps along the ridgeline may pose less collision risk for raptors compared to a long string of turbines along this ridgeline with no gaps based on these patterns of use. Most prominent saddles along the Whiskey Dick Mountain Ridge, which may have higher bird use, do not contain turbine locations. American kestrel observations did not show distinctive patterns in use of topography, but did appear more abundant near Station E, the one station where no turbines are proposed.

The WHWPP site is located within an area identified by the Audubon Society as an important bird area (IBA), known as the Quilomene-Colockum Wildlife Area IBA. This area was identified as an important area for shrub-steppe dependent species and conservation issues identified for the area include invasion by non-native plants and disturbance to nest sites from recreational use (Cullinen 2001).

Unique Species

Threatened and Endangered Species

The species list provided to the Applicant's consultant by the U.S. Fish and Wildlife Service (USFWS) indicated the following threatened, endangered or candidate wildlife species as potentially occurring on the project site: bald eagle, gray wolf, Canada lynx, northern spotted owl, western sage grouse, and western yellow billed cuckoo. Based on the habitat attributes present on the project site and the habitats with which these species are associated, only bald eagle and western sage grouse have the potential to occur within the project site. Since this list was issued, the USFWS has published a finding that, as of January 2005, listing of the sage grouse under the Endangered Species Act (ESA) is not warranted (FR 70 2244-2282). Sage grouse are listed as threatened by the State of Washington.

This letter also indicated the potential presence of critical habitat for the northern spotted owl on the project site. The Endangered Species Act defines critical habitat for threatened or endangered species as specific area(s) within the geographical range of a species where physical or biological features are found that are essential to the conservation of the species and which may require special management consideration or protection. Critical habitat is a specific geographic area designated by the USFWS for a particular species.

Other Special Status Species

Table 3.5-3. Special Status Species Documented as Occurring or Likely to Occur in Project Vicinity

Group/Species	Status ^a	Notes			
Grouse					
sage grouse (<i>Centrocercus urophasianus</i>)	ST FC	The project area occurs within a mapped area of historic high use. One documented lek is present approximately 2.75 miles (4.43 km) from the proposed Puget Sound Energy (PSE) transmission feeder line route. No sage grouse or leks were observed during fixed-point or lek surveys within the project area, although pellets were found incidentally on the south side of Whiskey Dick Mountain in the fall. Although potentially used historically, the project area is not currently known to be occupied by sage grouse leks, and no to very low impacts on the species are anticipated. The project is located within the Colockum Management Unit in the Washington Recovery Plan for sage grouse (Stinson et al 2004). This management unit is most important for potential connectivity between the breeding population on the Yakima Training Center and the populations in Douglas County.			
sharp-tailed grouse (<i>Tympanuchus phasianellus</i>)	ST	The WDFW has one record of a sharp-tailed grouse sighting from 1981 approximately 4–6 miles (6–10 km) from the project area and a transmission feeder line. No sharp-tailed grouse were observed during surveys. It is unlikely that the species occupies the project area and no impacts are expected.			
FE	Federal Endangered	FT	Federal Threatened	FC	Federal Candidate
FSC	Federal Species of Concern	SE	State Endangered	ST	State Threatened
SC	State Candidate	SS	State Sensitive		

Only one bald eagle was observed during surveys within the project area. The bald eagle was observed during the winter, and no bald eagle nests were observed during raptor nest surveys.

The project area also lies within the Washington State sage grouse recovery area (Stinson et al 2004) and the project area has been used historically by sage grouse (WDFW, PHS Data). Currently, two populations of sage grouse remain in Washington; one within the Yakima Training Center (YTC) in Yakima and Kittitas counties south of the project area, and one within Douglas and Grant counties to the northeast of the project area. The sage grouse population in 1997 was estimated at approximately 1000 birds, with 600 located in Douglas County and 400 birds in the YTC (Hays et al. 1998).

The project area is located on the western edge of the Colockum sage grouse management unit, as defined in the Washington Greater Sage-Grouse Recovery Plan (Stinson et al. 2004). The Colockum management unit is approximately 128,000 acres in size and primarily provides a possible corridor between the sage grouse population within the YTC to the south of the project and the populations to the north and west of the project in the Moses Coulee and Mansfield Plateau Management Units. The recovery plan identifies the Colockum Management Unit as having significant potential as a corridor that may link the current Douglas-Grant and YTC populations. Approximately 90% of this management unit is steppe habitat (Table 8 in Stinson et al. 2003). Limiting factors of the Colockum Management Unit for resident sage grouse include a lack of high quality winter and breeding habitat and rugged terrain, much of which is unsuitable for sage grouse.

Historically sage grouse have occurred in the project area and surrounding lands (WDFW, PHS data), with most sightings reported in fall and winter and a few reported in spring and summer. The PHS database identifies portions of the project area near Government Springs as a concentration area, based on

past observations of sage grouse in the area. Several records occurred between 1980 and 1994, including a sighting of a brood with an unknown number of young in the Whiskey Dick area in 1994, suggesting that nesting may have occurred near the project at that time (WDFW PHS). No sage grouse or leks were observed during targeted surveys in March and April 2003 within and surrounding the project area. surveys between May 10, 2002 and May 22, 2003. No sage grouse observations (leks or flushed birds) were observed during any of the sage grouse surveys or during other activities. Survey protocols for this species were developed in consultation with the WDFW and the surveys are consistent with the WDFW Guidelines for Baseline Studies for Wind Projects (WDFW 2003). These surveys included two helicopter surveys (March 20 and April 14, 2003) and three ground surveys (March 13, March 22, and April 2, 2003). The ground surveys focused on areas of historic observations around the Pines area and other relatively flat areas most conducive to lekking. Approximately 95 linear miles were flown for each aerial sage grouse survey. The helicopter was kept at an elevation of approximately 250 feet above the ground. No sage grouse leks were observed during these surveys. Surveys for all avian species were also conducted between May 10, 2002 and May 22, 2003, with no sage grouse observed. Two sage grouse pellet groups were observed on the south side of Whiskey Dick Mountain during the fall of 2002.

The nearest historic lek, which was recorded by the WDFW in 1983, is more than a mile southeast of the project area and has not been active in recent years. The next nearest known lek is approximately 5 miles south of the project area, and 2.75 miles south of the proposed PSE transmission line location, and has not been documented as being active since 1987 (BPA 2003).

In March 2003, 25 female sage grouse were translocated from Nevada to the YTC with the objective of enhancing the genetic diversity of the local population. Two of the 25 females moved north and spent some time on and near the project site prior to dying. Neither of these females is known to have nested, and it is unknown whether these two females were bred in Nevada prior to being translocated. One of the females was observed approximately one to two miles east of the WHWPP site and the other spent most of its time within or north of the project area. Of the 25 translocated females, 9 attempted to nest, 4 successfully nested, and one successfully fledged chicks.

Sage grouse have been translocated in at least seven states and one Canadian province, with limited success (Reese and Connelly 1997). Between 1933 and 1997 over 7,000 sage grouse were translocated in at least 56 attempts to augment or reestablish populations. Only a few attempts appeared successful, and in those few cases populations remain small. The researchers concluded that translocations should be viewed as experimental and not as a viable strategy to restore extirpated populations (Reese and Connelly 1997).

It would appear there is currently much less likelihood of consistent use of the project area for nesting, based on no documented birds observed in the project vicinity during the breeding season in the past 10 years, the current nesting habitat quality, and other factors (Stinson et al. 2003). Important components to nest sites and nest success include a large grass and sagebrush canopy cover (Sveum 1995). The grass cover component would appear to be lacking within the project area, due to current grazing practices.

3.5.2 Impacts of Proposed Action

Other impacts include direct loss of habitat due to the project facilities, and indirect impacts such as disturbance and displacement from the wind turbines, habitat fragmentation, roads, and human activities. Both construction (e.g., blasting) and operations impacts are discussed. Potential impacts are discussed for bats, big game, other mammals, reptiles and amphibians, and birds. Discussion of potential impacts on unique species including state and federal listed species is also included. Impacts to shrub-steppe habitat are described in Section 3.4, Vegetation and Wetlands.

In order to reduce potential risk to wildlife species in the project area, the results of surveys conducted for the WHWPP were considered when designing where turbines would be placed under the proposed action, with wildlife use aiding in micro-siting decisions. The proposed turbine layout would avoid prominent saddles and potential crossing routes along the ridge associated with Whisky Dick Mountain to avoid potential areas birds may use to cross the ridge.

Turbines would also not be placed adjacent to springs. Under the proposed turbine layout, locations would be at least 492 feet from the nearest identified spring (Wild Horse, Skookumchuck Heights, Dorse, Reynolds, Thorn, Government, Pine, Seabrock, unnamed) and the majority would be more than 984 feet from identified springs. These water sources may be important for bird and big game species, but have historically been impacted and degraded by livestock use. Mitigation for the proposed project includes the exclusion of livestock from the springs, which should increase habitat quality in these areas. Fencing will be designed so that big game and other wildlife will still be able to access water sources, as described in Section 3.5.4, Mitigation Measures.

Turbines would also be located on the ridges, away from the riparian areas of the drainages where bird species diversity would likely be higher. Turbines would be located at least 459 feet from the Pines, the only area of large trees within the project area. Placing turbines away from riparian areas and large trees is expected to reduce the risk of mortality for birds in the project area.

Several turbine strings in the northwest portion of the project area along the existing north-south road were considered by the Applicant prior to submitting an Application to EFSEC. The collision risks associated with these turbines are likely similar to most of the turbines within the project area; however, they were located in areas that have had historic sage grouse use. This entire string was not included in the Application currently under review, increasing the lands within the project area that are absent of wind turbines and creating additional potential movement corridors for grouse and other wildlife.

Information about bird fatalities at other wind projects suggests that a wide variety of species and groups are susceptible to collision with turbines. Some evidence also suggests that peak mortality may occur during migration periods although some mortality has been documented throughout all seasons (see Erickson et al. 2000, Young et al. 2003, Johnson et al. 2002, Erickson et al. 2003a, and Erickson et al. 2003b).

Potential impacts on birds using the study area include fatalities from collision with wind turbines and meteorological towers, particularly if guy wires are used, or from construction equipment, loss of habitat, disturbance to foraging and breeding behavior, collision with overhead power lines, and electrocution. Project-related human activity could alter bird behavior and cause displacement during the construction phase of the project, and the postconstruction density of turbines and facilities on the developed portion of the site may alter avian use. To reduce the risk of collision with meteorological tower guy wires, all permanent meteorological towers within the WHWPP would be unguyed, as described in Section 3.5.4, Mitigation Measures.

3.5.2.1 Construction Impacts

Big Game

During the construction period, it is expected that elk and mule deer will be temporarily displaced from the site due to the influx of humans and heavy construction equipment and associated disturbance (e.g., noise, blasting). All heavy construction, including road and foundation construction and blasting, will

occur between April 15 and November 15, outside the critical winter periods. Construction activities in the winter will include only survey and design activities, which may have some minor displacement impacts on big game and elk. These activities in the winter would likely have a very minor reduction in the quantity and quality of big game winter range. The Quilomene elk winter range is approximately 83,000 acres in size and the Quilomene deer winter range is approximately 40,000 acres in size. The project area is located south east of the Quilomene elk migratory corridor. During winter construction activities, elk moving to winter range east of the project may avoid areas of human disturbances locally within the project, but overall increases in distances needed to travel would be insignificant. Following completion of the project, the disturbance levels from construction equipment and humans will diminish dramatically and the primary disturbances will be associated with operations and maintenance personnel, occasionally vehicular traffic, and the presence of the turbines and other facilities.

As described in Section 3.5.4, the Applicant has committed to the protection and enhancement of on-site habitat to mitigate for permanent and temporary impacts to habitat caused by the Project, in accordance with the ratios outlined in the WDFW Wind power Guidelines (WDFW 2003); specifically providing protection for the life of the project for over 600 acres of shrub-steppe and riparian habitat in Section 27, T18N, R21E in Kittitas County

Use of Section 27 as a mitigation parcel would result in protection of an approximately 1-mile segment of Whiskey Dick Creek near its headwaters. Protection of waterways and the adjacent riparian habitat provide additional benefits beyond the replacement of in-kind habitat at agreed upon ratios. Protection of this segment of Whiskey Dick Creek provides benefits for water quality, wildlife, and species diversity. In addition, Section 27 is adjacent to state-owned lands. The Washington State Department of Natural Resources (DNR) administers Section 34 to the south and WDFW administers Section 26 to the east. Use of Section 27 for mitigation will provide continuity of habitat with these adjacent state-owned sections. Finally, a variety of habitat types that occur in the general project area are found in Section 27, so a diversity of habitat types would be preserved. These include shrub-steppe (moderate and dense), herbaceous, herbaceous/rock outcrop, and woody riparian.

Since the construction effort would be similar for all scenarios, impacts on big game would be expected to be similar for all scenarios.

Unique Species

Other Special Status Species

Sage Grouse

There is very limited information on the potential disturbance and displacement impacts of wind projects on sage grouse. Presence of young broods at the Foote Creek Rim wind project in Wyoming suggest nesting has likely occurred somewhere near a wind project, although the exact nesting location relative to wind turbines is not known (D. Young, WEST, Inc., pers. comm.). Studies of prairie chickens suggest they avoid suitable habitat within 0.5 mile of residences, well-traveled roads, and compressor stations, and did not nest in suitable habitat near a coal-fired generation station (Robel 2002). Sage grouse nested farther from leks in areas classified as disturbed compared to less disturbed areas in Wyoming (Lyon 2000).

The U.S. Fish and Wildlife Service has recommended "... avoiding placing wind turbines within 5 miles of known leks in known prairie grouse habitat" in their *Interim Guidelines to Avoid and Minimize Wildlife*

Impacts from Wind Turbines (USFWS 2003). A clarification memo on this guidance was issued in July 2004 (Manville 2004), in which existing information regarding impacts from wind turbines, other overhead structures, and human disturbance on prairie grouse. Much of the information was identified as being anecdotal and the memo reiterated that the wind siting guidelines are both draft and voluntary, and that they are not meant to restrict the installation of wind turbines or wind power project facilities.

The project area is located on the western edge of the Colockum Sage Grouse Management Unit (Stinson et al, 2004). In Washington, Greater sage grouse are found in two remnant populations that are separated by about 30 miles (Schroeder et al. 2000). Approximately 600 to 700 individuals primarily occupy Douglas County, and 300 to 400 occupy Yakima and Kittitas Counties and are primarily located on the YTC (Hays et al. 1998). The WDFW has identified the corridor of shrub steppe habitat within the Colockum, Quilomene, and Whiskey Dick Wildlife areas, located to the east of the project site, as potential connective habitat between these two populations (Stinson et al. 2004). At this time there is no documented exchange between the two populations. Limitations in movements already exists due to the presence of the Columbia River and the topography of the area (Stinson et al. 2003). It would appear the project would not significantly impact connectivity between Douglas County populations and the Yakima and Kittitas County populations, given that relatively large blocks of intact shrub-steppe habitat still do exist, and would continue to exist after the project was constructed, with WDFW and DNR lands to the east of the project site and private lands to the east and west of the project site. The Quilomene Wildlife Area (17,803 acres), the Whiskey Dick Wildlife Area (28,549 acres), and the private lands between them have vegetation similar to the project area, but lower in elevation. At the present time, the project would not appear to significantly impact movement between the two populations; however, future changes in land use on the private lands surrounding the project site could affect sage grouse movement. Within the project area, an approximate 600 acre mitigation site would be established in which livestock grazing would be precluded, and the Applicant has voluntarily agreed to place the entire project area in a conservation easement (Appendix C), thus allowing for natural habitat improvement in areas not disturbed by the WHWPP that may benefit sage grouse moving through the area. In addition, while turbine strings are linear features, they are highly permeable to wildlife movement because of the separation between turbines.

Approximately 100 acres of shrub-steppe habitat will be permanently impacted by the footprint of the project out of more than 8,600 acres of shrub-steppe habitat within the project area. The 8,600 acres is approximately 7% of the 128,000 acre Colockum Management Unit. The loss of 100 acres of this unit represents a loss of less than 0.08%. Impacts are expected to be similar under all scenarios.

