

Maiden Wind Farm  
Benton County, Washington  
Final SEPA Environmental Impact Statement  
and  
Final NEPA Environmental Impact Statement  
Submitted Pursuant to Section 42 USC (Sections 4321 et seq.)  
and WAC 197-11  
by the  
U.S. Department of Energy  
Bonneville Power Administration  
and  
Benton County, Washington

Issued on January 3, 2002.

# Maiden Wind Farm Final Environmental Impact Statement Cover Sheet

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**Responsible Federal Agency:** U.S. Department of Energy (DOE), Bonneville Power Administration (BPA)

**Responsible Local Agency:** Benton County Planning and Building Department

**Title of Proposed Project:** Maiden Wind Farm

**Implementation Dates:** Construction is expected to begin in early 2003; commercial operation is expected to begin in as early as December 2003.

Washington Winds Inc. (the project developer) proposes to construct and operate up to 494 megawatts (MW) of wind generation on privately- and publicly-owned property in Benton and Yakima Counties, Washington. This Draft Environmental Impact Statement (EIS) evaluates the environmental effects of BPA's Proposed Action to execute power purchase and interconnection agreements for the purpose of acquiring up to 50 average megawatts (aMW) (up to about 200 MW) of the project developer's proposed Maiden Wind Farm. This EIS also evaluates the environmental impacts of the No Action Alternative. BPA's preferred alternative is the Proposed Action. This action requires Conditional Use Permits (CUPs) from Benton and Yakima Counties, as well as other state and federal permits. The project would include integration of energy into BPA's existing transmission system. This EIS satisfies the requirements of both the National Environmental Policy Act (NEPA) and the Washington State Environmental Policy Act (SEPA).

The project would be located about 10 miles northeast of Sunnyside in the Rattlesnake Hills and would occupy about 251 acres of land. Except for portions of two sections of land owned by the Washington Department of Natural Resources (DNR), the project would be constructed on privately-owned farm and ranch land in Benton and Yakima Counties. The major facilities of the project include up to 549 wind turbines with small transformers at the base of each turbine tower, underground and overhead collector cables, access roads, up to two substations, up to three operation and maintenance buildings, possibly a 4-mile 230-kilovolt (kV) transmission line, and up to four meteorological towers. During construction, several staging areas and up to two quarries would be developed. Best management practices would be implemented to protect wildlife, limit weeds, erosion, and fire hazard, and ensure public safety, among other purposes.

The project could be developed in several phases. The first phase would consist of 50 aMW in the northwestern portion of the project site. The project developer has requested a CUP for up to 494 MW. Although the full 494 MW of power may or may not be constructed, this EIS evaluates impacts from full build-out of the project.

You may access the EIS or find more information about BPA at [www.efw.bpa.gov](http://www.efw.bpa.gov).

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# Chapter 1. Introduction

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This document is the final Environmental Impact Statement (EIS) for the Maiden Wind Farm, prepared by Bonneville Power Administration (BPA) and Benton County. This document has been prepared as an “abbreviated” final EIS pursuant to the Council on Environmental Quality’s (CEQ) National Environmental Policy Act (NEPA) regulations and Washington’s State Environmental Policy Act (SEPA) regulations because there have been no substantial changes to the proposed action, alternatives, or environmental analysis presented in the draft EIS for this project. Consistent with 40 C.F.R. 1503.4(c) and WAC 197-11-560(5), this abbreviated final EIS provides an updated cover (i.e., fact) sheet, comments received on the draft EIS, agency responses to these comments, and changes made to the text of the draft EIS. This final EIS should be used as a companion document to the draft EIS (dated March 2002), which contains the full text of the affected environment and environmental analysis, and appendices. For readers of this final EIS who do not already have a copy of the draft EIS, copies of the draft EIS may be obtained by several means:

- ~~✍~~ calling BPA's document request line at 1-800-622-4520;
- ~~✍~~ sending an e-mail to Sarah Branum, Environmental Coordinator at [stbranum@bpa.gov](mailto:stbranum@bpa.gov);
- ~~✍~~ accessing the document on BPA’s web site at <http://www.efw.bpa.gov> (click on Active Environmental Projects); or
- ~~✍~~ contacting the Benton County Planning and Building Department at 1002 Dudley Avenue in Prosser, 509-786-5612.

The remainder of this introduction provides an overview of the proposed action and alternatives, the comment period for the draft EIS, and key changes to the draft EIS. Chapter 2 of this final EIS identifies the specific changes that have been made to the text of the draft EIS. Chapter 3 presents comments received on the draft EIS (organized by the chapters and sections of the draft EIS), as well as agency responses to these comments. Chapter 4 includes copies of comment letters, e-mails, telephone logs, and meeting summary received on the draft EIS.

## Summary of the Proposed Action

BPA’s proposed action is the execution of power purchase and construction and generation interconnection agreements to acquire and transmit up to 50 aMW (up to about 200 MW) of output from the proposed Maiden Wind Farm, which would be developed to generate up to 494 MW. Benton and Yakima Counties’ proposed action is to grant Conditional Use Permits (CUPs) and other required permits for full build-out of the project, which would require construction of up to 549 wind turbines for a 494-MW project.

The EIS evaluates two alternatives – the Proposed Action (which means that part or all of the proposed project would be built) and No Action. BPA would not purchase or transmit power from the project under the No Action Alternative and it is therefore likely that the project would not be constructed.

Washington Winds Inc. proposes to construct and operate up to 494 megawatts (MW) of wind generation on privately- and publicly-owned property in Benton and Yakima Counties, Washington. This EIS evaluates the environmental effects of BPA's Proposed Action to execute power purchase and interconnection agreements for the purpose of acquiring up to 50 average megawatts (aMW) (up to about 200 MW) of the project developer's proposed Maiden Wind Farm. The project developer has requested a CUP for up to 494 MW. Although the full 494 MW of power may or may not be constructed, this EIS evaluates impacts from full build-out of the project.

The project would be located about 10 miles northeast of Sunnyside in the Rattlesnake Hills and would occupy approximately 251 acres of land. Approximately 1,063 acres would be temporarily occupied during construction by facilities such as staging areas, equipment laydown areas, and rock quarries. Except for portions of two sections of land owned by the Washington Department of Natural Resources (DNR), the project would be constructed on privately-owned farm and ranch land in Benton and Yakima Counties.

The major facilities of the project include up to 549 wind turbines with small transformers at the base of each turbine tower, underground and overhead collector cables, access roads, up to two substations, up to three operation and maintenance buildings, a potential 4-mile 230-kilovolt (kV) transmission line, and up to four meteorological towers (see Figure 2.1-2 in the Draft EIS). Construction of the project could begin in early 2003, with at least partial power generation expected as early as December 2003. Construction of the full project would take about nine months.

## Draft EIS Comment Period

On March 26, 2002, BPA sent letters to about 350 interested or affected governments, agencies, organizations, and individuals. Copies of the Draft EIS or the Summary of the Draft EIS were mailed to those who had requested one. BPA also posted the Draft EIS on its website and published a notice in the monthly *BPA Journal* that is mailed to customers and others interested in the agencies work.

An open-house style meeting was held on April 23, 2002, in Prosser, Washington, to receive comments on the Draft EIS. The comment period officially closed on May 15, 2002, but BPA continued to accept comments after that date.

## Key Changes to the Draft EIS

The following summarizes the primary changes that have been made to the draft EIS. For a complete description of all changes to the draft EIS, please see Chapter 2.

- ~~///~~ Updated potential construction and operation dates.
- ~~///~~ Provided additional information on Washington State and county permits that may be required for the project.
- ~~///~~ Corrected the name of the Battelle Gravitational Physics Laboratory (BGPL) and provided results of a seismic study done to help determine impacts to the Laser Interferometer Gravitational-Wave Observatory (LIGO).

- ~~///~~ Added information on a Wildlife Area within the study area for recreation impacts.
- ~~///~~ Clarified effects to "priority" habitats and mitigation for vegetation impacts.
- ~~///~~ Updated the wildlife section with results from the winter season of the avian study.
- ~~///~~ Added consideration for nighttime migrants to mitigation for visual resources.
- ~~///~~ Updated the cultural resources section with more detailed information from the second phase of survey work, and clarified cultural resources mitigation.
- ~~///~~ Corrected and clarified information in the traffic and transportation section

# Chapter 2. Changes to Draft EIS Text

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This chapter identifies the specific changes to the text of the Draft EIS. Text changes are organized by the chapters and sections of the Draft EIS. For each change, the location of the change is identified by page and paragraph number of the Draft EIS. Where text has been modified, deleted text is indicated in “~~striketrough~~” format and new text is underlined.

## Acronyms and Abbreviations

Page VII, the following entry is modified as follows:

BGPLR~~Ø~~ Battelle Gravitational Physics Laboratory~~Research Observatory~~

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## Glossary

Page XIV, the following entry is added:

Special status species Plants and animals listed for special protection or management consideration by federal or state authorities. Federal status species include species listed as endangered or threatened by the USFWS, species formally proposed for listing, and candidates for listing. State status wildlife species are listed by the WDFW Wildlife Management Program as endangered, threatened, sensitive, or as candidates for these designations. State status plant species are those identified by the Washington Natural Heritage Program as endangered, threatened, sensitive, review, or extirpated, and those on the “watch” list (i.e., species more abundant or less threatened than previously assumed)

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## Summary

Page S-3, paragraph 7 is modified as follows:

The major facilities of the project include up to 549 wind turbines with small transformers at the base of each turbine tower, underground and overhead collector cables, access roads, up to two substations, up to three operation and maintenance buildings, a potential 4-mile 230-kilovolt (kV) transmission line, and up to four meteorological towers (see Figure 2.1-2). Construction of the project could begin in ~~summer 2002~~ early 2003, with at least partial power generation expected as early as ~~winter 2002~~ December 2003. Construction of the full project would take about nine months.

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Page S-7, Table S-1, the following entries are modified as follows:

**TABLE S-1**  
Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	Proposed Mitigation Measures (☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts (☑) = Additional mitigation proposed to further reduce potential impacts	Residual Impacts After Mitigation
<b>1. Land Use and Recreation</b>			
<b>Construction</b>			
<p>The science program operations of the Laser Interferometer Gravitational-Wave Observatory (LIGO) and the Battelle Gravitational Research Observatory-Physics Laboratory (BGPLRO) on the Hanford Site could potentially be adversely impacted by project construction activities (e.g., blasting for foundations and quarry operations), estimated to last about one-half of the construction period.</p>	Moderate to High	C. Notify the facilities in advance of construction activities with the potential to cause significant vibration or noise. (☑)	Low
<p>No <del>designated-developed</del> public recreational facilities exist in the study area. Limited temporary impacts to private landowner-approved activities such as hunting or photography could occur during project construction.</p>	Low	None necessary.	Low
<b>Operation and Maintenance</b>			
<p>Less than 100 acres of Conservation Reserve Program (CRP) contracts would be terminated where permanent project facilities would be located.</p>	Low	D. Proposed mitigation measures for vegetation and wildlife impacts include <u>revegetation, replacement, or enhancement, protecting, and creating additional</u> of natural habitat on existing private lands, particularly CRP land, near the project site. See 2.A. below. (☑)	Low
<p>The scientific programs at the LIGO and BGPLRO facilities on the Hanford Site could potentially be adversely impacted by seismic vibrations and acoustic noise from operation of the wind turbines. Such an impact is not expected due to the expected low levels of vibration that would be generated by the project and the distance between the project and these facilities. <u>If operations at the facilities were substantially impaired, this would be considered a high and significant impact.</u></p>	Low to High	F. <del>A seismic study will be completed in consultation with the facilities prior to construction to determine whether operation of the proposed project would disrupt the research facilities. Results of the study will be discussed in the Final EIS. If high and significant impacts to the LIGO facility occur, possible mitigation could include funding the installation of vibration isolators to minimize the potential for vibrations from the proposed project to affect this facility. No mitigation is known that would mitigate potential impacts from the project to the BGPL facility if they occur, other than funding relocation of this facility.</del> (☑)	Low to High
<p>No <del>designated-developed</del> public recreational facilities exist in the study area. Minor temporary modifications of activities allowed at landowner discretion, such as hunting or photography, could occur during project operation.</p>	Low	None necessary.	Low

**TABLE S-1**

Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	Proposed Mitigation Measures (☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts (☑) = Additional mitigation proposed to further reduce potential impacts	Residual Impacts After Mitigation
<b>2. Vegetation</b>			
<b>Construction</b>			
<p>Approximately 57.5 acres of priority shrub-steppe habitat would be permanently displaced by project facilities and 174.4 acres would be temporarily impacted by project construction activities.</p> <p>Approximately 12.2 acres of priority lithosol habitat would be permanently impacted and 50.9 acres temporarily impacted by project facilities.</p>	<p>Low to Moderate</p> <p>High</p>	<p>A. Total acres of <u>shrubs-steppe, grassland-steppe and lithosol</u> habitat types impacted, <u>whether formally designated as priority habitat or not</u>, would be <u>revegetated, replaced, or enhanced</u> in similar proportions at a ratio of 3:1 by either enhancing local CRP lands to facilitate their recovery to high-quality steppe habitat, or by creating steppe habitat from nearby agriculture lands by reclaiming them with native grass and shrub species. <u>Revegetation of temporarily impacted acres would be included in the 3:1 ratio.</u> In selecting mitigation areas, priority may be given to areas with remnant lithosol habitat, as lithosol is extremely difficult to replicate, as well as areas that would best enhance reproductive rates of wildlife species likely to be impacted by the project. Any enhanced or replacement acres would be protected for the life of the project from development, grazing, or conversion to other habitat types. (☑)</p>	<p>Low</p> <p>Moderate</p>
<p>Improvements to the existing access road along Sulphur Creek would impact less than 5 percent of the priority riparian habitat in the study area.</p>	<p>Low</p>	<p>B. Prior to the start of construction, convene a Site Management Plan Team (SMPT) to prepare a Site Management Plan (SMP). The SMPT would include representatives from the U.S. Fish and Wildlife Service (USFWS), Washington Department of Fish and Wildlife (WDFW), Washington Department of Natural Resources (DNR), BPA, county representatives, landowners, and the project developer. The role of the SMPT would be to 1) protect the natural and agricultural resources identified in this EIS during construction by minimizing the areal extent and pattern of construction activities to that necessary for the efficient conduct of construction operations; 2) protect sensitive and unique species and habitats; and 3) assure the effective implementation of the standard design and construction measures proposed as part of the project, as well as mitigation measures included both during and post-construction. (☑)</p> <p>The SMP would include provisions for:</p> <ol style="list-style-type: none"> <li>1) the siting of towers to minimize impacts on lithosol and rare plant communities;</li> <li>2) the design and implementation of a fire management and</li> </ol>	<p>Low</p>

**TABLE S-1**  
 Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	<b>Proposed Mitigation Measures</b> (☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts (☑) = Additional mitigation proposed to further reduce potential impacts	Residual Impacts After Mitigation
		erosion control program/procedures; 3) the location and physical marking of the boundaries of project storage and staging areas and soil deposition sites; 4) procedures to keep the site clean daily of unconstrained project waste and toxics (petroleum products, paper, cans, materials remnants etc.) designate areas, and provide facilities and procedures for safe storage of toxic and hazardous substances; 5) minimizing the extent of construction related roads and access routes; 6) methods of delineation and marking (i.e. fencing, taping flagging) off-limit areas such as sensitive plant communities; 7) <del>size, location, and type of off-site habitat enhancement / replacement for revegetating, replacing, or enhancing the estimated 57.5 acres of shrub steppe, and 12.2 acres of lithosol, and 57.2 acres of grassland-steppe</del> permanently impacted by the project; 8) <del>selecting recipient sites, restoration plans, and protocols for revegetating, replacing, or enhancing the estimated 174.4 acres of shrub-steppe, and 50.9 acres of lithosol, and 187 acres of grassland-steppe</del> habitat that would be temporarily impacted by project construction activities; 9) route project access roads to avoid, where possible, adverse impacts to sensitive vegetation, including wetlands; 10) education of the construction work force relative to respecting and adhering to the physical boundaries, off-limit areas, fire and weed prevention measures etc., of the SMP; 11) a weed control plan with protocols and procedures, vehicle cleaning and parking locations, etc., for minimizing the introduction of weed species to the construction site; 12) a complete site plan for the SMP would be laid out (fenced, flagged, taped with use areas designated) on the ground prior to the start of construction of any phase of the project. (☑)	

**TABLE S-1**

Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	Proposed Mitigation Measures (☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts (☑) = Additional mitigation proposed to further reduce potential impacts	Residual Impacts After Mitigation
<p>The introduction of new noxious weed species could occur from construction equipment, vehicles, and worker's boots transporting seeds onto the project site. Once established in an area, negative impacts can include the following:</p> <ul style="list-style-type: none"> <li>?? Loss of wildlife habitat</li> <li>?? Alteration of wetland and riparian functions</li> <li>?? Reduction in livestock forage and crop production</li> <li>?? Displacement of native plant species</li> <li>?? Reduction in plant diversity</li> <li>?? Changes plant community functions</li> <li>?? Increased soil erosion and sedimentation</li> <li>?? Control and eradication costs to local communities</li> <li>?? Reduction in land value</li> <li>?? Potential to change fire frequency and intensity.</li> </ul>	Low to High	<p>F. Prior to construction, a noxious weed control plan would be developed in consultation with local county weed control boards. The plan would be implemented over the life of the project. The plan would include specific measures such as the following:</p> <ul style="list-style-type: none"> <li>?? Clean construction vehicles prior to bringing them to the project site.</li> <li>?? Revegetate habitats temporarily disturbed as quickly as practicable with native species to minimize habitat (disturbed areas) for noxious weed invasion.</li> <li>?? Actively control noxious weeds that have established themselves. Coordinate with the local county weed control boards regarding what control measures are most effective and coordinate with the appropriate agencies on how to avoid impacts to special status plants as a result of weed control measures. (☑)</li> </ul>	Low to High
<b>3. Wildlife</b>			
<p><b>Construction</b></p> <p>Approximately 414 acres of native habitat (nonagricultural land) would be temporarily removed or damaged during project construction. See Vegetation section, above, for specific mitigation.</p> <p>Bald eagle, a federal- and state-threatened species, is <u>considered</u> a possible rare migrant in the study area. <u>One bald eagle was observed in the study area incidentally; however, they are -but has not been documented and is not expected to occur in the study area on a regular basis.</u></p> <p>Peregrine falcon, a federal species of concern and Washington endangered species, is a rare migrant through the study area. <u>Only two individuals were observed in the study area during surveys.</u></p>	<p>Low to High</p> <p>Low</p> <p>Low</p>	<p>A. As discussed in 2.B. above, prior to the start of construction, convene a Site Management Plan Team (SMPT) to prepare a Site Management Plan (SMP). The SMP would include provisions for:</p> <ol style="list-style-type: none"> <li>1) placement of towers the minimum distance from raptor nesting sites according to WDFW Management Plan criteria;</li> <li>2) maintaining reasonable driving speeds so as not to harass or accidentally strike wildlife;</li> <li>3) methods of delineation and marking (i.e. fencing, taping flagging) off-limit areas such as sensitive plant communities and raptor nest sites;</li> <li>4) if any new nesting, denning, or otherwise sensitive wildlife</li> </ol>	<p>Low to Moderate</p> <p>Low</p> <p>Low</p>

**TABLE S-1**  
Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	<p align="center"><b>Proposed Mitigation Measures</b></p> <p>(☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts</p> <p>(☑) = Additional mitigation proposed to further reduce potential impacts</p>	Residual Impacts After Mitigation
<p>Golden eagle, a Washington candidate species, is a rare migrant and possible winter resident in the study area. <del>One Golden eagle</del> <u>was</u> observed in the study area during fall, winter, and spring surveys. They have also been documented on the nearby ALE during the winter in low numbers. They are not expected to occur in the study area on a regular basis.</p>	Low	<p>sites are located during construction, these areas would be mapped, marked, and included in the off-limit areas;</p> <p>5) seasonal timing of construction to avoid, as best practicable, the courting, nesting and breeding season of sensitive avifauna;</p> <p>6) a complete site plan for the SMP would be laid out (fenced, flagged, taped with use areas designated) on the ground prior to the start of construction of any phase of the project. (☑)</p> <p>B. As discussed in 2.C. above, an SMP monitor would be at the project site daily during construction activities to ensure adherence to the provisions of the SMP and keep a daily record of activities, decisions, etc. relating to that objective. (☑)</p> <p>C. Results of the baseline avian surveys would be used to help with final project design, turbine siting, and mitigation planning via the SMP. (☒)</p>	Low
<p>Ferruginous hawk, a federal species of concern and Washington threatened species, is a breeding resident of the study area, and has been observed during surveys. <del>In 2001, Four</del> <u>active</u> nests were located within 5 miles of the project site, including one within 0.25 mile of a proposed turbine string. Project construction could affect breeding ferruginous hawks through disturbance if construction were to occur near an active nest. Nesting and foraging habitat could potentially be reduced if ferruginous hawks avoid the area during and after project construction.</p>	Moderate	<p>E. The ferruginous hawk nest near the project site would be monitored by a wildlife biologist prior to construction to determine occupancy and the need for possible construction timing restrictions. If the nest is active, a buffer of at least 0.6 miles, as recommended by the Washington State Recovery Plan for Ferruginous Hawk (Richardson, 1996), would be established around the nest where no construction activity would occur until the nest was no longer active. This area would be flagged as off-limits to disturbance by construction personnel. (☑)</p>	Low
<p><b>Operation and Maintenance</b></p> <p>Approximately 128 acres of native habitat would be permanently removed for project facilities. This area may currently support wildlife by providing food, cover, or space for a variety of species.</p>	Low to High	<p><u>Impacts to birds and other wildlife would also be mitigated by habitat revegetation, replacement, or enhancement as described in See 2.A. and 2.B., above, for specific mitigation.</u></p>	Low to Moderate
<p>Ferruginous hawk, a federal species of concern and Washington threatened species, is a breeding resident of the study area. The project <del>may</del> <u>could</u> result in <u>up to about</u> one death per year.</p>	High	<p>G. Ferruginous hawk nesting opportunities, as identified by the Washington State Recovery Plan for Ferruginous Hawk, would be constructed or created in areas of native habitat more than 5 miles away from the proposed project and any other proposed wind plants in the area. At least three nesting opportunities would be created, monitored, and maintained for a minimum of 5 years for each nest impacted by construction of the project. The</p>	Moderate to High
<p>Peregrine falcon, a federal species of concern and Washington endangered species, is a rare migrant through the study area <u>and may have</u> <del>but has</del> a potential risk of collision with wind turbines.</p>	Low		Low

**TABLE S-1**  
Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	<b>Proposed Mitigation Measures</b> (☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts (☑) = Additional mitigation proposed to further reduce potential impacts	Residual Impacts After Mitigation
<p>Golden eagle, a Washington candidate species, is a rare migrant and winter resident in the study area and may be at risk of collision with wind turbines. <del>Expected Potential</del> mortality of golden eagle could be as high as one per year.</p>	Low	<p>location, type of nesting opportunities, and monitoring program would be approved by the WDFW. (☑)</p>	Low
<p>Loggerhead shrike (a federal species of concern and Washington candidate species), sage thrasher, and sage sparrow (Washington candidate species) have been observed in spring and summer <del>ary</del> surveys and are likely breeding residents in big sagebrush stands in the project area. They could be at risk of collision with wind turbines; however, use estimates for these species are relatively low.</p>	Low	<p>H. Long term impacts of wind turbines on other raptor nesting/ foraging areas would be mitigated by: 1) avoiding placement of any facilities within 0.6 mi. of any nest; or 2) placing additional nesting structures <del>(3 per existing nest within 0.6 mile of wind turbines)</del> in suitable nesting areas at least 1 mile away from any wind turbines <u>for each nest impacted by construction of the project.</u> (☑)</p>	Low
<p>With full build-out of the proposed project, a range of 0-9 raptor fatalities per year would be expected. The range of potential bird mortality for passerines <del>w</del>ould be expected to fall between approximately 360 and 1565 birds per year. The per turbine mortality rate for all birds <del>w</del>ould be expected to be between 0.6 and 2.8 birds per turbine per year.</p>	Low to Moderate	<p>I. Raptor anti-perching devices would be installed on all new overhead power line poles within 1 mile of turbine strings to limit potential raptor use near the wind turbines. All power lines would be constructed following <i>Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996</i> (APLIC, 1996); specifically, conductors would be spaced as recommended by the study to minimize the potential for bird electrocution. (☒)</p> <p>J. A post-construction monitoring program would be developed in coordination with the SMPT. The program would monitor avian use of the site and avian and bat mortality using standardized carcass searches, and scavenging and searcher efficiency trials during the first year of operation of the project. (☑)</p> <p>Other mitigation may be implemented if identified through Section 7 consultation with the USFWS. (☑)</p>	Low to Moderate
<p>Migratory bat species are at risk of collision with wind turbines, <del>most likely</del> during migration periods. Full build-out of the proposed project could result in approximately 400 bat fatalities per year. Both hoary bats and silver-haired bats, two common fatalities at other wind plants, have been recorded on the nearby ALE and are expected to migrate through the study area. No federal or state endangered or threatened bats would potentially be affected by the project.</p>	Low		Low

**TABLE S-1**

Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	Proposed Mitigation Measures (☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts (☑) = Additional mitigation proposed to further reduce potential impacts	Residual Impacts After Mitigation
<b>4. Visual Resources</b>			
<p><b>Operation and Maintenance</b></p> <p>The Federal Aviation Administration (FAA) could require as many as 125 to 175 flashing red (nighttime) and white (daytime) lights on top of the wind turbines for aircraft safety. Although these lights are meant to be visible from aircraft and less visible from ground level, the presence of these lights could create a substantial change in daytime views and the night sky from residential areas and roadways, and would add a new source of light and glare.</p>	Low to High	<p>B. Among the FAA approved lighting devices available, use those that are designed to be least visible from the ground level of the surrounding landscape, and least disruptive to nighttime bird and bat migrants. (☑)</p>	Low to High
<b>5. Cultural Resources</b>			
<p><b>Construction</b></p> <p>Many of the cultural resources in the study area could be significantly and adversely affected by project construction. However, most archaeological sites in the study area are small in size and appear to be avoidable with careful siting of project facilities. Cultural resources other than archaeological features, such as traditional cultural properties (TCPs), may also be present within or adjacent to the project site and could be adversely impacted. Information provided by the Wanapum elders is strongly suggestive that a TCP is present on the ridgetops of the Rattlesnake Hills; however, formal oral history investigations with the Yakama Nation and Wanapum Band have not yet occurred.</p>	High	<p>A. Mitigation measures would follow procedures outlined in 36 Code of Federal Regulations (CFR) 800 and could include preconstruction data recovery collections and excavations, and monitoring of earth-disturbing construction operations by one or more qualified archaeologists and representatives of the affected tribes (for areas where buried cultural deposits could be present). BPA would <u>likely</u> adopt mitigation measures in its Record of Decision and would develop contracts as necessary to establish a binding commitment <u>from the developer</u> to implement the mitigation measures. (☑)</p> <p>B. A cultural resources mitigation monitoring plan (CRMMP) could be prepared in consultation with the affected tribes, BPA, Benton County, and the Washington State Historic Preservation Office (SHPO). It would provide a detailed plan to guide the archaeological and tribal monitoring of earth-disturbing construction and would outline specific procedures to be followed if unanticipated discoveries were made during construction. The CRMMP would include procedures for issuing stop-work orders to construction contractors if discoveries were made and would also outline possible mitigation measures (treatment plans) to be employed in the event that significant cultural resources were discovered. The CRMMP would include procedures to deal with the unanticipated discovery of Native American skeletal remains consistent with all applicable state and federal laws and regulations. <u>Measures similar to those that would be covered in</u></p>	Low

**TABLE S-1**

Potential Impacts and Mitigation of the Proposed Maiden Wind Farm

Potential Impact	Impact Level Prior to Mitigation	<p align="center"><b>Proposed Mitigation Measures</b></p> <p>(☒) = Standard design and/or construction measures proposed as part of the project to reduce potential impacts                      (☑) = Additional mitigation proposed to further reduce potential impacts</p>	Residual Impacts After Mitigation
		<p><u>the CRMMP would also be written into the construction contracts if mitigation for cultural resources is implemented.</u> (☑)</p> <p>C. If TCPs are determined to be present, mitigation measures would be developed in consultation with the Yakama Nation and Wanapum Band. (☑)</p>	
<b>8. Transportation and Traffic</b>			
<p><b>Construction</b></p> <p>Some vehicles would likely have a gross vehicle weight (GVW) of more than 80,000 pounds (maximum legal load limit) when fully loaded.</p> <p>Construction vehicles would use Benton County paved roads (Gap, Hinzerling, Snipes, and Crosby), in addition to portions of Rothrock, Bennett, Rotha, Crooks, Jones, and Missimer Roads, which are all gravel. None of these county roads were built to withstand the proposed loads. Some or all of these roads may need to be upgraded to support construction vehicles.</p>	Moderate to High	<p>A. Prior to construction, the project developer would coordinate with Yakima and Benton Counties <u>and the Washington Department of Transportation</u> to determine road capacity limits, obtain any necessary overweight permits, and agree on other steps to accommodate overweight loads or avoid road damage. (☒)</p> <p>B. Prior to construction, the project developer and a representative of the County Public Works Department would videotape any county roads proposed to be used. A written agreement would be established between both Benton and Yakima Counties and the project developer and construction contractor stating that all roads would be restored to the same or better condition than they were before construction. (☑)</p>	Low

## Purpose of and Need for Proposed Action (Chapter 1)

Page 1-5, Table 1.4-1, one entry is modified and five entries are added as follows:

**TABLE 1.4-1**  
Permits and Approvals Required for the Proposed Project

Agency	Permit	Reason for Permit
Washington State Department of Ecology	National Pollutant Discharge Elimination System and State Waste Discharge Stormwater General Permit for Discharges Associated with Construction Activities 4200-C	<del>Erosion control</del> Minimize stormwater waste discharges to waters of the state
Washington State Department of Ecology	Short-term Use of Water	Possibly required for use of water during construction for cement mixing and dust control
Washington State Department of Fish and Wildlife	Hydraulic Project Approval	Road improvements crossing Sulphur Creek. Issued in conjunction with U.S. Army Corps of Engineers Nationwide Permit through the JARPA
Washington State Department of Transportation	Overweight and/or Oversize Permits	Travel over State highways with oversize or overweight trucks to deliver wind turbine parts
Benton County Department of Public Works	Overweight and/or Oversize Permits	Travel over county roadways with oversize or overweight trucks to deliver wind turbine parts
Yakima County Public Works Department/Permit Services Office	Overweight and/or Oversize Permits	Travel over county roadways with oversize or overweight trucks to deliver wind turbine parts

## Proposed Action and Alternatives (Chapter 2)

Page 2-5, paragraph 3, the first sentence is modified as follows:

Construction of the project could begin in ~~summer 2002~~ early 2003, with at least partial power generation expected as early as ~~winter 2002~~ December 2003.

Page 2-8, Table 2.1-3, the following entry is modified as follows:

**TABLE 2.1-3**  
Wind Turbine Sizes Considered for Maiden Wind Farm

kW Output	Maximum Height	Quantity for 200-MW Project	Quantity for 494-MW Project
1,500	<del>389</del> <u>374</u>	133	330

Page 2-15, paragraph 6, the first sentence is modified as follows:

It is expected that construction activities could begin in ~~summer 2002 or early 2003~~, and operation could begin as early as in winter 2002–December 2003.

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## Affected Environment and Environmental Consequences (Chapter 3)

### Land Use and Recreation

Page 3-4, Figure 3.2-1 is replaced with the figure following this page:

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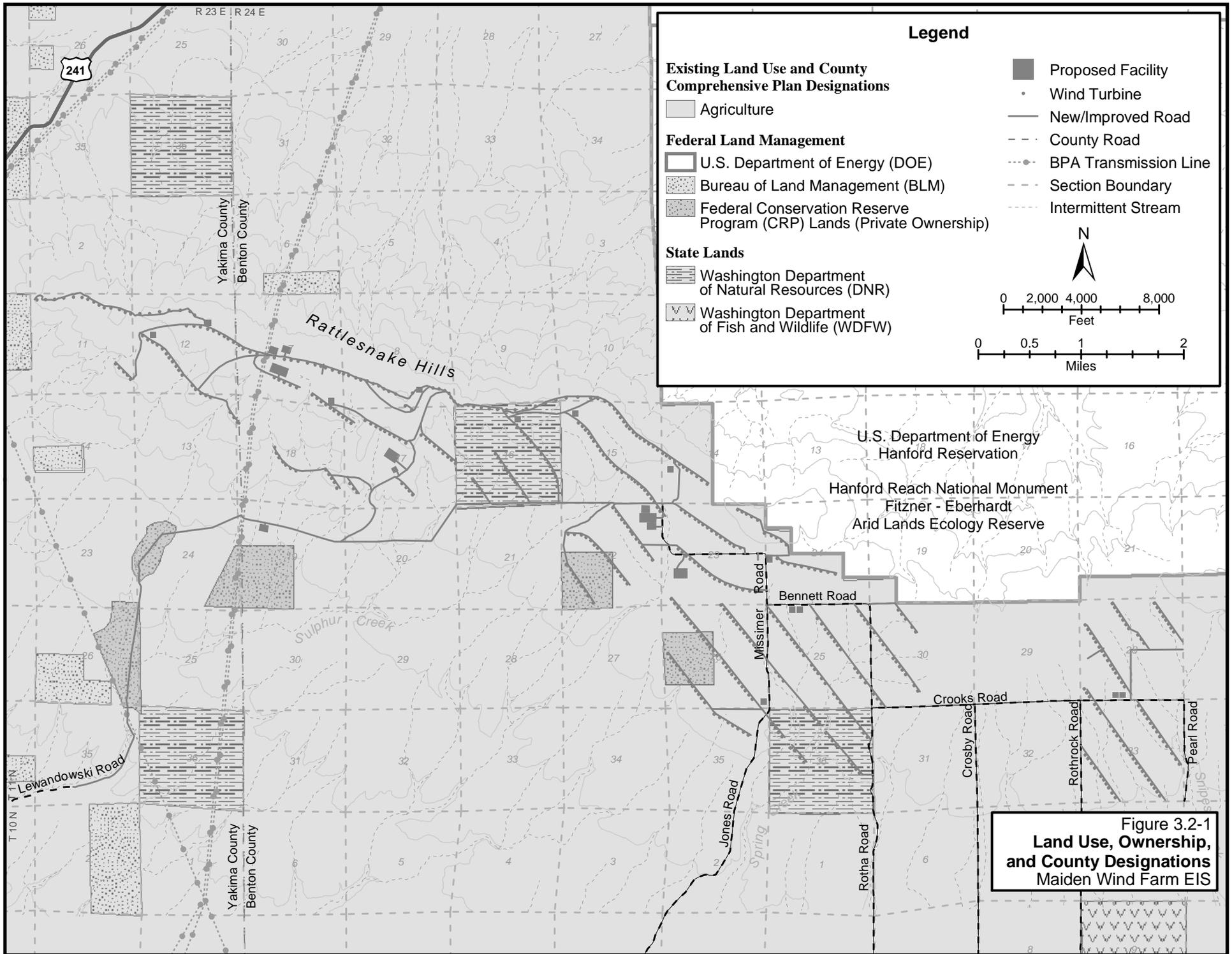
Page 3-5, paragraph 4 is modified as follows:

Scoping comments raised ~~a concerns~~ about a ~~potential for~~ land use conflicts with two research facilities located on the nearby DOE Hanford Site that are sensitive to seismic vibration and acoustic noise. The Laser Interferometer Gravitational-Wave Observatory (LIGO) is located approximately 11 miles east of the project site. The sensitive gravitational-wave astronomy equipment located at the LIGO facility must be isolated from ground vibrations and acoustic influences in order to measure gravitational waves (Sanders, 2000). The LIGO facility location was chosen for its exceptionally low levels of seismic noise and vibration, and the likelihood that these levels would remain low in the foreseeable future. The Battelle Gravitational Physics Laboratory Research Observatory (BGPLRO) also is located at the Hanford Site, approximately 6 miles ~~northeast~~ of the project site. The ~~BGRO~~BGPL facility, located in an old NIKEI missile bunker, contains sensitive equipment designed to measure extremely small movements and is very sensitive to ground vibrations (Boynton, 2001). Research at the ~~BGRO~~BGPL facility is currently being conducted by staff from the University of Washington and the University of California Irvine.

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Page 3-5, paragraph 6 is modified as follows:

No ~~designated or~~ developed recreational facilities exist in the study area. The ALE is not currently open for general public use but is accessible for research studies and field trips through special use permits. ~~Except for two sections of land owned by DNR, the majority of the study area is on private fenced land. The only identified~~ On private land, dispersed outdoor recreational activities ~~is include~~ hunting, ~~which is allowed in some areas only with landowner permission. Other types of dispersed outdoor recreation, such as hiking, horseback riding, camping, wildlife observation, photography, and off-road vehicle use, all of which may occur on private land with landowner permission. These activities also occur on the WDFW Wildlife Area that covers several sections of land approximately one mile southeast of the project site, as well as on the DNR section in the southeastern portion of the project site. Access to the DNR section in the north central portion of the project site is restricted because it is surrounded by private land; however, recreationalists using private lands may also use this DNR parcel.~~



**Figure 3.2-1  
 Land Use, Ownership,  
 and County Designations  
 Maiden Wind Farm EIS**

Page 3-6, paragraph 6, the first sentence is modified as follows:

The sensitive research facilities (i.e., LIGO and BGPL) located on the Hanford Site could potentially be impacted by project construction activities (e.g., blasting for foundations, trenches, and quarry operations).

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Page 3-7, paragraph 3 is modified as follows:

The LIGO and ~~BGR~~BGPL research facilities would be notified in advance of construction activities with the potential to cause significant vibration or noise.

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Page 3-7, paragraph 6 is modified as follows:

Although current CRP legislation allows placement of wind turbines on CRP if certain conditions are met, CRP contracts would more likely be terminated on the acreage where permanent project facilities would be located. The project developer would convert the lease of these properties and withdraw the properties from the CRP program in coordination with the NRCS and landowners. The small area of land (less than 100 acres) that would be taken out of the CRP program would result in a low impact because proposed mitigation measures for vegetation and wildlife impacts include revegetation, replacement, or enhancement of ~~ing,~~ ~~protecting, and creating additional natural habitat on existing private lands, particularly CRP land,~~ near the project site.

---

Page 3-7, paragraph 9 is modified as follows:

The scientific programs at the LIGO and ~~BGR~~BGPL facilities located on the Hanford Site could potentially be adversely impacted by seismic vibrations and acoustic noise from the operation of the wind turbines. Although such an impact is not expected due to the expected low levels of vibration that would be generated by the project and the distance between the project and these facilities, the levels of impacts are difficult to determine given the unique type of facilities. Completion of a seismic vibration study is required to was conducted to attempt to determine the full impact of the project on ~~the facilities~~LIGO. The results of the seismic study were inconclusive. Due to the great uncertainty of possible effects and the highly speculative nature of any analysis that could be conducted, it is likely that a study for the BGPL facility would lead to the same conclusion. If operations at the facilities were substantially impaired, this would be considered a high and significant impact.

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Page 3-8, paragraph 1, the last sentence is modified as follows:

The developer is working with the owners of these facilities to ~~determine if there would be~~ avoid land use conflicts.

---

Page 3-8, paragraph 3 is replaced with the following:

If high and significant impacts to the LIGO facility occur, possible mitigation could include funding the installation of vibration isolators to minimize the potential for vibrations from the proposed project to affect this facility. No mitigation is known that would mitigate potential impacts from the project to the BGPL facility if they occur, other than funding relocation of this facility.

Page 3-8, paragraph 8 is modified as follows:

Given the generally low population density of the area and the limited public lands, few recreational users would be anticipated near the proposed project site; therefore, impacts to recreational activities would be low. No ~~designated-developed~~ public recreational facilities exist in the study area so no impacts to this type of recreation would occur. Limited temporary impacts to private landowner-approved activities such as hunting or photography could occur during project construction, operation, and decommissioning; however, these impacts would be low. The proposed project would not be expected to affect recreation on the WDFW Wildlife Area because of its distance from the project site. Access to the DNR parcels in the project site would likely be restricted for safety reasons if turbines were to be located there; however, this impact would be low because of the limited recreational use of these parcels and the existence of similar recreational opportunities in the study area (see Figure 3.2-1). The ALE is not currently open for general public use and would therefore not be affected by the project.

## Vegetation

Page 3-13, paragraph 1, the third sentence is modified as follows:

~~Often,~~ This climax community is not currently present at the site due to ongoing or past disturbance (e.g., fire, grazing, noxious species invasion).

Page 3-14, Table 3.3-1, the following entries are modified as follows:

**TABLE 3.3-1**  
Habitat Types in the Maiden Wind Farm Study Area

Basic Type	Habitat Type	Percent of Study Area	Acres	General Habitat Description
	Rock outcrop/shrub	<0.001	12	Rocky outcrops and associated shrubs, including chokecherry and squaw current; giant wildrye often present. Potential feeding, perching, and nesting habitat for birds, and cover for game species and other wildlife.
Wetlands	Emergent wetlands	<0.001	3	Wetland habitat dominated by plants that tend to grow in wet areas; potential to support sensitive wildlife species varies depending on habitat quality (degree of grazing/weeds).

Page 3-24, paragraph 1, the first sentence is modified a second sentence inserted as follows:

For this evaluation, all shrub-steppe and lithosol habitats, whether formally designated as priority habitat or not, were considered to meet the WDFW criteria for priority habitats, along with riparian habitat along Sulphur Creek. WDFW has not designated any grassland-steppe as priority habitat in the study area.

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Page 3-25, the following bullet is added to the list at the top of the page:

?? Potential to change fire frequency and intensity.

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Page 3-27, the first bulleted item is modified as follows:

?? Total acres of shrub-steppe, grassland-steppe, and lithosol habitat types removed or damaged as a result of project construction, whether formally designated as priority habitat or not, would be revegetated, replaced, or enhanced in similar proportions at a ratio of 3:1 (3 acres revegetated, enhanced, or replaced for each acre impacted) either by enhancing local CRP lands to facilitate their recovery to high-quality steppe habitat, or by creating steppe habitat from nearby agriculture lands by reclaiming them with native grass and shrub species. Revegetation of temporarily impacted acres would be included in the 3:1 ratio. In selecting mitigation areas, priority may be given to areas with remnant lithosol habitat, as lithosol is extremely difficult to replicate, as well as areas that would best enhance reproductive rates of wildlife species likely to be impacted by the project. Any enhanced or replacement acres would be protected for the life of the project from development, grazing, or conversion to other habitat types.

---

Page 3-28, the seventh and eighth listed items are modified as follows:

?? ~~size, location, and type of offsite habitat enhancement/replacement for revegetating, replacing, or enhancing~~ the estimated 57.5 acres of shrub-steppe, ~~and~~ 12.2 acres of lithosol, and 57.2 acres of grassland-steppe permanently impacted by the project;

?? ~~selecting recipient sites, restoration plans, and protocols for revegetating, replacing, or enhancing~~ the estimated 174.4 acres of shrub-steppe, ~~and~~ 50.9 acres of lithosol, and 187 acres of grassland-steppe habitat that would be temporarily impacted by project construction activities;

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## Wildlife

Page 3-33, paragraphs 1, 2, and 3, and Table 3.4-1 are modified as follows:

An avian baseline study ~~is currently being~~ was conducted in the study area to collect specific information regarding wildlife and avian resources within and around proposed project facilities. ~~An interim~~ technical report containing additional details regarding the results of the field surveys is available for review at BPA or the Benton County Planning and Building

Department on request. Table 3.4-1 summarizes the field surveys conducted for the avian baseline study that addressed wildlife and their habitat, either directly or peripherally.

**TABLE 3.4-1**  
Summary of Field Surveys

Date	Nature of Survey
4/01 – <del>4/02</del> <sup>current</sup>	Avian Use Surveys: Emphasis on locating raptors and other large birds; point count surveys at eight permanent (fixed) plots; half-mile radius observation plot.
5/01, 6/01, 7/01	Paired plot bird surveys: Emphasis on recording breeding passerines; point count surveys at 15 paired plots 985 feet apart (30 total plots).
4/30 – 5/02/01 and 6/18 – 19/01	Raptor nest survey: Surveys conducted by helicopter to locate raptor and large bird nests visible from the air; survey area included a 5-mile radius of the site.
5/21 – 25/01	General vegetation mapping: Ground-truthing of plotted vegetation types from Benton County aerial photos.
4/01 – <del>4/02</del> <sup>current</sup>	General wildlife observations: Conducted while on site during other surveys.

Field surveys in the study area included weekly point counts for raptors and all birds, point count breeding season bird surveys monthly from May to July, raptor nest surveys, general vegetation mapping, and general wildlife observations. In addition to the avian study, rare plant surveys and wetland investigations were also conducted and provided additional information on study area habitats (see Sections 3.3, Vegetation, and 3.8, Water Resources and Wetlands). The field surveys were designed to record avian species seen on the site and provided opportunity for observing and recording other fauna such as mammals and reptiles. In addition to species observed during the field surveys, species that were incidentally observed while in transit between survey points were also noted, but were not included in the statistical analyses. The vegetation mapping provided a list of habitat types in the study area. Habitat types were cross referenced with habitat preferences and known distribution of special status species to determine potential for their occurrence in the study area.

Data collected from the field surveys were compiled and analyzed to address specific questions about bird use of the study area. A summary of the major findings by season from the spring, summer, and fall surveys, and potential impacts to wildlife and special status species is provided in the following sections. ~~The results of the winter surveys will be incorporated into the final technical report and into the Final EIS.~~

Page 3-34, paragraph 3, the last sentence is modified as follows:

No federally-listed or candidate wildlife species were documented in the study area during the field surveys, except for the bald eagle as discussed below.

Page 3-34, paragraph 5 is modified as follows:

*Bald Eagle (Federal and State Threatened).* A bald eagle has been observed nearby on the ALE. Also one bald eagle was observed ~~incidentally~~ outside of specified survey times in the study

area on March 20, 2002. This eagle was observed foraging on some unidentified carrion with a group of approximately 15 ravens; however, it has not been recorded during avian or raptor nest surveys of the study area. ~~Although bald eagles may occasionally forage in the study area, due to the aquatic nature of their primary prey base and the limited nesting opportunities (large trees), bald eagles are unlikely to breed or forage frequently within the study area. Their occurrence in the vicinity of the project is expected to be infrequent and limited to the migration or winter seasons. However, they may migrate through the study area to suitable wintering areas along the Columbia River.~~

Page 3-34, paragraph 7 is modified as follows:

*Western Sage Grouse (Federal Candidate; State Threatened)*. Western sage grouse is a possible rare resident based on recent winter observations of this species on the ALE, however, no sage grouse were observed in the study area during the avian surveys or incidentally to the surveys; however, results of winter surveys when sage grouse could potentially occur in the study area are not yet complete. ~~No Western sage grouse occurrence in the vicinity of the project is expected to be infrequent and probably limited to the winter when most observations occur on the ALE have been documented in the study area and they are unlikely to occur.~~

Page 3-35, Table 3.4-2, the following entries are modified as follows:

**TABLE 3.4-2**  
State and Federal Special Status Species of Known or Potential Occurrence in the Study Area

Common Name and Scientific Name	Federal Status	WDFW Status	Occurrence in Study Area	Occurrence Documentation
<b>Birds</b>				
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	T	T	<del>Not d</del> <b>Documented on site.</b> Unlikely breeding resident due to lack of habitat, possible migrant or winter transient; observed on ALE <u>and one observation on site.</u>	LaFramboise and LaFramboise, 1999
Golden eagle ( <i>Aquila chrysaetos</i> )	N/A	C	<b>Documented on site.</b> No nest sites found; <del>two six</del> observations during fall/winter/spring avian surveys; winter use on ALE; winter occurrence <del>use is likely highest than spring/summer/fall;</del> may forage within study area.	LaFramboise and LaFramboise, 1999; Young et al., 2001

Codes:  
E = Endangered.  
T = Threatened.  
C = Candidates.  
SoC = Species of concern (Federal).  
N/A = Not applicable.

Page 3-40, paragraph 2 is modified as follows:

During public scoping, concern was raised over potential impacts to big game species from the proposed project. Based on agency information, literature review, and observations on the site, elk (*Cervis elaphus*) and mule deer (*Odocoileus hemionus*) occur in the study area, primarily along the ridgeline of Rattlesnake Ridge and the adjoining slopes. However, mule deer also have been observed in the eastern portion of the study area, which is primarily wheat fields. During avian surveys between April ~~and October~~ 2001 and April 2002, a total of ~~167-176~~ elk and ~~15-67~~ mule deer were observed in ~~four-five~~ and ~~six-17~~ groups, respectively (Young et al., 2002).

Page 3-41, paragraphs 2 and 3 are modified as follows:

While the avian use surveys of the study area were designed to record all birds observed, the surveys focused on two avian groups – raptors and other large birds believed to be susceptible to impacts from wind plants, and grassland-/shrub-steppe passerine species which breed in these habitats in the study area. General results of the surveys are presented below. Results of all the paired plot surveys are presented in the interim a technical report that is incorporated by reference and available for review at BPA or the Benton County Planning and Building Department upon request. In general, results of the two avian survey types were consistent and the results presented below are representative of the study area. More detailed results of the ~~two~~ studies are found in the ~~interim~~ technical report.

*Fixed Point (Raptor and Large Bird) Surveys.* A total of ~~232-336~~ 30-minute point count surveys were conducted between April 20 ~~and October 28~~, 2001 and April 11, 2002. Surveys were conducted at eight fixed stations (point count stations) once a week (Figure 3.4-1). A total of ~~40-62~~ avian species were observed during the fixed point surveys (Table 3.4-4). As expected, passerines were by far the most numerous group. Species abundance varied by season, however, overall, Horned lark, western meadowlark, vesper sparrow, and dark-eyed junco were the four most numerous passerines observed. Passerines comprised 82.9-81.0 percent of the total number of birds observed and raptors comprised 5.5-5.3 percent of all birds observed. Over all seasons, Northern harrier, American kestrel, red-tailed hawk, and Swainson’s hawk were the four most common raptors observed. Corvids (magpies, crows, and ravens) comprised 9.4-9.6 percent of all birds observed. Other birds (primarily upland game birds, doves, and waterfowl) comprised 4.0-4.4 percent of all birds observed. Only one Three groups of waterfowl (one two flocks of 15-Canada geese and one flock of mallards) was were observed in the study area during the fixed point surveys. Upland game birds observed on the site included three non-native species (ring-necked pheasant, chukar, and Hungarian [gray] partridge).

Page 3-43, Table 3.4-4 is replaced with the following:

**TABLE 3.4-4**  
**Avian Species Observed Between April 20, 2001 and April 11, 2002**

<u>Group/Species</u> (Status: F = Federal; WA = State)	<u>Total</u> <u>Observations</u>	<u>Exposure</u> <u>Index</u>	<u>Average</u> <u>Avian Use</u>	<u>Frequency of</u> <u>Occurrence</u> <u>(%)</u>	<u>Percent</u> <u>Composition</u>
<b><u>Corvids</u></b>					
<u>Black-Billed Magpie</u>	<u>11</u>	<u>0.00</u>	<u>0.03</u>	<u>2.68</u>	<u>0.28</u>
<u>Common Raven</u>	<u>444</u>	<u>0.46</u>	<u>1.16</u>	<u>44.50</u>	<u>9.79</u>
<u>Subtotal</u>	<u>455</u>		<u>1.19</u>	<u>45.69</u>	<u>10.06</u>
<b><u>Passerines</u></b>					
<u>American Goldfinch</u>	<u>523</u>	<u>0.00</u>	<u>0.07</u>	<u>0.89</u>	<u>0.58</u>
<u>American Pipit</u>	<u>22</u>	<u>0.00</u>	<u>0.07</u>	<u>0.60</u>	<u>0.55</u>
<u>American Robin</u>	<u>10</u>	<u>0.01</u>	<u>0.03</u>	<u>1.19</u>	<u>0.25</u>
<u>Barn Swallow</u>	<u>4</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.10</u>
<u>Brewer's Sparrow</u>	<u>25</u>	<u>0.01</u>	<u>0.07</u>	<u>5.62</u>	<u>0.62</u>
<u>Brown-Headed Cowbird</u>	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.30</u>	<u>0.05</u>
<u>Cassin's Finch</u>	<u>11</u>	<u>0.00</u>	<u>0.03</u>	<u>0.89</u>	<u>0.28</u>
<u>Cliff Swallow</u>	<u>6</u>	<u>0.00</u>	<u>0.02</u>	<u>0.89</u>	<u>0.15</u>
<u>Dark-Eyed Junco</u>	<u>56</u>	<u>0.00</u>	<u>0.17</u>	<u>2.98</u>	<u>1.40</u>
<u>European Starling</u>	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.30</u>	<u>0.05</u>
<u>Golden-Crowned Kinglet</u>	<u>4</u>	<u>0.00</u>	<u>0.01</u>	<u>0.89</u>	<u>0.10</u>
<u>Gray-crowned Rosy Finch</u>	<u>52</u>	<u>0.15</u>	<u>0.15</u>	<u>0.30</u>	<u>1.30</u>
<u>Grasshopper Sparrow</u>	<u>7</u>	<u>0.00</u>	<u>0.02</u>	<u>2.08</u>	<u>0.18</u>
<u>Horned Lark</u>	<u>2437</u>	<u>0.10</u>	<u>7.24</u>	<u>74.20</u>	<u>61.04</u>
<u>House Finch</u>	<u>23</u>	<u>0.06</u>	<u>0.07</u>	<u>0.89</u>	<u>0.58</u>
<u>Lapland Longspur</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Loggerhead Shrike</u> <u>(F: SoC; WA: C)</u>	<u>3</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.08</u>
<u>Mountain Bluebird</u>	<u>5</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.13</u>
<u>N. Rough-winged Swallow</u>	<u>20</u>	<u>0.06</u>	<u>0.06</u>	<u>0.60</u>	<u>0.50</u>
<u>Red-Breasted Nuthatch</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.24</u>	<u>0.02</u>
<u>Rock Wren</u>	<u>11</u>	<u>0.00</u>	<u>0.03</u>	<u>2.98</u>	<u>0.28</u>
<u>Sage Thrasher (WA: C)</u>	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.05</u>
<u>Savannah Sparrow</u>	<u>3</u>	<u>0.00</u>	<u>0.01</u>	<u>0.56</u>	<u>0.07</u>
<u>Say's Phoebe</u>	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.05</u>
<u>Snow Bunting</u>	<u>8</u>	<u>0.02</u>	<u>0.02</u>	<u>0.30</u>	<u>0.20</u>
<u>Spotted Towhee</u>	<u>4</u>	<u>0.00</u>	<u>0.01</u>	<u>0.89</u>	<u>0.10</u>
<u>Swainson's Thrush</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Tree Swallow</u>	<u>12</u>	<u>0.00</u>	<u>0.04</u>	<u>0.30</u>	<u>0.30</u>
<u>Varied Thrush</u>	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.05</u>
<u>Vesper Sparrow</u>	<u>69</u>	<u>0.00</u>	<u>0.20</u>	<u>13.08</u>	<u>1.69</u>
<u>Violet-Green Swallow</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.24</u>	<u>0.02</u>
<u>Western Bluebird</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Western Kingbird</u>	<u>7</u>	<u>0.00</u>	<u>0.02</u>	<u>1.49</u>	<u>0.18</u>

**TABLE 3.4-4**  
 Avian Species Observed Between April 20, 2001 and April 11, 2002

<u>Group/Species</u> (Status: F = Federal; WA = State)	<u>Total</u> <u>Observations</u>	<u>Exposure</u> <u>Index</u>	<u>Average</u> <u>Avian Use</u>	<u>Frequency of</u> <u>Occurrence</u> <u>(%)</u>	<u>Percent</u> <u>Composition</u>
<u>Western Meadowlark</u>	<u>232</u>	<u>0.00</u>	<u>0.67</u>	<u>32.92</u>	<u>5.67</u>
<u>Western Tanager</u>	<u>4</u>	<u>0.00</u>	<u>0.01</u>	<u>0.30</u>	<u>0.10</u>
<u>White-Crowned Sparrow</u>	<u>14</u>	<u>0.00</u>	<u>0.04</u>	<u>0.60</u>	<u>0.35</u>
<u>Wilson's Warbler</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Yellow Warbler</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Yellow-Rumped Warbler</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Unidentified Blackbird</u>	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.30</u>	<u>0.05</u>
<u>Unidentified Bluebird</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Unidentified Finch</u>	<u>35</u>	<u>0.00</u>	<u>0.10</u>	<u>0.30</u>	<u>0.88</u>
<u>Unidentified Flycatcher</u>	<u>8</u>	<u>0.00</u>	<u>0.02</u>	<u>1.19</u>	<u>0.20</u>
<u>Unidentified Passerine</u>	<u>185</u>	<u>0.10</u>	<u>0.55</u>	<u>2.20</u>	<u>4.62</u>
<u>Unidentified Sparrow</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Unidentified Swallow</u>	<u>12</u>	<u>0.01</u>	<u>0.04</u>	<u>2.05</u>	<u>0.30</u>
<u>Unidentified Warbler</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Subtotal</u>	<u>3835</u>		<u>9.89</u>	<u>84.88</u>	<u>83.33</u>
<b><u>Raptors</u></b>					
<u>American Kestrel</u>	<u>35</u>	<u>0.01</u>	<u>0.10</u>	<u>7.98</u>	<u>0.87</u>
<u>Prairie Falcon</u>	<u>12</u>	<u>0.03</u>	<u>0.04</u>	<u>3.75</u>	<u>0.32</u>
<u>Peregrine Falcon</u>	<u>2</u>	<u>0.01</u>	<u>0.01</u>	<u>0.30</u>	<u>0.05</u>
<u>Cooper's Hawk</u>	<u>4</u>	<u>0.01</u>	<u>0.01</u>	<u>1.19</u>	<u>0.10</u>
<u>Sharp-shinned Hawk</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Unidentified Accipiter</u>	<u>3</u>	<u>0.00</u>	<u>0.01</u>	<u>0.89</u>	<u>0.08</u>
<u>Ferruginous Hawk</u> <u>(F: SoC: WA: T)</u>	<u>6</u>	<u>0.01</u>	<u>0.02</u>	<u>1.49</u>	<u>0.15</u>
<u>Rough-legged Hawk</u>	<u>13</u>	<u>0.02</u>	<u>0.03</u>	<u>2.56</u>	<u>0.22</u>
<u>Red-tailed Hawk</u>	<u>30</u>	<u>0.04</u>	<u>0.08</u>	<u>5.89</u>	<u>0.65</u>
<u>Swainson's Hawk</u>	<u>26</u>	<u>0.05</u>	<u>0.06</u>	<u>4.34</u>	<u>0.54</u>
<u>Unidentified Buteo</u>	<u>40</u>	<u>0.02</u>	<u>0.04</u>	<u>3.54</u>	<u>0.37</u>
<u>Golden Eagle</u>	<u>6</u>	<u>0.01</u>	<u>0.02</u>	<u>1.19</u>	<u>0.15</u>
<u>Northern Harrier</u>	<u>51</u>	<u>0.00</u>	<u>0.14</u>	<u>12.11</u>	<u>1.20</u>
<u>Subtotal</u>	<u>229</u>		<u>0.56</u>	<u>44.63</u>	<u>4.71</u>
<b><u>Shorebirds</u></b>					
<u>Killdeer</u>	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<b><u>Waterfowl</u></b>					
<u>Mallard</u>	<u>8</u>	<u>0.00</u>	<u>0.02</u>	<u>0.30</u>	<u>0.20</u>
<u>Canada Goose</u>	<u>155</u>	<u>0.04</u>	<u>0.04</u>	<u>0.30</u>	<u>0.38</u>
<u>Subtotal</u>	<u>163</u>		<u>0.07</u>	<u>0.60</u>	<u>0.58</u>

**TABLE 3.4-4**  
**Avian Species Observed Between April 20, 2001 and April 11, 2002**

<u>Group/Species</u> (Status: F = Federal; WA = State)	<u>Total</u> <u>Observations</u>	<u>Exposure</u> <u>Index</u>	<u>Average</u> <u>Avian Use</u>	<u>Frequency of</u> <u>Occurrence</u> <u>(%)</u>	<u>Percent</u> <u>Composition</u>
<b><u>Gamebirds</u></b>					
California Quail	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.30</u>	<u>0.05</u>
Chukar	<u>17</u>	<u>0.00</u>	<u>0.05</u>	<u>2.02</u>	<u>0.42</u>
Gray Partridge	<u>4</u>	<u>0.00</u>	<u>0.01</u>	<u>0.30</u>	<u>0.10</u>
Ring-Necked Pheasant	<u>3</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.05</u>
<u>Subtotal</u>	<u>26</u>		<u>0.08</u>	<u>2.92</u>	<u>0.62</u>
<b><u>Doves</u></b>					
Mourning Dove	<u>21</u>	<u>0.00</u>	<u>0.06</u>	<u>1.49</u>	<u>0.53</u>
<b><u>Other</u></b>					
Northern Flicker	<u>3</u>	<u>0.00</u>	<u>0.01</u>	<u>0.89</u>	<u>0.08</u>
Unid. Hummingbird	<u>2</u>	<u>0.00</u>	<u>0.01</u>	<u>0.60</u>	<u>0.05</u>
Common Nighthawk	<u>1</u>	<u>0.00</u>	<u>0.00</u>	<u>0.30</u>	<u>0.03</u>
<u>Subtotal</u>	<u>6</u>		<u>0.02</u>	<u>1.79</u>	<u>0.15</u>
<b><u>Total</u></b>	<b><u>4736</u></b>				

Codes: F = Federal E = Endangered C = Candidates  
 WA = Washington T = Threatened SoC = Species of concern (Federal)

Pages 3-45 paragraph 1 to 3-47 paragraph 1 is modified as follows:

Avian Use. A total of ~~1,078~~1,437 observations were made of ~~2,874~~4,736 individual birds during the fixed point (raptor and large bird) surveys (Table 3.4-4). These are raw counts of observations that were not standardized by the number of hours of observation, but provide an overall list of what was observed. Because individual birds were not marked, these counts also do not distinguish between individuals but provide an estimate of avian use of the study area.