There have been no studies that have shown that sage grouse avoid wind turbines and the WHWPP has been designed to be permeable to wildlife movement. The turbines would be approximately 492 feet apart and turbine rows at least 2,625 feet apart. The 165 acres of permanent impact is approximately 0.13% of the total area of the Colockum Sage Grouse Management Unit. Several turbine rows which were originally considered to be located along Beacon Ridge Road to the west of the Pines area, Government Springs, and Seabrock Springs, have been eliminated, leaving a distance of approximately 3,937 feet between the nearest wind turbine and the western project boundary. This layout modification provides additional potential movement corridors for sage grouse and other wildlife within the project boundary.

3.5.2.2 Operations and Maintenance Impacts

Birds

Operations-Related Mortality

According to the most recent State of the Birds Report issued by the Audubon Society (2004), which reports population trends for birds associated with grasslands, shrublands, woodlands, water/wetlands, and urban habitats, there are significant numbers of birds with declining populations in all habitat types, with the highest proportion being in the grassland and shrubland types. According to the report, 70% of grassland species, including western meadowlarks, show significant population declines (Audubon Society 2004).

Due to the relatively recent commercial introduction of wind turbines with rotor diameters greater than 230 feet (70 meters), there is very little information comparing avian and bat fatality rates of 295-foot (90-meter) rotor diameter (RD) turbines to 197-foot (60-meter) RD turbines. New generation wind projects where standardized mortality studies have been conducted in the West and Midwest include turbines ranging from 98 to 230 feet (30 to 70 meter) RD (Erickson et al. 2001, Erickson et al. 2003a, Erickson et al. 2003b, Johnson et al. 2003a). Some characteristics of the larger turbines may lead to fewer raptor, resident passerine, and other diurnal bird, fatalities because of the lower revolutions per minute (RPMs) of the turbine blades and the higher tip clearance (above the ground). The tip clearance for the 295-foot (90-meter) RD turbine on a 262-foot (80-meter) tower is 115 feet (35 meters), while the tip clearance for the 197-foot (60-meter) RD turbine on a 197-foot (60-meter) tower is 98 feet (30 meters). Most of the daytime passerine flight heights observed at this and other projects are below 115 feet (35 meters) (Johnson et al. 2000a, Johnson et al. 2000b, Erickson et al. 2003c, and Young et al. 2003a).

Raptors

As described above, bigger turbines having a lower RPM and higher ground clearance may result in lower raptor mortality rates. Therefore, raptor mortality rates may potentially be highest under the 158-turbine/1-MW scenario and lowest under the 104-turbine/3-MW scenario, with the 136-turbine/1.5-MW scenario somewhere between.

In order to minimize raptor mortality, no turbines would be placed within prominent saddles along Whiskey Dick Ridge, where raptors were observed crossing or would be expected to cross the ridge. Also, 9 proposed turbine locations have been eliminated along the peak of Whiskey Dick Ridge due to Federal Aviation Administration (FAA) concerns. Raptor use near these previously proposed turbine locations was high relative to most other locations where measurements were recorded. Several turbines were initially proposed in the northwest portion of the project area along the existing north-south road located to the west of the Pines area. The collision risk associated with these turbines was likely similar to most of the turbines in the project area; however, some were located near a point count station that showed relatively high raptor use.

Other Avian Groups/Species

Some upland game bird mortality has been documented at wind projects (Erickson et al. 2001, Erickson et al. 2003). Based on habitat and use, there is potential for mortality of some upland game birds such as chukars and gray partridge. Game bird mortality would be expected to be less with larger turbines having

higher tip clearance, therefore lowest under the 104-turbine/3-MW scenario and highest for the scenario with the smaller turbines (158-turbine/1 MW), with the 136-turbine/1.5-MW scenario in between. Other avian groups (e.g., doves, shorebirds) occur in relatively low numbers within the study area and mortality would be expected to be very low and similar for all scenarios.

Most of the information regarding the impact of overhead lines and fences on sage grouse is unpublished and anecdotal (Manville 2004). Structures such as power lines and fences may pose hazards to sage grouse from collision as well as provide additional perch sites and potential nest sites for raptors that prey on sage grouse. Braun et al. (2002) has recommended that overhead power lines be placed at least 0.5 mile from any sage grouse breeding and nesting grounds. However, two leks have continued to exist within 1 mile of a new overhead transmission line constructed for the Foote Creek Rim Wind project and the number of birds using the leks has been stable or increasing since the installation of this transmission line in 1997 (Johnson et al 2000). The WHWPP has been designed incorporating measures to discourage perching, nesting, and foraging by raptors and unguyed meteorological towers will be used to minimize the risk to sage grouse from predators and from collision.

Operations-Related Disturbance

Based on the available information, it is probable that some disturbance or displacement effects may occur to the grassland/shrub-steppe avian species occupying the study area. The extent of these effects and their significance is unknown and hard to predict but could range from none to several hundred feet.

As mentioned in Section 3.5.2.1, the WHWPP site is located within an important bird area, as identified by the Audubon Society, in which invasion by non-native plant species and disturbance to nesting birds from recreational activities have been identified as primary issues of concern (Cullinen 2001). Section 3.5.3 describes measures that will be taken to reduce the potential for habitat impacts from non-native plant species. The Applicant will also limit recreational use of the site, as described in Section 3.5.4.4, which will reduce the amount of potential impacts from recreation during the nesting season. Disturbance impacts from construction, operations, and maintenance of the WHWPP are still likely, however, as described above.

Project components will not directly impact the springs in the project area, with the nearest facility located no closer than 738 feet from the nearest spring. These water sources may be important for birds in the project area, but they have been impacted and degraded by livestock use. Proposed mitigation to exclude livestock from the springs, as described in Section 3.5.4, is expected to greatly increase the habitat quality of these springs. In addition, turbines would be located on the ridges and away from riparian areas, which likely contain a greater diversity of bird species. Turbines would also be located at least 459 feet from the Pines. Higher mortality of songbirds and other species associated with riparian corridors might be expected if turbines were sited closer to these features. Exclusion of livestock from the approximately 600-acre mitigation parcel proposed for the WHWPP and placement of the entire project area in a conservation easement would also likely result in increase in habitat quality in the project area.

Big Game

There is little information regarding the specific effects of wind projects on big game. The results of a recent study by Walter et al (2004) on interactions of elk with operating wind farms were inconclusive regarding displacement or avoidance behavior by elk; however, no evidence that operating wind turbines have a significant impact on elk use of the surrounding area was found. At the Foote Creek Rim wind

project in Wyoming, pronghorn observed during raptor use surveys were recorded year round (Johnson et al. 2000b). The mean number of pronghorn observed at the six survey points was 1.07 prior to construction of the wind plant and 1.59 and 1.14/survey the two years immediately following construction, indicating no reduction in use of the immediate area. Mule deer and elk also occurred at Foote Creek Rim, but their numbers were so low that meaningful data on wind plant avoidance could not be collected.

Due to the lack of knowledge regarding the potential impacts of energy development on big game, it is difficult to predict with certainty the effects of the project on mule deer and elk. Van Dyke and Klein (1996) showed that wintering elk shifted use of core areas out of view of human-related activities associated with an oil well and access road. Most turbines and roads in the project area will be located on ridges and will be visible over a fairly large area. While human-related activity at wind turbines during regular maintenance will be relatively infrequent, it is not known if human activity associated with regular maintenance activity will exceed tolerance thresholds for wintering elk. If tolerance thresholds during regular maintenance activities were exceeded, elk would likely permanently utilize areas away from the wind development. The project area proposed for development has historically received regular use throughout the year by hunters and other recreationalists including motorcycle and ATV riders, campers, birders, and hikers. Access during construction and operation of the project will be controlled by the Applicant, and disturbance during operation to big game may be minimized and actually less than that which occurred predevelopment. Specifically, the Applicant would implement an adaptive management approach to allow access to and through the Project Area and recreational use of the site. In general, the Applicant would permit controlled access to and through the site, as long as it does not interfere with, or introduce adverse impacts on, project operations or personnel, as follows:

- Property owners who wish to access their property from project access roads would be allowed to do so as necessary under a formal access license and a key to a gated entrance.
- Officials of the DNR and WDFW would be allowed access to the site by key.
- Other would be allowed to access the project site on a case-by-case basis.
- Active recreational activities such as camping and off-road vehicle use would not be allowed in order to avoid and minimize potential impacts to habitat and wildlife from such activities.

WDFW has also expressed concern regarding the potential for wind projects to increase elk and mule deer damage claims on private agricultural lands near wind projects. Elk and mule deer, if displaced from the project area, may increase their utilization of agricultural lands in the vicinity of the project area. If elk and mule deer are not displaced from the project, then WDFW is concerned that the project may create a “sanctuary” if hunting is not allowed in the project area, therefore limiting WDFW’s ability to manage the herds. The Applicant has agreed to work with the WDFW to establish a hunting plan for the project site, as described in Section 3.5.4, Mitigation Measures.

With this management, the likelihood of the project becoming an elk sanctuary is remote.

The project area is located southeast of the Quilomene elk migratory corridor. Elk moving to winter range east of the project may avoid areas close to the project and travel farther to the north. Given that the project is located to the southeast of this movement corridor, the increase in distances needed to travel would not appear to be very large.

Project components will not directly impact the springs in the project area, with the nearest facility located no closer than 738 feet from the nearest spring. These water sources may be important for big game in the project area, but they have been impacted and degraded by livestock use. Proposed

mitigation to exclude livestock from the springs while still providing wildlife access, as described in Section 3.5.4, is expected to greatly increase the habitat quality of these springs. In addition, turbines would be located on the ridges and away from riparian areas, which are likely important habitat areas for big game, this reducing potential disturbance in these areas.

Since the project footprint would be similar under all scenarios, operational impacts would be expected to be similar under all scenarios.

Unique Species

Other Special Status Species

Sage Sparrow and Sage Thrasher

Most sagebrush and other shrub habitats within the project area occur on the sides of ridges and in drainages, while most turbines will be located on ridge tops lacking dense shrub habitats. Observations of breeding individuals indicate that the species generally flies below the Rotor Swept Area, therefore reducing the potential for collision related mortality. The potential exists for the migrating individuals to collide with turbines. It is likely that the presence of turbines, roads and associated facilities will result in local displacement of breeding sage sparrows and sage thrashers from shrub habitats near project facilities. However, based on research in Minnesota, displacement effects will likely be limited to areas within 328 feet of turbines and associated facilities (Johnson et al. 2000a). As previously described, larger turbines with lower RPMs and higher tip clearance may result in lower mortality for diurnal birds, therefore the potential for mortality for these species may be lowest for the 104-turbine/3-MW scenario, highest for the 158-turbine/1-MW scenario, and intermediate for the 136-turbine/1.5-MW scenario.

Sage Grouse

Proposed mitigation measures include elimination of livestock grazing within parts of the project area (Section 27), which likely would improve residual grass cover and potential nesting, brood-rearing, and wintering habitat for sage grouse. It is not known what impact the project will have on seasonal movements and movements, if they exist, between the two existing populations. Relatively large blocks of shrub-steppe habitats still exist within WDFW and DNR lands to the east of the project site that may serve to connect the two populations. The Quilomene Wildlife Area (17,803 acres) and the Whiskey Dick Wildlife Area (28,549 acres) and the private lands between them have vegetation similar to the project area, but lower in elevation. Controlled access to the project area during operations will limit human activity, and in fact, may reduce human disturbance levels compared to current levels. Impacts are expected to be similar under all scenarios.

There is little documentation of how disturbance from human activity and tall structures might impact sage grouse use of an area, including breeding use. One study has suggested avoidance of suitable habitat for sage grouse lekking along the Interstate 80 corridor in Wyoming, Utah, Idaho, and Nevada (Connelly et al. 2004). Based on analysis of historic data, lek distribution and activity along Interstate 80 was affected; however, the cause of the effect, whether direct or indirect, is not understood. While this study shows an effect to sage grouse from human disturbance, the level of human activity associated with an Interstate is not comparable to the level of activity that would occur at the WHWPP; therefore the results of the study may not be applicable to the WHWPP. One other published report suggests differences in nesting characteristics of sage grouse in disturbed and undisturbed areas, with sage grouse nesting farther

away from leks in areas classified as disturbed from natural gas development, compared to less disturbed areas (Lyon and Anderson 2003).

There is limited information, and no controlled studies, on the potential disturbance and displacement impacts of wind projects on sage grouse. There is no empirical data from wind farms to test the hypothesis that sage grouse avoid wind turbines. The presence of young broods near the Foote Creek Rim Wind project in Wyoming suggests that nesting has likely occurred somewhere near that wind project. Although pre- and post-construction studies did not identify any leks within 2 miles of the Foote Creek Rim Wind Project (Johnson et al 2000), the presence of a female with a brood near the wind project suggest that were either undocumented leks closer to Foote Creek Rim, or this female nested more than 2 miles from its lek.

Impacts of the WHWPP on future breeding and nesting in the project area are uncertain, but based on available evidence impacts are expected to be relatively low. There are no documented active leks within 5 miles of the project area at this time, although historic information suggests nesting may have occurred in the past.

3.5.3 Impacts of Alternatives

3.5.3.1 Impacts of Off-Site Alternatives

Desert Claim

Construction related impacts to wildlife habitat would be similar to those described for both the WHWPP and the Kittitas Valley alternative with, an estimated 342 acres of temporary impacts and 88 acres of permanent impacts to vegetation on the site. Construction activities could temporarily displace species from the project area due to noise and activity, and ground-dwelling species would be permanently displaced from those areas of permanent impact. Construction activities could cause mule deer to avoid the project area however adequate habitat in the surrounding area would compensate for this. Elk may respond to project construction by shifting their migratory path to the north; the corridor is likely large enough to accommodate this adjustment without hindering their migration. During project construction, the possibility of mortality effects to bald eagles is considered negligible and very unlikely to occur.

Operation and maintenance impacts would also be similar as those described for both the WHWPP and the Kittitas Valley alternative. Potential passerine mortality for this alternative has been estimated at approximately 140 to 220 birds per year and raptor fatalities have been estimated at approximately 3 to 4 per year. The potential for bald eagle mortality is low based on limited use of the site. Migratory bats are likely at some risk of collision with wind turbines, primarily during the fall season. Estimated mortality range is similar to, or lower than that for birds; non-migratory and migratory resident bat populations are not expected to be negatively impacted by wind turbines.

Project operations may reduce use of the area by wintering mule deer, although it is expected that mule deer would become habituated to the turbines and reoccupy the site. Elk may also become habituated or may continue to use areas further to the north during migration.

Individuals of some species may be killed by vehicular traffic, as described for both the WHWPP and the Kittitas Valley alternative.

3.5.4 Mitigation Measures

The potential direct wildlife impacts from the project can be grouped into two main categories, loss of habitat from construction and operation of the project, and potential mortality to individual birds or other animals from construction and operation of the project. The loss of habitat associated with the project can be further broken down into “temporary” and “permanent” habitat impacts. “Temporary” impacts are those arising from ground disturbance necessary for the construction of project infrastructure but that will be not be permanently occupied once construction is complete. Examples include trenches for underground electrical collector cables and construction staging areas. These areas will be disturbed during the construction period but will be reseeded and restored after construction is finished. The vast majority (approximately 75%) of the total area impacted by construction of the project would be temporarily disturbed (i.e., for less than one year.) The remainder (approximately 25%) will continue to be occupied by the project, such as string roads, turbine foundation pads, project substation, and the Operations and Maintenance (O&M) facility. These are considered “permanent” impacts for the purpose of this analysis. Potential indirect impacts on plants and animals are more diffuse and could be caused by habitat fragmentation, wildlife disturbance or avoidance of the project site, and introduction of noxious weeds and/or wildfire.

The Applicant has proposed a comprehensive mitigation package for plants and animals for this project. It consists of several categories of actions that include the following list, and described in greater detail in the following sections:

- Thorough study and analysis to avoid impacts;
- Project design features to minimize impacts;
- Construction techniques and Best Management Practices (BMPs) to minimize impacts;
- Post-construction restoration of temporarily disturbed areas;
- Operational BMPs to minimize impacts;
- Monitoring and adaptive management to minimize impacts during operations;
- Protection and enhancement of on-site habitat to mitigate for all permanent and temporary impacts to habitat caused by the Project, in accordance with the ratios outlined in the WDFW Wind power Guidelines (WDFW 2003); specifically providing protection for the life of the project for over 600 acres of shrub-steppe and riparian habitat in Section 27, T18N, R21E in Kittitas County.
- Fencing of springs in other areas of project to protect the springs from degradation by livestock.