Avian use by species was calculated as the average (mean) number of observations per 30-minute survey. For example, if one red-tailed hawk was observed on five ~~plot~~ surveys, its average use would be 0.2. However, it is unknown if this was the same bird seen five times or five different birds seen once. Table 3.4-4 provides an index of how often red-tailed hawks occur in the study area and therefore are at risk of being impacted by the proposed project. Any reference to abundance refers to the use estimates and not absolute density or numbers of individuals.

The three most abundant species documented in the study area were horned lark (~~58~~61.0 percent), common raven (9.8 percent), and western meadowlark (~~6.6~~5.7 percent). Together these species comprised more than ~~73~~76 percent of all birds observed during the fixed point surveys. On average, more than seven horned larks, one common raven, and approximately one western meadowlark were observed during each 30-minute survey.

The most abundant raptor observed was northern harrier, with ~~40~~51 individuals observed, or approximately one northern harrier observed every ~~six~~seven surveys.

The bird use estimates for the study area, with the exception of a few common species, were similar or lower than other wind plants studied in the U.S. Raptor use of the study area was similar to other wind plants ~~that have been studied through the spring, summer, and fall~~. The most abundant raptors on the site based on use were northern harrier, American kestrel, and red-tailed hawk. Only ~~two~~six ferruginous hawks (state threatened species and federal species of concern) were observed during the surveys despite a ferruginous nest being located in the study area. As a group, raptor use of the study area was approximately ~~0.69~~0.56 raptors observed per 30-minute survey, or roughly one raptor observed every ~~1.4~~2 surveys. For comparison, raptor use ~~for spring, summer, and fall~~ at four wind plants studied with the same methods varied from slightly lower to much higher. Raptor use at the Condon Wind Plant, Oregon, was approximately 0.49 raptors per 30-minute survey; at the Vansycle Wind Plant, Oregon, raptor use was approximately 0.55 raptors per 30-minute survey; at the Buffalo Ridge Wind Plant, Minnesota, raptor use was approximately 0.74 raptors per 30-minute survey; and at the Foote Creek Rim Wind Plant, Wyoming, raptor use was approximately 1.10 raptors per 30-minute survey.

**Exposure Index.** The exposure index is a relative measure of the risk of each species observed on site during the fixed-point surveys coming in contact with a turbine. A higher exposure index implies that there is a potentially greater risk of an individual bird colliding with a turbine. The exposure index is based on the use (measure of abundance) of the site by the species and the flight characteristics observed for that species (percent of observations of the species flying and percent of observations of the species flying within the zone which would be occupied by turbine blades). ~~Of the birds identified to species, C~~ommon raven, gray crowned rosy finch~~northern rough-winged swallow~~, and horned lark had the highest exposure indices (Table 3.4-4). Unidentified passerines also had a high exposure risk. Horned lark was nearly always observed below the zone of risk, but because it was by far the most abundant species, it had one of the highest exposure indices. The exposure index for gray-crowned rosy finch was high because the one flock of 52 birds observed was seen flying within the zone of risk. Similarly, ~~A~~all observations of northern rough-winged swallows and snow bunting flying were also recorded within the zone of risk.

Mortality studies at other wind plants have indicated that although ravens are often observed at wind plants within the zone of risk, they appear to be less susceptible to collision with wind turbines than other similar size birds (e.g., raptors, waterfowl). Raptor species with the highest index include Swainson's hawk, red-tailed hawk, and northern harrier. Although northern harrier and American kestrel were the most abundant raptor species observed, both species were observed less often in the zone of risk than the ~~buteos species (ferruginous hawk, red-tailed hawk and~~ Swainson's hawk).

**Avian Diversity (Frequency of Occurrence and Percent Composition).** Frequency of occurrence and percent composition provide relative estimates of the avian diversity and species composition of the study area or what are the most frequently observed species in the study area and therefore most likely to be affected by the project. The frequency of occurrence was calculated as the percent of surveys where a particular species was observed within one-half mile (Table 3.4-4). Percent composition is represented by the mean use for a species divided by the total use for all species and multiplied by 100. The vast majority of species were observed in less than 5

percent of the surveys. The most frequently observed raptor was northern harrier, seen in approximately ~~14-12~~ percent of all surveys (frequency of occurrence) but comprising only ~~1.3-1.2~~ percent of all bird observations based on use estimates (percent composition). In contrast, horned larks were observed during ~~78-more than 74~~ percent of all surveys and comprised nearly ~~58-61~~ percent of all birds observed.

As a group, due primarily to the abundance of horned larks on the site, passerines comprised nearly ~~90-83~~ percent of all bird observations and were observed in more than ~~82-84~~ percent of all the surveys. Raptor use of the site as a group was relatively low with less than one raptor observed during each 30-minute survey and during approximately ~~42-45~~ percent of the surveys. Overall, based on the use estimates, raptors, as a group, comprised approximately ~~5.5-4.7~~ percent of all bird observations.

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Page 3-50, paragraph 2 is modified as follows:

*Bald Eagle (Federal and State Threatened)*. Based on available information, bald eagles are possible rare migrants or transients in the study area. A single bald eagle was observed foraging incidentally on site in the study area on March 20, 2002; however, they are not expected to occur on site in the study area on a regular basis because the lack of suitable prey base and nesting habitat but have not been documented and are not expected to occur on a regular basis. However, results of winter surveys when the bald eagle would be most likely to occur in the study area are not yet complete. Construction of the project would not be likely to impact bald eagles because of their lack of ~~presence~~ suitable habitat in the study area, and their infrequent occurrence in this area. Impacts to bald eagle would be low.

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Page 3-50, paragraphs 4 and 5 are modified as follows:

*Golden Eagle (State Candidate)*. Golden eagles are rare migrants and possible winter residents in the study area. During the fixed point surveys, One golden eagle was observed in the study area during fixed point surveys in the fall 2001, four golden eagles were observed in winter 2001-2002, and one was observed in spring 2002. They have also been documented on the nearby ALE during the winter in low numbers. They are not expected to occur in the study area on a regular basis. Construction activities would have little to no effect on golden eagles; therefore, impacts would be low.

*Merlin (State Candidate)*. A single merlin was observed incidentally in the study area in April 2001, and was likely a migrant. Merlins are considered an uncommon migrant and winter resident on the ALE, and occupy riparian areas or migrate along Rattlesnake Ridge (LaFramboise and LaFramboise, 1999). There is no suitable nesting habitat in the study area and they are considered a rare migrant and/or unlikely winter resident. Impacts from construction of the proposed project would be low.

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Page 3-51, paragraph 4, the second sentence is modified as follows:

In 2001, there were five inactive nests and three active nests located within 1 mile of the proposed project facilities.

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Page 3-53, paragraph 3 is modified as follows:

*Bald Eagle (Federal and State Threatened)*. Bald eagles are ~~possible~~ rare migrants or winter residents in the study area. No bald eagle fatalities have been documented at other wind plants (see Erickson et al., 2001). Because of their rare nature and habitat preferences, use estimates for bald eagles at other area wind plants are low. Bald eagle use estimates at the Foote Creek Rim Wind Plant, Wyoming, for spring, summer, and fall was 0.008 birds per 40-minute survey (Johnson et al., 2000a). During ~~5~~three years of carcass searches at Foote Creek Rim (69 turbines) no bald eagle casualties were located (Young et al., 2001). Operation of the proposed project would not be expected to cause bald eagle mortality due to their rare occurrence in the study area; therefore, impacts would be low.

Page 3-53, paragraph 6 is modified as follows:

*Ferruginous Hawk (Federal Species of Concern; State Threatened)*. Ferruginous hawks are breeding residents of the study area. They were observed during surveys on the site and four active nests were located within 5 miles of the project site during 2001. Once the project is operational, ferruginous hawks may be at risk of collision with wind turbines. Ferruginous hawk use of the study area ~~in spring, summer, and fall of 2001~~ averaged across all seasons was approximately ~~0.009~~0.02 birds per 30-minute survey, much lower than 0.052 birds per 40-minute survey recorded at the Foote Creek Rim Wind Plant in Wyoming (Johnson et al., 2000a). A conservative comparison would assume a uniform distribution of observations over time and thus approximately 0.04 birds/30 minutes on Foote Creek Rim. This estimate is two times greater than ~~four times the spring-summer-fall average~~ use by ferruginous hawks in the Maiden Wind Farm study area. During three years of carcass searches at Foote Creek Rim (69 turbines) no ferruginous hawk casualties were located (Young et al., 2001); however, collision fatalities have been recorded at the Altamont and Tehachapi Pass Wind Plants in California (Erickson et al., 2001).

Page 3-54, paragraph 2, the last sentence is modified as follows:

~~Expected~~ It is estimated that mortality of ferruginous hawks could be as high as one per year, which would be considered a moderate to high (significant) impact.

Page 3-54, paragraph 3, the last sentence is modified as follows:

~~Expected~~ It is estimated that mortality of golden eagle could be as high as one per year, which would be a low impact.

Page 3-54, paragraph 4, the fifth sentence is modified as follows:

Use estimates for these species at the Maiden Wind Farm project site ~~(based on the spring and summer surveys)~~ are relatively low (see Young et al., 2002).

Page 3-55 and 3-56, Table 3.4-6, the following entries are modified:

**TABLE 3.4-6**  
Collision Risk Factors for Special Status Avian Species Known or Potentially Occurring in the Study Area

Species/ Federal and State Status	Risk Factors			Generalized Level of Risk (Impact Level)
	Behavioral and Environmental Factors	Abundance and Distribution Factors Based on Field Studies and Existing Information		
Bald eagle F: T WA: T	Feeds on carrion, fish, waterfowl in winter; wintering habitat along Columbia River; flight heights could include the rotor swept area	<del>Not</del> One individual observed in study area <del>in winter</del> , rare migration and winter occurrence on ALE; low abundance at Foote Creek Rim wind plant and no fatalities observed		Level of risk very low due to expected rare occurrence (low impact)
Golden eagle WA: C	Grassland and shrub-steppe species, nesting in trees or cliffs, hunts small/ medium mammals, birds, reptiles; flight heights include rotor swept area	<del>One</del> Observed in study area in fall, <del>winter, and spring</del> ; migration and winter records from ALE; fatalities at wind plants in California (primarily Altamont); common on Foote Creek Rim wind plant; <del>but</del> no fatalities observed during two year study		Level of risk considered low due to rare occurrence; risk may be greater in winter (low impact)
Codes:	F = Federal WA = Washington	E = Endangered T = Threatened	C = Candidates SoC = Species of concern (Federal)	

Page 3-57, paragraph 5, the first sentence is modified as follows:

*Passerines*. Small birds with the highest use index of the study area were horned larks, western meadowlarks, vesper sparrows, and ~~dark-eyed juncos~~ grasshopper sparrows.

Page 3-58, paragraph 2, the fourth sentence is modified as follows:

Based on a 2-year study at Foote Creek Rim, the total annual mortality associated with 69 turbines was estimated to be approximately 1.7 birds per turbine per year and for five guyed met towers was estimated at 7.5 birds per tower per year.

Page 3-58, paragraph 3, the next-to-last sentence is modified as follows:

The per met tower mortality rate would be expected to be between 7 and 8 birds per tower per year if guyed met towers are used.

Page 3-60, paragraph 3 is modified as follows:

The following mitigation measures would be implemented to reduce impacts to special status species and other wildlife from operation of the project. Impacts to birds and other wildlife would also be mitigated by habitat revegetation, replacement, or enhancement as described in See Section 3.3, Vegetation, ~~for mitigation of wildlife habitat.~~

## Visual Resources

Page 3-62, paragraph 3 is modified as follows:

The visual setting consists of a large, irrigated valley containing a variety of crops (such as apples, pears, grapes, and cherries), rural residences, and the nearby communities of Sunnyside, Granger, Grandview, and Prosser, all located 10 or more miles south of the project site. The Rattlesnake Hills and Rattlesnake Mountain to the southeast dominate and define the northern portion of the valley and the Horse Heaven Hills dominate and define the southern portion of the valley. On the project site, vegetation consists of rangeland and wheat crops. There are several existing radio towers along the ridgeline of the Rattlesnake Hills, and two BPA transmission lines transect the western portion of the project site. A third BPA line is located just west of the study area. To the north of the Rattlesnake Hills lies the Hanford Reach National Monument's Fitzner-Eberhardt Arid Lands Ecology Reserve. The existing visual quality of the study area is considered moderate to high due to the unique features of the Rattlesnake Hills and the vast expanse of undeveloped area.

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Page 3-73, paragraph 3 is modified as follows:

Among the FAA-approved lighting devices available, the developer would use those that are designed to be least visible from the ground level of the surrounding landscape, and least disruptive to nighttime bird and bat migrants.

## Cultural Resources

Page 3-75 to 3-76, Section 3.6.2, Study Methodology, is modified as follows:

The proposed project site has been inventoried for cultural resources. This inventory fieldwork was conducted in two stages. During the summer of 2001, archaeologists determined the project's Area of Potential Effect (APE) and completed a reconnaissance survey of cultural resources within the APE in collaboration with representatives of the Wanapum Band of Indians. During the summer of 2002, archaeologists formally documented the identified cultural resources. This phase of the fieldwork focused on relocating and recording cultural resources identified in the project area during the reconnaissance survey. Shovel test pits (STPs) were excavated at select cultural resources to gather information on the presence or absence of subsurface cultural deposits and to define site boundaries. Together, these two stages complete the cultural resources inventory for the proposed project. This inventory focused on archaeological cultural resources specifically and did not include a study of Traditional Cultural Properties (TCPs) or address viewshed impacts to historic architectural resources.

The study area, designed to encompass all areas that could potentially be disturbed by construction and operation of the project, included all land within 50 feet of proposed temporary and permanent facilities. In most cases, the survey corridors were 150 feet wide, although in many areas several project facilities located together resulted in a wider survey area.

Archaeological investigation of the potential wind turbine strings, access roads, and other facilities was conducted in July, August, and September 2001 in collaboration with representatives of the Wanapum Band of Indians.

Additional details on the archaeological investigation are provided in the technical report titled Results of a Cultural Resource Inventory of the s Assessment for Maiden Wind Farm Area of Potential Effect, Rattlesnake Hills, Washington, which will be available from Benton County and BPA in early 2002.

The Yakama Nation was contacted and briefed on the proposed project but declined to participate in either phase of the archaeological surveys. The Yakama Nation also was invited to conduct any needed investigations of traditional use of the study area (such as native plant gathering and hunting) but declined to initiate such studies. The cultural resources analysis is based on information from field studies and from archival research.

Page 3-77, paragraph 4 is replaced with the following:

Forty-three cultural resources were formally documented within the APE defined for this project. These include two previously recorded prehistoric archaeological sites (45BN195 and 45YK61) and 41 previously undocumented archaeological resources. The latter include 11 prehistoric sites, 5 prehistoric isolates, 5 historic sites, 1 multi-component site, and 18 rock feature sites. The results of this identification stage are listed in Table 3.6-2.

Page 3-78, Table 3.6-2 is replaced with the following table:

**TABLE 3.6-2**  
Identified Cultural Resources in the Study Area

<u>Field Number</u>	<u>Description</u>	<u>Shovel Tests (positive)</u>
<u>MSI-2</u>	<u>Lithic scatter</u>	<u>2 (1)</u>
<u>MSI-3</u>	<u>Prehistoric isolate</u>	
<u>MSI-5</u>	<u>Prehistoric isolate</u>	
<u>MSI-6</u>	<u>Prehistoric isolate</u>	<u>1</u>
<u>Turbine 152 isolate, AS 16, 32, 33, and 34</u>	<u>Prehistoric quarry, lithic scatters, historic-era feature</u>	<u>20 (3)</u>
<u>HF-1</u>	<u>Rock cairns</u>	
<u>AS-2</u>	<u>Rock cairn; lithic scatter</u>	<u>3</u>
<u>AS-3</u>	<u>Rock cairn</u>	
<u>AS-4, 5</u>	<u>Rock cairn</u>	<u>1</u>
<u>AS-6</u>	<u>Rock cairn</u>	<u>1</u>
<u>AS-7</u>	<u>Rock cairn</u>	
<u>AS-8</u>	<u>Rock cairn</u>	
<u>AS-9</u>	<u>Rock cairns; lithic scatter</u>	<u>2</u>
<u>AS-10</u>	<u>Rock cairn; rock wall</u>	<u>1</u>
<u>AS-11</u>	<u>Rock cairn; rock wall</u>	
<u>AS-12</u>	<u>Rock cairn</u>	

**TABLE 3.6-2**  
Identified Cultural Resources in the Study Area

<u>Field Number</u>	<u>Description</u>	<u>Shovel Tests (positive)</u>
<u>AS-13</u>	<u>Rock features</u>	
<u>AS-15</u>	<u>Prehistoric isolate</u>	<u>3 (1)</u>
<u>AS-17</u>	<u>Rock features</u>	
<u>AS-18</u>	<u>Lithic scatter</u>	<u>2</u>
<u>AS-19</u>	<u>Lithic scatter</u>	<u>5 (2)</u>
<u>AS-21</u>	<u>Lithic scatter</u>	<u>6 (1)</u>
<u>AS-22</u>	<u>Lithic scatter</u>	<u>4</u>
<u>AS-23</u>	<u>Rock cairn</u>	
<u>AS-24</u>	<u>Rock cairn; isolated flake</u>	
<u>AS-25</u>	<u>Rock cairns</u>	
<u>AS-26</u>	<u>Rock cairn</u>	
<u>AS-27, 28</u>	<u>Rock cairns</u>	
<u>AS-29</u>	<u>Historical artifact scatter</u>	<u>1 (1)</u>
<u>AS-30</u>	<u>Historical artifact scatter</u>	
<u>AS-31</u>	<u>Rock cairn; isolated flake</u>	
<u>AS-35</u>	<u>Lithic scatter</u>	<u>8 (7)</u>
<u>AS-36</u>	<u>Historical artifact scatter</u>	<u>2 (1)</u>
<u>AS-37</u>	<u>Rock cairns</u>	
<u>AS-38</u>	<u>Historical artifact scatter; lithic scatter</u>	<u>2 (2)</u>
<u>AS-39</u>	<u>Lithic scatter</u>	<u>17 (8)</u>
<u>AS-40</u>	<u>Rock cairn; quarry</u>	<u>7 (3)</u>
<u>AS-41</u>	<u>Rock cairn</u>	<u>1</u>
<u>AS-42</u>	<u>Rock cairn</u>	<u>1</u>
<u>AS-43</u>	<u>Rock wall</u>	
<u>45BN195</u>	<u>Maiden Springs Site</u>	<u>12 (5)</u>
<u>45YK61</u>	<u>Sulphur Springs Site</u>	<u>10 (8)</u>
<u>AAR-ISO-2</u>	<u>Prehistoric isolate</u>	

Page 3-79, the following text is added after Table 3.6-2:

### **Site Types in the Project Area**

The 43 cultural resources located in the defined project APE have been identified as prehistoric isolates, prehistoric lithic scatters, prehistoric quarries, rock features (including cairns, alignments, and talus pits), that may be prehistoric or historical, and historic-era dumps, and isolated historic-era objects. These categories are primarily descriptive but reflect function whenever possible. Functional categories cannot be ascribed to many sites at this time because of lack of information.

**Prehistoric Isolates**

Five prehistoric isolates were recorded as part of this project. The state of Washington does not specifically define the term “isolate” and for the purposes of this report, isolates are defined as assemblages consisting of fewer than 10 artifacts and excluding cultural features. Isolated rock features were recorded as sites rather than as isolates.

**Prehistoric Lithic Scatter**

Lithic scatters were recorded as part of thirteen resources. Lithic scatters are defined as relative concentrations of lithic artifacts primarily comprised of debitage but sometimes include formed stone tools. This is a general classification that does not indicate site function, which typically could not be determined at the survey level.

**Prehistoric Quarries**

Two outcrops of raw material were identified that had been utilized as prehistoric toolstone quarries. These quarries represent locales where naturally outcropping chert was collected and initially processed for tool manufacture. Tested and untested pieces of raw material, nodules of raw material, debitage, and shatter characterize the quarry sites. The debitage distinguishes quarry sites from other locales of outcropping and fractured chert. Tools used to quarry and process the material and tools in early stages of manufacture were notably absent from the artifact assemblages at the quarries.

**Rock Features**

Twenty-five cultural resources recorded during the archaeological inventory consisted of or included rock features. Rock features have been constructed by both Native Americans and Euroamericans and can serve a variety of functions. The rock features within the current project area can be categorized into two basic types: cairns and wall features. Single cairns, not associated with any other rock features or artifacts, were recorded as archaeological sites, not isolates.

Most rock features are cairns and consist of stacks of rock piled into conical or cylindrical forms. Cairns, particularly those visible in silhouette above their surrounding environment, generally serve as landscape markers. Such cairns can mark the location of water, grazing, or hunting resources or culturally important viewsheds. They can also be used to mark the location of religious ceremonies. In some cultures, cairns have been used as grave markers, and can indicate the location of buried or cremated human remains. In Euroamerican ranching landscapes, rock piles were used as fenceposts or post supports. Additionally, cairns can be constructed for no obvious reason, in instances where abundant rocks and idle time are available.

Rock walls can serve as barriers or can provide sheltered cover. They can function as wind breaks, hunting blinds, corrals, or fences or can result from field clearing activities. Talus pits are wall features found exclusively on talus slopes, where rock is removed from the upslope side of the pit and used to construct a wall on the downslope side. These features are generally considered to be hunting blinds.

**Historic-era resources**

Six resources documented in the project area date from or have components dating from the historic era. The Euroamerican historic-era resources generally contain domestic or

agricultural features and artifacts. The resources include surface scatters representing trash dumps, building foundations, pieces of farm equipment, and fence remnants.

Page 3-79, paragraph 2 is modified as follows:

Many of the cultural resources listed in Table 3.6-2 could be significantly and adversely affected by project construction in the study area. ~~Formal recordation of the identified cultural features as archaeological sites will take place in early 2002. Once formally recorded, t~~The archaeological sites will be evaluated for their potential eligibility for inclusion in either the NRHP or the Washington Register of Historical Resources (WRHR) and ~~would~~ will be examined in relationship to the project site. Certain types of resources, isolates for example, usually do not contain significant or potentially significant information and thus are excluded from the consideration of project-related impacts. As a result, five of the resources in Table 3.6-2 can be evaluated as not significant. The remaining 38 resources must be further analyzed to determine their historical or cultural importance.

Page 3-80, paragraph 5 is modified as follows:

The Yakama Nation has declined participation in archaeological field studies and declined to undertake oral history investigations. The Cultural Resources Director for the Yakama Nation (Johnson Meninick) visited the project site in May 2002 and expressed concerns similar to the Wanapum elders' concerns, but no TCP report has been prepared. Therefore, information about TCPs of importance to the Yakama Nation is presently lacking. The information provided by the Wanapum elders and Yakama representative is strongly suggestive that a TCP is present on the ridgetops of the Rattlesnake Hills.

Page 3-80, the last sentence of paragraph 7 is modified as follows:

BPA would likely adopt mitigation measures in its Record of Decision and would develop contracts as necessary to establish a binding commitment from the developer to implement the mitigation measures.

Page 3-81, the following sentence is added to paragraph 1:

Measures similar to those that would be covered in the CRMMP would also be written into the construction contracts if mitigation for cultural resources is implemented.

## **Traffic and Transportation**

Page 3-102, Figure 3.9-1 is replaced with the figure following this page.

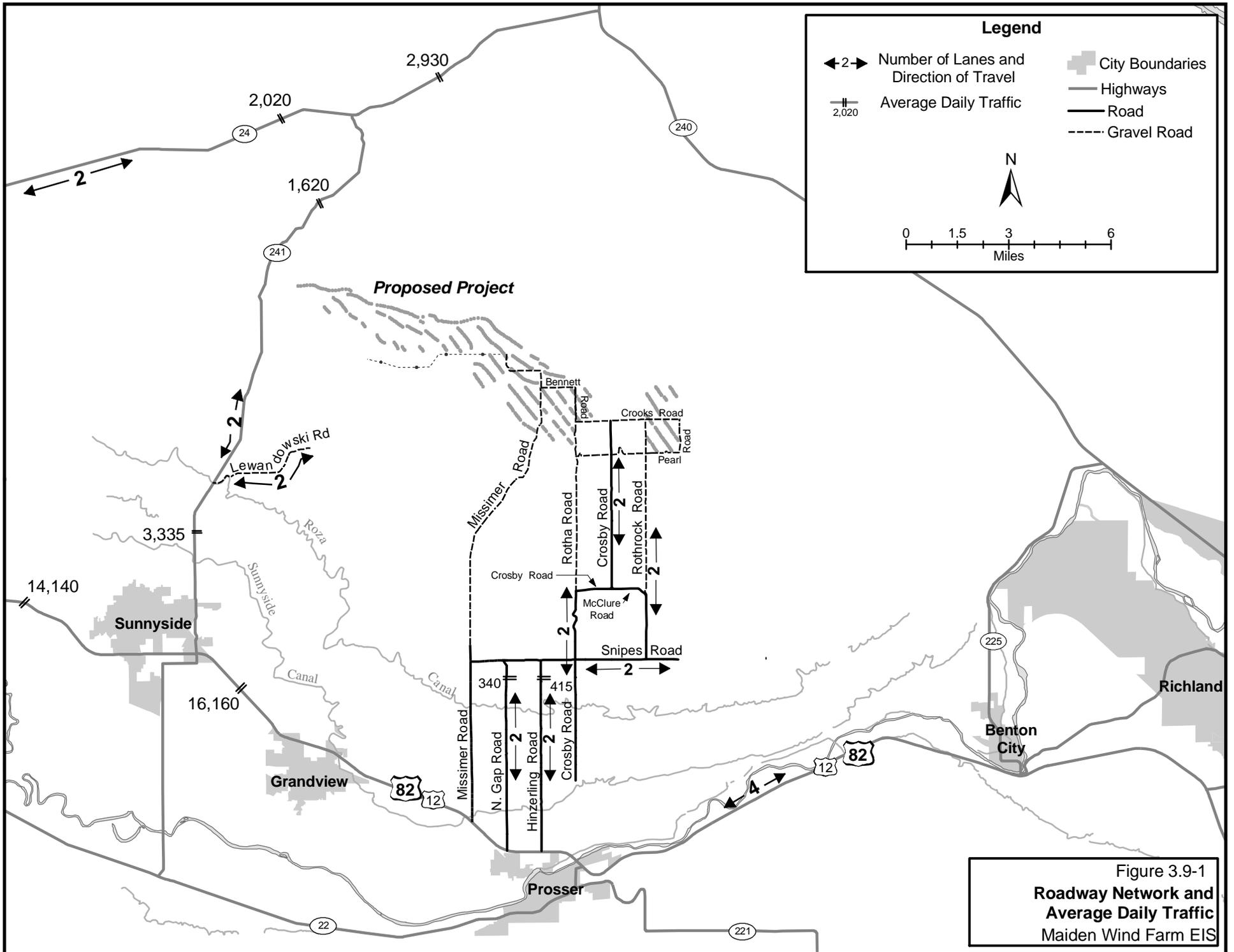


Figure 3.9-1  
 Roadway Network and  
 Average Daily Traffic  
 Maiden Wind Farm EIS

Page 3-103, the following paragraph is added at the top of the page:

Interstate 82, SR 241, and Lewandowski, Gap, Hinzerling, Snipes, and Crosby Roads would be the primary roadways to and from the project site. In addition, construction vehicles would use portions of Rothrock, Bennett, Rotha, Crooks, Jones, and Missimer Roads, which are all gravel.

Page 3-103, paragraph 1 is modified as follows:

SR 241 is a two-lane north/south roadway with narrow 2- to 3-foot gravel shoulders, open drainage ditches, and no sidewalks. SR 241 is classified as a rural-collector roadway by the WSDOT road classification system, and has a posted speed limit of ~~50~~55 mph. The roadway provides a transportation connection from SR 24 to I-82. SR 241 extends to the City of Sunnyside and to I-82, approximately 10 miles south of the project site. To the north of the site, SR 241 connects to SR 24.

Page 3-103, paragraph 3 is modified as follows:

Lewandowski Road, in the western portion of the study area (off of SR 241), is an east/west county gravel roadway, without sidewalks, and has an irrigation canal adjacent to the roadway. This gravel ~~35-mph~~ roadway turns into a private road at Sulphur Springs Ranch. There is no posted speed limit on Lewandowski Road so the general county speed limit of 50 mph applies. Safe travel speed would vary by location, weather, and road conditions.

Page 3-103, paragraph 4 is modified as follows:

SR 24 is a two-lane east/west roadway with narrow 2- to 3-foot gravel shoulders, drainage ditches, and no sidewalks. SR 24 is classified as a rural-minor arteriale~~collector~~ roadway by the WSDOT road classification system, and has variable speed limits ranging from 35 mph to 65 mph.

Page 3-104, Table 3.9-1, the entry for Lewandowski Road is changed and a new note is added as follows:

**TABLE 3.9-1**  
Existing Conditions of Affected Roadways

Roadway	Classification	No. of Lanes	Average Daily Traffic Volume <sup>1</sup>	Hourly Design Capacity <sup>2</sup>	PM Peak Hour Volume <sup>3</sup>	PM Peak Hour LOS
Lewandowski Road	<del>Arterial</del> Rural Access	2	N/A193	N/ADNA	N/A31	N/ADNA

Notes:

<sup>1</sup> Estimated number of vehicles per day both directions.

<sup>2</sup> Maximum number of vehicles per hour both directions for level of service (LOS) D.

<sup>3</sup> Vehicles per hour in both directions.

N/A = Not available.

SR = State Route.

DNA = Does not apply to this gravel road

Page 3-104, the following sentence is added to paragraph 1:

For Lewandowski Road, the p.m. peak hour is from 2:30 p.m. to 3:30 p.m.

Page 3-107, the following sentence is added to paragraph 2:

As discussed later in Section 3.10.4.2, construction would be minimized and gravel cover increased on roads during wet weather to reduce potential rutting and soil loss from roads.

Page 3-108, paragraph 3 is modified as follows:

Table 3.9-3 summarizes the projected average daily construction-related vehicle trips and the peak hour vehicle trips. Table 3.9-4 summarizes the traffic volumes and LOS of the local roadways during the construction period. The analysis was done showing all trips on every road to show the maximum impact that could occur on any given road if it were the only road used. Information on existing (background) traffic and LOS for Crosby, Snipes, and Lewandowski Roads was not available; however, because background traffic on these roads is very low, it is likely that the LOS would be C or better when project traffic is added to existing conditions. For the peak construction period, LOS C and better is the estimated level of service for a peak hour impacting the roadways. According to the Benton and Yakima County Plans, LOS C and better is acceptable; therefore, construction traffic would not reduce the LOS on the roadways to an unacceptable level and would have a low impact on local traffic.

Page 3-108, the following paragraph is added after Table 3.9-3:

In addition, the traffic from the proposed project on dirt roads could produce dust and impact visibility and air quality during traffic times. As discussed later in Section 3.12.4.2, a dust control plan would be implemented to reduce the impact of construction dust, including watering gravel roads to suppress nuisance levels of dust.

Page 3-109, Table 3.9-4, the entry for Lewandowski Road is modified as follows:

Existing Background Traffic is 193. Daily Combined Traffic is 831. PM Peak Background Traffic is 31. Combined PM Peak is 350.

Page 3-110, paragraph 1 is modified as follows:

Prior to construction, the project developer would coordinate with Yakima and Benton Counties' Public Works Departments and the Washington Department of Transportation to determine road capacity limits, obtain any necessary overweight permits, and agree on other steps to accommodate overweight loads or avoid road damage.

## Socioeconomics and Public Services

Page 3-125, paragraph 1, the second sentence is modified as follows:

Full project construction is anticipated to take about 9 months, with preconstruction activities beginning in ~~summer 2002~~ early 2003.

## Unavoidable Adverse Impacts

Page 3-137, paragraph 4 is modified as follows:

Scoping comments raised a concern about a potential adverse impact to operations at the LIGO and ~~BGRO~~BGPL facilities from project-generated vibration, and that this impact could be significant. Such an impact is not expected due to the expected low levels of vibration that would be generated by the project and the distance between the project and these facilities. ~~However, further studies will be conducted in consultation with the facilities to determine whether operation of the proposed project would disrupt the research facilities, and the results of these studies will be discussed in the Final EIS. However, the levels of potential impacts are difficult to determine given the unique type of facilities. A seismic vibration study was conducted to attempt to determine the full impact of the project on LIGO. The results of the seismic study were inconclusive. Due to the great uncertainty of possible effects and the highly speculative nature of any analysis that could be conducted, it is likely that a study for the BGPL facility would lead to the same conclusion. If operations at the facilities were substantially impaired and mitigation was not implemented, this would be considered a high and significant impact that would be unavoidable.~~

Page 3-138, paragraph 3 is modified as follows:

Development of the proposed project would result in a substantial alteration to the existing visual character and quality of the study area during the day and at night. The wind turbines would be visible to residents, agricultural workers, recreationists, and highway travelers in the project vicinity. In addition, lights required by the FAA would be visible at night. These impacts w~~ould~~ could be considered significant.

## Cumulative Impacts

Page 3-139, paragraph 4 is modified as follows:

A list of present and reasonably anticipated future projects that would be expected to produce related or cumulative impacts within a reasonable distance of the Rattlesnake Hills is presented in Table ~~3.17-13-18-1~~. The information in this table was gathered from Benton and Yakima Counties' planning departments and BPA's public documents.

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## References and Literature Cited (Chapter 4)

Page 4-2, the following entry is added after the first entry:

Schofield, Robert. 2002. *Seismic Measurements at the Stateline Wind Project and a Prediction of the Seismic Signal that the Proposed Maiden Wind Project Would Produce at LIGO*. University of Oregon, Eugene, Oregon.

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Page 4-7, the fifth entry is modified as follows:

Young, D.P., Jr., W.E. Ercikson, K.M. Bay, R.E. Good, and K., Kronner~~WEST, Inc.~~ 2002~~1~~. ~~Interim Report, Avian Baseline Study for the Maiden Wind Power Project, Yakima and Benton Counties, Washington, Final Report. April 2001- April 2002~~~~October 2001~~. Technical report prepared by Western EcoSystems Technology, Inc., Cheyenne, Wyoming, and Northwest Wildlife Consultants, Inc., Pendleton, Oregon.

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Page 4-7, the following entry is added after the tenth entry:

Finley, Aimee A., Krey Easton, Bill Roulette. 2002. Results of a Cultural Resource Inventory of the Maiden Wind Area of Potential Effect, Rattlesnake Hills, Washington. Applied Archaeological Report No. 287. Technical report prepared by Applied Archaeological Research, Portland, Oregon.

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## List of Preparers (Chapter 5)

The following preparers are added to the list:

Finley, Aimee, Archaeologist, Applied Archaeological Research. Eight years of experience in archaeology and historic preservation. Education: M.S. Archaeology.

Roulette, Bill, Archaeologist, Applied Archaeological Research. 20 years of experience in cultural resource management. Education: M.A. Archaeology; registered professional archaeologist (RPA).

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# Chapter 3. Responses to Comments

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This chapter presents comments received on the draft EIS, as well as the lead agencies' responses to these comments.

A total of about 250 comments were catalogued from 33 letters, phone calls, and emails, and one public meeting. Comments were received from Federal, state, and local agencies, private citizens, and the Yakama Indian Nation.

Comments are organized by chapter/section in accordance with the outline from the draft EIS. Each comment has an identifying number that corresponds to the number of the response (in the order in which the letter, email, or phone message was received). Comments from the public meeting are noted by "mtg." The letters, emails, phone call logs, and meeting summary are copied in whole in Chapter 4.

## Purpose of and Need for Proposed Action (Chapter 1)

### Need for Action

**Comment 10:** *I don't see the need for [the Washington wind proposal]. We are canceling gas-fired power plants all over the country and all over Washington and Oregon. So why do we need the windmill power? If I had a vote today I would vote against it.*

**Comment 12:** *I want to vote against the power generators on Rattlesnake Mountain. I don't think we need them right now.*

**Comment 18:** *It [the project] is not needed and the only benefit is to WA Winds' pocketbooks.*

**Comment 24:** *... if this wind power project made good economic sense and there was a need for it, perhaps we could justify the building of this project, unfortunately it does not even come close.*

**Comment 25:** *The large number of proposed electrical generating projects, which have been cancelled in recent months, cast doubts on the need for the project and certainly is an indicator that the projects power is not critical at this time.*

**Response:** The need for the proposed action is discussed in Section 1.2 on pages 1-2 to 1-4 of the DEIS. As discussed on these pages, BPA needs to consider the acquisition of wind power to meet its statutory obligations. In addition, acquisition of wind power is consistent with BPA's planning documents and would help comply with the National Energy Policy goal of energy source diversification. This diversification would help protect BPA and its customers from risks associated with relying too much on any one type of fuel-source for power. BPA is considering acquiring power from the proposed project in part because wind power prices are not subject to the volatility of fossil fuel energy resources.

While it is acknowledged that several other proposed generating projects have been cancelled in the region in recent months, it is important to note that the decision to cancel these other projects were made by the developers themselves, not BPA or the local jurisdictions. To date, the developer of the Maiden Wind Farm (Washington Winds Inc.) has not indicated a desire to cancel this proposed project, and BPA still wishes to consider purchasing output from it.

In addition, BPA has an obligation to plan ahead for future power needs regardless of current market rates. As has been frequently demonstrated in the Pacific Northwest and other parts of the U.S., economies go through alternating cycles of growth and recession. While the region is currently in a period of slow to no load growth that likely has led at least in part to the cancellation of several generation projects, Bonneville must make decisions based on long-term projections. As discussed in EIS Section 1.2, the overall, long-term projections in the Pacific Northwest are for load growth, which is expected to continue into the foreseeable future. Basing decisions on short-term slow growth periods does not correspond appropriately to the more frequently occurring periods when the regional economy is growing and the demand for electricity increases. Therefore, Bonneville believes it is wise to continue to consider acquisition of resources at this time, particularly resources such as wind power that help BPA meet its statutory and planning objectives.

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## Permit Requirements

**Comment 29:** *In addition to the permits listed on page 1-6 of the draft EIS the following permits may be required:*

*Water Quality: The owner of a construction site which disturbs five acres or more of total land area, and which has or will have a discharge of storm water to surface water or to a storm sewer, must apply for coverage under Ecology's Baseline General Permit for Storm Water Discharges Associated with Construction Activities.*

*The proponent must schedule an inspection by Ecology to determine the need for a storm water construction permit. Please contact Ray Latham at (509) 575-2807 to schedule an inspection.*

*Water Resources: Chapter 90.03 RCW Surface Water Code and Chapter 90.44 RCW Regulation of Public Ground Waters (wells) If the proponent plans to use water for dust suppression at your site, be sure that you have a legal water right. A water right permit is required for all surface water withdrawal and for any water from a well that will exceed 5,000 gallons per day. If in doubt, check with Department of Ecology, Water Resources. Temporary permits are usually obtainable in a short time-period. The concern of Water Resources is for existing water rights. In some instances water may need to be obtained from a different area and hauled in or from an existing water right holder.*

**Response:** Table 1.4-1 of the EIS has been updated to clarify the possible permitting requirements identified by the comment.

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**Comment 30:** *Permitting: It appears from the general description of the project, that a Hydraulic Project Approval (HPA; Chapter 77.55 RCW, WAC 220-110) to be issued by WDFW, will be required for the project. The road construction and crossing of Sulphur Creek require an HPA. The other ephemeral streams that are crossed need further review to determine if an HPA is required. Early involvement with WDFW will facilitate processing of the HPA. Once final design plans are available, please submit a completed Joint Aquatic Resource Permits Application (JARPA) for an HPA, including complete plans and specifications, to WDFW for review.*

**Response:** EIS Table 1.4-1 has been updated to include the HPA.

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## Scoping/Public Involvement

**Comment 12:** *The project sneaked upon us.*

**Comment mtg:** *I saw the project on the news last night and want to learn more.*

**Response:** EIS Section 1.6 and Appendix A describe the public involvement process followed for the study of this project. Public notices were published by both BPA and Benton County at the start of the project in June 2001. Letters were mailed to persons, agencies, and organizations that would likely be interested in or affected by the proposed project, and anyone requesting to be on the mailing list was added. The Draft EIS was mailed to all individuals and entities on the mailing list in March 2002, and a public meeting on the Draft EIS was held in Prosser, Washington in April 2002. In addition, local newspapers have written several articles on the project. A project description and related correspondence and documents are available on BPA's web site at [www.bpa.gov](http://www.bpa.gov).

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## Proposed Action and Alternatives (Chapter 2)

### Proposed Project

**Comment 26:** *The proposed project is up to 494 MW. If 494 MW are developed, this would be the largest new wind farm in the world. It would be useful to first state and show on the map the initial phase of the project. The subsequent phases of the project should also be shown on the map as well.*

*Due to the potential size of the project, we feel that interested parties should be allowed the opportunity to comment on the additional phases of development.*

**Response:** As explained on page 2-1 of the DEIS, the developer has proposed developing up to 494 MW of wind power, and the EIS thus analyzes full build-out of the project. However, BPA is only interested at this time in the possibility of purchasing up to 50 aMW (about 200 MW). While development thus likely will be phased, it is not certain where the initial 200-MW stage of development would occur on the project site, and thus not possible to indicate this initial stage (or subsequent stages) on a map. Preliminary indications are that the initial stage likely would occur where the winds are strongest (i.e., along the ridgeline as shown in Figure 2.1-2 of the EIS). However, regardless of the locations of potential stages of project development, BPA and the counties have provided an opportunity to comment on the potential environmental impacts of the full project at this time by issuing an EIS that analyzes full build out of the proposed project.

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**Comment 30:** *Tower and Collector System Construction Method and Siting: The DEIS describes two different types of construction, one regarding the footings and the other regarding overhead collector cables, that were not presented in any previous project discussion forums, Conditional Use Permit (CUP) applications, or other environmental reviews. WDFW prefers the caisson-type foundation over the spread footing type, as they are less intrusive to an adjacent habitats. Not enough information is available though, to completely assess whether the spread footing foundation has a larger footprint.*

**Comment mtg:** *What kind of foundations will be used?*

**Response:** EIS Section 2.1 describes the project facilities including the collector system (2.1.2) and foundation types (2.1.2.1). Two types of wind turbine foundations have been proposed – caisson and spread – which depend upon the turbine type and contractor selected, as well as economics. Typically, the caisson foundations are more economical and have a smaller surface area impact. The preference expressed for this type of footing is noted.

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**Comment 30:** *The wind industry made great strides to limit wind tower bird impacts by eliminating lattice structures or overhead collector systems. The wind source appears greatest on the ridge tops, where steep slopes, bedrock or lithosol soils are prevalent. How many towers or strings of towers require overhead collector cables? The DEIS does explain the higher bird mortality caused by guy wires associated with meteorological towers. These cables are smaller than transmission lines, making them more likely to cause bird mortalities. WDFW would like to see more complete details regarding the number of towers planned with overhead cable collectors and an estimate for the associated bird mortality.*

**Response:** Overhead electric collector lines may need to be utilized between some turbine strings where it is not practical to place them underground. See EIS Figure 2.1-2 for possible locations of overhead collector lines, Section 2.1.2.2 for a description of collector line and support structures (poles) and Table 2.1-1 for the number of structures (poles) that may be needed. The amount of overhead collector lines would depend on the terrain and construction conditions, but would be minimized.

Four met towers are planned for installation (see Table 2.1-1). Effects of these facilities on birds are presented in EIS Section 3.4.4.

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**Comment 24:** *Transmissions lines will be built to connect these wind towers along with maintenance and operational buildings. Electrical substations also would be installed.*

**Response:** The electrical system is described in EIS Section 2.1.2.2. Individual wind turbines would be connected through underground cables, with overhead power lines (similar to those in neighborhoods) connecting turbine strings where an underground trench would not be feasible.

A possible first phase of the project would interconnect directly to BPA's Big Eddy-Midway transmission line from the project's western substation and would not require building any new transmission line. For a possible second phase of the project, a transmission line of about seven miles would likely need to be built to interconnect with BPA's North Bonneville-Midway 230-kV transmission line, a few miles west of the project site.

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**Comment mtg:** *Will you study building new access roads?*

**Response:** Proposed access roads are identified in Chapter 2 and impacts are addressed throughout Chapter 3.

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**Comment 07:** *I have driven through the Altamont twice in the last four years and in both cases over half of the units were not rotating, apparently because it is not economical to maintain or repair some of*

*the older units. Is that what we will face here as well? Rattlesnake Mountain will make a very large white elephant indeed.*

**Response:** Wind turbines don't rotate until the wind speed is high enough to get them started, so they are often stationary. See Section 2.1.2.1 for information, including operating wind speeds, of turbines being considered for the proposed project.

For the sake of a thorough, prudent NEPA analysis, the project was analyzed as if it would be operated and maintained until terminated and decommissioned at some point in the future (i.e. after the design life of the current turbines and the term of BPA's proposed power purchase agreement). See EIS Section 2.1.4 and 2.1.5. However, technological advancements and power demand trends tend to indicate that it is more likely the project would be modernized over time rather than removed or abandoned.

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## No Action Alternative

**Comment 26:** *Renewable resources need to be examined within the context of the resources they displace and the problems they help avoid. Investing in properly sited renewable resources can protect the environment, promote economic development, diversify the power system and keep the region competitive*

**Comment 26:** *Environmental Benefits: The Maiden Wind Farm Project provides an opportunity to diversify the region's fuel supply and avoid the adverse environmental impacts associated with fossil-fueled resources and hydro. Fossil fuels are major sources of acid rain, pollution-caused illnesses, habitat destruction, smog and greenhouse gases.*

*In comparison to developing a new gas plant, developing a 494 MW wind project operating at 30% capacity factor would avoid at least 567,976 tons of carbon dioxide (the principal cause of global warming) and 54 tons of acid rain precursors (sulfur dioxide and nitrogen oxides) a year.*

*The no action alternative means allowing for more polluting and destructive resources such as new gas plants to come online immediately. Thus, the no action alternative should better document the air pollution and water quality impacts that will result from a greater reliance on fossil fuels. We believe the benefits of wind would be even more dramatic if the no action alternative reflected the full costs of a strategy that fosters more destructive resources.*

**Comment 26:** *While addressing the key issues of expanding wind generation in the area, the EIS needs to also provide a relative comparison of wind to its generation alternatives in order to fully understand the benefits of a good wind project.*

**Response:** BPA's Resource Programs EIS (RPEIS, DOE/EIS-0162, February 1993) and ROD compares impacts of different generation resources including wind, other renewable resources, and fossil fuels. The RPEIS shows how one energy resource may displace impacts associated with other resources. BPA's Business Plan EIS (DOE/EIS-0183, June 1995) makes the programmatic decision to invest in conservation and renewable resources based in large part on the comparisons shown in the RPEIS. The Business Plan sets the course for BPA to diversify the supply of energy in the region to meet customer demand in an environmentally sensitive manner.

In the EIS, the No Action Alternative assumes that the most likely generation to be developed in the region would be gas-fired combustion turbines. Therefore, brief discussions of the

impacts of a CT are included under Environmental Consequences—No Action Alternative throughout EIS Chapter 3.

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## Alternative Energy Resources

**Comment 03:** *[Other environmental resources you should consider:] using the manure of the large dairies to make electricity, also how about the tides of the ocean.*

*Why not thin out our National Forests, using all the dry trees, etc. as if we don't do something, we will lose all our timber land one of these days to wildfires. They use bark, etc. at Kettle Falls WA to generate electricity.*

*Put the young people, like the "CCC"s back into the woods, thinning trees, making fire breaks, creating ponds, hiking trails, using all the waste to generate power, and having work for the young people in the big cities.*

**Response:** The Maiden Wind Farm EIS responds to a proposal by a developer to provide BPA with power from a wind project (see EIS Section 1.2). In addition, as discussed in Section 1.2, part of the need for the action is the need to acquire power specifically from wind resources. BPA may consider acquiring power from other renewable energy projects (and subsequently conduct appropriate NEPA environmental analysis of them) such as those suggested by the commenter if an entity proposes to develop such a project, and the project generates a sufficient quantity of power and is price competitive.

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## Alternative Wind Turbine Locations

**Comment 27:** *Nowhere in the DEIS does it suggest that some wind turbines should NOT be constructed because of impacts to native vegetation, habitats or birds and wildlife. Therefore, should a number of turbines not be constructed, the DEIS does not address if the project would be economical to construct, based on power that would be generated from less turbines.*

**Response:** As discussed in Section 2.3.4 of the EIS, the turbines have been sited to minimize environmental effects to the greatest extent possible while maintaining the economic viability of the project. Because any configuration of a viable project likely would involve impacts to native vegetation and wildlife, avoidance of these impacts is not possible, and impacts to these resources thus is identified as an unavoidable impact of the project in EIS Section 3.16, Unavoidable Adverse Impacts. Chapter 3 of the EIS identifies feasible mitigation measures that could be implemented to minimize and compensate for these effects. The analysis of potential impacts provided in Chapter 3 shows that most project impacts would be at a low level with mitigation. A Site Management Plan Team (Sections 3.3 and 3.4.4.2) is also identified as possible mitigation to guide siting and construction during project implementation to further minimize and reduce impacts.

## Affected Environment and Environmental Consequences (Chapter 3)

### Project Study Area

**Comment mtg:** *Don't want properties not leased by the developer to be studied in the EIS.*

**Response:** The EIS studies the project site and appropriate surrounding areas to adequately estimate the project's impacts. Because the effects of a project can extend beyond the boundaries of the property upon which a project would be developed, it is necessary to analyze areas beyond just the project site to ensure an adequate environmental analysis under NEPA. However, inclusion of property in the study area does not in any way obligate the landowners to participate in this or any project development.

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### Land Use and Recreation

**Comment mtg:** *Concerned about 5,000 foot setback from GMA.*

**Response:** The 5,000-foot setback from the GMA agricultural zoning district boundaries does not apply to this project, because the developer submitted an application for a conditional use permit before the Benton County Board of Commissioners enacted the ordinance.

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**Comment 31:** *The Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge (Monument) is nationally recognized for its natural and cultural resources and vast landscapes. The area is a haven for important and increasingly scarce objects of natural and historic interest. Bisected by the free-flowing Hanford Reach of the Columbia River, the monument contains the largest remnant of the shrub-steppe ecosystem that once blanketed the Columbia River Basin. The proposed Maiden Wind Farm project is located immediately adjacent to the Monument's Fitzner-Eberhardt Arid Lands Ecology Reserve (ALE) Unit, and currently, much of ALE is considered within the effected area of the project. This project may potentially affect the ability of the management of the Monument/Refuge to protect the objects of natural and historic interest preserved within the Monument.*

**Response:** The proximity of the proposed project to the Hanford Reach National Monument and the ALE is shown in EIS Figure 2.1-2. As a point of clarification, portions of the ALE are within the project *study* area; this does not necessarily mean that the ALE would be affected by the proposed project. Analyses of potential impacts to natural and historic resources that may be of concern are addressed in the appropriate sections of the EIS. Regarding management of these resources on the ALE, it is unlikely that the proposed project would significantly interfere with this management based on the analysis of potential impacts to natural and historic resources contained in the EIS.

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**Comment 30:** *The DEIS states that the Arid Lands Ecology (ALE) managers don't allow general public access therefore the project would not be affected by the wind project (page 3-8). The United States Fish & Wildlife Service (USFWS) is likely to weigh in on this issue, but we also have some comments because the obvious omission of future management options for ALE reflects other Land Use errors (i.e., WDFW Wildlife areas and DNR land use) referenced within the documents. ALE is a*

*National Monument because of its numerous and unique values to the people of the United States. The USFWS is undertaking a public review process on how to manage the ALE reserve in the future. One of the key issues is how much public access to allow. Another key issue regarding wildlife management is the elk herd. WDFW supports public access on ALE in order to manage the elk herd size. This is our preferred option to transporting the animals or other suggested methods to reduce the herd size over time. Therefore, the ALE land adjacent to the Maiden Wind Project, may be open to public access in the future. The DEIS does not evaluate any land use or any other type of impact under the assumption of future public access on ALE. WDFW believes these potential impacts need to be evaluated.*

**Comment 31:** 2. Section 3.2.3.3, 3.2.4.2: *The Recreation Affected Environment and Impacts section of the draft EIS provide an incomplete characterization of the ALE. The Department of Energy historically administered the ALE as an area closed to public uses with the exception of approved research, Native American traditional uses, and environmental education purposes. The administrative transfer of the ALE to the Service in 1997, and designation of the area as a National Monument in 2000, signals a blossoming change in management direction from the past era of secrecy and defense security. Currently the Service maintains historical management of the ALE while preparing to initiate a Comprehensive Conservation Plan and Environmental Impact Statement for the Monument. The CCP/EIS will consider a range of public uses that may take place across the Monument. Preliminary issue scoping for the CCP/EIS indicates a strong interest from the Hanford Reach Federal Advisory Committee and other stakeholders in continuing to manage the ALE as a Research Natural Area, with increased opportunities for environmental education. Thus, while this area now receives limited public use which is focused on environmental education, it is reasonable to expect that in the future, these uses may be expanded at this new National Monument.*

**Response:** EIS Sections 3.2.3.3 and 3.2.4.2 discuss the effects of the project on public use of the ALE. Evaluation of future management options for the ALE is too speculative at this point to be meaningful in assessing the impacts of this project on the range of options, so that analysis is beyond the scope of this EIS. The USFWS public review process would be the appropriate forum for discussing those issues.

However, should the managers of the ALE choose in the future to change land use emphasis to allow public access and recreation, then visitors may be exposed to the Maiden Wind Farm. Whether they have a strong or mild negative or positive reaction relative to the sights of the facility on adjacent private lands versus their recreation expectations would depend on the values the individual places on such energy developments and their feelings about using the wind resource at that location.

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**Comment 06:** *We are pleased to note that the concerns of the University of Washington, the University of California Irvine, and Battelle Pacific Northwest National Laboratories regarding the possible seriously detrimental impact of the proposed Maiden Project on research funded by the National Science Foundation and being carried out at the Battelle Gravitation Physics Laboratory have been acknowledged in the DEIS.*

*To avoid confusion in subsequent discussions and correspondence, we would ask that you correct the EIS to correctly record the official name of our facility on the Hanford site at each reference to the Battelle Gravitation Physics Laboratory (BGPL).*

**Response:** The EIS has been corrected to change the site name to Battelle Gravitation Physics Laboratory (BGPL). The possible effects to the site are presented in 3.2.3.2 and 3.2.4.1.

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**Comment 30:** *Land Use and Recreation: The DEIS lacks any reference to the WDFW Wildlife Area within the study area. The Wildlife area is more than three sections of public land (Sections 9, 14, 15, and 22, Range 25 East, Township 10 North) only one mile south of Section 33 between Rothrock Road and Pearl Road. Public uses include but are not limited to, hunting, photography, horseback riding, hiking, and wildlife viewing. Additionally, the Department of Natural Resource (DNR) sections within the study area are open to the same uses as the Wildlife areas. Regardless of agricultural leases, as long as there is public access to DNR sections, public recreation is allowed. The DEIS doesn't recognize or evaluate any of these public access issues. There should be a full impact analysis for these public lands.*

**Response:** EIS Section 3.2 has been corrected to reflect the existence of the WDFW Wildlife Area noted in the comment and to provide a discussion of potential impacts. The proposed project is not expected to have any direct environmental impact or affect public access to the referenced WDFW Wildlife Area because of the distance of this wildlife area from the project area. No public access constraints for the WDFW lands would be imposed under the proposed project that would differ from the current situation. There is no public access to DNR's section 16 T11N, R24E, except by landowner permission, because it is surrounded by private land. Access to DNR section 36 T11N, R24E, would likely be restricted for safety reasons if turbines were to be located there, pursuant to agreements between DNR and Washington Winds.

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**Comment 27:** *Additionally, if the Department of Natural Resources lands included in the project area contain priority habitats, then DNR should transfer those lands to their Trust Land Transfer Program which would put the land off limits to wind power development.*

**Response:** Currently the DNR land in the project area is not included in the Trust Land Transfer Program. The designation or transfer of DNR lands to the Trust Land Transfer Program is unrelated to the action being evaluated in the EIS.

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**Comment 27:** *Item 1 in Table S-1: Land Use and Recreation - Termination of Conservation Reserve Program (CRP) contracts.*

*Lands under the Conservation Reserve Program (CRP) contracts that have been enrolled for more than 10 years should not be voided. These lands could be contributing important wildlife habitat and Federal financial support for the development of that habitat has already been paid to the landowners.*

**Comment 30:** *Conservation Reserve Program: The DEIS states that 100 acres of CRP will be lost due to project footprint impacts. The purpose of CRP was to balance soil, water, and wildlife resource needs. These coequal factors were to ensure that only the most environmentally sensitive lands were enrolled. The formula for eligibility has wildlife values equal to the other two. WDFW's preference is to replace this lost CRP function at a 3 to 1 ratio on other disturbed agricultural land, not land already enrolled in CRP. Replacement on grasslands or existing grazed areas is not acceptable unless the ratio is much higher.*

**Response:** The 2002 Farm Bill, which authorizes the CRP program, allows the installation of wind turbines on CRP lands in some circumstances. However, as discussed in EIS Section 3.2.4.1, CRP contracts would likely be terminated on those acres where permanent project facilities would be located. Landowners would be responsible for any necessary refunds of federal payments received plus interest for lands taken out of the CRP program before the end of the contract, as required by law.