Since the Applicant has an option to purchase the property if the Project goes forward, the Applicant can provide legal protection and protection from degradation for the mitigation parcel for the life of the Project. Improved management of habitat throughout the mitigation parcel offers an opportunity for long-term protection of habitat for many shrub-steppe species. The Applicant has agreed to fence this parcel to exclude livestock grazing, if grazing practices continue on adjacent properties at the time the project goes into operation.

Use of Section 27 as a mitigation parcel would result in protection of an approximately 1-mile segment of Whiskey Dick Creek near its headwaters. Protection of waterways and the adjacent riparian habitat provide additional benefits beyond the replacement of in-kind habitat at agreed upon ratios. Protection of this segment of Whiskey Dick Creek provides benefits for water quality, wildlife, and species diversity. In addition, Section 27 is adjacent to state-owned lands. The DNR administers Section 34 to the south

and WDFW administers Section 26 to the east. Use of Section 27 for mitigation will provide continuity of habitat with these adjacent state-owned sections. Finally, a variety of habitat types that occur in the general project area are found in Section 27, so a diversity of habitat types would be preserved. These include shrub-steppe (moderate and dense), herbaceous, herbaceous/rock outcrop, and woody riparian.

3.5.4.1 Study and Analysis

Studies have been conducted on the project site by qualified wildlife biologists and data gathered was used in the project design to avoid impacts on sensitive populations. These studies, results of which are included as appendices to the Application for Site Certification (ASC), include the following:

- Rare plant surveys;
- Habitat mapping;
- Avian use point count surveys;
- Aerial raptor nest surveys;
- Sage grouse surveys
- Big game surveys;
- Non-avian wildlife surveys;

The results and recommendations of these studies have been incorporated into the proposed design, construction, operation and mitigation for the project.

3.5.4.2 Project Design

The proposed design of the project incorporates numerous features to avoid and/or minimize impacts on plants and wildlife that resulted from the wildlife surveys and analysis conducted for the project and from experience at other wind power projects, and recommendations from consultants performing studies at the site. Features of the project that are designed to avoid or minimize impacts on wildlife include the following:

- Avoidance of construction in sensitive areas such as streams, riparian zones, wetlands, and forested areas;
- Avoidance of locating wind turbines in prominent saddles along the main Whiskey Dick Ridge;
- Minimization of new road construction by improving and using existing roads and trails instead of constructing new roads;
- Choice of underground (vs. overhead) electrical collection lines wherever feasible to minimize perching locations and electrocution hazards to birds;
- Choice of turbines with low RPM and use of tubular towers to minimize risk of bird collision with turbine blades and towers;
- Use of unguyed 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; and
- Spacing of all overhead power line conductors to minimize potential for raptor electrocution.
- The historic presence of sage grouse would be considered during strategic planning for rock source locations and concrete batch plant location in order to reduce the likelihood of long term conflicts with any breeding nesting, and rearing of broods by grouse that may occur on the site.

Construction Techniques

Construction of the project has the potential to impact both habitat and wildlife in a variety of ways. The Applicant proposes the use of construction techniques and BMPs to minimize these potential impacts. These include the following:

- Use of BMPs to minimize construction-related surface water runoff and soil erosion (these are described in detail in Section 3.3.2.1, “Water – Impacts of the Proposed Action – Construction – Surface Water Runoff/Absorption”);
- Use of certified “weed free” straw bales during construction to avoid introduction of noxious or invasive weeds;
- Flagging of any sensitive habitat areas (e.g., springs, raptor nests, wetlands) near proposed areas of construction activity and designation of such areas as “off limits” to all construction personnel;
- Development and implementation of 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;
- Establishment and enforcement of reasonable driving speed limits (max 25 mph) during construction to minimize potential for road kills;
- Proper storage and management of all wastes generated during construction;
- Require construction personnel to avoid driving over or otherwise disturbing areas outside the designated construction areas;
- Limiting construction activities during winter months to minimize impacts on wintering big game;
- Avoid, to the greatest extent possible, construction activities outside of permanently disturbed areas except for during the months of May through October when soil moisture is low. Trenching of underground electric collection cables may be performed outside this time window, as the soil cover in those areas will be disturbed regardless of the season and will need to be restored and reseeded.
- Designation of an environmental monitor during construction to monitor construction activities and ensure compliance with mitigation measures.

Environmental compliance during construction would be accomplished through the measures described below, as presented in the Settlement Agreement between the WDFW and the Applicant (Appendix B).

An Environmental Compliance Program by the Applicant will ensure that construction activities meet the conditions, limits and specifications set in environmental standards established in the Settlement Agreement between the WDFW and the Applicant;

Copies of all applicable construction permits will be kept on site. The lead Project construction personnel and construction project Managers will be required to read, follow, and be responsible for all required compliance activities. A project Environmental Monitor will be responsible for ensuring that all construction permit requirements are adhered to, and that any deficiencies are promptly corrected.

The Environmental Monitor will ultimately report to the Project Manager and will provide weekly reports on environmental problems reported or discovered as well as corrective actions taken to resolve these problems. The Environmental Compliance Program will cover avoidance of sensitive areas during construction, waste handling and storage, stormwater management, spill prevention and control and other components required by state and county regulation. Upon identification of an environmental noncompliance issue, the Environmental Monitor will work with the responsible subcontractor or direct hire workers to correct the violation; if not corrected in a reasonable period of time a “stop work” order can be issued for that portion of the work not in compliance with the Project environmental requirements.

The Applicant proposes the use of construction techniques and BMPs to minimize potential impacts to habitat and wildlife. These include the following:

- Use of BMPs to minimize construction-related surface water runoff and soil erosion
- Use of certified “weed free” straw bales during construction to avoid introduction of noxious or invasive weeds;
- Flagging of any sensitive habitat areas (e.g. springs, raptor nests, wetlands, etc.) near proposed areas of construction activity and designation of such areas as “off limits” to all construction personnel;
- Proper storage and management of all wastes generated during construction;
- Require construction personnel to avoid driving over or otherwise disturbing areas outside the designated construction areas.
- The Applicant has entered into an agreement with Kittitas County Rural Fire District #2 to provide fire protection services during the construction and operation of the Project;

Postconstruction Restoration

All temporarily disturbed areas which have been cleared of vegetation will 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 the prevent spread of noxious weeds. The Applicant will consult with WDFW regarding the appropriate seed mixes for the project area.

The Applicant will develop a restoration plan and conduct habitat reseeding programs when optimal germination and establishment conditions are present, as determined in consultation with the Technical Advisory Committee (TAC) and WDFW, and not necessarily immediately following the disruption. The Applicant will cover temporarily disturbed areas in accordance with erosion control measures set forth in this FEIS at such time as site conditions are deemed favorable.

The Applicant agrees to work with WDFW and the TAC to evaluate the success of restoration efforts using an agreed upon reference site in order to gain insights which might inform future restoration efforts at other projects. The Applicant shall ensure effective erosion and weed control and commits to a good-faith effort to restore habitat, but does not agree to additional mitigation measures beyond what has been proposed should restored habitat differ in quality from the reference standard.

3.5.4.3 Operational BMPs

During project operations, appropriate operational BMPs will be implemented to minimize impacts on plants and animals. These include the following:

- Implementation of a fire control plan, in coordination with local fire districts, to avoid accidental wildfires and respond effectively to any fire that might occur;
- The Applicant has entered into an agreement with Kittitas County Rural Fire District #2 to provide fire protection services during the operation of the Project;
- Establishment and enforcement of reasonable driving speed limits (max 25 mph) during operations to minimize potential for road kills;
- Operational BMPs to minimize storm water runoff and soil erosion;
- Implementation of an effective noxious weed control program, in coordination with the Kittitas County Noxious Weed Control Board, to control the spread and prevent the introduction of noxious weeds;
- Identification and removal of all carcasses of livestock, big game, etc. from within the project that may attract foraging bald eagles or other raptors;
- Control public access to the site to minimize disturbance impacts on wildlife, especially in the winter months;
- Allow limited and controlled hunting on the site and allow WDFW access to the site to manage big game herds and minimize potential big game damage to nearby agricultural lands. In order to minimize impacts on recreation and potential impacts on neighboring property owners from big game damage resulting from the proposed project, the Applicant will prepare a hunting plan for the Project area in consultation with WDFW and the TAC. At a minimum, the hunting plan will include the following:
 - In order to minimize potential conflicts and risks to both workers and hunters, no hunting will be allowed on the property during construction;
 - After construction is completed, controlled hunting will be allowed. Possible measures to control hunting may include, without limitation: access control, limiting hunting to those individuals who have completed the WDFW Advanced Hunter Education program, and/or hunting by permit;
 - To promote the safety of big game animals, Zilkha agrees that any permanent fencing located within the Project site boundary will not exceed 42 inches in height to prevent the top wire from being broken when big game animals jump over the fence. The top wire will be at least 10 inches above the next wire. The bottom wire will be at least 16 inches above the ground to allow fawns and small animals to crawl under the fence.
 - Posted and enforced driving speed limits of 25 miles per hour within the project area to minimize potential collisions with wildlife during both construction and operation.
- The Applicant will take measures to inform the hunting public or the changes in hunting practices on the site. Said measures may include a combination of advertisement in hunting periodicals and WDFW, signage and outreach through sporting organizations.

To minimize potential impacts to sage grouse, the following measures will be implemented:

- During the lekking season, no routine maintenance of the substation area of facilities within ¼ mile of an active lek will occur between the hours of sunset and 9:00 a.m., and recreational use would be restricted to the extent feasible.

3.5.4.4 Monitoring and Adaptive Management

The Applicant plans to convene a TAC, as required by the WDFW Wind Power Guidelines, to evaluate the mitigation and monitoring program and determine the need for further studies or mitigation measures. The role of the TAC will be to review results of monitoring studies to evaluate impacts on wildlife and habitat, and address issues that arise regarding wildlife impacts during operation of the project. The post-construction monitoring plan will be developed in coordination with the TAC. The monitoring plan will include the following components:

- The Applicant has proposed two years of monitoring studies to evaluate impacts to avian species, with incidental monitoring during the life of the project. This study will include at a minimum, standardized casualty searches on a 28-day interval throughout the year combined with searcher efficiency trials and carcass removal trials to estimate the direct impacts to avian species from the project. The post-construction monitoring plan for the project will follow a detailed written protocol, which will document the monitoring measures being conducted. The TAC shall reconvene if unanticipated circumstances arise during incidental monitoring.
- The Applicant agrees that a wildlife casualty reporting and handling system be implemented by wind project personnel (O&M staff) for the life of the project following a detailed written protocol developed for the project and similar to other wind projects in the region.
- TAC members shall be approved by EFSEC. Members proposed by Zilkha include representatives from WDFW, USFWS, Kittitas County government, project landowners, the Applicant and the community. The community representative will not be anyone party to a turbine lease agreement, or any other contractual obligation with Zilkha, and shall be a person mutually agreeable to the other participants on the TAC.
- The protocol for the fatality monitoring study will be similar to protocols used at the Vansycle Wind Plant in northeastern Oregon (Erickson et al. 2000) and the Stateline Wind Plant in Washington and Oregon (FPL et al. 2001).

The Applicant has also agreed to develop and implement a post-construction Rangeland Management and Grazing Plan, in coordination with the TAC, for the entire project area. This is intended to improve residual grass cover and potential nesting, brood-rearing, and habitat for sage grouse, other shrub-steppe nesting species, and big game in the project area. The plan would include provisions for the restoration of shrub-steppe lands, native seeding prescriptions, and management of livestock grazing on shrub steppe rangelands. The implementation of a Rangeland Management Plan would improve the quality of overall habitat throughout the project area.

Livestock grazing near the springs within the project area will be eliminated. If fences are needed to protect these springs, they will be constructed using fence designs conducive to passage by wildlife, as described above.

Section 3.6 FISHERIES

Revisions to sub-sections within Section 3.6 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (County) (Appendix A) and the Settlement Agreement with the Washington State Department of Fish and Wildlife (WDFW) (Appendix B).

3.6.3 Impacts of Alternatives

3.6.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

None of the streams in the Desert Claim project area are known to contain fish, although juvenile steelhead could possibly be diverted to some project-area waters. The federally threatened summer steelhead is located in lower Reecer Creek and in the Yakima River downstream from Reecer Creek, and juvenile steelhead could potentially be present in some project-area waters. However, potential impacts to fish are expected to be limited to downstream impacts, similar to both the Wild Horse Wind Power Project (WHWPP) and the Kittitas Valley alternative. This alternative may have a slightly higher potential for impacts, however, due to the presence of Type 3 waters on the site, although these waters are not known to contain fish. As described for the WHWPP and the Kittitas Valley alternatives, Best Management Practices (BMPs) and other mitigation measures to control sedimentation during both project construction and operations are expected to prevent water quality impacts that could potentially affect fish downstream of the project area. Fueling of all construction equipment would be kept a minimum of 100 feet from drainages and riparian areas to protect water quality. Over-sized culverts could be used at crossings to allow for streambed development and minimize impacts to stream habitat.

3.6.4 Mitigation Measures

The proposed design of the project incorporates numerous features to avoid and/or minimize impacts on fisheries. The project layout (Figure 1-2) has been designed to avoid any impacts to streams and riparian areas. Features of the project that are designed to avoid or minimize impacts include:

- Minimizing new road construction by improving and using existing roads and trails instead of constructing new roads.
- Roads, underground cables, turbine foundations, transmission poles, and other associated infrastructure will not be located within any riparian areas or streams or other sensitive resources.

Many of the wildlife measures outlined in Section 3.5.4, "Wildlife—Mitigation Measures" and surface water measures outlined in Section 3.3.4, "Water Resources – Mitigation Measures" also apply here. A formal Stormwater Pollution and Prevention Plan (SWPPP) would be implemented and BMPs would be initiated to retain sediment from disturbed areas and minimize areas of disturbance. In addition, the proposed construction activities for the transmission feeder lines would not involve the use of any heavy equipment in streambeds or riparian areas.

3.6.4.1 Construction Techniques and BMPs to Minimize Impacts

Constructing the project has the potential to impact fisheries in a variety of ways. Roads, underground cables, turbine foundations, transmission poles and other associated infrastructure will not be located within any riparian areas or streams and will not involve the use of any heavy equipment in stream beds or riparian areas. Even though no fisheries issues were identified in the project area, the Applicant proposes using construction techniques and BMPs to minimize these potential impacts. These include the following:

- Using BMPs to minimize construction-related surface water runoff and soil erosion.
- BMPs will be implemented to retain sediment from disturbed areas and minimize areas of disturbance.
- Flagging sensitive habitat areas (e.g., wetlands, seeps, and drainages) near proposed areas of construction activity and designating such areas as "off limits" to all construction personnel.
- 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.
- Designating an environmental monitor during construction to monitor construction activities and ensuring compliance with mitigation measures.

3.6.4.2 Post-Construction Restoration of Temporarily Disturbed Areas

The following measures would be taken to restore temporarily disturbed areas after construction:

- 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.
- The Applicant would consult with WDFW regarding the appropriate seed mixes for the project area.

Section 3.7

ENERGY AND NATURAL RESOURCES

Revisions to sub-sections within Section 3.7 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant or Washington Energy Facility Site Evaluation Council (EFSEC). The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.7.1 Affected Environment

3.7.1.3 Renewable Resources

Markets for renewable (“green”) energy are growing in the Pacific Northwest because of recent legislation and a variety of financial and market conditions. Revised Code of Washington (RCW) 19.29A, Implementation of Retail Option to Purchase Qualified Alternative Power (signed into law in 2001) directed 16 Washington electric utilities to offer a voluntary “qualified alternative energy product,” or green energy, starting in January 2002. The law defined “alternative energy resource” as electricity fueled by wind, solar energy, geothermal energy, landfill gas, wave or tidal action, or gas produced during the treatment of wastewater, qualified hydropower, or biomass. State staff surveyed Washington utilities and determined that local and regional markets for green power have been increasing (CTED and WUTC 2002). Wind power is cost-competitive with other resources and customers are demanding more renewable energy sources. In particular, there has been a proliferation of requests from Pacific Northwest electric utilities to purchase wind power. Utilities are pursuing wind power in order to diversify their resource portfolios and are planning for future costs of environmental regulations such as carbon taxes. Several electric utilities have recently issued Requests for Proposals (RFPs) to acquire wind power, including Puget Sound Energy (PSE), Avista Corporation, PacifiCorp, and Portland General Electric.

In September 2004, PSE announced their intent to purchase the Wild Horse Wind Power Project (WHWPP). As stated in that announcement (Seattle Times 2004) PSE estimates that by 2008, it will need power sources that can generate 350 megawatts more power to serve its growing number of users. PSE has indicated that adding this and other wind power projects (PSE 2005) to the utility’s portfolio of electric resources will help provide more control over PSE’s power supply and minimize the risk to their customers from a volatile short-term energy market.

3.7.3 Impacts of Alternatives

3.7.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Specific data for energy and natural resource use is not available for this alternative, however the types of resources used (e.g. sand, gravel, steel, water and concrete) would be similar to those used in the WHWPP and the Kittitas Valley alternative, since all are wind power plant construction projects. Based on this alternative having a maximum of 120 turbines, it is estimated that materials used would be in the mid-range of values described for the WHWPP, which would have 104, 136, or 158 turbines, depending upon the scenario selected. Operation and maintenance impacts on energy and natural resources would also be expected to be within the range described for the WHWPP. The project would generate 59 Average Megawatt (aMW) of electricity annually and would increase the availability of renewable energy in the Pacific Northwest.

3.7.4 Mitigation Measures

3.7.4.1 Conservation and Renewable Resources Measures

During construction, conservation measures will include recycling of construction wastes where possible and encouraging carpooling among construction workers to reduce emissions and traffic.

The Applicant proposes several conservation measures that will be undertaken during operations:

- The Operations and Maintenance (O&M) facility will utilize station power for electricity needs.
- Water usage at the site will be closely monitored during operations due to the limited capacity of the on-site water storage tank.
- Carpooling among operations workers will be encouraged.
- High-efficiency electrical fixtures and appliances in the O&M facility and substation control house will be used.
- Low-water-use flush toilets will be used in the O&M facilities
- Recycling of waste office paper and aluminum will be encouraged.

Section 3.8 NOISE

Revisions to sub-sections within Section 3.8 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Tables included in this Section reflect only those items with revisions. Table entries in the DEIS that were not changed are not repeated here. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.8.1 Affected Environment

3.8.1.2 Noise Standards and Environmental Impact Thresholds

Environmental Impact Thresholds for Noise Increases Above Background

The wind energy industry recognizes that the noise generated by Wind Turbine Generators (WTG) (consisting of the “swishing sound” of the blades and mechanical noise from the electrical generators inside the nacelle) can cause a significant impact if the WTGs are installed near homes in areas with low background noise. The British Wind Energy Association recommends that the noise levels resulting from new wind generation facilities should be kept within 5 dBA of the average evening and nighttime background levels at homes (British Wind Energy Association 2003). That recommended restriction of 5 dBA above background has been used as the environmental impact significance criterion for this noise analysis. It should be noted that the British recommendation also specifies that wind turbine generator noise at receiving property should be maintained at a fixed low level of 30-40 dBA when the background noise level is known to be extremely low (below 30 dBA).

Traffic Noise Impact Criterion

Traffic noise caused by haul trucks and commute vehicles traveling at low speed through the town of Kittitas were estimated using the Federal Highway Administration (FHWA) TNM Lookup model. The estimated peak-hour traffic noise levels were compared to FHWA’s Noise Abatement Criteria (FHWA 1995). In accordance with noise assessment guidelines published by the Washington State Department of Transportation (WSDOT) a traffic noise impact for this FEIS is defined as a peak-hour traffic level exceeding 66 dBA at any residence. The 66 dBA impact criterion is generally used to assess noise impacts caused by permanent roadway projects for purposes of evaluating the cost-effectiveness of noise walls. Note that neither FHWA nor WSDOT have any authority for this project, and the proposed wind

turbine project is not subject to those agencies' traffic noise regulations. However, those agencies' 66 dBA traffic noise impact criterion has been used for this FEIS as a relevant indicator of potential noise impacts due to temporary construction traffic noise.

3.8.1.5 Desert Claim Alternative

Noise-sensitive areas in the project vicinity include Class A and Class C environmental designation for noise abatement (EDNA). Twenty-nine noise receivers within 3/4 mile of the proposed turbine strings were modeled in the Desert Claim Environmental Impact Statement (EIS). The predominant sources of existing noise on and near the project site include agricultural activities, traffic on local roadways, and occasional overhead aircraft (including helicopters). At some locations, wind at higher speeds is also a major source of noise.

3.8.2 Impacts of Proposed Action

Table 3.8-4. Summary of Potential Noise Impacts

	104 Turbines /3 MW	136 Turbines/1.5 MW (Most Likely Scenario)	158 Turbines /1.0 MW
Construction Impacts			
Noise generated by construction equipment.	Same as Most Likely Scenario.	No impact. Nearest home is more than 1.75 miles away from the closest WTG.	Same as Most Likely Scenario.
Blasting noise/conflicts with nearby residential/land use.	Same as Most Likely Scenario.	No impact. Blasting would be done only during daytime, and the nearest home is more than 2.5 miles away from the closest rock quarry, where most of the blasting would occur.	Same as Most Likely Scenario.
Noise generated by construction traffic in town of Kittitas.	Same as Most Likely Scenario.	Unlikely to cause any adverse impact. Commute vehicles and up to 49 heavy trucks per hour would cause traffic noise levels to exceed FHWA ¹ impact thresholds only at homes within 60 feet of the street centerline.	Same as Most Likely Scenario.
Operations and Maintenance Impacts			
Vibration effects.	Same as Most Likely Scenario.	No impact. Nearest home is 1.75 miles from the nearest WTG.	Same as Most Likely Scenario.

¹FHWA criteria are for determining if noise walls should be built. FHWA would not require noise walls in this case because the impact would be temporary.

3.8.2.1 Construction Impacts

Installation of WTGs and Support Facilities at Remote Project Site

Construction Traffic Noise

Table 3.8-6. Peak-Hour Traffic Noise Levels During Construction

Distance from Street Centerline (feet)	Peak-Hour Traffic Noise Level (dBA): 49 trucks/hour and 170 commute cars/hour
60 feet	66 dBA
100 feet	64 dBA
150 feet	62 dBA

For the estimated peak-hour traffic volumes, the noise levels would exceed FHWA's noise impact criterion (66 dBA) only at homes within 60 feet of the street centerline. However, there are few, if any, homes that close to the road. Thus, it is concluded there is little potential for construction vehicles to adversely impact homes in the town of Kittitas.

3.8.3 Impacts of Alternatives

3.8.3.1 Impacts of Off-Site Alternatives

Kittitas Valley Alternative

Modeling of a major wind power generation facility at this site anticipates noise levels ranging from 35 to 49 dBA. The results indicate that noise levels would be below the most restrictive nighttime regulation of 50 dBA. Therefore, no significant noise impacts to Class A properties are anticipated during the daytime or nighttime operations of the proposed project. Noise levels at the property lines of Class C parcels within the project area range from a minimum of 35 dBA to a maximum of 55 dBA. Because the predicted noise level is below the threshold established for Class C properties, no significant noise impacts are anticipated (EFSEC, 2004). Noise levels during project operations could exceed regulatory limits at several homes nearest the WTG strings. Changes in background noise levels at numerous other homes could be perceived as adverse depending on the magnitude of that change and the nature of the receptor. Minor increases in traffic along US 97 and project access roads during project operations would not be expected to generate substantial adverse noise effects. The project would not result in any significant impacts from groundborne vibration.

Desert Claim Alternative

During construction, there would be temporary increases in sound levels near active areas of construction and along roadways used for construction vehicles, depending on the type of equipment being used and the amount of time it is in use.

Modeled wind turbine noise levels for the Desert Claim alternative exceed the 50 dBA nighttime noise limit at two receiver locations. Predicted operational noise levels at all receptor locations at wind speeds of 4 m/s and 8 m/s would meet applicable noise limits. Highest sound level increase at any receptor would be 7 dBA, with 1 to 4 dBA for 26 of 34 receptors. Based on Noise level and/or increase over ambient levels, project noise impacts would be rated either low or medium, and would not be significant. Based on wind patterns, turbines would produce audible noise about 22 percent of the time. Low-frequency noise impacts are not anticipated due to "upwind" design and streamlined turbine design. Tonal noise from turbine operation is possible, but the potential for significant impacts is low. The proponent would obtain and enforce a warranty from the selected turbine manufacturer that the maximum continuous sound power level produced by each turbine under all wind conditions would not exceed 104 dBA measured at the hub height. Mitigation measures include implementing a noise-monitoring program and establishing a process for responding to, evaluating and resolving noise complaints that might arise during project operation.

3.8.4 Mitigation Measures

Although no specific receivers are identified as being impacted by construction noise at the remote project site, and the Applicant has not proposed any mitigation measures associated with noise impacts, the following contractor practices are recommended to minimize the effects of construction noise in the project area:

- 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.
- Do not allow heavy-duty haul trucks to travel through the town of Kittitas during evening or nighttime hours.
- Do not allow haul trucks to park and idle within 100 feet of a residential dwelling.
- Conduct blasting only during daylight hours.
- Maintain equipment in good working order and use adequate mufflers and engine enclosures to reduce equipment noise during operation.
- Coordinate construction vehicle travel to reduce the number of passes by sensitive receivers.

3.8.5 Significant Unavoidable Adverse Impacts

Haul truck traffic during construction would cause temporary, high noise levels at homes within 60 feet of the roads being used to access the site during facility construction. However, there are few, if any, homes that close to the proposed construction haul routes. Therefore, any adverse impacts would be temporary and would be restricted to a small number of homes.

Section 3.9 LAND USE

Revisions to sub-sections within Section 3.9 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Table 3.9-2 included in this Section reflects only those items with revisions. Table entries in the DEIS that were not changed are not repeated here. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.9.1 Affected Environment

3.9.1.2 Existing Zoning

The Commercial Agriculture zone covers areas where farming and ranching are the priority. The intent of this zoning classification is to preserve fertile farmland from encroachment by nonagricultural land uses and protect the rights and traditions of those engaged in agriculture. Permitted uses include one- or two-family dwellings, general agricultural uses, and public buildings such as community clubhouses, schools, utility buildings, and substations.

Kittitas County (Chapter 17.61 Utilities) classifies this proposed project as a “Major alternative energy facility” which may be authorized in the Forest and Range Zone as well as in the Commercial Agriculture Zone pursuant to the provisions of the Wind Farm Resource Overlay Zone (KCC 17.61A). The intent of the Wind Farm Resource Overlay Zone is to establish a process for recognition and designation of properties located in areas of the County that are identified as suitable for the location of wind farms and to protect the health, welfare, safety, and quality of life of the general public and ensure compatible land uses in the vicinity of the areas affected by a wind farm.

Table 3.9-2 summarizes local land use plans, ordinances and policies that would typically apply to a wind project proposed in Kittitas County.

Chapter 463-28 WAC requires Washington Energy Facility Site Evaluation Council (EFSEC) to determine whether the proposed project is consistent and in compliance with local land use plans or zoning ordinances. On April 22, 2004, EFSEC held a land use hearing, pursuant to Chapter RCW 80.50.090 and WAC Chapter 463-26, for the purpose of determining if the proposed project is consistent with Kittitas County or regional land use plans and zoning ordinances. At that hearing, EFSEC determined that: (1) in accordance with WAC 463-26-110, the proposed Wild Horse project was not consistent with nor was it in compliance with Kittitas County land use plans or zoning ordinances, and (2) the Applicant should make all reasonable efforts to resolve the noncompliance (EFSEC 2003). On March

4, 2005, Kittitas County approved the Wild Horse Wind Power Project (WHWPP) designation as subarea for its comprehensive plan, enacted a wind farm resource overlay zone for the project, approved a Development Agreement with the Applicant, and issued a development permit authorizing the project to proceed; all contingent upon the approval of an EFSEC site certification approved by the Governor of the State. Upon presentation of a certificate of land use consistency by the County on March 7, 2005, EFSEC found the WHWPP to be consistent with local land use plans and zoning ordinances.

3.9.2 Impacts of the Proposed Action

3.9.2.4 Plans, Policies and Regulations

Below is a list of plans, policies and regulations that are pertinent to the proposed project. See Table 3.9-2 for a description of each regulation and its relationship to the proposed project.

Table 3.9-2. Summary of Plans, Policies, and Regulations and their Relationship to the Proposed Project

Plan, Policy, or Regulation	Description	Relationship to Proposed Project
<p>Kittitas County Comprehensive Plan</p>	<p>Land use in Kittitas County is guided by the Kittitas County Comprehensive Plan (Kittitas County 2003), which implements the planning requirements and goals of the 1990 Washington State GMA. The Comprehensive Plan is implemented through the adoption of ordinances and codes designed to achieve the objectives and policies outlined in the Plan. Only one policy, GPO 6.34, specifically mentions wind power projects. Only the policies listed below were determined to be potentially relevant to the proposed project. The policy number is provided, followed by the policy itself in quotation marks. The analysis of the project’s consistency is indented below the policy statement.</p> <p><i>“GPO 2.114B. Economically productive farming should be promoted and protected. Commercial agricultural lands includes those lands that have the high probability of an adequate and dependable water supply, are economically productive, and meet the definition of “Prime Farmland” as defined under 7CFR Chapter VI Part 657.5....”</i></p>	<p>The proposed project will be developed on nonirrigated land, mostly used for grazing. This land does not meet the definition of Prime Farmland. Removal of minor amounts of rangeland will not affect the productivity of grazing operations. Therefore, the project will be consistent with this land use policy.</p>
	<p><i>”GPO 6.34. Wind Farms may only be located in areas designated as Wind Farm Resource overlay districts in the Comprehensive Plan. Such Wind Farm Resource overlay districts need not be designated as Major Industrial Developments under Chapter 2.5 of the Comprehensive Plan.”</i></p>	<p>On March 4, 2005, Kittitas County approved the WHWPP designation as subarea for its comprehensive plan, enacted a wind farm resource overlay zone for the project, approved a Development Agreement with the Applicant, and issued a development permit authorizing the project to proceed; all contingent upon the approval of an EFSEC site certification approved by the Governor of the State.</p>

Plan, Policy, or Regulation	Description	Relationship to Proposed Project
	<p>The Kittitas County Zoning Code regulates the use and development of property within the unincorporated areas of the county. The WHWPP site contains two zoning designations— Forest and Range and Commercial Agriculture.</p>	<p>Neither the Commercial Agriculture zone nor the Forest and Range zone allows for wind power projects either as a permitted or conditional use. As an explanatory note, Chapter 17.61 of the Kittitas County Zoning Code states that Utilities shall be a permitted use in all zoning districts and this project may be authorized pursuant to the provisions of the Wind Farm Resource Overlay Zone – Chapter 17.61A. Specifically a wind farm may be authorized by the county through the approval of a wind farm resource development permit in conjunction with the approval of the County Commissioners of a development agreement. The development agreement will set forth the development standards applicable to the development of a specific wind farm. In addition, the Applicant must get approval of a site-specific amendment of the comprehensive plan land use designation map and a site specific rezone of the county zoning map to show the site has a wind farm resource overlay district designation.</p> <p>Kittitas County would review these applications concurrently and the Kittitas County Board of County Commissioners will approve them if they determine (1) the proposal is essential or desirable to the public convenience; (2) the proposal is not detrimental or injurious to the public health, peace, or safety or to the character of the surrounding neighborhood; and (3) the proposed use at the proposed location(s) will not be unreasonably detrimental to the economic welfare of the County and it will not create excessive public cost for facilities and service (KCC 17.61A).</p> <p>As noted immediately above for GPO 6.34, the County process for a Wind Farm Resource zone overlay district for the proposed project site was completed on March 4, 2005.</p>

3.9.3 Impacts of the Alternatives

3.9.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

During construction of the wind turbines and associated facilities, land uses within the project area would continue, although some land would be temporarily disturbed (341 acres). During operations, 90 acres, or 1.5%, of the project area would be used for wind farm facilities and infrastructure (i.e., the permanent project footprint).