Potential wildlife impacts of developing the project, whether on CRP lands or other lands, are discussed in EIS Section 3.4, Wildlife, and effects to wildlife habitat are discussed in EIS Section 3.3, Vegetation. EIS Section 3.3.4.2, Mitigation, includes a measure to revegetate, replace, or enhance every acre temporarily or permanently disturbed by the project, whether CRP land or not, with three acres to be protected for the life of the project. It is expected that this mitigation likely would be implemented on lands not enrolled in the CRP program.

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**Comment 34:** *We expected a study that would fulfill BPA's intention to determine the possible impacts of the proposed Maiden Wind Farm on BOTH the LIGO Hanford and our facility, the Battelle Gravitation Physics Laboratory (BGPL - mistakenly referred to as BGRO in the DEIS). Completion of that study would comply with the statement made in Ch. 3 (page 106) of the DEIS:*

*". . . further studies will be conducted in consultation with the facilities [LIGO and BGPL] to determine whether operation of the proposed project would disrupt the research facilities . . ."*

*Upon reading the report, we find that Dr. Schofield's methodology was constructed to investigate exclusively the impact on LIGO operations, and bears only indirectly on possible impacts on our research. Some major differences between the two facilities are:*

- 1. The ambient seismic background at our facility is measurably quieter than at LIGO and is more strongly coupled to the basalt substructure that also extends below the proposed wind farm.*
- 2. Our facility is significantly closer to the location of the proposed farm than LIGO.*
- 3. We are susceptible to broadband and narrowband noise, not just narrowband noise (as is the case with LIGO).*

*We look forward to being consulted by BPA regarding a second study that focuses upon our unique seismic noise issues. This is critical to our multi-year physics research programs and would fulfill the BPA commitment to study the potential "Moderate to High" (page S-7) impact of the Maiden Wind Farm on the BGRO and LIGO facilities.*

**Response:** The possible effect of the proposed project on the BGPL facility is discussed in Section 3.2.4.1. This effect, as well as the possible effect to the LIGO facility, were identified in the DEIS as potentially low to high for operation of the proposed project due to the uncertainty of these effects. Preliminary mitigation measures in the DEIS identified the need to conduct additional studies to attempt to better define these potential impacts. Accordingly, a seismic study, which is incorporated by reference, was prepared to analyze the potential effect at the LIGO facility. The results of the seismic study were inconclusive; however, the study did not indicate that the proposed project would have an effect different than that presented in the DEIS (i.e., the potential to substantially impair operations). Due to the great uncertainty of possible effects and the highly speculative nature of any analysis that could be conducted, it is likely that a study for the BGPL facility would lead to the same conclusion. Thus, BPA believes that no further study of this issue is necessary, and that the original assessment of impacts in the DEIS is valid. Additional mitigation has been identified in EIS Section 3.2, Land Use and Recreation.

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## Vegetation

**Comment mtg:** *Define special status species.*

**Response:** Special status species, as used in the EIS, are plants and animals listed for special protection or management consideration by federal or state authorities. Federal status species include species listed as endangered or threatened by the USFWS, species formally proposed for listing, and candidates for listing. State status wildlife species are listed by WDFW Wildlife Management Program as endangered, threatened, sensitive, or as candidates for these designations. State status plant species are those identified by the Washington Natural Heritage Program as endangered, threatened, sensitive, review, or extirpated and those on the "watch" list (i.e., species more abundant or less threatened than previously assumed). The EIS Glossary has been modified to include this explanation of special status species.

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**Comment 01:** *The current status of the bunchgrass steppe and shrub steppe ecosystem in Washington is declining in area and in condition. Over 50% of this habitat's original range has been converted to agriculture, urban or industrial areas. Of the remaining original shrub steppe habitat, less than 10% appears in good or better condition. These statistics demonstrate the degree of concern directed at any conversion of natural/seminatural shrub steppe or steppe to other uses.*

*Much of the northern edge of the proposed wind farm is adjacent to the Rattlesnake Research Natural Area on the Hanford National Monument. That natural area contains some of the best examples of native bunchgrass steppe and shrub steppe communities in the state, as well as, in the inland Pacific Northwest. The proposed wind farm is partially located in a natural/seminatural habitat corridor between the Monument and the Yakima Firing Range, another stronghold of natural, native bunchgrass ecosystems.*

*The western half of the proposed The Maiden Wind Farm is located in natural/ seminatural vegetation. Although we do not have recent inventory information of that specific area, inspection of photographs in Figures 3, 4, 7, 8, 10, and 12 and habitat descriptions of rare plant habitat in the Eagle Cap Consulting, Inc. "An investigation of the rare plant resources associated with the Maiden Wind Farm - Benton and Yakima counties, Washington" technical report (2002) indicate a continuation of high quality natural vegetation from Hanford south on to adjacent land and occurrence of native bunchgrass steppe communities on the project area.*

*The increasing rarity of this habitat for a large number of plant and animal species and the location of the proposed wind farm in a corridor between two large landscapes of native natural habitat raises concern over the direct conversion native habitat along the path turbine installation.*

**Comment 17:** *Key areas of interest to us in the proposed project area include the Hanford Reach National Monument and the Yakima Training Center. The Conservancy's identification of these priority areas comes in part from the Conservancy's Columbia Plateau Ecoregional assessment process. Based upon principles of conservation biology, our planning model yields a set of conservation areas representing biological diversity at varying biological and spatial scales. In addition to the Hanford Monument and Yakima Training Center, other private and federal ownerships harboring significant sources of remnant high quality plant communities are found within and in the vicinity of the proposed project.*

**Comment 24:** *As the Rattlesnake Hills are now, you will find a vast area essentially in its natural state, with its wildlife, vegetation and natural springs that serve these animals. The ranchers have a few 2-track ranch roads that they use to check on the livestock that are thinly spread out over the hill. They*

*have been good stewards of the land and the land with its native inhabitants have remained pretty much unmolested by development and sprawl.*

**Response:** The occurrence of vegetation habitat types and special status plant species at the project site and adjacent areas is discussed in EIS Section 3.3, Vegetation. This section also describes the effects the project would have on vegetation including grassland and shrub steppe communities. Section 3.3.4.2 Mitigation addresses how steppe habitats affected by the project would be revegetated, replaced, or enhanced at a ratio of 3:1; that is, 3 acres of steppe habitat would be revegetated, replaced, or enhanced for every acre directly altered by the project. The 3 to 1 ratio would be expected to result in an eventual increase in quality and quantity of steppe communities in the project area for the life of the project.

Mitigation likely would be implemented on or near the project site, which is within the corridor between the ALE and the Yakima Training Center.

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**Comment 17-03:** *In 1992 the U.S. Department of Energy (DOE) and the Conservancy entered into a Memorandum of Understanding that called for a cooperative and coordinated inventory of plants, animals and ecologically significant areas at Hanford. This study is noteworthy in its discovery of plant and insect species new to science. The following excerpt from the executive summary underscores the importance of this area within the Columbia Plateau ecoregion (Biodiversity Inventory and Analysis of the Hanford Site, TNC: 1999):*

*Findings from the biodiversity inventory clearly demonstrate that the Hanford Site, including the Hanford Reach, is home to a spectacular, unduplicated and irreplaceable natural legacy. Within its mosaic of habitats, Hanford supports a wealth of relatively unaltered and increasingly uncommon native plant communities, the size and diversity of which is unmatched in the Columbia Basin. Not surprisingly, significant numbers of plants, insects, amphibians, reptiles, birds, and mammals, many of which are rare or declining in Washington, were found to be associated with or dependent on these habitats. In its present condition the Hanford Site is not only a refuge, but also a genetic bank for both the common and rare plants and animals that are integral components of the shrub-steppe and Columbia River ecosystems. From a conservation standpoint, the Hanford Site is a vital – and perhaps the single most important link in preserving and sustaining the diverse plants and animals of the Columbia Basin Ecoregion.*

**Response:** Comment noted. The biodiversity inventory report cited in the comment was used as a reference for describing the existing and affected environment for the proposed project in the EIS. See Chapter 4 References and Literature cited.

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**Comment 17:** *The Yakima Training center is also a conservation priority for the Conservancy, within the constraints imposed by the mission needs of the Department of Defense. The Conservancy's report titled Identifying and Preserving Biodiversity on a Regional Scale, the Role of the Yakima Training Center in Conserving Biodiversity in the Shrub-Steppe of Washington (TNC, 1999) states that*

*The YTC supports over 100,000 acres of high quality, native plant communities in seven major habitat types and more than 30 major cover types. Although many of these types are represented to a lesser degree on other public lands, the extent at the YTC of contiguous high quality, low elevation big sagebrush... is unique and of regional importance. The YTC supports 21 of the 77 rare plant taxa currently known in the region... Three taxa found on the YTC are not known elsewhere in Washington.*

**Response:** Comment noted. The southern boundary of the Yakima Training Center is located more than 6 miles north of the east end of the proposed project site. The project would not be expected to affect biodiversity at the Yakima Training Center.

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**Comment 27:** *While the DEIS does a decent job of identifying habitat types and listed plants or plant species of concern (both Federal and State status) on a broad scale, it fails to examine an important component; that these habitat types and plant species occur in very few places in the State and destruction of them should not be taken lightly.*

**Response:** The limited distribution of certain habitat types of concern such as shrub-steppe and grassland-steppe is noted on page 3-12 of the DEIS, where the fact that much of the native vegetation in the Columbia Basin Physiographic Province has been converted to agriculture is discussed. Regarding special status plant species, the designation of these plants as “special status” is an acknowledgement that these plants are limited in distribution.

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**Comment 13:** *While the Draft EIS states that much of the area identified as grassland-steppe is dominated by non-native cheatgrass and bulbous bluegrass, it also states that varying amounts of native grasses and forbs also occur, and that scattered sagebrush patches may be present. The document does not contain an assessment of the amount of grassland-steppe in good and poor quality, nor is the condition mapped or described spatially.*

*While we have not been to the project site, our considerable experience in the region suggests that the low cover of sagebrush species in the area mapped as grassland is probably because it burned more recently than adjacent areas that were mapped as shrub-steppe. If that is the case, the distinction between shrub-steppe and grassland-steppe (with patches of sagebrush) may hold little meaning. That is, the distinction may not necessarily point to differences in quality or diversity of habitat in the long-term, although it is convenient to map areas with shrub separately from areas without because it is a feature visible on an aerial photo. Some of the better quality habitat in the area may in fact be in the steeper areas, particularly areas that have Idaho fescue. The presence of cheatgrass, even its dominance, and the lack of shrubs should not automatically dismiss the vegetation type from an area's importance on a landscape scale. Please review this matter carefully.*

**Comment 27:** *While we understand the condition of these habitats (excellent, good, moderate, damaged, etc.) might vary, there is no record in the DEIS to indicate where the most pristine and valuable vegetative communities exist, and therefore where wind turbines should not be placed (therefore, decreasing the total amount of wind turbines in the project). We believe this information should be forthcoming to help guide the number of turbines that can be constructed without impacts to priority habitats.*

**Response:** The EIS provides a sufficient discussion of habitat types and locations to adequately understand potential impacts of the proposed project. In addition, it is not necessary to map habitat quality, a subjective measure, because it is expected that project impacts to all steppe habitats would be mitigated regardless of quality. Mitigation for potential effects to all steppe habitats affected by the project is discussed in Section 3.3, Vegetation, of the EIS. Proposed revegetation, replacement, or enhancement mitigation at a ratio of 3:1 for these impacts is identified in Section 3.3.4.2, Mitigation.

There is little evidence at the proposed project site that it has burned in recent years. While it is possible the presence and extent of shrub cover is influenced by fire, the variability of the

steppe habitats on the site is likely more closely tied to soil depth which is, in turn, influenced by the slopes and underlying bedrock of the predominant topographic feature of the site (Rattlesnake Ridge). All the steppe habitats, regardless of quality or current designation, are treated similarly for the purposes of mitigating impacts in Section 3.3.4.2.

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**Comment 13:** *There appears to be an inconsistency in the number of acres that will be impacted by the project and require mitigation. The amount of 'priority shrub-steppe habitat' permanently and 'temporarily' displaced are 57.5 and 174.4 acres, respectively (Table S-1 'Potential Impacts and Mitigation of the Proposed Maiden Wind Farm', Section 2. Vegetation). These acreages do not include the damages to the vegetation type referred to in the document as 'grassland-steppe,' which would double the amount of land requiring mitigation (adding 57.2 acres permanently displaced and 187.0 acres temporary disturbed) (Table 3.3-3, page 3-23). The grassland-steppe acreages are included in the following section of the same table, but the reader is referred back to the vegetation section for specific mitigation measures. It therefore appears that damage to grassland-steppe is not being considered for mitigation.*

*Damages to both 'shrub-steppe' and 'grassland-steppe' types should be mitigated. To quote from the document's description of grassland-steppe, it 'provides cover, breeding habitat, and forage for a variety of bird and wildlife species,' and 'like the shrub-steppe, the grassland-steppe is subject to grazing, with habitat quality varying from poor to good (Page 3-15. Also see Table 3.3-1, page 3-14).*

**Comment 17:** *3. It is not clear how many total acres will be used to calculate required mitigation credits.*

**Comment 27:** *The DEIS seems to conclude that impacts to grassland-steppe is not important and we argue these lands need to be part if the configuration of total acres impacted. Pages S-9 and 3-28 of the DEIS only calls out provisions for mitigating 57.5 acres of shrub-steppe, 12.2 acres of lithosol permanently impacted but leaves out the 57.2 acres of grassland-shrub that would be permanently impacted. Additionally, the temporary impact of 187 acres of grassland-shrub also is not included in the mitigation discussion for the project. When you add these amounts of acres, it nearly doubles what would need to be mitigated for (as stated on page 3-23, Table 3.3-3).*

**Comment 30:** *The DEIS indicates that the road disturbance associated with the preferred alternative will result in 44.5 miles of new road or more than 161 acres of habitat disturbance. It is not clear in the DEIS about the amount of additional vegetation or shrub-steppe impacts associated with improving and widening 10.3 miles of existing roads. Thus, the combined total loss of shrub steppe is 231.9 acres. The combined total loss of lithosol soil habitats is 63.1 acres.*

**Comment 30:** *It appears that the total direct loss of shrub-steppe habitats will be greater than 230 acres. Direct loss may be reduced if restoration and revegetation work is implemented in the project area.*

**Response:** Estimated disturbance to vegetation by habitat type is shown in EIS Table 3.3-3 and includes estimates of both permanent and temporary disturbance due to improving and widening roads, building new roads, and all other proposed activities. Section 3.3.4.2 Priority Habitats discusses the figures in more detail relative to priority lithosols and shrub-steppe vegetation communities.

EIS Section 3.3.4.2, Mitigation states that steppe habitats in the project area (including shrub, grassland, and lithosol) that are altered by the proposed project would be mitigated with 3

acres for every one disturbed. Grassland steppe is included even though it is not considered "priority habitat" by WDFW definitions.

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**Comment 27:** *The idea of creating further fragmentation of these plant communities is disturbing and alternative means of protecting these areas should be examined, including not allowing construction of wind turbines in these areas. While the SMP process may draw a conclusion not to construct one turbine in one area or another, a holistic approach will need to be implemented to expand exclusion of wind turbines that will damage entire habitat types.*

**Response:** Plant community fragmentation is not considered an issue for the proposed project because areas between turbine sites that would be temporarily disturbed by construction activities (and subsequently revegetated) and the expanses of area between rows of turbines would be retained in existing condition or improved per mitigation for steppe habitat. See Figure 2.1-2 for a conceptual layout of turbine sites and rows; and see EIS Section 3.3.4.2 for mitigation and revegetation provisions.

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**Comment 27:** *Potential fire destruction of habitats and fire management plan*

**Comment 27:** *Fire: The potential increase of fire on the site is of concern as fires in shrub steppe country historically occurred every 100 years or so and now the frequency is closer to every 10 years. This increase in fire activity puts further pressure on a struggling shrub steppe habitat to maintain it's viability.*

**Comment 31:** *3. Section 3.3.4 Impacts of the Proposed Action, Noxious Weeds: The text indicates several negative impacts from non-native plant invasion through a bulleted list. It should also be indicated that non-native plants may also cause changes in fire frequency and intensity. This should be added to the bulleted list of negative impacts.*

**Response:** The CUP process includes a requirement for fire protection measures. Fire management would be addressed by the SMPT, as discussed in Section 3.3.4.2. In addition, as discussed in Sections 3.11.4.2 and 3.13.4.2, a fire emergency plan would be developed prior to project construction and submitted to Benton and Yakima County fire marshals for approval and shared with the Hanford Fire Department. Furthermore, it would be in the project proponent's best interests to make sure any and all fires are suppressed at the project site to avoid damage to project facilities. Thus, the frequency of fires at the site would not be expected to increase over current conditions.

The potential to change fire frequency and intensity has been incorporated into Section 3.3.4.2, Noxious Weeds.

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**Comment 27:** *Additionally, we believe a 5:1 ratio for any mitigation on lands impacted by construction and operation of the Maiden Wind Farm should apply. This is a minimum amount that is typically applied for road construction, wetland mitigation and other impacts in the State.*

**Comment 30:** *WDFW's mitigation policy is to seek greater than 1:1 mitigation ratios for impacts or direct loss of fish and wildlife habitat. Three to one (3:1) ratios are typically used. A 3:1 to 5:1 mitigation ratio is valid for shrub-steppe due to: 1) difficulty in restoring habitats in arid environments; 2) length of time to restore a climax community (20-30+ years for sagebrush); 3) fragmentation impacts*

beyond those of direct habitats lost by roads, towers etc. (e.g., transmission line built through a remnant block of shrub-steppe reduces the ecological connectivity and functionality of the whole block even though most habitat is not directly disturbed).

With consideration of expected cumulative impacts it appears that the preferred alternative will conservatively require acquisition or protection of a minimum of 690 to 1,150 acres of shrub-steppe habitat to mitigate for impacts which cannot be avoided. The lithosol soil habitat is so unique that replacement ratios have never been explored. Restoration is unlikely, and replacement of such a large segment may be difficult to find. We recommend greater than a 5 to 1 ratio (if even possible) to replace disturbed lithosol habitat. WDFW would also like to see mitigation that addresses restoration or replacement of a continuous plant community that includes all three, shrub steppe, grassland-steppe, and lithosol habitats.

**Response:** EIS Section 3.3.4.2 provides that a 3 to 1 mitigation ratio will be used for all steppe habitat types, including shrub, grassland, and lithosol. Because the quality of the habitat on the project site varies greatly, providing all habitat mitigation at a 3:1 ratio is a reasonable approach and would serve to adequately mitigate the effects of the proposed project on this habitat. The general adequacy of this mitigation was confirmed through discussions with WDFW staff and other habitat experts. Where feasible, replacement acres for mitigation will include a mosaic of steppe habitat types including shrub steppe, grassland steppe, and lithosol.

For a discussion of cumulative impacts, please see Section 3.17, Cumulative Impacts of the EIS, and the response to comments on this section later in this document.

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**Comment 27:** *Proposed Impacts of taking out 100 acres of CRP.*

**Comment 30:** *Use of CRP lands for the purpose of providing mitigation for lost shrub steppe or grassland-steppe must use variable replacement ratios to account for habitat quality and the functions actually provided. CRP acreage that is enhanced and used for mitigation credits must be removed from the CRP enrollment and dedicated as mitigation for the life of the project.*

**Response:** EIS Section 3.3, Vegetation, does not distinguish between CRP lands and other types of land because habitat types were classified based on the dominant and co-dominant plant species regardless of their management designation. As discussed in EIS Section 3.3.4.2 Mitigation, for every acre of steppe habitat affected by the project, three acres would be revegetated, replaced, or enhanced and protected for the life of the project. So, if 100 acres of CRP lands were removed from the CRP program as a result of this project and this land is all steppe habitat, this removal would be mitigated by revegetating, replacing, or enhancing 300 acres of steppe habitat.

The 2002 Farm Bill and its implementing regulations do not require that lands enrolled in the CRP program be removed from CRP if other habitat enhancing or improving activities also take place on these lands. At this time, it appears that the mitigation proposed for the project would not be implemented on lands enrolled in the CRP program. Benton County, BPA, WDFW, the developer, and landowner have identified non-CRP lands close to the project site that likely would be used for mitigation of project impacts. However, regardless of whether the mitigation is implemented on CRP land or other lands, Section 3.3.4.2 provides that three acres of mitigation would be implemented for every acre of steppe vegetation altered, and this mitigation would be dedicated as mitigation for the life of the project.

**Comment 30:** *Unmitigated impacts include the area of the habitat which will be lost through construction of roads, improved roads, staging areas, substations, wetlands, water crossing structures, riparian corridors, and well as other cumulative impacts.*

**Response:** EIS Table 3.3-3, showing the acres of habitat affected by the proposed action, includes all parts of the project, whether permanent or temporary, such as roads, staging areas, and substations. Mitigation for these impacts is provided in EIS Section 3.3.4.2. As discussed in this section, steppe acres impacted by any facilities or activities would be mitigated by revegetation, replacement, or enhancement at a 3 to 1 ratio. In addition, Section 3.8, Wetlands and Water Resources, identifies mitigation for the potential 0.004 acres of impacts to wetlands at Sulphur Creek, which would be the only impact to wetlands or waters by the project.

For a discussion of cumulative impacts, please see Section 3.17, Cumulative Impacts of the EIS, and the response to comments on this section later in this document.

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**Comment 01:** *I recommend 1) the proposed turbine locations within natural habitat be completely avoided or minimized by placing turbines and associated transmission and maintenance roads to those areas currently converted to agriculture or non-native plant species, 2) the project be coordinated with the Washington Department of Fish and Wildlife in minimizing the effects of turbines on shrub steppe and steppe wildlife species, and 3) wherever native vegetation is disturbed and where it is converted to turbine pads or roads, an equivalent area be restored with native species from adjacent seed sources.*

**Comment 27:** *Lack of avoidance of ecosystem impacts to shrub steppe and grassland habitats*

**Comment 27:** *First we want to stress that avoidance of the best and most intact shrub steppe, grassland steppe, lithosol, riparian and rock outcrop habitats needs to take place.*

**Comment 30:** *WDFW does prefer, that wherever possible, to site towers or string of towers on existing agricultural land rather than on shrub steppe or lithosol soil habitats.*

**Response:** Because the most viable wind resource is primarily located on the ridgelines of Rattlesnake Hills where shrub steppe, grassland, and lithosol habitats are also located, it is not possible to avoid these habitat types. Instead, mitigation is proposed in Section 3.3.4.2 to provide revegetation, replacement, or enhancement mitigation at a 3:1 ratio for these impacts. In addition, mitigation is provided to flag and avoid locations of special status plant species in the project area during project construction. This mitigation is reasonable for avoiding and minimizing effects to vegetation given the nature of the proposed project.

All of the property in the project area is designated for agricultural use (See EIS Section 3.2.3.2). The revegetation, replacement, or enhancement mitigation described in EIS Section 3.3.4.2 is expected to lead to a net increase in steppe habitat over time in the project area. WDFW would be expected to participate on the SMP Team to help identify opportunities for minimizing the effect of turbines on steppe habitat and related wildlife. Restored and reseeded areas would contribute to the 3:1 mitigation ratio discussed in Section 3.3.4.2.

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**Comment 27:** *Additionally, the 12 acres of rock outcrop/shrub impacted by project development area should be avoided. These habitats are vital for nesting birds.*

**Response:** EIS Table 3.3-3 shows that of the 12 acres of rock outcrop/shrub habitat in the entire study area only 0.15 acre of temporary impacts would occur in this habitat. EIS Section 3.4.4.2 shows that the effects to breeding birds across the study area are expected to be low.

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**Comment 27:** *Inadequate mitigation measures for impacts to shrub steppe and grassland habitats*

**Comment 27:** *In summary, we are extremely disappointed that the proposed Maiden Wind Farm project and the suggested mitigation measures do little to protect valuable natural resources in the area while still providing for valuable wind energy resources.*

**Comment 27:** *We believe there is an opportunity to develop wind power in a responsible manner in the State of Washington and to do so, a better balance between wind development and environmental protection should be forthcoming in the months prior to construction of the proposed 549 wind turbine Maiden Wind Farm project.*

**Comment 27:** *Item 2 in Table S-1: Vegetation and Habitat Impacts and Proposed Mitigation:*

*Some areas of the proposed project site contain some of Washington State's last and best places for native shrub-steppe, lithosol, and native grasslands habitats. On page 3-24, the DEIS states that "all shrub-steppe and lithosol habitats were considered to meet the WDFW criteria for priority habitats, along with riparian habitat along Sulphur Creek." In short, these areas need to be protected at all costs. This will be a challenge as nearly 65% of the project site contains shrub-steppe, grassland-steppe and lithosol habitats.*

**Comment 27:** *Mitigation: We suggest mitigation measures that truly mitigate for any lost habitat be further examined. Those contained on page 3-27 and 3-28 of the DEIS do not convince us that the project proponent is sincere about protecting and mitigating for habitat lost as a result of the Maiden Wind Farm.*

**Response:** Section 3.3.4.2 of the EIS identifies adequate mitigation for the impact of the proposed project on habitat. This section identifies several feasible mitigation measures for this impact, including revegetation, replacement, or enhancement of all affected steppe habitat at a 3:1 ratio for the life of the project, and provisions for a SMPT to help ensure that project impacts are minimized. Most of the mitigation measures were developed in coordination with the federal and state wildlife managers and others, so the best balance between environmental protection and project financial feasibility could be obtained.

Impacts on publicly owned land would be mitigated in the same fashion as those on private land. In the event that the project is decommissioned, all project facilities would be removed from public lands and the habitat reclaimed to the surrounding conditions existing at the time of decommissioning. Over time, native habitats on public lands could be restored.

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**Comment 27:** *It is well known that mitigation for lost shrub steppe, lithosol and native grasslands is a net-loss for the natural resources of the state. 60% of the original shrub-steppe in Washington has been lost to human disturbances. 70% of the remaining shrub steppe remains in private ownership (Identifying and Preserving Biodiversity on a Regional Scale, U.S. Army, The Nature Conservancy of Washington, July 1999.). It is important to preserve what is remaining of these habitats as there are very few areas where they can be recreated. These complex vegetative communities and habitats take decades to develop when there is no human disturbance. Add a factor of human disturbance (including noxious weed introduction), it becomes increasingly difficult to develop these resources. For the DEIS to*

*suggest that some disturbance to these habitats in only “temporary” suggests the project proponent does not understand the difficulty in “creating or restoring” these habitat types.*

**Comment 30:** *Shrub Steppe, Grasslands, and Lithosol Soils: The shrub steppe habitat within the project area has unique qualities. Shrub steppe is very fragile, and especially fragile on southern exposed slopes, in the driest climate within its Washington range. The DEIS states that the permanent loss of shrub steppe is only 57.5 acres. The temporary loss is identified as 174.4 acres. Only 12.2 and 50.9 acres of lithosol soils are lost permanently and temporarily respectively, within the project scope. Once disturbed both of these types of habitats are difficult to replace, especially lithosol. Lithosol dependent plants have unique qualities obtained only in this type of environment. Replacement is not a likely option. Again, the nature of our dry climate on the Rattlesnake Hills in Benton County makes recovery almost impossible on any short term basis. Any reference to temporary disturbance, removal, or loss, should be categorized as permanent. The length of the project proposal is only 20 years. The length for full recovery of a shrub steppe community within the project area is more than 60 years.*

*The grassland-steppe component recovery period is much less. Yet, it is an important component of wildlife habitat that needs to be restored whenever disturbed.*

**Comment mtg:** *In Benton County, sage brush/shrub-steppe takes 40-50 years to grow. In Grant County, it would take 10-15 years because they have more precipitation. Temporary impacts to sage brush/shrub-steppe really aren't temporary in this area.*

**Response:** The potential length of time necessary and difficulties in revegetating and enhancing steppe habitats in the project area is acknowledged. This is one reason why a 3:1 ratio for revegetation, replacement, or enhancement is identified in Section 3.3.4.2 of the EIS. It should be noted that although the EIS assumes a lifespan for the project of 20 years for analytical purposes, it is more likely that the project lifespan will be much greater. Because mitigation would be effective for the life of the project, revegetation, replacement, or enhancement thus likely would occur on the mitigation acreage for more than 20 years, which would increase the probability of mitigation success and lead to a net increase in steppe habitat over time in the project area.

Although noxious weed introduction could make habitat revegetation, replacement, or enhancement more difficult, a noxious weed control plan would be coordinated through the county weed board as mitigation for the proposed project. Implementation of this mitigation would be expected to minimize interference of noxious weeds with habitat revegetation, replacement, or enhancement.

Permanent impacts were identified separately from temporary impacts for the purposes of the EIS analysis as a reasonable method for distinguishing between these impacts. Temporarily impacted areas may be able to be restored during the operation of the project, and restoration would be attempted as part of habitat mitigation. However, permanently impacted areas (e.g., turbine sites and roads) would remain impacted throughout the project's life and would not begin the restoration process until after decommissioning.

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**Comment 13:** *The second major problem we have with the Draft EIS is the inadequacy of the proposed mitigation measures for disturbances to native habitat. As proposed, there is the potential for net loss of habitat, with protection afforded to the mitigated sites only for ‘the life of the project.’ It is not acceptable that mitigation for damage to steppe habitat, particularly on publicly owned land, be only temporary.*

**Comment 27:** *The idea contained in the DEIS to convert CRP and other highly altered agricultural lands to shrub steppe as mitigation ONLY FOR THE LIFE OF THE WIND POWER PROJECT simply does nothing for the natural resources of our state. The project proponent has choices:*

1. *They can come to our State and destroy our habitat and leave after they have made their money*
2. *or they can come to our State and develop wind in a responsible manner that will provide economic incentives for the community and leave a natural heritage legacy for future generations.*

**Response:** As discussed in Section 2.1.5 of the EIS, the proposed project is assumed to have a useful lifespan of 20 years based on financial evaluation and the expected term of BPA's proposed power purchase agreement. This lifespan was thus used as a reasonable estimate of the operation of the project for purposes of the EIS analysis. However, technological advancements and power demand trends tend to indicate that it is likely the project would be modernized over time rather than removed or abandoned. If such future modernization occurs, the mitigation that would be implemented as part of the proposed project would also be in effect for the longer period of time.