Existing residential uses would not be directly displaced, but would be located proximate to wind turbines and other facilities. The presence of these project facilities is not expected to significantly impact the ability to carry out existing activities. However, wind turbines would be significantly greater in scale than nearby rural residential uses, and some degree of incompatibility or conflict would exist. Wind farm operations are not expected to be more intensive than other resource activities in terms of noise and associated land use impacts, and wind energy production is seen as generally compatible with rural resource uses and with ongoing agricultural operations.

Similar to the Proposed Action, the Desert Claim alternative is not expected to attract supporting land uses, generate secondary or spin-off development, significantly increase traffic, or increase demand for commercial or industrial uses nearby. The alternative is not expected to attract significant numbers of non-resident workers and or result in significant demand on housing.

Overall, direct impacts to recreational resources and opportunities would be very low or negligible. Most current recreation activity within the project area, which consists of (at most) limited informal use, would be able to resume at current levels during operation and maintenance. During operation, hunting would not be permitted to avoid possible damage to turbines or other project facilities. Because project area lands are not managed for recreation, loss of this limited opportunity would not be a significant recreation impact.

No Washington State Department of Natural Resources (DNR), State Parks, Washington State Department of Fish and Wildlife (WDFW), United State Forest Service (USFS), Bureau of Land Management (BLM), or private recreational facilities would experience direct impacts from the project. Indirect impacts would be limited to minor audible and visual intrusion into nearby recreational areas and congestion along roads. Neither would disrupt recreational opportunities on nearby federal, state, and private lands and facilities.

3.9.4 Mitigation Measures

- During project construction, it would be necessary to remove cattle from areas where blasting or heavy equipment operations are taking place. The Applicant would 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.

- The Applicant would allow controlled hunting to avoid creating a sanctuary for elk and deer that may cause an increase in agricultural damage to neighboring landowners.

Section 3.10

VISUAL RESOURCES/LIGHT AND GLARE

Revisions to sub-sections within Section 3.10 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant, and in the Development Agreement between the Applicant and Kittitas County. Revisions to the off-site alternatives analysis for the Desert Claim project have been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Tables included in this Section reflect only those items with revisions. Table entries in the DEIS that were not changed are not repeated here. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.10.2 Affected Environment

3.10.2.4 Project Site Visibility

The greatest numbers of turbines will be visible from the project site itself and from the tops of ridges in the area to the north. In the valley areas west of the project site and in the hilly lands to the south, many of the project's turbines will not be visible because they will be located in areas screened by the ridgeline of Whiskey Dick Mountain. Due to Federal Aviation Administration (FAA) requirements, nine turbine locations (A1, A2, A3, B1, B2, B3, D1, D2, D3) originally proposed and evaluated in the DEIS have been removed from the current proposal. As a result, it is anticipated that the project along the uppermost ridgelines would be less visible from all viewpoints.

3.10.2.5 Landscape Units

Landscape Unit 6 – I-90 in the Vicinity of the PSE Interconnect

Landscape Description and Scenic Quality

Landscape Unit 6 encompasses the short segment of I-90 between Kittitas and Vantage, from which there will be views of the transmission line and substation that will provide the electrical connection between the project and the Puget Sound Energy (PSE) transmission system. Figures 3.10-7a and b depict the existing and simulated views from SV 6, a point at the edge of the westbound lanes of I-90, just east of the overcrossing of Stevens Road. This view looks west toward the proposed alignment of the project's 230 kV PSE feeder line and the location of the project's proposed PSE Interconnect Substation. The landscape view here is of I-90, a railroad trestle, the existing PSE transmission line, a canal that cuts

across the side of the slope visible in the middleground, and a wireless communications tower. Given the moderately low levels of vividness, unity, and intactness of this landscape, the overall level of visual quality is low to moderately low.

Since the DEIS was issued, the proposed location for the PSE substation has been moved to the east side of Stevens Road. The new location is expected to be far less visible as it would be situated on lower lying ground than the original location and would not be as visually prominent from I-90 or other major public vantage points.

Visual Sensitivity

In this area, I-90 carries an average of 11,000 vehicles per day. The transmission line alignment and substation are situated within the immediate foreground of the view to both westbound and eastbound travelers on I-90. The level of visual sensitivity is considered to be high.

3.10.3 Impacts of Proposed Action

3.10.3.1 Analysis Procedure

Levels of impact were classified as *high*, *moderate*, and *low*. In general, high levels of aesthetic impacts were assigned in situations in which turbines would be highly visible from sensitive viewpoints and would alter levels of landscape vividness, unity, and intactness to the extent that there would be a substantial decrease in the existing level of visual quality. Moderate levels of aesthetic impact were assigned in situations in which turbines would be visible in areas with high levels of visual sensitivity and would alter levels of landscape vividness, unity, and intactness to the extent that there would be a moderate change in existing visual quality. Moderate levels of visual impact were also assigned in situations in which the presence of turbines in the view would lead to more substantial changes in visual quality, but where levels of visual sensitivity were moderate to low. Low levels of visual impact were assigned in situations where the project would have relatively small effects on overall levels of landscape vividness, unity, and intactness and/or where existing levels of landscape aesthetic quality are low or where there are low levels of visual sensitivity.

Due to FAA concerns, nine turbine locations have been removed from the proposal since the DEIS was issued in August 2004. Revised Figure 1-4 in Chapter 1 shows the new site layout with the nine turbine locations removed. Figures 3.10-3b and 3.10-5b show revised photo simulations of the most-likely scenario with the nine turbine locations removed. In all cases, the visual impact in the Landscape Units analyzed in this section would be reduced by some degree, since the locations that would not be sited all occur along the uppermost, most visible ridgelines in the project area. See Section 3.14, Traffic and Transportation, for a more detailed discussion related to FAA considerations.

3.10.3.3 Operations and Maintenance Impacts

Table 3.10-2. Analysis of Impacts on Visual Resources During Project Operation

Landscape Areas/Simulation Views	Existing Level of Visual Quality	Level of Visual Sensitivity	Assessment of Visual Change	Potential Level of Visual Impact
6 – I-90 in the Vicinity of the PSE Interconnect				
(Figure 3.10-7a) View looking west from I-90 east of the freeway’s overcrossing of Stevens Road	Moderately Low	High	Figure 3.10-7b is a simulation of the view from the westbound lanes of I-90 looking toward the proposed PSE transmission feeder line and the substation that would connect this line with the PSE transmission system. In this view, the PSE interconnect substation would be visible at the base of the communications tower located at the top of the knoll in the center of the view. The substation’s takeoff structures and the H-frame transmission towers, which would be seen against the sky backdrop, would be the project’s most visible features. The impact of the proposed PSE interconnect substation and the PSE transmission feeder line on the visual character and quality of views in this area would be low. Since the Draft EIS was issued, the proposed location for the PSE substation has been moved to the east side of Stevens Road. The new location is expected to be far less visible as it is situated on lower lying ground than the original location and will not be as visually prominent from I-90 or other major public vantage points (Young, prefiled testimony 2004).	Low

Light and Glare

Turbine Lighting

The project would be marked according to guidelines established by the FAA’s aircraft safety lighting requirements. FAA guidelines for lighting of wind turbines call for lights that flash white (at 20,000 candela) during the day and red (at 2,000 candela) at night. These lights are designed to concentrate the beam in the horizontal plane, thus minimizing light diffusion down toward the ground and up toward the sky. The exact number of turbines that will require lighting will be specified by the FAA after it has reviewed final project plans; however, FAA has typically required that warning lights be mounted on the first and last turbines of each string, and every 1,000–1,400 feet on the turbines in between. A preliminary lighting plan is presented in Figure 3.10-11 of this FEIS. Aside from any required aircraft warning lights, the turbines will not be illuminated at night.

[...]

Based on experience at the operating Stateline and Nine Canyon wind power projects in Washington, it appears that the white flashing lights would be visible during daylight hours and will likely create a low level of visual impact.

At present, the project site and immediately surrounding area are dark at night except for the lighting present on the communications towers on Cribb Peak near the eastern end of Whiskey Dick Mountain’s ridgeline. The flashing red lights associated with the project would be operated at night and would

introduce a new element into the project area's nighttime environment. These lights would be limited in number, red, and directional with little potential to create skyglow¹ or backscatter.² Figure 3.10-11 in this FEIS shows the proposed lighting locations.

3.10.4 Impacts of Alternatives

3.10.4.1 Impacts of Offsite Alternatives

Desert Claim Alternative

Under this alternative, visual impacts would be greatest for the Northwest Valley Floor unit, with high level impacts from 4 viewpoints, moderate level impacts from 6 viewpoints (1 to 4 miles from the project), and low level impacts from the remaining viewpoint. Of the remaining units, this alternative would have moderate level impacts to one of three viewpoints in the greater Ellensburg unit and to the Hayward Hill and Table Mountain slope units. The remaining viewpoints would all experience low level impacts.

Visual impacts from the Desert Claim alternative are likely to be less than from the Wild Horse Wind Power Project (WHWPP) and the Kittitas Valley alternatives because the site is less visible from the Gorge Amphitheater as compared to the WHWPP, and greater distance from major transportation routes such as I-90 and US-97 and with fewer residences in close proximity than the Kittitas Valley alternative.

Impacts from light and glare under the Desert Claim alternative would be similar to those described for the WHWPP but greater due to closer proximity to residences. The Applicant has developed a proposed lighting plan whereby 48 of the total 120 turbines (40 percent), would be equipped with a dual lighting system. This lighting system includes low-intensity flashing red lights (L-864) for nighttime use and medium-intensity flashing white lights (L-865) for daytime and twilight use. As described for Kittitas Valley, white lights flashing during the day will be noticeable but will have a low level impact while red lights flashing at night would be noticeable from roads and residences and could have a high level impact on views in the project area. Residences in the Northwest Valley and Table Mountain slope assessment units would experience the greatest impact. Night lighting of project facilities would also contribute to increased night lighting in the project area.

Blade glare or glint, which can be seen over distances of 6 to 9 miles, may also occasionally occur.

Mitigation measures include relocating turbines into distinct visual units or groupings and relocating selected turbines near ridgetops to better follow and reinforce the natural topography.

3.10.5 Mitigation Measures

Mitigation measures proposed by the Applicant and incorporated into the project's design include the following:

- Active dust suppression will be implemented to minimize the creation of dust clouds during the construction period.
- Areas disturbed during the construction process will be reseeded to facilitate their return to natural-appearing conditions when construction is complete.
- The wind turbine towers, nacelles, and rotors will be uniform and will conform to the highest standards of industrial design to present a trim, uncluttered, aesthetically attractive appearance.
- The turbines will have neutral gray finish to minimize contrast with the sky backdrop.
- A low-reflectivity finish will be used for all surfaces of the turbines to minimize the reflections that can call attention to structures in a landscape setting.
- The rotors will be turning approximately 80–85% of the time as a result of local wind conditions and the equipment used. This will minimize the appearance of the turbines being non-operational.
- The small cabinets containing pad-mounted equipment located at the base of each turbine, will have an earth-tone finish to help them blend into the surrounding ground plane.
- The only exterior lighting on the turbines will be the aviation warning lighting required by the FAA. This lighting will be kept to the minimum required intensity to meet FAA standards. It is anticipated that the FAA will soon be issuing new standards for marking of wind turbines that will entail lighting fewer turbines in a large wind farm than is now required, as well as synchronizing all the lights. These potential regulatory changes are being closely monitored and if, as is likely, they are made before project construction begins, the aviation safety marking lighting will be designed to meet these revised standards.
- Most of the project's electrical collection system will be located underground, eliminating potential visual impacts.
- Where feasible, existing road alignments will be used to provide access to the turbines, minimizing the amount of additional surface disturbance required. Where possible, access road widths will be restricted to 20 feet (approximately half of all access road miles.) The access roads will have a gravel surface and will have grades of no more than 15%, minimizing erosion and its visual effects.
- The Operations and Maintenance (O&M) facility building will have a low-reflectivity earth-tone finish to maximize its visual integration into the surrounding landscape.
- The parking areas at the O&M facility will be covered with gravel, rather than asphalt, to minimize contrast with the site's soil colors.
- Outdoor night lighting at the O&M facility and the substation(s) will be kept to the minimum required for safety and security, sensors and switches will be used to keep lighting turned off when not required, and all lights will be hooded and directed to minimize backscatter and offsite light trespass.
- All equipment at the substation(s) will have a low-reflectivity neutral gray finish to minimize visual sensitivity.

- All insulators in the substations and takeoff towers will be non-reflective and non-refractive.
- The control buildings located at each substation will have a low-reflectivity earth-tone finish.
- The chain-link fences surrounding the substations will have a dulled, darkened finish to reduce their contrast with the surroundings.

Section 3.11

POPULATION, HOUSING, AND ECONOMICS

Revisions to sub-sections within Section 3.11 of the Draft Environmental Impact Statement (DEIS), presented below, are based on corrections provided by the Applicant and information provided in comments submitted on the DEIS. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Table 3.11-9 included in this Section reflects only those items with revisions. Table entries in the DEIS that were not changed are not repeated here. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.11.2 Impacts of Proposed Action

Table 3.11-9. Summary of Potential Construction, Operation, and Maintenance Impacts: Population, Housing, and Economics

	104 Turbines/3 MW	136 Turbines/1.5 MW (Most Likely Scenario)	158 Turbines/1.0 MW
Housing			
Increased demand for temporary and permanent housing.	Same as 136-turbine/1.5-MW scenario.	Demand for a maximum of 160 units during peak employment for construction phase.	Same as 136-turbine/1.5 MW scenario.

3.11.2.2 Operation and Maintenance Impacts

Fiscal Impacts

As noted in Section 1.2.2 of this FEIS, PSE announced its intention to purchase the WHWPP. If the project is approved by the Governor, and if ownership is transferred to PSE pursuant to EFSEC regulations and procedures, the fiscal analysis would be different than that presented in Section 3.11.2.2 of the DEIS.

As a private utility, PSE is centrally assessed by the Washington State Department of Revenue. This has two major impacts on the property tax analysis (Strand 2005). First, the entire project would be considered new construction, and would be exempt from the property tax limiting Initiative 1-747. Second, the assessed value of the project would be determined each year by using a discount rate rather

than being depreciated over the life of the project. The discount rate is determined by the Department of Revenue and is usually close to 50%. As a result, a higher assessed value would be used to calculate property taxes and the assessed value would remain more constant over time rather than being depreciated to a zero value.

Using PSE's current discount rate of approximately .505 and an initial capital investment of \$270,000,000, PSE would pay approximately \$1.5 million annually in taxes. Of this \$1.5 million, almost \$1.3 million would be new tax dollars and would have positive impacts on local taxing entities. The project will increase the assessed value in the Kittitas School district by an additional 75%, resulting in a \$500,000 in the district's tax revenue. The county general fund would see an additional \$180,000 and the county road fund would see an additional \$220,000.

3.11.3 Impacts of Alternatives

3.11.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Impacts on economics within the County during operation of the Desert Claim Alternative are estimated at \$0.9 million in labor income and \$2 million in other value added annually. Potential property tax revenues from the Desert Claim Alternative are estimated at a maximum of nearly \$1.1 million for the first year of operation. Current research has generally found that wind farms have either no effect on tourism or a positive effect.

Decommissioning impacts would be similar to, but less than, those described above for the Proposed Action.

3.11.4 Mitigation Measures

There is an adequate supply of temporary housing available to accommodate non-local workers; therefore, no mitigation measures are proposed. The overall socioeconomic impact of the project for the County would be increased property tax base and employment opportunities; therefore, no mitigation measures are planned for population, housing, and economics.

Section 3.12

PUBLIC SERVICES AND UTILITIES/RECREATION

Revisions to sub-sections within Section 3.12 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.12.1 Affected Environment

3.12.1.1 Fire Protection

There are two fire districts to the southwest and southeast of the project area, Fire District No. 2 (Rural Ellensburg) and Fire District No. 4 (Vantage). The proposed wind turbines will be located outside of any existing fire district, as this area is almost totally uninhabited (see Figure 3.12-1, "Project Area Fire Districts"). The City of Ellensburg also has its own fire department. Since the DEIS was issued, the Applicant has secured a contract for fire protection with Fire District #2 for the project. The agreement will be submitted to Washington Energy Facility Site Evaluation Council (EFSEC) prior to construction as part of the Fire Protection and Prevention Plan.