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**Comment 13:** *If it is completely unavoidable, habitat destruction or degradation on public land should be mitigated with acquisition of permanently protected land. We suggest that funds gained for mitigating project disturbances be at least partially channeled to the Trust Land Transfer Program (DNR), or other such program, for the permanent protection of habitat on publicly owned land.*

**Comment 27:** *One idea, to help retain landowner and local government support for the Wind Power project, should include the purchase of these important lands from the landowner by the project proponent, and have the project proponent pay the appropriate County any projected tax revenues that would have been generated from the sale of energy from turbines on that land, and transfer the lands to either WDFW or DNR Natural Heritage program for permanent protection and management. Therefore, the landowner will be compensated, we will not lose acreage of valuable habitats, Washington's natural heritage will be protected forever, and landowners and the County will not lose out on the economic incentives to develop wind while not destroying habitats. We are certain that special access provisions for the landowner should be made so that they don't lose their ability to access these beautiful areas that have been in their families for generations.*

**Comment 27:** *Purchase of property outside of the project area, in addition to the property listed above as part of the project area, should be a strong component of the mitigation package for the Maiden Wind Farm. There are priority shrub steppe, grassland and lithosol (although rare) habitats that have been identified by a variety of parties to purchase for long term protection and management. The project proponent should contribute toward the purchase of these priority lands that are near the proposed Maiden Wind Farm project.*

**Response:** EIS Section 3.3.4.2, Mitigation, states that mitigation acres would be protected for the life of the project. Because there is adequate mitigation potential for the proposed project in the close project vicinity, no permanent acquisition of mitigation lands is proposed. In addition, the financial infeasibility of the funding options suggested by the commenters makes these suggestions unreasonable for mitigating for the effects of the proposed project.

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**Comment 27:** *Individual plants are part of complex plant communities and habitats that support a number of bird and wildlife species. To protect one group of plants (as indicated in the SMPT and SMP*

process) by flagging off an area may protect that individual plant but it does not protect the plant community or ecosystem of which that plant contributes to.

**Response:** EIS Section 3.3.4.2 Mitigation includes a provision to mark special status plant communities so that they would be avoided near construction zones. This would have the net effect of protecting all the associated plants in those communities. Outside construction zones, in the remainder of the study area (about 12,228 total contiguous acres), effects to vegetation are expected to be very limited, especially when mitigation for steppe habitats, weeds, fire, and erosion control are applied and temporarily impacted areas are rehabilitated.

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**Comment 27:** *Decommissioning Impacts of the project*

**Comment 27:** *Decommissioning: As stated above in our comments regarding vegetation, the disturbance of some habitats that exist on the project site won't truly "recover" from impacts proposed in the DEIS. Of particular concern is the addition of 44.5 miles of new roads which will invite further encroachment onto sensitive lands far after the Maiden Wind Farm is decommissioned.*

**Response:** Restoration and recovery could be a lengthy process in some vegetation communities. That is one reason why the EIS recommends a ratio of 3 acres revegetated, replaced, or enhanced for every acre of steppe habitat permanently or temporarily affected by the proposed project. Any mitigation would be applied for the life of the project.

In this analysis, it was assumed that after decommissioning of the project, the roads would remain to serve the landowner. Whether or not the landowner would allow public access on those roads at that time which then could result in encroachment on sensitive areas is too speculative to predict and analyze in the EIS.

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**Comment 13:** *Finally, we suggest that heavy fines be imposed for disturbance to sites flagged as sensitive, such as for rare plants, habitat, wetlands, etc. during construction activities. Driving machinery and being involved with construction makes it difficult many operators, working in a different scale and time frame, to have a balanced appreciation of the habitat they are impacting. Levying fines may make it easier for operators to pay close attention to the impact of their actions.*

**Comment 27:** *We agree, as part of the SMP process that an on-site monitor is key to assist in construction and operational issues related to protecting habitat types. All sensitive sites disturbed during construction and operations should be matched with a substantial fine to improve the likelihood that disturbances will not take place. We suggest these fines be used for 1. any on-site restoration that needs to take place to correct violations 2. Assist in the purchase and protection of other important shrub steppe and related habitats.*

**Response:** Sensitive areas would be flagged and there would be an environmental compliance officer present to ensure sensitive areas are protected. See EIS Section 3.3.4.2 Mitigation relative to the Site Management Plan monitor.

The EIS assumes a reasonable and prudent developer would not intentionally violate any laws, so consideration of enforcement of laws, imposing fines, and disposition of funds paid as fines are outside the scope of this analysis. The Washington Department of Ecology, US Fish and Wildlife Service, and Benton County Planning may be able to provide more information on

what laws may be subject to fines relative to the proposed action, and how fines are used by jurisdictional authorities.

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**Comment 17:** *The comments given above point to the need to expand the Site Management Plan Team to include other professional stakeholders, to serve as an experts panel to develop an integrated mitigation plan. The need to address the potential to secure critical, meaningful habitat to offset other project impacts, as well as impacts from the current project proposal, is evident and timely as we collectively face the challenge of meeting the power demands of an expanding human population.*

**Comment 26:** *Vegetation and Wildlife Impacts: RNP is pleased to see that BPA and Washington Wind Inc. are working with agencies on mitigation and monitoring programs for the vegetation and wildlife impacts. We recommend including other potentially interested parties, such as the local Audubon chapters in these plans.*

**Comment 27:** *All in all the SMP process, with our suggestions for modification, should take place prior to any construction taking place and certainly should be part of any CUP granted by Benton and Yakima Counties.*

**Comment 27:** *SMPT Make-up: We suggest a representative for the environmental community be a member of this team.*

**Comment 31:** *1. The majority of the issues related to construction that are of concern to the Hanford Reach National Monument will be addressed in the proposed "Site Management Plan (SMP)". The Monument would like the opportunity to comment on the SMP and the Noxious Weed Control Plan.*

**Response:** See EIS Section 3.3.4.2 for a list of potential Site Management Plan Team representatives and the objectives of the team. As discussed in this section, a representative from the USFWS would be invited to participate on the Site Management Planning Team to create the Site Management Plan and Weed Control Plan, as well as for other purposes. It is expected that the makeup of the team will adequately represent the varied interests. If necessary, members could consult with other scientists or other industry experts to meet the objectives of the team. As discussed in Section 3.3.4.2, the Site Management Plan would be prepared before the start of construction.

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**Comment 17:** *The mitigation plan seems to devolve, for final resolution of uncertainty, to Benton County (pg 3-29, para 3.3.4.2). This means that Benton County will be responsible for resolving the acquisition strategy for project mitigation. It seems prudent to retain other representatives from the Site Management Plan (SMP) Team for cases of dispute resolution concerning key elements of mitigation, including the final acquisition formula.*

*4. The responsibility for implementing the acquisition of replacement property is not spelled out in the document. It is the Conservancy's experience that acquisition of private lands, particularly in conservative, rural areas, can be a difficult and time consuming effort, requiring specialized skills and institutional infrastructure. Without a definite, funded plan to dedicate skilled staff to this part of the mitigation plan, it will not be implemented. Given that possibility, what safeguards are offered against default of the mitigation plan? Although a monitor for the Site Management Plan is called for, what are the remedies for failure to act according to the SMP?*

**Response:** Because the permanent acquisition of mitigation lands is not proposed and the mitigation measures identified in the EIS would adequately mitigate the proposed project's

impacts, this acquisition is not necessary, and there thus is no need for a definite, funded plan for the suggested acquisition.

The primary role of the SMPT would be to assure the effective implementation of the mitigation measures adopted if a decision is made to proceed with the project. The SMPT would have representatives of the Counties as well as the resource management agencies. In cases of uncertainty, disagreement, or disputes, it would be up to the team to decide how they are resolved. Ultimately, if resolution cannot be reached, the counties would decide the issue based on the Conditional Use Permit. Because the SMP would be part of the mitigation adopted for the project by both BPA and the counties, the SMP would be binding on the developer. If the developer fails to act in accordance with the SMP, construction activities could be suspended.

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## Wildlife

**Comment 27:** *Of particular concern is the lack of historical information about species that was not accessed to help establish ranges and use of the area of the Maiden Wind Farm Project and surrounding areas.*

**Response:** As discussed in EIS Section 3.4.2.2, historical information about wildlife species that could use the project site and surrounding areas was obtained from a wide variety of sources, including the USFWS, WDFW, and WNHP. One of the primary sources of information used to establish species ranges and historical use of the project area was the Nature Conservancy's Biodiversity Inventory and Analysis of the Hanford Site. This publication is directly relevant to the study area due to the proximity to Hanford, shared early history of the two areas, and the similarity of vegetation communities, soils, and climates. A full list of information sources for the wildlife analysis is provided in EIS Chapter 4, References and Literature Cited.

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**Comment 27:** *Ferruginous Hawk: We find it incredible that of all the publications cited in the DEIS that there are no citations for the Ferruginous Hawk Study by Frederick C. Dobler, 1988, no citations from Migration and Winter Ranges of Ferruginous Hawks from Washington, Watson and Pierce 1999 - current, nor the inclusion of information from Ferruginous hawks and other raptor nest survey's that have been conducted near and on the Maiden Wind Farm project site by WDFW since 1987.*

**Response:** Available information regarding ferruginous hawks in the area was gathered from the most contemporary sources available such as the WDFW Priority Habitats and Species database. This information source includes raptor nest surveys conducted by the WDFW. Additionally, a raptor nest survey was conducted for the area, as were avian use surveys on the site during 2001 and 2002. The study by Frederick Dobler, while relevant to the historic distribution of ferruginous hawks in Washington, does not depict the current status of the species potentially affected by the project. The report by Watson and Pierce deals with migration and winter range of ferruginous hawks from Washington, not their distribution on the breeding grounds potentially affected by the project.

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**Comment 25:** *The Fixed Point (Raptor & Large Bird) Surveys which included 232 30 minute point count surveys at eight fixed stations between April 20 and October 28, 2001 may seem adequate at first glance. If the project were not located next to one of Washington's Important Bird Areas or habitat of*

*the quality and uniqueness of the Monument this survey would probably be considered adequate, but it is far from adequate for this site.*

**Comment mtg:** *Are there any standard bird surveys?*

**Response:** The avian survey protocol used for the proposed project has been used at many proposed wind plants in the Pacific Northwest and around the country. It was developed by experts in this field under the auspices of the National Wind Coordinating Committee, a group that includes representatives from utilities, government, the wind industry, and environmental organizations. The peer-reviewed survey protocol used for the baseline studies to predict potential impacts from the proposed project was reviewed and approved by USFWS and WDFW prior to implementation. The survey intensity was based on the best available information regarding avian studies at other wind sites as well as avian surveys on the ALE. Over the one-year study period, more than 400 30-minute point counts (greater than 12,000 survey minutes) were conducted on the site.

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**Comment 25:** *The surveys were also conducted during one of the driest summers in this area's recorded history, which could dramatically reduce the number of species and birds observed over the norm. Was the recent Hanford wildfire considered in terms of indicating abnormal bird occurrence during the survey period? We do not believe the surveys accurately measure the importance of the project area to birds.*

**Response:** By conducting weekly surveys of the site, variation in weather, habitat conditions, and seasons are measured. Regardless of climatic variances, the surveys provide a relative measure of bird use of the site, which can be compared to other wind plants that have been studied recently in the region and elsewhere, and used to estimate potential effects. Assuming the recent Hanford wildfire caused an influx of birds to available habitats nearby, one would assume the studies done on the proposed project site would measure higher than normal bird use for the site. Because bird use estimates were similar to or lower than other wind plant sites in the region and elsewhere studied with the same methods, events such as the recent wildlife on the Hanford Monument appear to have little to no effect on the presence of avian species in the project area.

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**Comment 25:** *The surveys also did not include the late fall and winter months which are very active periods for raptors in this area.*

**Comment 25:** *We recommend that additional surveys be conducted during all periods of the year and in much greater depth. The report should also indicate time of day the surveys were conducted. The surveys should also include how birds move to and from the Monument, utilizing radio tracking and other technologies rather than relying solely on point count surveys.*

**Response:** Avian studies for the proposed project have been conducted in all seasons, including the late fall and winter months. Surveys were conducted weekly and survey periods were scheduled to approximately cover all daylight hours. Results from the fall and winter season surveys are presented in the final technical report for the avian field studies (Young et al. 2002), which has been incorporated by reference and is available from BPA or Benton County. EIS Section 3.4 has been updated to include this updated information. The survey

methodology used was adequate to obtain sufficient information about the current use of the project area by avian species.

Regarding fall and winter raptor use, raptor use estimates for the site were highest during the fall but dropped off dramatically in the winter. A low level of raptor use was detected, which is typical of the winter season in the geographical region and habitat of the project area, and similar to other wind resource areas studied in the region.

No special studies were conducted to specifically investigate whether birds move between the Hanford Monument and the study area. However, the avian studies that were conducted provide sufficient information about birds that use or pass through the project area, which likely includes birds from the Hanford Monument. Considering the project design and the relatively low level of bird use of the study area, any change of bird travel between the sites is not likely to be detrimental to any avian species or other aspect of the environment.

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**Comment 27:** *Inadequate attention to nocturnal flight patterns of migratory birds and potential impacts from the project*

**Comment 27:** *Particularly we are extremely disappointed that no night surveys were conducted at any time during the avian survey period and therefore potential impacts to migrating songbirds and bats are not known. It is not responsible project planning to just assume there will be no impacts just because you do not have the information to support an impact. Spring migration is in full swing as we write these comments and yet, night surveys are still not being conducted.*

**Response:** EIS Section 3.4.4.3 and the technical report for the avian baseline studies discuss operational impacts to migrating songbirds and bats and other avian species. Current evidence does not support conducting extensive nocturnal studies for estimating impacts to bats or migratory songbirds. Nocturnal radar studies recently conducted at the Vansycle (Washington) and Stateline (Washington and Oregon) wind plants indicate that greater than 90% of the targets detected by the radar (which were presumed to be migrating birds) were moving at heights greater than the turbine blades, and were therefore in no collision danger (Mabee, T. J. and B. A. Cooper. 2002. Nocturnal bird migration at the Stateline and Vansycle wind energy projects, 2000-2001. Final report prepared for CH2MHILL and FPL Energy Vansycle, LLC, by ABR Inc., Forest Grove, OR). No large-scale mortality events have been documented at wind plants attributable to night migration collision (Erickson, et.al. 2001).

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**Comment 27:** *Inadequate attention of impacts to prey base.*

**Comment 27:** *Additionally we are not aware of any prey base survey's conducted, as we requested, to research the foraging behaviors of the local raptor population. Foraging behaviors could provide strong incite to impacts on raptors.*

**Response:** EIS Section 3.4.4.3 discusses the expected effects of the project on raptors. Although prey base studies were not conducted on the project site, raptor use is highly correlated with prey availability. That is, if there is a strong prey base at a particular location, a high level of raptor use is typically observed; if there is little to no prey base, raptor use is similarly low. For the proposed project, avian studies were designed to estimate raptor use of the site independent of correlated variables such as prey base. Because raptor use of the project area is relatively low, use of the area by prey is likely low as well. Bird use is a strong correlate with

abundance and therefore risk of exposure to collision with turbines. Raptor mortality has been predicted and monitored to be very low at modern wind project sites, and is not expected to be drastically different at the proposed site.

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**Comment 27:** *Many of the territories for Ferruginous hawks in Washington State and some of the most productive Ferruginous nest sites are in Benton county and of close proximity to the Maiden Wind Farm.*

*An average of 55 [ferruginous hawk] breeding pairs nested in the state from 1992 to 1995. Fifteen years of survey work have revealed 204 ferruginous hawk breeding territories in 12 Washington Counties. More than 60% are in Franklin and Benton counties, with eight counties holding 13 or fewer territories. (Washington State Recovery Plan for the Ferruginous Hawk, WDFW, Richardson, August 1996, page 17)*

*The shrub-steppe and grassland-shrub habitats as well as rock outcroppings associated with the Maiden Wind Farm project site are typical of supporting this State Threatened bird.*

*Studies show that Ferruginous hawks can exhibit 24 miles or 15 km of foraging behavior (Washington State Recovery Plan for the Ferruginous Hawk, WDFW, Richardson, August 1996, page 8). Ground squirrels and prairie dog populations surrounding the Maiden Wind Farm project site are likely prey for the area's Ferruginous hawks.*

*The ecology of this hawk, more than any other Buteo, is dependent on the native prairie ecosystems that are becoming increasingly rare and fragmented largely due to conversion to agriculture. In Washington, the decline in shrub steppe mammals such as black-tailed jackrabbits (*Lepus californicus*) and the Washington ground squirrel (*Spermophilus washingtoni*) have likely contributed to the listing of the ferruginous hawk as a state Threatened Species. Only 25% of the 200 ferruginous hawk nesting territories are occupied in most years in eastern Washington, and many of these have remained vacant for years. (WDFW Ferruginous Hawk Webpage, May 13, 2002.)*

**Response:** Comment noted. The presence of this species in the project vicinity is noted in Tables 3.4-2 and 3.4-4 of the EIS, and is discussed in Section 3.4.4.3 of the EIS. During raptor nest surveys in 2001, two previously unknown ferruginous hawk nest sites were located in the project vicinity, and this information was provided to the WDFW for use in their monitoring and recovery efforts for ferruginous hawks.

Ground squirrels may have historically been a major food source for ferruginous hawks in Washington. However, recent research by the WDFW indicates the opportunistic foraging behavior of ferruginous hawks probably means rare sources of prey such as ground squirrels are probably not as important to this species as once thought. Alternative prey such as pocket gophers, reptiles, and even gulls are the types of prey often selected by ferruginous hawks. There are no prairie dogs located in the project area or the state of Washington.

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**Comment 27:** *Many of the CRP stands are beginning to regain components of original shrub-steppe communities. These recovering systems may provide future nesting or foraging habitat for ferruginous hawks. (Washington State Recovery Plan for the Ferruginous Hawk, WDFW, Richardson, August 1996, page 19)*

**Response:** It is acknowledged that recovering CRP land may contribute to the recovery of ferruginous hawks. EIS Section 3.3.4.2 Mitigation identifies mitigation that would provide

three acres of revegetation, replacement, or enhancement of steppe habitat for each acre of steppe habitat disturbed by the proposed project, which would also provide some habitat values that could help ferruginous hawks in the future if the project were constructed.

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**Comment 30:** *On page 3-34, the DEIS states that no western sage grouse have been documented in the study area and they are unlikely to occur. Sage grouse has been documented on ALE land, even after the fire of 2000. The large continuous parcel of shrub steppe on ALE and on and near the Maiden Wind project site is valuable habitat necessary for sage grouse recovery. It's likely that they will be present in the future if they are not already.*

**Response:** No sage grouse were documented on the project site during the four-season avian surveys. Sage grouse are considered unlikely residents because of their rare occurrence in the area, so no impacts to that species are anticipated. Should the sage grouse population increase in the vicinity, there is no reason to believe they would be excluded from inhabiting the shrub steppe habitat on the site after the project is in place.

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**Comment 31:** *4. Section 3.4.3.1 Special Status Species: Pygmy Rabbit have historically occurred on the National Monument. The Monument may be critical in the recovery and re-introduction of this species.*

**Response:** Comment noted. If pygmy rabbits are reintroduced on the Monument it is unlikely they would disperse to the project site due to lack of suitable habitat containing deep soils and big sagebrush.

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**Comment 25:** *The project's location skirting the southwest boundary of the Hanford Reach National Monument's Fitzner Eberhardt Arid Lands Ecology Reserve gives us great concern. The location of 549 wind turbines arranged in up to seven succeeding rows aligned with the prevailing winds on the very doorstep of the most valuable shrub-steppe bird habitat in Eastern Washington possess an unacceptable risk to bird species, which inhabit and pass through the Hanford Reach National Monument.*

**Response:** The avian studies conducted at the site do not indicate that there is higher bird use of this site than other wind resource areas studied. There is no indication from the avian studies that mortality would be higher at this site than other wind projects. For some species groups (e.g., raptors) use was lower, indicating a lower exposure risk (see EIS Section 3.4.4).

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**Comment 18:** *This will destroy a great deal of wildlife habitat.*

**Comment 24:** *The destructive effect on this unique land and its wildlife is distressing in itself...*

**Comment 30:** *WDFW would like the proponent to recognize the potential for direct loss from project impacts on raptors (up to nine fatalities/year), including golden eagle fatalities at one per year, ferruginous Hawk fatalities at one per year, bat fatalities at more than 400 per year, and impacts on passerines (estimated mortality up to 1,565 birds per year). The shrub steppe obligate passerines, the loggerhead shrike, the sage thrasher, and the sage sparrow, are all Washington candidate species for listing as threatened or endangered species.*

**Response:** Estimated effects to wildlife habitat are described on page 3-49 in EIS Section 3.4, Wildlife, and are illustrated in Table 3.3-3 in EIS Section 3.3, Vegetation. EIS Section 3.4.4 discusses the expected impacts to wildlife species from the project.

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**Comment 27:** *Simply we do not accept that Ferruginous Hawks will only be “moderately” impacted by the Maiden Wind Farm project and we certainly do not agree that the proposed mitigation measures will give us back Ferruginous Hawks we will loose as a result of the Maiden Wind Farm.*

**Response:** Comment noted. Use of the site by ferruginous hawks is very low and very few fatalities would be expected. Impacts to ferruginous hawks are more likely to involve disturbance to a nearby nest if that nest is active during construction or operation of the site. Because of the special status of this species, this impact is considered moderate to high, and is so characterized in the EIS (this same level of impact for more common species such as red-tailed hawk would be considered low).

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**Comment 12:** *I think it should be carefully studied to make sure it doesn't involve bird migratory patterns ...*

**Response:** The one-year avian study did not indicate that the project site is within a major migratory path for birds, although migratory birds likely pass through the site on occasion. As an example, raptors likely in migration were observed in the project area during the fall months. Nonetheless, the proposed project would not be expected to adversely affect migratory bird patterns because of the porous nature of wind projects and the relatively low level of bird use of the study area, particularly as a major migratory path.

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**Comment 30:** *The exposure index comparison should be evaluated on like kind projects. It doesn't appear that other wind plants have the 2.0 Mw towers that stand 390 feet. Even if the blade is higher off the ground, it still rotates at a much higher height and is likely to affect bird flight patterns to a greater degree. The development trend is to build with the higher output towers (i.e., 2.0 Mw). Even though the DEIS states the developer will use variable tower sizes, the assumption for a full build out is a much greater total of 390 foot towers than any other wind plant that this project is being compared to. The resulting effect, is a higher mortality rate on birds.*

**Response:** The proposed project would use only one size of wind turbine for the first phase, and would likely use the same turbine size for any additional phases. The size has not yet been chosen. The tallest of the wind turbines being considered are the 2.0 MW turbines at 387 feet and the 1.5 MW turbines at 374 feet.

Most of the other newer generation wind plants that have been studied have turbines less than 2.0 MW in size. Based on available information, there is no evidence that larger turbines would have significantly higher associated per-turbine avian mortality. Since using larger turbines means fewer total turbines would be employed to produce the same energy, larger turbines would likely have lower mortality for the same amount of energy produced.

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**Comment 31:** *The construction of the wind power facility in this area, combined with the construction of the Bonneville Power Administration, Shultz-Hanford Transmission line may impact the ability of*

*Sage Grouse to naturally expand from the Department of Defense, Yakima Training Center (YTC) to the Hanford Reach National Monument. These facilities restrict the area of connectivity between the YTC and the Monument. Post-construction study of sage grouse use in the area should be conducted to determine if these facilities are preventing the grouse from using the Monument area. Alternatively, focused attention to mitigation/enhancement of habitat conditions in the interstitial areas between the Monument and YTC should be conducted to facilitate grouse expansion.*

**Response:** No western sage grouse have been detected during the four-season avian survey of the project area. Western sage grouse are considered a possible rare resident in the project study area due to recent winter observations on the Monument and the presence of scattered habitat in the project area. However, as discussed in EIS Section 3.4.4, impacts to sage grouse from the project are likely to be very low. In addition, the linear features, broad spacing, and permeability of the proposed wind project and the proposed Shultz-Hanford transmission line on a broad undeveloped landscape are not likely to be a hindrance to sage grouse or other wildlife occupying or moving through the area. The proposed mitigation (see Section 3.3.4.2) of revegetating, replacing, or enhancing steppe habitats at a three to one ratio would occur near the project site, thereby effectively improving habitat conditions within the corridor between the Yakima Training Center and Monument, and additional study of this impact thus is not warranted.

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**Comment 27:** *The obvious destruction of shrub steppe and grassland steppe by the project will impact Loggerhead Shrike, Sage Thrasher, and Sage Sparrow and possibly Sage Grouse all which are struggling due to the destruction of shrub steppe and grassland habitats in Washington State.*

**Response:** Impacts to these species from the project are expected to be minimal (see EIS Section 3.4). Sage thrasher and sage sparrow are reliant on sagebrush shrub land (a component of the shrub steppe habitat), which is found primarily on the lower slopes of the site where little development would occur. There would be minimal impacts to nesting habitat for these species. Loggerhead shrike will also nest in sagebrush shrub habitat; however they are not reliant on shrub steppe and will occur in other habitats such as agriculture, orchards, farmland, deciduous shrub and mixed habitats. There is no recent evidence that sage grouse occur on the site although the habitat is considered suitable. Impacts to these species from the project are expected to be minimal. With mitigation proposed in 3.3.4.2 of 3 acres of restored /enhanced steppe habitat for each acre of steppe habitat disturbed by the project, long term benefits to these species could be realized in the study area.

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**Comment 30:** *We believe that the project will contribute to an increased level of habitat fragmentation and a reduction in available shrub-steppe vegetation for wildlife habitat.*

**Comment 30:** *Additional impact to wildlife which is likely to result from implementation of the preferred alternative includes, the lineal distribution of noxious weeds, wildlife displacement, and some loss of ecological connectivity due to habitat fragmentation.*

**Comment 30:** *Wildlife Impacts: The evaluation of project impact to birds covers a large portion of this DEIS. The intent of the DEIS is not necessarily to address why the sensitive bird populations are at a critical stage. There is some reference to the fragmentation of shrub steppe habitat and how the shrub steppe obligate species populations are on the decline due to increased fragmentation. We concur and*

*also view this project as furthering the fragmentation of shrub steppe and leading to further decline in sensitive bird populations in the project area.*

**Response:** EIS Section 3.4 discusses the expected effects to birds and other wildlife from the proposed project. The proposed project is not expected to contribute to habitat fragmentation because areas between turbine sites that would be temporarily disturbed by construction activities (and subsequently revegetated) and the expanses of area between rows of turbines would be retained in existing condition or improved per mitigation identified in the EIS for steppe habitat. In addition, for most avian species, the characteristics of a wind plant are porous enough that movement through and use of the area would not be substantially impeded. This would allow for unobstructed movement of species.

While the potential for wildlife displacement to occur during construction is discussed in the EIS, most wildlife would be expected to return to the project site after construction and likely would continue to use the habitat in and around the development. Mitigation is identified in the EIS to minimize wildlife disruptions and displacement during construction, and to revegetate, replace, or enhance habitat for areas occupied by the proposed project. Lineal distribution of weeds in the area would be controlled through a weed control plan for the site (see EIS Section 3.3.4.2, Mitigation).

Regarding shrub steppe obligate species, the project would be expected to have minimal effect on shrub steppe obligate species such as the sage sparrow and sage thrasher recorded in the study area. The proposed development would occur mostly in steppe habitat currently used for grazing and cropland. The big sagebrush stands that obligate species inhabit are found along the lower slopes of Rattlesnake Ridge where little to no project development is proposed. The minor potential impacts from the project on these species would not be expected to cause a further decline in their populations.

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**Comment 30:** *The mitigation alternatives for these direct losses [of wildlife species] are listed below in order of preference.*

1) *Avoidance*

2) *Large scale off site mitigation banking that preserves the habitat which will lead to recovery of the Threatened and Endangered (T&E) and sensitive species and prevent further listing of other shrub steppe obligate species.*

3) *A monetary fee per tower per year over the life of the project of \$125. The funds will be used to improve, preserve, or purchase an appropriate local wildlife habitat, that is impacted from the Maiden Wind Project.*

**Response:** The preference for certain types of mitigation by the commenter is noted. Proposed mitigation for impacts to wildlife and habitat is identified in EIS Sections 3.3.4 and 3.4.4. The proposed project would be sited where possible to avoid sensitive wildlife areas. However, because the most viable wind resource is primarily located on the ridgelines of Rattlesnake Hills where avian species in particular may pass, it is not possible to completely avoid these areas. Instead, for impacts to habitat in these areas, mitigation is proposed in Section 3.3.4.2 to provide revegetation, replacement, or enhancement mitigation at a three to one ratio. Other feasible mitigation measures for the effects of the proposed project on wildlife species and habitat are also discussed in this section, as well as Sections 3.4.4.2 and 3.4.4.3.

Regarding mitigation banking, see the responses to comments on regional mitigation banking in the Cumulative Impacts section later in this document.

Regarding the suggested monetary fee per turbine, payment of such a fee has not been proposed by the developer. In addition, because such a fee may constitute a development tax or exaction with no apparent regulatory basis, the legal feasibility of this suggestion is questionable. Therefore, this suggested mitigation is not considered by the lead agencies to be a feasible mitigation measure for the proposed project.