3.12.2 Impacts of Proposed Action

3.12.2.1 Construction Impacts

Fire Protection

Concerns raised by the County Fire Marshall include water supply for fire fighting, fire safety and prevention for personnel, and signed agreements in place for service prior to construction and operation phases. Since the DEIS was issued, the Applicant has secured a contract with Fire District #2 (September 10, 2004) for fire protection services for the project site. Implementation of the emergency preparedness measures proposed by the Applicant would reduce potential impacts to rescue personnel during an emergency situation. For further information see the mitigation measures discussed in Section 3.12.4 below.

3.12.2.2 Operation and Maintenance Impacts

Fire Protection

Impacts from fire, either from a turbine or wild land fire in the project area, could increase or be more difficult to control unless provisions are made for firefighters to have easy access to the project site. Mitigation measures including facilitating access to the project will be made as described under Section 3.12.4 below to address these concerns. For mechanical fires, this impact would be greatest under the 158-Turbine/1-MW scenario, which would operate the largest number of turbines. However, for wildland fires, this impact would be the same for all three scenarios, which would disturb approximately 164 acres of land. Since the DEIS was issued in August 2004, the Applicant has entered into an agreement with Fire District #2 for fire protection services at the proposed project site.

Parks and Other Recreational Facilities

Some amount of tourism to the project site is expected once the wind turbines are in operation. It is difficult to estimate the number of visitors the project will receive. The Stateline Wind Energy Center near Walla Walla has attracted thousands of visitors since it was built in 2001, while other projects are visited far less frequently. However, given the Wild Horse project site's remote location, it is not anticipated that large numbers of tourists will visit the project.

During operations, access to the project site will be controlled but permitted to the extent that it does not cause conflicts with the safe and efficient operation of the project. The Applicant will implement an adaptive management approach to allow access to and through the Project Area and recreational use of the site. In general, the Applicant will permit controlled access to and through the site as long as it does not interfere with or adversely impact on project operations or personnel. This controlled access will include:

- Property owners who wish to access their property from the Project Access Road will be allowed to do so as necessary under a formal access license and a key to a gated entrance;
- Officials of the Washington State Department of Natural Resources (DNR) and the Washington State Department of Fish and Wildlife (WDFW) are currently allowed to access the site and will continue to be allowed access by key;
- The Applicant will allow others to access the Project site on a case by case basis.
- Active recreation activities such as camping, off-road vehicle usage will not be allowed in order to avoid and minimize potential impacts to habitat and wildlife from such activities.

Controlled hunting will be allowed during project operations, as described in Section 3.5.2, "Impacts of Proposed Action." The potential impacts to habitat and wildlife of project operations is also discussed in Section 3.5, "Wildlife," and potential impacts to recreation are also discussed in Section 3.10, "Visual Resources/Light and Glare."

3.12.3 Impacts of Alternatives

3.12.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Calls for fire response to the project area could increase during construction and would be similar to those described for the Proposed Action and Kittitas Valley Alternative. Site clearing, road building, and construction of the wind turbines and transmission system could contribute to an increased risk of accidental fire. The Desert Claim Alternative is not expected to have more than a slight potential increase in the demand for law enforcement over existing conditions. Impacts on local schools would be the same as that described for the Proposed Action. Impacts to recreational resources and opportunities would be very low or negligible, generally limited to some temporary audible and visual intrusion and congestion along roadways. Impacts to public water supply, stormwater, and sewer services are not anticipated since these services are not available on-site. It is also anticipated that the local landfills would be able to accommodate the level of solid waste and debris generated by the project. Recreational users of the Iron Horse State Park/John Wayne Trail and the Yakima River would experience noise, views of construction equipment and activities, and possibly blowing dust during the construction period.

During operation, impacts to fire and emergency medical services would occur to a lesser extent than those described for the construction period. Few workers, using minimal amounts of machinery, and reduced traffic would account for this lesser impact. The project area lands are not managed for recreation, and incidental use within the project area would be able to resume at current levels during operation and maintenance. Some hunting activity could potentially be allowed during the operating period. During operations, users of the recreational resources noted above would be exposed to views of wind turbines and other project facilities at some specific locations.

3.12.4 Mitigation Measures

Potential impacts to public services and utilities will be mitigated by tax revenues generated by the project. Fiscal impacts of the project are addressed in Section 3.11, "Population, Housing and Economics."

3.12.4.1 Construction

Because construction activities at the project are not expected to result in significant impacts to medical services, schools, public utilities, communications, water supplies, sewage/solid waste disposal, or stormwater systems, no mitigation measures will be necessary for those services or utilities.

The following mitigation measures will be implemented to reduce impacts to public services resulting from construction of the project:

- All operations personnel working on the turbines will work in pairs. In the unlikely event that an injury occurs while working in the nacelle, all staff will be trained in lowering injured colleagues from the nacelle. A rescue basket, specially designed for this purpose, will be kept at the operations and maintenance facility and will be available for use by local emergency medical services personnel.

Training in rescue basket recovery will also be provided to local Emergency Medical Service (EMS) personnel by the Applicant.

- The Applicant will provide all police, fire, and emergency medical personnel with emergency response details for the project including detailed maps of the project site access roads, Applicant contact information, procedures for rescue operations to the nacelles, and location of the rescue basket.
- The Applicant will consult with the County regarding the impact on county law enforcement staffing. If additional staffing is required, the Applicant shall pay the additional costs for law enforcement associated with construction impacts and activities to be provided by the County Sheriff's office or by private onsite security, as deemed necessary.

Potential impacts on fire services will be mitigated by the following:

- The Applicant has initiated discussions with local fire district(s) regarding a contract for fire protection services during construction and ongoing fire protection services during operations;
- Provisions for special training of fire district personnel for fires related to wind turbines;
- Training for EMS personnel in the use of a rescue basket that will be kept at the operations and maintenance facility for the purpose of removing injured employees from the Wind Turbine Generators (WTGs);
- Providing detailed maps to fire districts that show all access roads to the project;
- Providing keys to a master lock system to fire districts that will enable emergency personnel to unlock gates that would otherwise limit access to the project;
- Use of spark arresters on all power equipment (e.g., cutting torches and cutting tools), when necessary due to extreme fire danger conditions;
- Informing workers at the project of emergency contact phone numbers and training them in emergency response procedures;
- Carrying fire extinguishers in all maintenance vehicles;
- Providing water supply for fire fighting locations beyond the contracted fire districts;
- Implementing a Federal Aviation Administration (FAA)-style lighting plan to prevent aircraft mishaps to limit fire response;
- Having an environmental clean-up company under contract to provide services to protect the environment up to and beyond small incidents, including planning, implementing, and storing of all material considered to be harmful; and
- Supplying water for fire fighting at locations up and beyond the contracted fire districts to keep the fire in a manageable size incident.

3.12.4.2 Operation and Maintenance

During operation of the project, impacts to local services and utilities are expected to be insignificant. However, emergency preparedness planning will be implemented as mentioned above, to reduce potential impacts in the event of an emergency.

- The Applicant will make arrangements with the Kittitas Valley Community Hospital for helicopter transportation service in the unlikely event that any operations personnel are seriously injured and require evacuation from a remote location within the project area.
- Since the DEIS was issued, the Applicant has secured a signed agreement with Fire District #2 (dated September 10, 2004) for fire protection services, which will be submitted to EFSEC prior to construction. Currently, the Applicant does not plan to have signed agreements with the hospital and/or EMS as these services are provided on a fee-for-service basis.
- The Applicant will work with Kittitas County Fire Marshal and effected fire districts for all aspects of operations.

Section 3.13

CULTURAL RESOURCES

Revisions to sub-sections within Section 3.13 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant or other comment submissions. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.13.1 Affected Environment

3.13.1.3 Prehistory

Ethnography/Ethnohistory

The Confederated Tribes of the Colville Reservation (CCT) have an interest in the project area since CCT ancestral territory includes Northeastern Washington. The tribes of the CCT are the Sinkayuse or Moses-Columbia, Wenatchee, Entiat, Chelan, Methow, Okanogan, Nespelem, Lakes, Colville, Palus, Sanpoil and the Chief Joseph Nez Perce.

3.13.1.5 Cultural Resource Assessment

Traditional Cultural Properties

Consultation with the Native American tribes prior to issuance of the DEIS indicated that no field survey for Traditional Cultural Properties had been conducted. According to the CCT, Traditional cultural properties (TCPs) had been previously identified 3 miles west of the proposed project area for a separate project.

The Yakama Nation stated in a letter dated January 14, 2004 that they are particularly concerned with the regional effects of the wind farms on flora and fauna, especially as these resources relate to tribal cultural practices. They also expressed concerns about impacts to important food resources and medicines in a letter sent January 5, 2004. The Yakama Nation, in a letter dated April 6, 2004, reiterated the CCT's concern that TCPs have not been researched adequately to date. Please refer to Appendix A of the DEIS for the tribal correspondence letters described above. Since issuance of the WHWPP DEIS, the Yakama

Nation issued Yakama Nation Tribal Resolution T-058-05 (Confederated Tribes and Bands of the Yakama Nation 2005), rescinding previous Tribal resolutions to the extent that they may have been interpreted to prevent agreements between the Yakama Nation and business and government entities that would allow wind power development. However, no additional comment from the Yakama Nation has been received by EFSEC regarding the specific impacts of the WHWPP.

Since the DEIS was issued in August 2004, the CCT entered into a contract with the applicant and has conducted a TCP study in the project area. The results are confidential and proprietary to the CCT. The CCT History/Archaeology Program was contracted to conduct research to assist Zilkha to be in compliance with Federal and State cultural resource laws, specifically in obtaining its EFSEC permit.

The History/Archaeology Program staff reviewed contractor reports, site forms and maps from OAHP, ethnographic literature related to the project area, and performed in-field documentation resulting in inventory. Tribal members with personal and family history in the general area were interviewed for input regarding TCPs that may be impacted by the undertaking. Their responses demonstrate archaeological features considered TCPs exist in and adjacent to the proposed WHWPP area. Their input enhances the understanding of the extent of the traditional territories of the Wenatchi people, the significance of traditional resources, and the relevance and importance of current property studies. Concerns have been forwarded and are being addressed between the Applicant and the CCT.

3.13.2 Impacts of Proposed Action

3.13.2.1 Construction Impacts

As recommended by the Assistant Archaeologist at Washington State Office of Archaeology and Historic Preservation (OAHP), 100-foot design and construction buffers would be maintained around the archaeological and historical sites identified during this current cultural resource survey, even though they do not meet the standard qualifications for National Register of Historic Places (NRHP). OAHP requested the project archaeologist should flag off or otherwise delineate the archaeological sites with a 100-foot buffer. Ground disturbing actions within a specified radius of any archaeological sites, either recorded during the initial survey or previously documented, would be monitored by a professional archaeologist to prevent damage or destruction to both known and unanticipated archaeological resources. Any areas wherein the presence of TCPs are in question would be avoided. If any archaeological materials, including but not limited to human remains, are observed, excavation in that area would cease, and OAHP, Washington Energy Facility Site Evaluation Council (EFSEC), the affected tribes, and the Applicant would be notified. At that time, appropriate treatment and mitigation measures will be developed and implemented. If the project could not be moved or rerouted to avoid resources, the resources would have to be tested for eligibility for listing in the NRHP. Any excavation or disturbance to the archaeological sites would require an excavation permit from OAHP per Revised Code of Washington (RCW) 27.53.060. The archaeologist would remove any flagging tape or pin flags at the end of the construction-monitoring phase of the project.

3.13.3 Impacts of Alternatives

3.13.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Potential direct impacts to documented cultural resources have been identified based on the proposed layout of project facilities relative to the locations of the known resources. Any cultural resources within or very close to the area of temporary construction disturbance around the various project facilities would presumably be subject to direct impacts. Project construction would potentially demolish or alter the setting and character of existing historic resources. Construction impacts would include out-of-character visual elements, change in use, structural vibration, and dust. A map analysis (which is not documented in the EIS because the locations of the cultural sites are confidential and not appropriate for disclosure) indicates that five identified cultural resource sites would experience unavoidable adverse impacts associated with turbine, access road and power collection system construction if the project facilities were sited according to the modified design. Three of these five sites are historic sites with either standing structures or structural remains. The two remaining sites are prehistoric sites. One of these sites is a large prehistoric lithic procurement site located at the northwest periphery of the project. Destruction of or damage to these resources would represent a significant adverse impact.

Measures such as clearly marking areas that need to be avoided to protect sensitive resources and ensuring that project personnel observe those markings and their associated restrictions could minimize the potential for indirect impacts such as increased opportunities for removal of artifacts.

The proposed project is not expected to cause access-related indirect impacts to cultural resources because the degree of public accessibility to cultural resources within the project area would be less with the project than it is at present. Project operation would also change the historic character of the surrounding area. Existing cultural sites in the general vicinity of the project would be subject to possible changes to their visual setting. This would primarily be limited to historic sites, and would depend on the visibility of project facilities from those sites. Development of the project would not affect access to or the ability to use TCPs in the vicinity. TCPs in the general area might be subject to indirect effects through visibility of project facilities.

The prospects for avoiding cultural sites would be addressed in the final micro-siting of wind turbines and other project facilities, which would occur during final design and prior to construction.

No additional mitigation would be necessary if all identified cultural resource sites were avoided in the final layout and construction of project facilities. If final placement of the project elements resulted in unavoidable adverse impacts to a significant resource, then mitigation would be required to retrieve the scientific and historical information that makes the site significant. Appropriate mitigation measures should be tailored to the specific circumstances of the resource and developed in consultation with the Washington State Historic Preservation Officer (SHPO). If the affected resource is prehistoric, then the SHPO would require consultation with all affected Native American tribes of the Mid-Columbia River Basin. As a mitigation measure, an historic narrative with photos could be written to document changes within the landscape should some historic structures be affected.

Decommissioning the project at the end of its useful life also poses the potential for further impacts if decommissioning activities strayed beyond the perimeters of the pre-existing disturbance zones used during construction.

3.13.4 Mitigation Measures

The Applicant has identified the mitigation measures described below.

As recommended by the Assistant Archaeologist at OAHP, 100-foot design and construction buffers will be maintained around the archaeological and historical sites identified during this current cultural resource survey, even though they do not meet the standard qualifications for NRHP. OAHP requested that the project archaeologist flag off or otherwise delineate the archaeological sites with a 100-foot buffer. Ground disturbing actions within a specified radius of any archaeological sites, either recorded during the initial survey or previously documented, will be monitored by a professional archaeologist to prevent damage or destruction to both known and unanticipated archaeological resources.

If any archaeological materials, including but not limited to human remains, are observed, excavation in that area will cease, and OAHP, EFSEC, the affected tribes and the Applicant will be notified. At that time, appropriate treatment and mitigation measures will be developed and implemented. If the project cannot be moved or re-routed to avoid resources, the resources will be tested for eligibility for listing in the NRHP. Any excavation or disturbance to the archaeological sites will require an excavation permit from OAHP per Revised Code of Washington (RCW) 27.53.060. The archaeologist will remove any flagging tape or pin flags at the end of the construction-monitoring phase of the project.

If a tribe requests to have one of their representatives present during earth-disturbing construction activities, the Applicant will comply with their wishes. In all cases, the project shall note all concerns raised through tribal requests.

Section 3.14

TRAFFIC AND TRANSPORTATION

Revisions to sub-sections within Section 3.14 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant and EFSEC in addition to information contained in the Development Agreement between the Applicant and Kittitas County (Appendix A). Revisions to the off-site alternatives analysis for the Desert Claim project have been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Tables included in this Section reflect only those items with revisions (except Tourism). Table entries in the DEIS that were not changed, other than “Tourism” are not repeated here.

3.14.1 Affected Environment

3.14.1.2 Traffic Volumes

Roadway Limitations

The Kittitas County road network would comprise the primary public haul routes used in the construction of the Wild Horse Wind Power Project (WHWPP). The regulatory framework for transportation in Kittitas County consists of program and project planning, design standards related to roadway geometry and paving materials, load limits for bridges, and weight limits or closures under defined circumstances. Kittitas County roads are designed to sets of standards with respect to paving materials and methods and with respect to roadway geometry and design. The planning and programming of funding for construction of public roads is included in the Kittitas County Transportation Plan, the 6-year Transportation Improvement Program and Annual Road Program. Kittitas County Road Standards state the minimum requirements for public and private road construction in the county, as well as any exceptions to these standards. All new public road and bridge construction must also be in accordance with the current edition of Washington State Department of Transportation’s (WSDOT) “Standard Specifications for Road, Bridge, and Municipal Construction.”

Roadway Hazards

Roadways are typically evaluated based on accident rate, where accident occurrence is indexed to the amount of traffic using a given roadway. For roadway segments, accident rates are computed as the number of accidents per million vehicle miles (mvm) of travel.

Table 3.14-3 shows an estimated number of accidents for I-90 based on multi-year accident rates. The most recent accident rates provided by WSDOT are from 2001. These 2001 accident rates were used to predict the number of accidents in 2002 along the transporter routes.

Future Plans and Projects

Kittitas County Department of Public Works staff has stated that there is currently no construction project planned on county roads in the project area.

WSDOT has also been contacted, and the following projects that may affect the transport and/or operations of the proposed project have been identified:

- I-90: Gold Creek to Easton Hill paving project (MP 55.51 to MP 67.32). Scheduled for spring of 2005.
- I-90: Cle Elum Weigh Station roadway preparation project (MP 78.46 to MP 78.81). Scheduled for spring of 2005.
- I-90: Yakima River Bridge deck repair project (MP 78.81 to MP 78.85). Scheduled for 2006.

Air Traffic

There are no regional or municipal airports in the vicinity of the project site. The nearest airport is Kittitas County Airport (Bowers Field), approximately 1.5 miles north of the City of Ellensburg. The Kittitas County Airport (Bowers Field) does not have scheduled air service, though charter plane service is available. Small planes may use private runways at ranches or farms in the area, but none has been identified in the immediate vicinity of the WHWPP, and the frequency of this type of use is unknown.

The Federal Aviation Administration (FAA) has determined various maximum allowable construction ceilings (site elevation plus structure height above ground level) surrounding the WHWPP site as shown in new Figure 3.14-2. The various sectors and their limiting heights as depicted in the figure are determined by different Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) Approach and Departure Procedures, Minimum Vectoring Altitudes, and Low Altitude Enroute IFR Airways, as well as the Restricted Areas to the South. Within the boundaries of each sector the maximum height for any specific location must not exceed that indicated to satisfy the height restriction criterion for a Determination of No Hazard from the FAA. (Source: Aviation Systems, Inc., 2004A)

3.14.2 Impacts of Proposed Action

Table 3.14-4: Summary of Potential Transportation Impacts

Impacts	104 Turbines/3 MW	136 Turbines/1.5 MW (Most Likely Scenario)	158 Turbines/1 MW
Construction Impacts			
Roadway limitations	Less impact than Most Likely Scenario: 14% fewer trucks	Large number of trucks and trucks exceeding legal weight limits may cause pavement deterioration	Less impact than Most Likely Scenario: 7% fewer trucks
Operation and Maintenance Impacts			
Aviation hazards	Same as Most Likely Scenario	The FAA has issued Determinations of No Hazard (DNH) for 127 wind turbine generators proposed for the project.	Same as Most Likely Scenario
Road maintenance and public access requirements	Same as Most Likely Scenario	32 miles (165 acres) of private roadways. There are no public access requirements.	Same as Most Likely Scenario
Tourism-induced traffic	Unknown	Unknown	Unknown
Decommissioning Impacts			
	Slightly less than Most Likely Scenario: proposal as there are fewer wind turbines	Similar to those described for construction. However, assuming that roadways would remain in place, the resulting workforce and corresponding vehicle trips would be smaller.	Slightly more than 1.5 MW proposal as there are more wind turbines

1 Daily trips with rock quarry on-site.

Source: Wind Ridge Partners LLC 2004, c, f

3.14.2.1 Construction Impacts

Air Navigation Considerations

Construction equipment that might impact air navigation includes cranes used to assemble the towers. The FAA issued a Determination of No Hazard (Appendix C) for construction equipment provided that specific guidelines are followed during construction. There would be no difference between the three scenarios.

Roadway Limitations

The large number of trucks during construction raises concerns regarding the deterioration of the roadway pavement on Transporter Route 1. Existing pavement conditions on Main Street, No. 81 Road and Vantage Highway will be videotaped prior to construction of the WHWPP. This video log will be compared with the condition of the roadways after construction. If significant degradation in pavement condition is noted, the Applicant will restore the pavement to equal or better condition than it was prior to construction. The Applicant will be responsible for restorative work made necessary by the WHWPP. The video log will be used to document pavement conditions in lieu of a pavement analysis.

[...]

The WHWPP could also impact traffic operations on transporter routes. Construction activities will be limited to periods of appropriate weather both because of access to the site and the ability to pour concrete and erect towers. Thus, construction activity will take place during the spring, summer, and fall seasons. Seasonal traffic volumes are likely to be unaffected by construction because of the low traffic volumes in the area and lack of tourist-oriented facilities along the route. One special event that could potentially result in added traffic congestion would be tourists attending day concerts at the Gorge.

[...]

The roadway preparation project and deck repair project at MP 78 are not anticipated to affect project-related traffic. The Traffic Management Plan will include coordination between project-related construction traffic and these planned WSDOT construction projects.

The recent completion of the I-90 Rye Grass Summit to Vantage auxiliary lane project is in an area covered by Transporter Route 2 of the project. The addition of this lane will improve traffic operations and safety on this segment of I 90.

Roadway Hazards

It is anticipated that the addition of construction-generated traffic by the WHWPP would have little effect on the existing accident rate or pattern. The largest potential change is along Vantage Highway west of the site access. Along this segment of roadway the increase in truck traffic may result in more motorists attempting to pass slow-moving vehicles. This may result in a slightly higher number of accidents.

3.14.2.2 Operation and Maintenance Impacts

Traffic

Traffic between the Operations and Maintenance (O&M) facility and the individual turbines would be light. Besides day-to-day maintenance, there would be scheduled maintenance every 6 months.

Traffic as a result of tourism related to the project is unknown. Other wind energy projects have a wide range of activity depending on location, visibility and company policy. A similar facility in southern Washington limits group tours every other Friday from March to November. The site has difficult access during winter months and is closed for tours. Individuals attending these tours arrive on one bus or in carpools with tours typically taking 1.5 hours, done once a day and with a maximum capacity of 25. There is also a kiosk at the site entrance where photos and graphics depicting the operations are available. The WHWPP will have a similar facility near the site entrance along Vantage Highway. Visitors to such a facility would likely be intermittent and throughout the day.

Because the facility is along the I 90 corridor and is close to the Seattle metropolitan area casual tourist traffic and guided tours may be higher than at other locations. However if other wind power generation facilities were constructed in Kittitas County the tourist traffic would be distributed among several sites. Because of this no projection of tourist traffic has been made.

[...]

Maintenance trails for the transmission feeder line(s) would be privately owned and located on the project site and along the feeder line(s). Maintenance roads for turbines would be the same turbine string roads used for project construction. The trails and roads would be maintained by WHWPP. There would be no uncontrolled public access to project facilities on privately owned land during construction, operation, or decommissioning of the WHWPP.

Air Navigation Considerations

The installation of wind turbines on the site may impact air navigation. The highest land formation of the project site is Whiskey Dick Mountain, a ridge with an approximate elevation of 3,700 feet at one end and 3,900 feet at the other. The 3-MW turbines would be 410 feet above the ground and the 1-MW turbines would be 249 feet above the ground. All proposed towers at the proposed Wild Horse project site would be below the FAA 4,000-foot AMSL structure ceiling that covers the project area (see new Figure 3.14-2). Since the Draft EIS was issued, the FAA issued Determinations of No Hazard (DNH) for 127 wind turbine generators (WTGs). As such, nine turbine locations have been removed from the proposed project. An example FAA DNH for the WHWPP is included in Appendix C of the FEIS. The FAA considered all IFR Approach and Departure procedures and other published IFR procedures, and also studied the effect of proposal(s) on IFR procedures known to be in development for the Ellensburg Airport.

To provide adequate air traffic safety, the wind turbines will meet FAA safety lighting requirements. At present, FAA guidelines for lighting of wind turbines call for lights that flash white during the day (at 20,000 candela) and red (at 2,000 candela) at night. The exact number of turbines that would require lighting will be specified by the FAA after it has reviewed final project plans; however, typically, FAA has required that warning lights be mounted on the first and last turbines of each string and every 1,000 to 1,400 feet on the turbines in between. The 158-Turbine/1-MW scenario would have a slightly higher

impact because of a larger number of wind turbines than the 104-Turbine/3-MW and 136-Turbine/1.5-MW scenarios. See Figure 3.10-11 in this FEIS for the proposed lighting plan.

3.14.3 Impacts of Alternatives

3.14.3.1 Impacts of Off-Site Alternatives

Kittitas Valley Alternative

Project operations and maintenance could generate up to 20 workers commuting to and from the O&M facility on paved state and county roads during a 24-hour period. As for the WHWPP, this is not expected to affect LOS on roads in the project area such that Level of Service (LOS) would be different than if the project wasn't built. Employees would park at the O&M facility parking lot, with no more than 25 vehicles parked at the facility at any one time. The proposed O&M facility parking lot will be sufficient to accommodate future parking needs of both project employees and potential visiting tourists. The project applicant would be responsible for maintenance of turbine access roads, access ways, and other roads built to construct and operate the project. There would be no public access to project facilities on privately owned land during construction, operations, and maintenance.

Desert Claim Alternative

Potential construction impacts include additional traffic generated by construction workers, delivery of construction materials, and transport of wind turbine components that would be assembled on-site. Potential short-term impacts resulting from the construction of access roads would be potential delays or detours necessitated by construction activities on or adjacent to county roads. Under this alternative, construction traffic is expected to result in an increase in PM peak traffic of 80 trips, which would not alter the level of service on roads in the project area. This impact would be similar to the WHWPP and less than described for the Kittitas Valley alternative. Construction related parking would be located on the project site.

Construction activities could also require temporary modifications to intersections of county roads to accommodate trucks transporting tower components, and damage to road surfaces may result from transport of components or construction materials. Construction traffic impacts, including the potential for an increase in the number of accidents on roads in the project area, would be mitigated through the development and approval of a construction Traffic Management Plan that would address transportation and access concerns during the construction period.

The traffic directly associated with project operations and maintenance would not impact existing levels of service on public roads in the project vicinity. Additional trips generated by service and supply deliveries would be occasional and negligible in volume. A tourist kiosk, if located along S.R.97 or Smithson Road could potentially affect traffic levels as a result of tourism.

As a result of a modified project configuration, ten of the proposed turbine locations within the Desert Claim project area would conflict with the protected airspace associated with the existing VFR traffic pattern, although the conflict involves operation by a category of aircraft that use Bowers Field on a very rare basis. The airspace conflict could be resolved, and the potential operations impact could be avoided

by further modifying the project plan to remove or relocate turbines and/or to install even smaller turbines (modified proposal is 340 feet in height) in selected locations or changing the airport operating procedures to employ a right-hand VFR traffic pattern for two of the four runways at Bowers Field. The project would include dual lighting systems on 48 turbines to comply with FAA standards for marking and lighting tall structures.

3.14.4 Mitigation Measures

No significant unavoidable adverse impacts on traffic and transportation are associated with construction or operation of the proposed action. However, the Applicant has proposed the implementation of the following measures.

3.14.4.1 Construction

- The Applicant will prepare a Traffic Management Plan (to be submitted to EFSEC and Kittitas County prior to construction for review), with the construction contractor outlining steps for minimizing construction traffic impacts;
- The Applicant will provide notice to adjacent landowners when construction takes place to help minimize access disruptions;
- The Applicant will provide proper road signage and warnings of “Equipment on Road,” “Truck Access,” or “Road Crossings” along Vantage Highway;
- When slow or oversized wide loads are being hauled, appropriate vehicle and roadside signing and warning devices will be deployed per the Traffic Management Plan. Pilot cars will be used as the WSDOT dictates, depending on load size and weight;
- The Applicant will construct necessary site access roads and an entrance driveway that will be able to service truck movements of legal weight and provide adequate sight distance;
- The Applicant will encourage carpooling for the construction workforce to reduce traffic volume;
- In consultation with Kittitas County, the Applicant will provide detour plans and warning signs in advance of any traffic disturbances;
- The Applicant will employ flaggers as necessary to direct traffic when large equipment is exiting or entering public roads to minimize risk of accidents;
- Where construction may occur near the roadway, one travel lane will be maintained at all times.

In addition to mitigation measures proposed by the Applicant, the following will be implemented:

- The Applicant will videotape the portion of Transporter Route 1, from the southern City of Kittitas City Limits to the project site access and Transporter Route 2 from Vantage to the project site access to document pavement conditions before and after construction if project construction results in pavement degradation will restore the pavement to equal or better condition than it was prior to construction.
- The Applicant will construct a commercial driveway access meeting the WSDOT Design Manual Standards Chapter 920.

- The Applicant will monitor traffic volumes using the driveway and if they exceed 1,500 vehicles per day will modify the driveway and intersection with Vantage Highway to meet the WSDOT Design Manual Chapter 910 requirements for intersections.

3.14.4.2 Operation

The following measures would be implemented during operation of the WHWPP:

- The Applicant will follow FAA guidelines for a wind turbine lighting and warning system.
- The Applicant will provide financial assurance for decommissioning of the turbine access roadways.

3.14.5 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts on traffic and transportation, including air navigation, are associated with construction or operation and maintenance of the WHWPP.

Section 3.15

HEALTH AND SAFETY

Revisions to sub-sections within Section 3.15 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant. The off-site alternatives analysis for the Desert Claim project has been updated, where applicable, with the August 2004 Final Environmental Impact Statement (FEIS) issued for that project. Mitigation measures reflect those presented in the DEIS and the Development Agreement between the Applicant and Kittitas County (Appendix A).

3.15.2 Impacts of Proposed Action

3.15.2.1 Construction Impacts

Construction Activities

The Applicant has entered into an agreement with Fire District No. 2 for fire protection services. The Applicant will also develop a Fire Protection and Prevention Plan in coordination with local and state response agencies. The Fire Protection and Prevention Plan would be approved by Washington Energy Facility Site Evaluation Council (EFSEC) prior to the start of construction.

3.15.2.2 Operation and Maintenance Impacts

Shadow-Flicker

The proposed project should not produce shadow-flicker effects on any existing residences in the area because the residences are too far from the turbines and are additionally shielded by existing terrain that separates them from the turbines. Further, the frequency reported to trigger seizures is between 5 and 30 flashes per second. The shadow flicker frequency from an individual project wind turbine would be 1 flash per second for a three-bladed rotor revolving at 20 revolutions per minute.

3.15.3 Impacts of Alternatives

3.15.3.1 Impacts of Off-Site Alternatives

Desert Claim Alternative

Shadow-flicker caused by wind turbines is not expected to result in health effects in residential areas. Sixty five receptors would however experience varying degrees of exposure to shadow flicker. Maximum duration of exposure in any given day is estimated to be from 6 minutes up to 2 hours. Micro-siting some turbines was determined as a possible mitigation measure to reduce exposure of some receptors. In response to comments on the Desert Claim DEIS and with guidance from Kittitas County, the proposal was modified to include 487-foot setbacks from turbines to minimize potential impacts from tower collapse, blade throw, and ice throw.

The proponent would implement recommendations received from the Kittitas County Fire Marshal to mitigate fire hazards in the project area. In addition, the proponent would conduct studies to determine microwave interference prior to siting turbines, monitor television reception interference, and investigate claims of diminished signal quality.

3.15.4 Mitigation Measures

In addition to the mitigation measures stated below, Section 5.17, Turbine Setbacks from Residences, of the Development Agreement between the Applicant and Kittitas County states “a minimum safety zone set back of 541 feet shall be maintained between Project wind turbines and residences located outside the Project boundaries illustrated in Exhibit B. In the event that Applicant wishes to install wind turbines closer than 541 feet to the Project boundary, Applicant shall obtain an easement or covenant that restricts the construction of any new residences within 541 feet of any Turbine as measured from the nearest Turbine tower center point to any such new residence.”

3.15.4.1 Fire and Explosion

Table 3.15-2 provides the mitigation measures that would be implemented to reduce risk of fire and explosion.