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**Comment 25:** *The impacts of the project on bird life in the area should be fully mitigated. If the project severely impacts the birds which inhabit the 190,000 acre Hanford Reach National Monument how do you mitigate this? Where are we to find another Hanford Reach National Monument to replace the one the project severely damages?*

**Response:** The project proposes no development within the Hanford Reach National Monument and therefore no direct effects on the Monument. The most recent research at newer generation wind plants indicate that from 1-2 birds may be killed per turbine per year. This level of mortality is not considered substantial to most common species, particularly when compared to other sources of avian collision mortality. Impacts to avian species and their habitat would be mitigated by revegetating, replacing, or enhancing steppe habitats at a ratio of three to one, as well as other mitigation measures discussed in Section 3.3.4.2.

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**Comment 25:** *It seems highly unlikely that you could ever fully mitigate the damage and therefore the project should not proceed until the mitigation question is fully answered.*

**Response:** The EIS provides sufficient information concerning the impacts of the proposed project and reasonable mitigation measures to allow the agency decision-makers to make a decision about the project. NEPA and SEPA require agencies to take a hard look at the possible environmental impacts of a proposed action using the best available information at the time of the study and to publicly disclose and receive comments on the anticipated effects prior to making a decision. Full mitigation of project impacts is not required, but reasonable efforts are made to make projects environmentally sensitive.

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**Comment 27:** *In addition, the mitigation plan included in the DEIS does nothing to specify what the project proponent will do to mitigate for the estimated 360 - 1565 passerine mortality (which is not based on any data that includes migration patterns) or 400 bat mortality. We believe this discussion needs to take place prior to the final EIS.*

**Response:** The estimate of avian and bat mortality is based on observed use of the project area compared to current research findings of mortality at other operating wind projects. This research includes fatalities from the migration seasons and any migration patterns that exist at those wind plants. The mitigation proposed in EIS Section 3.3.4.2 is intended to revegetate, replace, or enhance steppe habitat at a ratio of three to one thereby augmenting local bird populations.

**Comment 27:** *Armed with the above information the project proponent could possibly avoid detrimental impacts to some of Washington State's sensitive species by not placing wind turbines in areas of importance to these birds.*

**Comment 30:** *In review of other wind farms locations and configurations, especially where raptors are prevalent, developers used a setback configuration along ridge lines. The intent for the setback appeared to be for the purpose of avoiding the highly utilized updraft areas (used by raptors) associated with geographic ridges and ridge lines. WDFW recommends an appropriate setback configuration along Yakima and Benton County ridge lines to avoid a higher mortality rate on raptors or other birds using these natural updraft areas. The specific setback distance for each string of towers proposed along the ridge line may vary, but should depend on observations made during pre project surveys and the best available information from other wind farms. The DEIS did not contain enough information for WDFW to comment in more detail on specific tower locations or string configurations.*

**Response:** The baseline biological study was used to identify high avian use areas or other environmentally sensitive locations (e.g., rare plant populations, raptor nests) that may need to be avoided by the project. The final report for the baseline study contains a spatial analysis of raptor use of the project area. Based on these results, there do not appear to be areas of concentrated use by raptors such as the ridgeline. Care must be taken when drawing conclusions from other studies especially in regards to site features. All sites are unique topographically and present different challenges when siting turbines. For example, the study referenced in this comment took place at the Foote Creek Rim wind plant in Wyoming. The topography of that site is a large butte (mesa) type feature with distinct rim edges but no defined ridgeline. The steep slopes to the butte, at a nearly perpendicular angle to prevailing winds, create distinct updraft zones along the rim edge. The prevailing winds at Rattlesnake Ridge are from the southwest. The ridge is oriented east-to-west and has a relatively gradual slope on the upwind side. These topographic features with the prevailing winds do not create sustained updraft areas that raptors typically use.

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**Comment 27:** *Inadequate mitigation measures for impacts for Ferruginous Hawks and other raptors*

**Response:** Mitigation measures for ferruginous hawk were taken from the State Recovery Plan for this species. The adequacy of these measures is based on research and policy of the WDFW.

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**Comment 27:** *Lack of avoidance of areas of historical importance for Ferruginous Hawks*

**Comment 27:** *The ferruginous hawk clearly needs help and protections to maintain and increase its populations in Washington State. Neither the construction or operation mitigation measures outlined in the DEIS provide those protections and instead show a likely impact to the species. In fact, page 3-48 of the DEIS states "One ferruginous hawk nest site is located along the southern edge of the project approximately 0.25 miles from a proposed turbine string," yet there is no suggestion in the DEIS (page 3-60) that the proposed string of turbines NOT be constructed or operate only certain parts of the year to avoid migration, nesting, and foraging activities on the hawk.*

**Response:** Based on the low use of the site by ferruginous hawks, the likelihood of direct impacts to ferruginous hawk, such as collisions with turbines, is believed to be very small. Mitigation for such low expected impact is not warranted. Effects to ferruginous hawks are more likely to center on disturbance to nest sites. EIS Sections 3.4.4.2 and 3.4.4.3 contain mitigation measures to help protect ferruginous hawks from impacts from the proposed

project. This mitigation was based primarily on recommendations found in WDFW's ferruginous hawk recovery plan.

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**Comment 30:** *The WDFW Ferruginous Hawk Recovery Plan discusses spatial and temporal buffers around nest areas that are based on human activity unrelated to wind turbines. Wind turbine farms were never considered in this recovery plan. In order to help meet species recovery goals, WDFW strongly recommends buffers around any of the identified Ferruginous Hawk nests to be a minimum of 1.1 kilometers. The juvenile hawks that fledge on these territories would be highly vulnerable to turbine mortality and electrocution (depending on tower and configuration). The 1.1 kilometer buffer also would allow the adult hawks to forage at a safer distance within their range from the nest.*

**Response:** While wind turbines may not have been considered in the development of the Ferruginous Hawk Recovery Plan, major construction activity was considered. The recovery plan identifies a range of buffers based on several factors such as time of year, prey availability, duration of disturbance, and even weather. The 0.6-mile (1 km) construction buffer was chosen based on the specific circumstances of the proposed project and the location of the nest. EIS Section 3.4.4.2 states the anticipated effects to ferruginous hawks would most likely occur as disturbance during the mating and nesting seasons. Seasonal timing restrictions would protect active ferruginous hawk nests within 0.6 mile (1 km) of any areas where construction would take place.

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**Comment 30:** *We do not support creation of artificial nest site for ferruginous hawk mitigation. Avoiding disturbance near the nest sites is our preference. If species recovery goals are met, there should be an increase in ferruginous hawk populations around the existing nest sites. WDFW doesn't believe that the DEIS adequately addresses the potential for a significant increase in the ferruginous hawk population over time.*

**Response:** EIS Section 3.4.4.3 Mitigation includes the provision to provide alternative nesting opportunities for ferruginous hawks, based on recommendations in the WDFW Ferruginous Hawk Recovery Plan. As mitigated, the project is not anticipated to be contrary to WDFW ferruginous hawk population recovery objectives over time. The intent of this measure is to create safe and productive nesting sites for ferruginous hawks to aid in the recovery of the species in Washington. With input from resource experts regarding location, secure artificial nest structures can be a valuable tool capable of facilitating successful reproduction of ferruginous hawks. WDFW would be consulted on location and type of nesting structures to provide if these measures are adopted and implemented.

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**Comment 31:** *5. Section 3.4.3.3 Bats: Field surveys for bats should be conducted prior to construction. A minimum of two years of post-construction bat surveys and mortality documentation should be conducted to evaluate impacts.*

**Response:** Available information regarding bat mortality at wind plants indicates that migrant bats appear to be most susceptible to turbine collisions. A recent study at the Buffalo Ridge Wind Plant in Minnesota indicates that resident bats in and around the wind plant are not

prone to collisions with turbines. One year of post construction monitoring of the site for avian and bat mortalities would be conducted to help assess impacts to bats.

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**Comment 27:** *Impacts of lights on Wind Towers to migrating birds and bats*

**Comment 27:** *Item 4 in Table S-1: Visual Impacts - FAA Required Lights on Towers: Impacts of lights to be placed on approximately 125 - 175 Wind Towers to migrating birds and bats should be addressed in the Wildlife section of the DEIS but it does not appear anywhere in the document.*

*As migratory songbirds generally migrate at night they are susceptible to collisions with lit towers as it effects their magnetic compass. In particular we are concerned the DEIS states red flashing lights will be used at night. While the below information is connected to a study on communications towers, the science applies to all tall towers.*

*As bird attractants, lights on tall structures have been cited in the literature well back into the early 1900's - mass bird kills seem to be related to either white or red lighting as reported by Avery et al. (1976). Light can affect birds' behavior both visually and magnetically. Birds may be attracted to red lights or become disoriented by having red lights disrupt their magnetic compasses. Color ( i.e. while, white with ultraviolet, and specific colors such as red, and flash durations (strobe, slow flash, or steady) are two aspects of lighting that can change its attraction to birds (Beason 1999). A few reports indicate that white strobe lights, whose ultraviolet content is unknown, are less attractive to birds than steady or flashing red lights (Gauthreaux and Belser 1999). Also flash duration is critical. The longer the "off" phase between the blink or flash phases of light pulses, the less likely birds are to be attracted to the lighting (Michael Avery, USDA, 1999) personal communications).*

**Comment 27:** *Migratory birds are the trust resource for the U.S. Fish and Wildlife Service and are protected by the Migratory Bird Treaty Acts. Consultation with U.S. Fish and Wildlife and the FAA prior to the final EIS and CUP's being developed should take place to establish the lowest possible number of lights on towers, light color, and strobe durations.*

**Response:** The FAA regulates lights on the wind turbines to provide safety to air traffic. No definitive studies are available to base a conclusion of effects of wind turbine tower lights on birds or bats. However, post-construction monitoring at modern wind projects that employ air traffic safety lights does not indicate bird or bat mortality is significantly different from lighted or unlighted turbines. Mitigation to minimize the visual effect of turbine lighting is provided Section 3.5.4.3 in the Visual Resources section of the EIS. This mitigation has been revised to clarify that the developer would also use lighting devices that would be least disruptive to nighttime bird and bat migrants to the extent possible within FAA guidelines.

The USFWS has been involved in the development of the baseline avian studies and the DEIS. If the project proceeds to implementation, coordination would continue with this agency and the FAA to determine the best balance of air traffic safety lighting requirements and protection of migratory birds.

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**Comment 30:** *Monitoring: In general, WDFW agrees with the continuation of pre-project avian impact monitoring, monitoring during construction, and post construction monitoring. The specific monitoring study design needs to target and adapt to the more sensitive species needs. We prefer to reach an agreement with either BPA, Benton County, or the developer on compensatory mitigation before final approval of the entire project, rather than continue to fund post construction studies that do*

*not have a chance of altering operations or result in avoidance of avian mortality. The scientific information gathered will be useful in certain forums, throughout the life of the project, but unless there are serious operational concessions, WDFW prefers a more beneficial use for these types of funds.*

**Response:** The agreement of the commenter with monitoring and the preference for agreement on monitoring design prior to project approval is noted. As discussed in Section 3.3.4.2 of the EIS, WDFW would be invited to participate on the SMP Team to help ensure the effective implementation of mitigation measures, including avian monitoring. Mitigation is provided in Section 3.4.4.3 of the EIS to help avoid avian mortality, and the provision of compensatory habitat mitigation at a three to one ratio, as specified in Section 3.3.4.2, would also serve to mitigate impacts to avian species.

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**Comment 27:** *First, as we have stated in the past, we still believe more than one year of monitoring of bird and animal species needs to occur at the proposed project site before conclusions can be made on the impacts to those species. We know that nature does not work the same way year to year and therefore a one year snapshot might give glimpses to inhabitants of an area, but by no means does it provide the answers for full impacts of a project like the Maiden Wind Farm.*

**Comment 30:** *We don't believe that monitoring or data gathering is a mitigative action. This should be a requirement upon the developer throughout the life of the project.*

**Comment 31:** *One year of post-construction monitoring is inadequate to assess impacts. A minimum of two years of monitoring and mortality documentation should be conducted to account for inter-annual variation. Each year the potential impacts to birds and bats could be affected by climate, weather conditions, and other factors.*

**Response:** Monitoring and data gathering are intended to help verify the impacts of the project, and to provide additional data concerning avian impacts from modern wind projects. Results from other wind projects indicate that one year of post construction monitoring is sufficient to validate that the levels of effects presented in the EIS are substantially accurate. In addition, one year of standardized post construction mortality monitoring followed by an incidental report system has been a standard measure at other wind plants that has been conducted for coordination with the USFWS on Migratory Bird Treaty Act issues.

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**Comment 27:** *On page 3-60 regarding "post-construction monitoring" we would add that the project proponent be prepared to financially support ongoing aerial and ground survey's to monitor the local hawk and other raptor populations to be conducted by the WDFW and/or another independent party so that should new nesting sites be discovered or current territories be inhabited then certain turbine's may be placed on a "standby" mode or decommissioned to avoid impacts on the hawks.*

**Response:** The proposed mitigation measures in EIS Section 3.4.4.3 include provisions for minimizing impacts to nesting raptors near the development area and monitoring avian and bat fatalities at the wind plant. Locations of new nesting sites discovered in 2001 have been shared with WDFW to be included in their existing monitoring program. If the project is constructed, future nest sites are expected to be away from project facilities. But, if birds choose to nest near existing, working wind towers, or in a construction zone, that may indicate they are not disrupted by the project, and the project should not be expected to alter its

operation and risk its economic viability until the nest is vacated. So, no further aerial or ground surveys to locate or monitor nest sites would be funded by the project developer.

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**Comment 31:** *6. Section 3.4.4.3 Operation Impacts, Mitigation: Post-construction study of impacts to Ferruginous hawks should be conducted. Potential impacts to Ferruginous hawks nesting on the Hanford Reach National Monument are of concern. We suggest further study using radio-telemetry to examine impacts and potential displacement of nesting Ferruginous hawks post-construction. Study specific to Ferruginous hawks would be in addition to post-construction monitoring of general avian impacts.*

**Response:** Use of the site by ferruginous hawks was very low (0.009 birds/30-min survey). No ferruginous hawk fatalities have been documented at Foote Creek Rim where ferruginous use was nearly five times greater (0.04 birds/30-min survey). Based on these results no further study other than monitoring avian fatalities and checking the local nests near the site for occupancy are warranted.

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## Visual Resources

**Comment 31:** *The spectacular vistas afforded from the Rattlesnake Mountain crest are regionally unique, and the viewshed from the Rattlesnake crest would be significantly impacted by the proposed project.*

**Comment 31:** *Section 3.5.3, Visual Resources: The regionally unique landscape views afforded from the Hanford Reach National Monument's Rattlesnake Mountain crest are not addressed in the draft EIS. . . . The draft EIS should include an evaluation and simulation of visual impacts from observation points along the Rattlesnake Mountain crest.*

**Response:** Potential visual resources impacts are discussed in EIS Section 3.5, Visual Resources. In selecting locations from which to prepare site-specific analyses and visual simulations, preference was given to locations from where the project would be visible to the general population. The discussion of operational impacts on page 3-63 of the DEIS provides a sufficient evaluation of potential impacts from locations such as the Rattlesnake Mountain crest. In addition, Figures 3.5-2 and 3.5-6 provide visual simulations from distances similar to the distance between the project site and the Rattlesnake Mountain crest and should be considered representative of the visual impact that likely would occur at there. While the turbines would be visible to the occasional viewers looking northwest along the mountain crest, they would not block the view of the ALE from that location or otherwise significantly impact the viewshed. Whether the visual impact is considered positive or negative would depend on the values of the individual observer.

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**Comment 24:** *The development of this wind farm will demand that up to 44 miles of new roads be build to accommodate the heavy construction equipment and machinery. To build these roads, two quarry pits will need to be developed to provide the gravel and rock. These invasive roads will forever scar the land and be visible for miles. They will put people, trucks & bulldozers across miles of hillside, lower elevation prairie, across canyons and around springs.*

**Response:** As shown in Table 2.1-1 on page 2-6 of the DEIS, about 44.5 miles of new roads would be constructed for the project, and these roads would be graveled roads about 20 feet wide. As noted on page 2-17 of the DEIS, one of the two quarry pits that would be used for construction already exists; thus, only one quarry pit would be new. Section 3.5, Visual Resources, describes the anticipated visual impacts of the project. The visual impact from the introduction of vehicles and equipment to the site during construction is discussed in Section 3.5.4.2, and the new access roads were included in the visual impacts analysis in Section 3.5.4.3.

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**Comment 07:** *I am opposed to the wind machine project on Rattlesnake Mountain. I have recently driven the I-5 corridor through California and witnessed the incredible visual blight of the three major wind machine projects (Palm Springs area, Tahatchipie(sp) Pass, & the Altamont Pass) on that route. The effect is dominating and overwhelming ugly.*

**Comment 07:** *The Tri-City area is all ready a financial victim of misguided Govt. benevolence in the form of the WPPS fiasco, why double the negative effect by creating new victims of a visual blight as well.*

**Comment 12:** *...and I think some visual pollution needs to be done.*

**Comment 19:** *The Rattlesnake Range is about 15 miles due north of my retirement residence and very visible. I would hate to see the view compromised.*

**Comment mtg:** *Will you look at visual impacts on neighbors, as well as on property owners who want the wind farm?*

**Comment mtg:** *I drive from here to Walla Walla and it makes me want to cry -- I don't like all those turbines. I wish we had some viewing corridors of shrub steppe.*

**Response:** Potential impacts to visual resources are discussed in EIS Section 3.5, Visual Resources. This section includes several visual simulations of the proposed wind farm from different vantage points of the project area, including adjacent properties, nearby communities, and main travel routes. The visual effect of the proposed project is identified as an unavoidable adverse and significant impact of the project in EIS Section 3.16.

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**Comment mtg:** *People are worried about the view but they'll get used to it.*

**Comment mtg:** *Distance from highway makes this location preferable to Stateline.*

**Comment mtg:** *What do the locals think of the aesthetics?*

**Response:** Comment noted. As illustrated by the comments included in this Final EIS, several people have expressed concern about the potential visual impacts of the proposed project. Whether the visual impact of the proposed project is considered positive or negative, and to what degree, depends on the values of the individual observer.

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**Comment 26:** *Visual Impacts: Although the counties affected by the proposed project have no specific policy on the impact of wind projects on visual resources, this issue, if not adequately addressed, could negatively impact the project, the expansion phases, and proposed wind projects in the vicinity.*

*The visibility of the turbines will be further heightened if the proposed project resulted in 125 to 175 daytime and nighttime lights for aircraft safety requirements. This means that one out of three to four turbines will be required to have flashing white and red lights.*

*RNP believes that the flashing white and red lights could potentially generate complaints from the local community. For example, some surrounding local residents for the Stateline Wind Project already have complained about the flashing red and white lights on the turbines. At the public meeting for another proposed wind project in Ellensburg, WA, an interested party also raised the concern of flashing daytime and nighttime lights.*

*RNP recommends BPA to 1) state what the FAA requirement is for this project and 2) make sure that the local community is fully aware of the visual impacts.*

**Comment 27:** *If taller towers (more than 1999 feet [61 m] AGL) requiring lighting to warn pilots must be constructed, the minimum amount of warning and obstruction lighting required by the FAA should be used. Where permissible by FAA and local zoning regulations, only white strobe lights should be used at night. These should be up-shielded to minimize disruption to local residents, and should be the minimum number, within minimum intensity and number of flashes per minute allowed by FAA. The use of solid red or pulsating red warning lights should be avoided at night. (The ABCs of Avoiding Bird Collisions at Communication Towers: The Next Steps, Albert M Manville, II, Ph.D. Birdlife Biologist, Division of Migratory Bird Management, U.S. Fish and Wildlife, August 31, 2000.)*

**Response:** The EIS discusses possible visual impacts from the need to install FAA required lighting in Section 3.5.4.3. FAA requirements would not be precisely known until the project developer submits a Notice of Construction or Alteration to the FAA and receives a response from the FAA. However, it is reasonable to expect that the FAA would require turbine lighting similar to the lighting it required for the Stateline wind project in Walla Walla County, Washington, and Umatilla County, Oregon, and the EIS analysis reflects this reasonable expectation. The EIS thus provides sufficient notice to interested parties of the types of lighting that would be required and potential visual impacts from this lighting. To clarify that the unavoidable visual impact of the project includes lighting, the discussion of unavoidable visual impact in Section 3.16.4 has been corrected.

Regarding the type of lighting that could be used, the recommendations in Comment 27-48 are noted. Wind turbine towers would not exceed 390 feet. However, the use of lights that are the least visible from the ground is identified as a mitigation measure on page 3-73 of the DEIS. Implementation of this measure would help minimize potential visual impacts from the required turbine lighting.

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## Cultural Resources

**Comment 33:** *This proposed wind farm is located within the Ceded Area of the Yakama Nation as identified in the Treaty of 1855 between the Yakama Nation and the U. S. Government. In the Treaty of 1855 the Yakama Nation allowed non-Yakama settlement within the Ceded Area, but retained certain very important rights. Among the retained rights are those relating to the cultural and spiritual practices of the Yakama People. When activities or developments are proposed that may affect the practice of these retained rights in the Ceded Area, the Yakama Nation becomes strongly concerned.*

**Response:** Yakama Indian Nation representatives, including members of the tribal council, were briefed on the proposed project on numerous occasions, beginning in March 2001, by the BPA and project developer. In particular, repeated efforts were made to engage the tribe in

discussions of effects to cultural resources and traditional cultural properties so that concerns could be addressed proactively. This effort is continuing.

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**Comment 33:** *Recently there have been a large number of wind farm development proposals in the Ceded Area of the Yakama Nation. Locations of many of these proposed wind farms lie upon sacred ridges and mountains that recount the creation of the Yakama people.*

*Yakama oral history describes how the proposed location of the Maiden Wind Farm was used by the Yakama people to explain the origin of different weather conditions and served as a dividing line between the north and south. Ancient Yakama trails traverse the Rattlesnake Hills and were used in the seasonal hunting, fishing, and gathering of foods. The remnants of these trails are still clearly visible from different vantage points and extend northward from the Rattlesnake Hills to the Columbia River. Archaeological Resources present at Maiden Wind Farm include burials, Cairns, talus pits, quarries, and hunting and gathering camps.*

**Response:** Thank you for the information on Yakama knowledge of the proposed project site. A report on the archaeological resources found at the project site will be submitted to the Yakama Cultural Resources Program, as well as to the Washington State Historic Preservation Officer for review and concurrence with the finding of any effects on cultural properties.

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**Comment 33:** *A second concern of the Yakama Nation is the affect these wind power farms will have upon important foods and medicines. Little has been said by the BPA on the longevity of these wind power developments. In a recent site visit to the Maiden Wind Farm project area by representatives of the Yakama Nation it was observed that this project area had an abundance of traditional foods that would be destroyed should wind turbines be constructed upon them. There is currently little research to show how much time is required for these plants to re-establish themselves on disturbed lithosols. Whether these foods become locally extinct remains an open question. BPA would again abrogate its trust responsibility to the Yakama Nation should it actively prevent the Yakama Nation from the gathering of its traditional foods and medicines upon its ceded lands.*

**Response:** The permanently altered area of the full project would be about 250 acres (about 40 percent of which is currently cropland) out of the overall project study area of about 13,000 acres. The project area was surveyed for priority habitats and special plant species communities. The EIS provides for avoidance, protection, and enhancement as mitigation for affected native vegetative communities. So, it is not likely that the proposed project would cause the local extirpation of any plant species. Further, public access and operational considerations of the project do not exclude tribal visitation and use of the lands for traditional purposes, but BPA is not in the position to control access to private property used for the project.

EIS Section 2.1.5, assumes the project would have a useful life of 20 years, equal to the length of the power purchase agreement BPA is considering with the project developer. However, it is likely the wind project would continue to operate or be modernized after the 20-year timeframe. Since BPA would not own the project, but is only involved in purchasing and transmitting generated power from its facilities, BPA has little influence over the longevity of the project.

**Comment mtg:** *At what level is tribal participation?*

**Response:** The project proposal has been presented to tribes for their information and comment at numerous meetings. These meetings have included representatives from the Yakama, Umatilla, Colville, and Nez Perce tribes. Tribal elders from the Wanapum Band of Indians visited the project site during initial cultural resource surveys. The Yakama Nation cultural resources director and staff have also visited the site. Recently, the Yakama Nation sent a letter to BPA describing a list of issues they have with wind projects on ceded lands (comment letter 33). BPA is continuing to coordinate with the tribes to discuss those issues. The following table summarizes some of the key contacts with interested tribes:

Key Contacts with Interested Tribes

Date	Activity
3/7/01	Washington Winds Inc. presented the proposed project at BPA's Transmission/Generation Tribal Government Working Group in Walla Walla, Washington. Representatives of the Yakama, Umatilla, Colville, Nez Perce, and Wanapum tribes were in attendance. BPA representatives specifically asked if there were any Yakama concerns about the proposed project and its proximity to Rattlesnake Mountain. The Yakama tribe representative did not suggest the area might be sacred.
3/7/01 – 3/8/01	Washington Winds Inc. met with representatives of the Yakama tribe at separate meetings in Toppenish, Washington to discuss the proposed project and the possibility of a wind project on the Yakama Indian Reservation.
6/6/01	Proposed project discussed again at BPA's Transmission/Generation Tribal Government Working Group in Walla Walla. Representatives of the Yakama, Umatilla, and Nez Perce tribes were in attendance. BPA representatives shared information with the Yakama about other proposed wind projects and specifically asked if there were any Yakama concerns about any of the proposed projects. The Yakama tribe representative did not suggest the Maiden project area might be sacred and indicated that they would not oppose the project and would like to work on the cultural resource surveys.
6/11/01	Notice of Intent to prepare an EIS for the proposed project sent by BPA to Yakama, Wanapum, Umatilla, and Nez Perce tribe representatives.
6/26/01	Public scoping meeting for EIS in Prosser, Washington attended by Wanapum Band representative.
July 2001	Site visit with Wanapum tribal elders, who indicated that the ridgetop in the project area is culturally sensitive and sacred to them.
7/17/01	BPA met with the Yakama Tribal Council. The Council was provided with copies of a map showing the locations of wind projects BPA was considering, including the Maiden project, and was asked if they had concerns about any of the proposed projects. BPA offered to work with the Council to attempt to resolve issues they might have about the projects, and to schedule meetings with Tribal staff to discuss individual projects. The Council expressed concerns about wind power in general, but did not make specific comments regarding any of the projects.
2/7/02	Proposed project discussed again at BPA's Transmission/Generation Tribal Government Working Group in Walla Walla. Representatives of the Yakama, Umatilla, Colville, and Nez Perce tribes were in attendance. Preliminary information from the cultural resources survey was distributed. Yakama tribe representatives expressed concerns about survey methodology and noted that rock cairns can be burial sites.
2/20/02	BPA requested assistance from Yakama tribe to finish the cultural resource surveys.
3/15/02	BPA sent Section 106 Request for Consultation Letter to Yakama tribe representatives, Wanapum Band representative, and Washington SHPO.
3/26/02	Copies of Draft EIS for the proposed project distributed to interest parties, including Yakama and Wanapum tribe representatives. Summaries of the Draft EIS sent to Umatilla and Nez Perce tribe representatives. Letters of availability for the EIS sent to other Yakama, Wanapum, and Umatilla tribe representatives.

## Key Contacts with Interested Tribes

Date	Activity
4/19/02	BPA met with representatives of the Umatilla and Nez Perce tribes to answer questions about the proposed project. Yakama representatives scheduled to attend but did not.
4/23/02	BPA met with Yakama Cultural Resource Program members concerning the proposed project and other projects. Yakama tribe representatives indicated they wanted to contract directly with BPA on remaining cultural resources work. BPA provided a written proposal, maps, field notes, and plant report. Yakama tribe representatives expressed concerns about the preliminary survey and cumulative effects to both landscape and birds.
4/23/02	Public meeting on the Draft EIS held in Prosser, Washington. No tribe representatives attended.
5/31/02	Site visit by BPA and Yakama tribe representatives. Yakama tribe representatives indicated that every hill in and around the project site was sacred and noted some traditional food and/or medicine plants at the site. Yakama tribe representatives indicated they could not participate in the remaining cultural resources work but agreed to document the importance of the site in a TCP report to be completed by early July.
7/25/02	Yakama tribe representatives notified BPA that the tribe would not provide a TCP report documenting the importance of the site or their concerns.
8/12/02	BPA received comment letter from Yakama tribe representatives concerning the proposed project and other wind projects in the region.

**Comment mtg:** *Some rock piles are from shepherders.*

**Response:** It is acknowledged that rock piles, also known as cairns, may have been constructed by various peoples, including shepherders as well as indigenous peoples.

**Comment 31:** *9. Cultural Resources: Because the Cultural Resource (CR) technical report was either not completed or not attached, little specific data other than a list of "features" and "isolates" is included in the draft EIS and it is very non-descript information. What is the connection of these features? How many of these are sites? The very first step in a cultural resource survey is to locate, record and evaluate the cultural resources within a project. It is difficult to ascertain from this document whether this step has been done. The comment that the resources recorded ".....will be formally recorded as archaeological "sites" or "isolates" as appropriate...." suggests that additional work may be in process but still is incomplete or not included here.*

*We recognize that locational information is withheld purposely but other details such as site, or perhaps in this case "feature", size, characteristic ( rock cairns being historic, prehistoric, hunting blinds, burials etc) relationship to the Area of Potential Effect (APE) and so on is absent. More importantly, there is no site evaluation for National Register of Historic Places significance, perhaps because the actual "sites" are still unknown. This is the critical determination to be made in order to complete an appropriate environmental document. The impacts of the project are directly linked to the eligibility of the sites. i.e. sites eligible for the National Register are the "historic properties" to be considered under 36 CFR 800 guidelines.*

*The information presented under 3.6 Cultural Resources is rather confusing and disjointed. The chapter lacks necessary information and cohesion of what is presented. The regional background under 3.6.3.1 is sparse and relatively generic with the exception of the Anderson Ranch. This discussion on the other hand, is good background information but seems out of place where it was inserted. Relating it to the project in the beginning, as is done briefly in the third paragraph of page 3-77, would be more helpful.*

*The Impacts section 3.64 is premature without the site details as mentioned. The comment regarding "... any impact to cultural resources is considered a high impact." is inappropriate and does not follow the 36 CFR 800 guidelines for the CR compliance procedures. The rest of the paragraph merely cites language from the regulation and tells us nothing about the CR in this project. The involvement of the Tribes and other Native American groups is commendable but I hope the text regarding the traditional cultural properties has been authorized by the appropriate tribal entities.*

**Response:** EIS Section 3.6, Cultural Resources, provides sufficient information about the potential for cultural resources in the project area and possible impacts to these resources. As discussed on page 3-75 of the DEIS, archeological investigations of the project site were conducted in July through September 2001 to locate cultural resources in the area. NRHP evaluation of potentially eligible resources will be completed as a result of the Section 106 process, which has been initiated by BPA as described on page 3-75. When the DEIS was published, the cultural resources technical report was not complete. The report is in the process of being completed and sent to the Washington State Office of Historical Preservation and the Yakama Indian Nation and the Wanapum Band of Indians for review and concurrence with findings. Since the report contains sensitive information important for safeguarding cultural resources, it has not been included in the EIS, and site references in the EIS are purposefully vague. EIS Section 3.6 has been updated to reflect the findings that will be in the final report.