Table 3.15-2. Fire and Explosion Risk Mitigation Measures

Type of Impact Construction (C) Operation (O) Decommissioning (D)	Potential Fire or Explosion Source	Mitigation Measures
C, O, D	General fire protection	<p>All onsite service vehicles will be fitted with fire extinguishers.</p> <p>Fire station boxes with shovels, water tank sprayers, etc., will be installed at multiple locations on site along roadways during summer fire season.</p> <p>Based on the Applicant's agreement with Fire District No. 2, a number of dedicated water trucks will be stationed at various locations on the project site during construction during the fire season. The number and locations of these dedicated water trucks will be set forth in a detailed Fire Protection and Prevention Plan prepared in consultation with the fire district and submitted to EFSEC prior to construction.</p>
C, O, D	Dry vegetation in contact with hot exhaust catalytic converters under vehicles	<p>No gas-powered vehicles will be allowed outside of graveled areas.</p> <p>Mainly diesel vehicles (i.e., without catalytic converters) will be used on site.</p> <p>Any vehicles used off road on site will be high-clearance vehicles.</p>
C, O, D	Smoking	Restricted to designated areas (outdoor gravel covered areas).
C, O	Explosives used during blasting for excavation work	<p>Only state-licensed explosive specialist contractors are allowed to perform this work. Explosives require special detonation equipment with safety lockouts.</p> <p>Vegetation will be cleared from the general footprint area surrounding the excavation zone to be blasted.</p> <p>Standby water spray trucks and fire suppression equipment will be present during blasting activities.</p>
C, O	Electrical fires	<p>All equipment will be designed to meet NEC and NFPA standards.</p> <p>All area surrounding substation, fused switch risers on overhead pole line, junction boxes and pad switches will be graveled with no vegetation.</p> <p>A fire suppressing, rock-filled oil containment trough will be created around the substation transformer.</p>
C, O, D	Lightning	<p>Specially engineered lightning protection and grounding systems will be used at wind turbines and at substation.</p> <p>Footprint areas around turbines and substation will be graveled with no vegetation.</p>
C, D	Portable generators – hot exhaust	<p>Generators will not be allowed to operate on open grass areas.</p> <p>All portable generators will be fitted with spark arrestors on exhaust system.</p>
C, D	Torches or field welding on site	<p>Immediate surrounding area will be wetted with water sprayer.</p> <p>Fire suppression equipment will be present at location of welder/torch activity.</p>
C, O	Electrical arcing	Electrical designs and construction specifications will meet or exceed requirements of NEC and NFPA.

Release or Potential Release of Hazardous Materials

Phase I Environmental Site Assessment

The Applicant conducted a Phase I Environmental Site Assessment for the project site. The Phase I Environmental Site Assessment did not reveal the presence or potential presence of any environmental contamination on the project site. In the event that contaminated soil would be encountered during construction, the Applicant would coordinate with the Washington Department of Ecology (Ecology) to determine the measures to be taken.

Emergency Medical Response

Medical emergencies would normally be handled by calling 911 and alerting the Emergency Medical Services (EMS) system. The City of Ellensburg Fire Department provides EMS for the entire County, directly billing for services that include treating burns, fractures, lacerations, fall injuries, and heart attacks. Ambulances are located in Ellensburg and Kittitas; Cascade Search and Rescue is located in Ellensburg. Emergency calls are dispatched through the sheriff's office to the fire districts that provide search and rescue support.

Kittitas Valley Community Hospital in Ellensburg serves the entire County. The hospital has level four trauma service, with a limited number of specialists available. Patients with head injuries, severe burns, and/or trauma are transported to a different facility, usually Harbor View Medical Center in Seattle. Less severe accident victims are sometimes transported to Yakima for hospitalization and treatment. There is a heliport on the roof of the hospital, and a helicopter is available for emergency response. MedStar, a critical care transport service located in Moses Lake, Washington, also provides air ambulance support services to the County.

All operations personnel working on the turbines would work in pairs. All turbine maintenance staff would be trained in lowering injured personnel should an injury occur while working in the nacelle. A rescue basket, specifically designed for that purpose, would be kept at the operations and maintenance facility and would be available for use by local EMS staff. Training in use of the basket would be provided to local EMS staff.

Compliance with Standards

The wind turbines for the proposed project would meet international engineering design and manufacturing safety standards including the International Electrotechnical Commission standard 61400-1: Wind Turbine Generator (WTG) Systems–Part I: Safety Requirements.

Aircraft Impact

The project facilities would be marked and lighted in accordance with Federal Aviation Administration (FAA) regulations to minimize the potential for a low-flying aircraft to collide with a structure.

Transmission Line Audible Noise and Electromagnetic Interference

The conductors for the proposed transmission line would be designed in accordance with National Electric Code standards and good utility practice to control corona effects. Also, the Applicant has indicated that special care would be employed during construction to minimize nicks and scrapes to the conductors.

Emergency Plans

Emergency plans would be prepared by the Applicant to protect public health and safety, and the environment on and off the site in the case of a major natural disaster or industrial accident relating to or affecting the proposed project. The Applicant would be responsible for implementing the plans in coordination with the local emergency response support organizations. The plans would address the following:

- medical emergencies;
- construction emergencies;
- project evacuation;
- fire protection and prevention;
- floods;
- extreme weather abnormalities;
- earthquakes;
- volcanic eruption;
- facility blackout;
- spill prevention, control, and countermeasures;
- blade or tower failure;
- aircraft impact;
- terrorism, sabotage, or vandalism; and
- bomb threat.

Section 4.6 of the Application for Site Certification (ASC) provides a brief description of the plans. EFSEC, as well as local emergency response organizations, would review and approve all plans prior to implementation. During the construction and startup period, the emergency plans would be revised, as needed, to conform to manufacturer and vendor safety information for the specific equipment installed. Preliminary operations and maintenance emergency plans would similarly be developed and approved prior to the start of project operations.

The project operating and maintenance group and all contractors would receive regular emergency response training as part of the regular safety-training program to ensure that effective and safe response actions would be taken to reduce and limit the impact of emergencies at the project site.

Section 3.16

CUMULATIVE IMPACTS

Revisions to sub-sections within Section 3.16 of the Draft Environmental Impact Statement (DEIS), presented below, are based on additional and updated information or corrections provided by the Applicant and revisions consistent with the August 2004 Final Environmental Impact Statement (FEIS) issued for the Desert Claim project, where applicable.

3.16.2 Desert Claim Wind Power Project

On January 28, 2003, Desert Claim Wind Power Project, a limited liability company wholly owned and managed by enXco, Inc., submitted an application to Kittitas County for permits to build and operate a wind electrical generation facility in the Reecer Creek area, approximately 8 miles north of Ellensburg (Desert Claim Wind Power LLC 2003). A DEIS for the Desert Claim project was issued by Kittitas County in December 2003. The Desert Claim project consists of a maximum of 120 wind turbines, with a total nameplate capacity of 180 megawatts (MW), associated generators, towers, foundations, and pad-mounted transformers on 5,237 acres. The project also includes the following other elements:

- Access roads, control cables, and power collection cables necessary to serve the project;
- One or more substations to convert project-generated electricity to the higher voltage required to interconnect into the regional electric transmission grid;
- An overhead transmission line required to connect the project substation with nearby high-capacity electrical transmission lines; and
- An Operations and Maintenance (O&M) facility co-located at the project substation site or, alternatively, located in an area zoned for industrial use within or near Ellensburg.

An FEIS was issued for the Desert Claim project in August 2004. The FEIS evaluated a modified proposal, along with the potential for phasing construction of the project. The modifications to the project resulted in shifting of the proposed locations for the wind turbines, access roads, power collections cables and other project facilities. These modifications do not alter the conclusions of the cumulative impact analysis presented in the Wild Horse DEIS issued in August 2004. Washington Energy Facility Site Evaluation Council (EFSEC) is aware that the Kittitas County commissioners acted on April 5, 2005 to deny the Desert Claim application submitted to the County [reference: Notice of Decision – Final Resolution, Findings of Fact and Conclusion of Law – Desert Claim Wind Power Project].

3.16.6 Cumulative Impacts

The following sections discuss the potential contribution of the wind power projects and projected County population growth to cumulative impacts in the study area. The discussion is presented by resource topic.

3.16.6.2 Air Quality

Kittitas County is not designated as a non-attainment area for air pollutants of concern, and current air quality problems do not exist. Development of the Wild Horse project would result in vehicle exhaust and fugitive dust emissions during construction and decommissioning. Similar impacts would be associated with construction of the two other wind power projects. The wind power sites are within predominately agricultural areas where operation of agricultural equipment in cultivated fields and range land and on gravel and dirt roads are common sources of exhaust and dust emissions.

[...]

The only anticipated cumulative air emissions during operation of the three proposed wind power projects would be from vehicles used for operation and maintenance activities. Given the small number of employees and associated trips anticipated during project operations, no significant cumulative air quality impacts would occur during project operation. Further, the generation of electricity by the three proposed wind power projects would avoid cumulative emissions from other fossil-fuel power plants that might otherwise be operated to produce an equivalent amount of electricity.

No significant aggregated air pollutant concentrations that would exceed national or Washington State ambient air quality standards are anticipated. In addition, the generation of electricity through the three proposed wind power projects may avoid cumulative state-wide emissions of regulated pollutants from other fossil fuelled sources of power that may have otherwise been built or operated to produce an equivalent amount of electricity.

Development associated with population growth (6,976 additional people by 2020) in the County would result in an incremental increase in exhaust and dust emission from construction and operation of infrastructure and housing and resultant increases in vehicular traffic. It is not anticipated that the incremental impact would be sufficient for regional air pollutant concentrations to exceed applicable air quality standards.

3.16.6.3 Water Resources

The Kittitas Valley and Desert Claim projects would involve similar construction activities (except no on-site gravel extraction and concrete batch plants) and project features, similar areas of ground disturbance, similar restoration and mitigation actions, and similar water demands. Neither of the projects would require extensive construction activity or project facilities along or near major streams, however construction of proposed access roads at the Kittitas Valley project site would affect three minor streams. Potential impacts on the affected stream channels related to construction would be short term. For the Desert Claim project, approximately one acre of stream and riparian habitat would be affected by temporary construction activities, with 112 square feet permanently affected by project operations. Because the three projects are sufficiently distant from each other and are located in different tributary watersheds, there would not be a combined effect from multiple projects on the same stream or aquifer. The minor, localized effects of each project would occur within the drainages of minor tributaries to the

Yakima River and the Columbia River and at a distance of at least several miles upstream from either river.

3.16.6.4 Vegetation and Wetlands

Vegetation

Construction of the Wild Horse project could temporarily disturb up to 401 acres of existing vegetation with 165 acres permanently displaced by project facilities. It is anticipated that approximately 323 acres of shrub-steppe vegetation would be disturbed under the most likely scenario. Impacts on vegetation from development of the Desert Claim project and/or Kittitas Valley project would be similar to those described for the Wild Horse project and would generally consist of localized impacts on similar vegetation communities. Construction of the Kittitas Valley project could temporarily disturb up to approximately 371 acres of vegetation with up to 118 acres permanently displaced by project facilities. The majority of disturbance (309 acres for most likely scenario) would occur in shrub-steppe and grassland community types. Construction for Desert Claim project would temporarily disturb approximately 311 acres and permanently impact a total of approximately 88 acres.

Collectively, there would be a permanent loss of up to 371 acres of existing vegetation, including approximately 100 acres of lithosols. The remaining areas affected by temporary impacts would be revegetated through mitigation measures proposed by each of the projects. However, the success of revegetation efforts in shrub-steppe habitat and fragile lithosols is not well documented. Disturbed sites in these areas become readily vulnerable to invasive, non-native plant species (e.g., cheatgrass) that could interfere with successful native plant reestablishment.

Wetlands

The effects of the Wild Horse project on wetlands would be additive to other effects from past, present, and reasonably foreseeable future actions. Cumulative impacts of the three proposed wind power projects on wetlands would result from directly filling or grading wetland systems, as well as from indirect effects caused by stormwater runoff, increased pollutant loading, and water quality degradation, which in turn would result in loss of wetland diversity and reduced wetland functions and values. No wetlands were identified within or near any of the planned locations for Wild Horse project facilities; therefore, no impacts on wetlands are anticipated for the Wild Horse project. No streams, springs, or riparian areas would be impacted by construction disturbances related to the Wild Horse project. The Kittitas Valley project would disturb between 135 and 185 square feet of one potential wetland system at the Kittitas Valley project site (Based on current plans for the proposed Desert Claim project, construction activities would permanently impact 3 acres of wetland area, with an additional 17 acres of temporary disturbance. Final “micro-siting” for project facilities would be used to avoid some of the wetland areas. To the extent that avoidance of wetland areas is not feasible, mitigation would be developed to enhance or replace wetland areas in accordance with the federal and local jurisdictions (Kittitas County 2003).

3.16.6.7 Energy and Natural Resources

The three proposed wind power projects would provide a combined nameplate capacity of 565 MW of electricity (under the middle scenario for the Kittitas Valley). Assuming long-term operation of the three projects at a net capacity of 33%, the Wild Horse, Desert Claim, and Kittitas Valley projects would

produce approximately 186 average MW of electricity on a long-term basis, which would serve, on average, approximately 46,500 houses per year. Two proposed hydroelectric projects (Easton Diversion and Kachess to be developed by Symbiotics, LLC), would generate 6.2 MW of electricity Northwest Power Planning Council 2004). The collective energy output from those five projects of 532.7 MW, would represent the first electrical generating facilities in Kittitas County. Operation of the three wind and two hydroelectric projects would also cumulatively add to the capacity, production, and availability of renewable energy sources in Washington State and the greater Pacific Northwest. The projects would provide a sustainable, renewable source of electric power supply to supplement the region's existing hydroelectric, nuclear, and coal or gas-fired power projects, although it would represent a relatively small addition to the total regional electricity supply. Utilities receiving the wind energy would be able to diversify their energy resource portfolios and stabilize a portion of their long-term energy supply costs. Power produced by the wind projects would also be responsive to the identified needs of regional utility providers, including Avista, Puget Sound Energy (PSE) and Pacific Power.

3.16.6.13 Cultural Resources

During consultations between EFSEC and the Yakama Nation regarding the Kittitas Valley project, tribal representatives expressed concern about the cumulative effect wind power projects could have on tribal lands. Concerns raised on past wind projects include how wind power developments may affect the cultural and spiritual practices of the Yakama People, particularly projects located on sacred lands that could affect sacred foods and medicines (Benton County and Bonneville 2003). The Yakama Nation submitted a comment letter to EFSEC on the Kittitas Valley DEIS raising concerns regarding potential impacts on several resources including cultural, bird migration, lithosol degradation and riparian zones. Efforts to bring together wind power facility applicants, state and federal government agencies, and tribal representatives to discuss these and other issues of concern are ongoing. The Confederated Tribes of the Colville Reservation (CCT) expressed potential concerns about Traditional Cultural Properties (TCP) for the Wild Horse project (CCT 2004). The Applicant and EFSEC met with CCT on February 19, 2004 and the Applicant responded to CCT's concerns by entering into a contract with the CCT for a TCP study, which has been completed and provided to EFSEC.

The archaeological and historical sites identified during this current cultural resource survey likely do not meet the standard qualifications for National Register of Historic Places (NRHP). Nevertheless, it has been recommended that the newly recorded archaeological sites be avoided to prevent any damage. The Assistant Archaeologist at the Washington State Office of Archaeology and Historic Preservation (OAHP) has informed the Applicant that there is no set standard for setbacks, but recommended that 100 feet would be adequate for avoidance. A copy of the cultural resource discipline report has been forwarded to OAHP and the affected tribes. The cultural resources study area includes impacted areas for all design scenarios under consideration. Project design will implement the recommended 100-foot setback around culturally sensitive areas for all design scenarios.

While impacts from these and other projects in Kittitas County could result in a net cumulative loss of cultural resource values in the region, implementation of mitigation programs in each individual project should help to limit project-specific impacts, therefore reducing overall cumulative impacts on cultural resources.

3.16.6.14 Transportation

Cumulative Air Navigation

Aircraft operations in the Kittitas Valley are centered at Bowers Field. Airspace over and near the Yakima Training Center is restricted by military operations in that area. Given its location, the proposed Desert Claim project would represent a cumulative addition to natural and constructed features within the Bowers Field airspace. Ten of the proposed turbines would intrude into the protected airspace for Bowers Field. The Kittitas Valley and Wild Horse projects would not present potential conflicts with air traffic operations at Bowers Field or other facilities and there would be no cumulative significant impacts to air transportation resulting from development of those projects.