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**Comment 31:** *The heading "Mitigation" is confusing as it has no section number. We assume it only references the mitigation for construction. However, the next two subheadings 3.6.4.3 and .4 incorporate mitigation within them. The idea of the cultural resource mitigation monitoring plan is useful but seems to be a larger scope, agency CR management type plan that would take time to develop. Certainly many of the specifics for inadvertent discovery, points of contact etc. could be written into the construction contracts without having what sounds like a formal "plan" being adopted.*

**Response:** The mitigation referenced by the commenter is for construction of the proposed project. Construction is the period during which there would be the highest likelihood of impacts to cultural resources (and thus the need to mitigate) because of the ground disturbance that would occur during construction. A cultural resource monitoring plan is proposed for helping address concerns of the tribes by ensuring that extra efforts are taken to safeguard cultural resources. The discussion of mitigation has been corrected to clarify that the measures similar to those that would be covered in the monitoring plan would also be written into the construction contracts if mitigation for cultural resources is implemented.

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## **Water Resources and Wetlands**

**Comment 27:** *It probably also goes without saying we also aren't thrilled with the proposed damage of riparian areas (which are scarce already) and the filling of a wetland along Sulphur Creek.*

**Comment 30:** *Wetland Impacts: Although the DEIS identifies wetlands within the project scope, there is insufficient information to determine to what extent they will be affected by the project. The proposed access roads and other associated structures should be located to avoid impacts to these wetlands. In instances where structures must be placed within or near wetlands, delineations should be completed to determine mitigation requirements.*

**Response:** EIS Section 3.8 on wetlands and water resources adequately identifies all wetland resources in the project area, and provides a sufficient discussion of possible impacts to these resources. As discussed in the EIS, no wetlands, other than Sulphur Creek, would be impacted. EIS Section 3.8.4.2 and .3 states that the disturbance at Sulphur Creek would be very minor at 0.004 acre, or approximately 180 square feet (30 feet long by 6 feet wide) from placement of a culvert in the wetland to rehabilitate an existing road. All other wetlands would be avoided and unaffected by the project. As discussed on page 3-96 of the DEIS, the developer would comply with any mitigation requirements imposed by the required permits for impacts to Sulphur Creek, and it is expected that implementing these requirements would satisfactorily mitigate for impacts to these wetlands.

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## Transportation and Traffic

**Comment 28:** *The DEIS mitigation indicates that overweight permits will need to be obtained from Yakima and Benton Counties Public Works Departments. Overweight and oversize permits will also be required from WSDOT for any hauls meeting the criteria.*

**Response:** Thank you for the clarification. These permit requirements have been added to EIS Table 1.4-1 and Section 3.9.4.2.

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**Comment 02:** *Who in Yakima County Public Works has discussed MWF [Maiden Wind Farm] impacts with the proponent's project team?*

**Response:** Bill Maggard, Engineer, Yakima County Public Works, was consulted in August 2001. Other communications with Yakima County have gone through Greg Ballard, Senior Planner, Yakima County Planning Department.

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**Comment 02:** *EIS: "This gravel 35-mph roadway turns into a private road at Sulphur Springs Ranch." Comment: There is no posted speed limit on Lewandowski Road. The general county speed limit of 50 MPH applies. Safe travel speed would vary by location, weather, and road conditions.*

**Comment 28:** *The characteristics of two state highways were incorrectly identified. The posted speed limit for SR 241 is 55 mile per hour, and SR 24 is classified as a rural-minor arterial. Table 3.9-1 does correctly identify SR24's classification.*

**Response:** Thank you for the clarification. Section 3.9.3.1 has been corrected.

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**Comment 02:** *The accident records in the County Road Information System (CRIS) database cover 1985 - 1997. Only one accident was reported in that period.*

**Response:** Thank you for the information.

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**Comment 02:** *Lewandowski Road is the only Yakima County road discussed in the EIS. I do not know of any other Yakima County - maintained roads that could be used to reach the MWF [Maiden Wind Farm] site. The first 370 feet of Lewandowski Road east of SR 241 have a bituminous surface treatment.*

*The remaining 1.48 miles of county road are gravel or dirt. Lewandowski is not dust abated (per Matt Petrusiewicz 2/5).*

**Response:** Thank you for the information. EIS Figure 3.9-1 has been corrected to show Lewandowski Road as a gravel road.

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**Comment 02:** *EIS: "The afternoon rush hour (4 p.m. to 5 p.m.) is assumed to be the period in which the maximum amount of traffic is experienced." Comment: The results of the traffic count on August 17-18, 2000, suggest that the peak period would be much earlier (2:30 - 3:30 PM).*

**Response:** Thank you for this information. It is assumed that the peak period for most roads is between 4 p.m. and 5 p.m. A sentence has been added to Section 3.9.3.1 specifying the peak hour for Lewandowski Road is between 2:30 and 3:30 p.m.

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**Comment 02:** *A 24 - hour traffic count was taken just east of the state highway intersection between about 1:30 PM 8/17/2000 and 1:00 PM 8/18/2000 (Thursday and Friday).*

**Comment 02:** *[Table showing revised information for Table 3.9-1]*

**Response:** Thank you for this information. Table 3.9-1 has been revised accordingly.

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**Comment 02:** *The evaluation criteria [in Section 3.9.4.1] look OK.*

**Response:** Thank you for your comment.

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**Comment 02:** *EIS: "Construction. . . finish before dusk, limiting the number of vehicles during peak hour traffic periods " Comment: It is likely that construction worker travel will peak at the same time as general and school bus travel on Lewandowski Road.*

**Response:** EIS Section 3.9.4 shows impacts to local traffic and roads expected from construction traffic of the proposed project, and assumes that construction worker travel would occur during peak travel hours. The sentence quoted by the comment merely reflects the potential that since it is likely that the bulk of construction would happen in spring and/or summer when dusk occurs later than peak hour traffic periods, the traffic impacts associated with project workers on local roads could be less than the impacts shown in the EIS.

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**Comment 02:** *EIS: " because background traffic on these roads is very low, it is likely that the LOS would be C or better when project traffic is added to existing conditions" Comment: LOS is not appropriate for discussing impacts on an unpaved road. Dust would become intolerable long before the vehicle - carrying capacity of the road was reached.*

**Comment 02:** *The mitigation measures appear generally adequate. There may not even be any houses or crops close enough to Lewandowski Road to be adversely affected by dust. However, I am concerned about the visibility problem that could be created by up to 200 vehicles using a gravel road within 15 minutes or so. Dust could create a safety hazard for construction traffic. The contractor should consider requiring workers to park at the end of pavement to eliminate this danger.*

**Response:** Level of Service (LOS) was examined in the EIS as a reasonable method for determining if traffic levels related to the project might lead to a need to upgrade certain road segments. Regarding potential impacts from road dust, these impacts are appropriately discussed in EIS Section 3.12, Air Quality. As discussed in this section, a recommended mitigation measure for the project is preparation of a dust control plan that would include dust abatement for unpaved roads, such as watering these roads as appropriate. In addition, dust control would be part of a construction traffic control plan and construction management plan discussed in Section 3.9.4.2, which could also include requirements for workers to carpool onto the project site from paved areas if dust became a problem. EIS Section 3.9.4.2 has been corrected to also discuss potential dust impacts on traffic.

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**Comment 02:** *EIS: Peak Hour Vehicle Trips = 269 Comment: Would all trips use every road? How long would each road be used for site access? Clearly the peak number of trips will not occur on every road for the entire construction period.*

**Response:** The analysis in EIS Section 3.9.4.2 was done to show the maximum impact that could occur on any given road as if it were the only road used. Most likely, different roads would be used everyday to varying levels so that the daily maximum of expected trips are generally spread out over the transportation system.

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## Socioeconomics and Public Services

**Comment mtg:** *Benton County is the fastest growing area in Washington. There are a lot of examples around here of responsible development.*

**Response:** Population growth in Benton and Yakima Counties is discussed in EIS Section 3.11, Socioeconomics and Public Services. 2000 Census population figures indicate Benton County grew at a slightly higher rate than average for the state, but was not the fastest growing county in the state. Yakima County population growth was slightly below the average for the state. More information about state population growth is available at <http://quickfacts.census.gov/qfd/states/53000.html>.

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**Comment mtg:** *This wind project will be good for our local economy!*

**Comment mtg:** *We need wind power to survive in these times of farming.*

**Response:** EIS Section 3.11.4 discusses many of the general socioeconomic benefits that would result from the proposed project. As discussed in this section, the project also would benefit landowners with turbines on their property because they would receive compensation from the developer for use of their land.

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**Comment mtg:** *Interested in working on project.*

**Response:** EIS Sections 2.1.3.6 and 2.1.4 show estimates of employment opportunities the project could offer. EIS Section 3.11.4 estimates effects of the project on local employment

opportunities. Most employment would be with construction and equipment manufacturing companies contracted by the project developer, Washington Winds Inc.

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## Cumulative Impacts

**Comment mtg:** *I am concerned about one company coming in and potentially blocking other companies from doing wind projects.*

**Response:** As can be seen by the list of cumulative projects in Table 3.17-1 in EIS Section 3.17, Cumulative Impacts, at least three other wind projects have been proposed in the project region. In fact, one of these projects (Nine Canyon Wind Project) has been built and is now operational. Thus, it is unlikely that one project, such as the proposed Maiden Wind Farm, is an obstacle to the development of other wind projects in the region. However, development of power generation in the immediate vicinity of the proposed Maiden Wind Farm is constrained by the amount of transmission capacity available. It is unlikely that another wind project could be sited in the immediate vicinity without building a long (and costly) transmission line to interconnect into the transmission grid, which could make such a project infeasible.

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**Comment 17:** *The DEIS contains cumulative impact analysis to site level impacts (pg 3-139. Para 3.17), a position that is not warranted given the stated need to produce a regional renewable power source, together with its transmission infrastructure (pg 1-4, para 1.2.3).*

**Response:** EIS Section 3.17, Cumulative Impacts has been prepared consistent with NEPA regulations, which require an analysis of the environmental impacts of the proposed project added to the impacts of past, present, and reasonably foreseeable future projects. Past projects are considered part of the existing environment against which the project was evaluated against in earlier sections of Chapter 3. Section 3.17 focuses on the cumulative effect of the proposed project added to projects being built, as well as projects that have been approved or proposed but not yet built.

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**Comment 30:** *The Maiden Wind DEIS, on page 3-139, states, "The proposed project is the only known wind energy development planned in the Rattlesnake Hills." Another BPA DEIS, drafted for the McNary - John Day Transmission Line Project identifies another wind plant (Ice Wind) is planned in the Rattlesnake Hills immediately south of Maiden Wind. Additionally, other developers have discussed options to build immediately south of Prosser, and almost on every ridge top in Benton County where the wind resource could support a wind farm. Other wind project feasibility studies for siting in Kittitas County, Yakima County, Grant County, Walla Walla County, and more, are under way.*

**Comment 33:** *Presently the Yakama Nation is being asked to review several wind power proposals. These proposals are treated independent of each other, with only the local impacts of the projects being considered. As more and more wind farm projects are implemented in the future the cultural and natural resource impacts predicted for each individual project may greatly underestimate the combined impacts of many projects. Because of this the Yakama Nation will oppose all wind power projects as directed by Tribal Council Resolution T-129-95-06 passed on July 11, 1995; including the Maiden Farms proposal, until a regional approach to planning, impact assessment, and mitigation is completed.*

*The Yakama Nation feels that wind power can be an important source of clean energy for the region, especially if it can be used to lessen the burden now placed upon hydropower. We are asking that BPA and the wind power project proponents assist the Yakama Nation and other appropriate agencies in the development of this regional planning effort. A well-constructed plan will facilitate wind power projects in appropriate areas, protect and enhance the cultural and natural resources of the Region, and assist in cost-effective mitigation for those impacts, which cannot be avoided.*

**Response:** Comment noted. Because the lead agencies do not have a regional plan for wind development and each wind proposal has been submitted at separate times, have different developers, and are not connected actions, separate environmental analyses of the various proposals that have been put forth by private developers is appropriate. There are numerous wind power projects proposed and being studied for feasibility in the Pacific Northwest, and more will likely materialize in the future. BPA may be involved in several future wind projects, but is not involved with or interested in the development of a large number of others for various reasons.

To address the possible combined effects of the various wind proposals, EISs such as the Maiden Wind Farm EIS are required to contain analyses of the potential cumulative effects of these proposals for a reasonably defined regional area. For the Maiden Wind Farm, this area is Benton and Yakima Counties. EIS Section 3.17, Cumulative Impacts, estimates the effects on key resources in this regional area from known past, present, and reasonably foreseeable projects (including several wind projects), regardless of the sponsor or project proponent.

The Ice Wind project was a site first proposed by Washington Winds early in the development process that was ultimately replaced by the current Maiden Wind Farm – meaning no such proposal exists now. There are no other known wind energy developments planned in the Rattlesnake Hills.

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**Comment 30:** *Cumulative Impacts: WDFW does not concur with the conclusion of insignificant cumulative impacts on loss to vegetation, land use, or wildlife.*

**Comment 30:** *We don't believe that this document addresses cumulative impacts nor cumulative mitigation options accurately. In addition to the absence of the projects referenced above, total impacts from the identified projects on page 3-139 to -140, are inaccurate in all three categories, land use, recreation, and wildlife. There is a potential for over 2,000 wind turbines just on the Rattlesnake and Horse Heaven Hills based on current wind farm applications or feasibility studies. This figure doesn't even include the existing Stateline Wind Farm in nearby Walla Walla County. The cumulative impact evaluations are incomplete and not enough information is provided to accurately assess the total project impacts. The result of a lack of information is that it keeps the environmental impact estimates lower on the Maiden Wind Project.*

**Response:** The EIS does not conclude that there would be insignificant cumulative impacts to land use, vegetation, or wildlife. As discussed on pages 3-140 to 3-142 of the DEIS, the proposed project, in combination with the identified cumulative projects, would have a potentially significant cumulative impact on these resources.

The lead agencies believe that the discussion of cumulative impacts in EIS Section 3.17 is a reasonable analysis of potential cumulative effects, and does not underestimate these impacts. While there has been much speculation on the number of wind turbines that could be installed in the project vicinity, the EIS focuses on those cumulative projects that are being built or are

reasonably foreseeable, which is consistent with NEPA. In addition, the cumulative impact analysis area has been reasonably defined as Benton and Yakima Counties, and all projects (wind or otherwise) were accounted for in Section 3.17.

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**Comment 30:** *While it is relatively easy to estimate the acreage of impacted habitats, cumulative impacts and disturbance associated with the projects are more difficult to assess.*

**Response:** Cumulative impacts are discussed in Section 3.17 of the EIS. It is agreed that cumulative effects are more speculative and difficult to assess than direct project impacts since they include consideration of all sources of impacts on an aspect of the environment that have occurred, is occurring or is likely to occur from foreseeable future projects. However, the EIS provides a reasonable discussion of potential cumulative impacts, including impacts to habitat, based on available information.

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**Comment 17:** *2. The lack of a regional cumulative impact analysis leads directly to the proposed site level impact mitigation strategy. Based on the Conservancy's research cited above, and other research cited in the DEIS, fragmentation of critical shrub-steppe matrix by conversion to development, and loss to introduction of invasive species requires mitigation at a sufficient scale. By not acknowledging the cumulative regional impact of other wind power proposals and transmission line facilities projects, the replacement actions will occur in an uncoordinated, piecemeal fashion. The end result of project-scale mitigation projects will be a fragmented patchwork of disjunct areas that will not serve as a functional landscape. In order for the remnant regional shrub-steppe matrix to function, large areas that still support ecosystem processes need to be conserved.*

**Comment 30:** *Unmitigated Impacts: It is assumed that other proposed projects associated with wind power, transmission lines, substations, and gas turbine power plants identified in the DEIS, will also require some mitigation. We strongly advocate the development of a comprehensive mitigation banking plan which consolidates necessary mitigation for all proposed projects. Scientific literature indicates that shrub-steppe habitat owes a great deal of its functionality to large, contiguous blocks, and mitigation banking is a valid means of mitigating for loss of shrub-steppe vegetation. Mitigation from each proposed project could be banked to secure large blocks of relatively intact shrub-steppe habitat. The mitigation banking effort could be coordinated through BPA's existing Fish and Wildlife programs.*

**Comment 30:** *It is for the stated reasons above that WDFW reemphasizes the need to approach evaluation of wildlife and shrub steppe impacts from this projects and all other BPA projects with a programmatic strategy. The benefits to Benton County and Yakima County natural resources, and other southeast Washington resources could be compounded with a large scale shrub steppe mitigation banking program.*

**Comment mtg:** *Mitigation banking for BPA and other projects is preferred. This piecemeal approach to mitigation will hurt us. It is a large tract of land to split up.*

**Response:** The preference expressed by the comments for a regional mitigation banking strategy is noted. The lead agencies believe that the mitigation identified in the EIS would adequately mitigate for the effects of the proposed project, and that participation in a mitigation banking program is not necessary for this project. Collective mitigation banking for unrelated projects exceeds the scope of this single project EIS. Chapter 3 of the EIS contains measures that would mitigate project effects on many environmental components, including vegetation and wildlife. For privately proposed projects such as the Maiden Wind Farm,

developers may consider contributing to a regional mitigation banking strategy in lieu of the mitigation proposed for the project, if and when such a strategy is developed by the various natural resource management agencies. Because there currently is no mitigation banking program in existence and it is uncertain whether such a strategy will be created, this type of mitigation is not feasible at this time, and is best left for negotiations between the private developers and the natural resource management agencies.

It is important to note that BPA's existing Fish and Wildlife program mentioned in the comments is a statutorily-derived program administered to mitigate for the effects of the development of the Columbia River federal hydrosystem. As wind projects are not part of this system, funds from this program are not available as suggested by the commenter.

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**Comment 31:** *8. Section 3.17.3: The estimated 1425 bird strike mortalities would be in addition to any other anthropogenic causes of mortality. The argument that other causes, such as collision with communications towers, vehicles, building, etc., would cause higher mortality than those caused by the wind turbines, makes no sense, because the other sources of mortality would still exist, and the wind turbines add to those existing mortalities. This is essentially 1425 mortalities that would not have otherwise occurred. This does significantly contribute to the large number of avian mortalities that are caused by all anthropogenic sources in the area.*

**Comment 33:** *The Yakama Nation is particularly concerned that the regional effects of these wind farms on flora and fauna have not been adequately studied. A recent review of Bonneville Power Administration New Transmission and Generation Project Maps indicate that the Yakama Nation could soon be completely encircled by wind power farms. Our fear is that this will significantly change the existing flight paths of migratory birds that return annually to the Yakama Reservation. These birds have a spiritual value for the Yakama people and have been part of Yakama culture from its creation. Should these migratory birds fail to return to the Yakama Reservation the Bonneville Power Administration would abrogate its trust responsibility to Article 3 of (12 Stat 951) by actively preventing the hunting of game upon the reserved lands of the Yakama Nation.*

**Response:** EIS Section 3.17 qualitatively estimates that the incremental amount of bird mortality attributable to proposed wind projects analyzed in the cumulative impact analysis would be insignificant compared to the level of bird mortality from all other sources in Benton and Yakima counties (estimated based on the maximum number of turbines for the four wind projects in the area). However, it is acknowledged in this section that the proposed project, when combined with the other cumulative urban development projects in the region, could have an impact on avian species.

Regarding the return of migratory birds, the avian baseline study conducted for the proposed project did not indicate that the project study area is in a key migratory bird route. In addition, the implementation of the proposed project, in addition to other wind projects, would not be expected to prevent the large-scale return of migratory birds to the Yakama Indian Reservation because of the expected limited extent of effects on migratory birds from these projects.

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## Appendix A

**Comment mtg:** *WDFW did not see their scoping letter in the agency correspondence appendix.*

**Response:** Appendix B contains letters from agencies required by regulations to satisfy the NEPA process. Letters in this appendix typically relate to formal consultation with regulatory agencies pursuant to the Endangered Species Act or the National Historic Preservation Act.

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## Miscellaneous Comments

### General Comments

**Comment 17:** *The proposal clearly states the purpose for the project and distinguishes between the action and No Action alternatives. The legislative and market contexts for the project are also clearly set forth.*

**Comment 23:** *The Department of the Interior reviewed the Draft Environmental Impact Statement for the Construction of Maiden Wind Farm to Generate Up to 494 MW of Electricity in Benton and Yakima County, Washington. The Department does not have any comments to offer.*

**Comment 27:** *While wind resources are an exciting option of providing additional energy sources to the area, construction of such facilities also provides many challenges. We hope our concerns will be addressed in the near future and the final EIS is prepared.*

**Comment 32:** *The Environmental Protection Agency (EPA) has reviewed the draft environmental impact statement (EIS) for the Maiden Wind Farm. Our review was conducted according to our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA). Section 309 of the CAA directs the EPA to review and comment in writing on the environmental impacts of any major federal action.*

*Based upon our review, EPA has no significant concerns with the project and has rated it LO, Lack of Objection. EPA's earlier comments in a scoping letter including a description of existing conditions, environmental consequences, tribal consultation and tower design and avian mortality have been satisfactorily answered.*

**Comment 35:** *Washington State Department of Natural Resources (DNR) supports the Maiden Wind Farm Proposal as a viable power source. DNR is currently working with the applicant to lease portions of state owned lands located in Sections 15 and 36, Township 11, Range 24 East W. M. These two sections could be incorporated into the overall wind farm project and are included in the environmental reviews in process.*

*DNR's lease agreement will address issues, such as site reclamation, weed control, rights of way, road construction and use, wildfire prevention and planning, among other site specific issues. Since the DNR parcels are a portion of the overall wind project, the department plan is to have the SEPA process for state lands conducted through the county; with Benton County acting as Lead Agency on this action.*

**Response:** Comments noted. Thank you for reviewing the DEIS. This Final EIS provides responses to comments submitted on the DEIS.

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## Support for Renewable Energy

**Comment 01:** *I support the development of alternative energy sources with minimal impact of the natural heritage values.*

**Comment mtg:** *I prefer wind to polluting technologies, but prefer hydro to wind. Good hydro, that is.*

**Response:** Comments noted.

## Support for the Project and Wind Energy

**Comment 03:** *[I think the environmental analysis would be better if:] more wind machines were put in the areas of the state, saving the burning of coal & oil to produce our electric needs. The wind will be always with us. Maybe not coal & oil deposits.*

**Comment 09:** *Was urged by my daily paper to put in my comments about the wind project on Rattlesnake. I am definitely in favor of it. Anywhere we put a wind generator is good. The more the better.*

**Comment 26:** *RNP commends Bonneville's leadership and commitment to developing wind. We support properly sited wind projects that have taken the necessary measures to mitigate all the potential impacts*

**Comment 26:** *Wind projects are important to the region's environment and economy. We support wind projects that have taken the necessary steps for proper siting, developing, operation and maintenance.*

**Comment mtg:** *I think this project is a good thing because it is a clean form of energy.*

**Comment mtg:** *We've been in favor of wind power and have been trying to get wind power in the area since 1984.*

**Comment mtg:** *I can't understand the people who are against it; they don't want nuclear, they don't want dams ...*

**Comment mtg:** *Get started!*

**Response:** The opinions of the commenters are noted. Assuming that the developer obtains all necessary approvals and permits and executes a power purchase agreement with BPA by winter 2002-2003, the developer expects that it could begin construction of the project in early 2003, with power output as early as December 2003.

## Opposition to the Project

**Comment 05:** *Just read an article on the editorial page of the Prosser paper that opposes the wind farm that is apparently being considered as been approved to be installed on Rattlesnake. What the author of the article is saying it is a get green power is not going to be economically feasible. It will be just an additional cost to us as consumers. I am definitely opposed to it. We should only be pursuing projects that are truly viable economically and not political and not someone's social agenda.*

**Comment 08:** *This is another WPPSS, a super WPPSS, the bond offering was a mistake, was a mistake to put the wind turbines in. . . . It is a serious mistake.*

**Comment 11:** *I protest building the wind farm at Rattlesnake Hills by Washington Winds.*

**Comment 14:** *Please do not build wind mills on Rattlesnake. I have admired Rattlesnake for the nine years we have lived here. I do not want that profile distorted by an unnecessary project, especially one that will have to use public funds in order to be built!*

**Comment 15:** *I oppose the development of the Washington Winds Wind Farm on Rattlesnake Mountain. This development will be destructive to the unique and fragile environs of the Rattlesnake ridge.*

**Comment 18:** *Please do not use taxpayer money (or ANY money) for wind power.*

**Comment 19:** *I read In the Tri-City Herald newspaper this morning that you are planning to construct hundreds of wind machines on our Rattlesnake Range of hills. I wish to voice my opinion as follows.... NO ! . . . I am of the opinion that wind power can only make a trivial contribution to the grid. Looking to the future, say 10 or 100 or 1000 or 10,000 or ad infinitum years "down the pike" only water power and nuclear can accomplish the task.*

**Comment 20:** *I just saw this thing in the newspaper about public comment on the BPA project concerning the windmills on Rattlesnake Mountain. I think it is a jug. I think it should be denied. A waste of our taxpayer money. I am sure that a lot of other people knew all the goings on they would be calling also.*

**Comment 21:** *It would be a crime to disturb that pristine area. It is very beautiful and we need to leave it for nature and environment and all the animals.*

**Comment 24:** *We wish to go on record as being against the Maiden Wind farm project. This project will cause environmental harm to the area. As you know the land as is now is pretty much unmolested from development and sprawl. All the roads, gravel pits, transmission lines, structures, will destroy this quiet, unique area. I realize BPA is under pressure to develop "green power", but please do it somewhere that is already developed, like Horse Heaven.*

**Comment 24:** *Very soon it's almost certain that tremendous changes will be taking place on the Rattlesnake Hills, between State Route 241-, in Yakima County and Crosby road in Benton County. . . . Several articles have been printed in the Yakima Herald in the past 10 months, concerning the "Maiden Wind Farm Project"; these articles basically painted a positive picture of this project and failed to tell the whole story.*

**Response:** The opinions of the commenters are noted. The potential environmental effects of the proposed project are discussed in Chapter 3 of the EIS. For a response to comments on project financing, see the "Project Costs and Funding" section of this Final EIS. For a response to comments on project feasibility, see the "Project Feasibility" section of this Final EIS.

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## **Project Costs and Funding**

**Comment 04:** *I feel that the wind machines which are being paid for by taxpayers and members of BPA is not cost effective and it is not a reliable source of power and I feel that it is a waste of our monies.*

**Comment 08:** *I have said over and over that this is one of the dumbest projects that I have heard putting the wind projects in Rattlesnake and putting wind in period. The federal subsidies will not be there and they not sufficient to offset the cost.*

**Comment 18:** *It is not cost effective any way you look at it.*

**Comment 19:** *Lastly, the cost for operation and maintenance surely would be fantastic compared to hydro and nuclear.*

**Comment 22:** *I am using BPA power. I find it quite distressing that we are going into wind power where we get the federal government subsidies and we are not running a profitable project here. I am not sure why our money and rates are going up and we are spending it on projects like this. As a taxpayer and electric power user I think I am taken advantage of and appreciate it if there would be some consideration for rate payers and stop the project from going forward.*

**Comment 24:** *... and this project is such a waste of taxpayer money. The tax subsidy of this project is wrong and causes great harm to the area.*

**Comment 24:** *Please examine the following facts that have not been given to the public. Maiden Wind Farm will be funded with a power sales contract from Bonneville Power Administration (BPA). The project owner, Washington Winds will receive a federal tax subsidy funded by all the rest of us. Bonneville Power Administration under pressure to provide, "green power" will be and is using ratepayer dollars to pay for this project.*

**Comment 24:** *BPA at this point in time has a lot of surplus power so the generation produced at this project and others like it is a waste of rate payer's money as well as federal tax dollars.*

**Comment 24:** *In short this just another corporation looking for a deep pocket, yours and mine. Another fleecing of the American public.*

**Comment mtg:** *Renewable resources -- DEIS says people want it, but doesn't it cost about 20% more?*

**Response:** The wind project under consideration by BPA and Benton County has been proposed by a private company (Washington Winds Inc.). This company would be solely responsible for financing the project, and neither BPA nor the permitting counties would invest in construction or ownership of the project facilities. In addition, there has been no bond offering associated with the proposed project. While BPA would execute a power purchase agreement if it decides to proceed with the project, this agreement would only be for the purchase of power produced by the project after it is constructed and connected to BPA's transmission lines.

Some commenters appear to express a concern that BPA will use tax monies to purchase power from the proposed project. However, unlike many other federal agencies, BPA does not receive appropriations from Congress (i.e. taxpayer money) to fund its operations. If BPA does decide to proceed with its proposed action, the revenue for the power purchase would come from power sales, not from taxpayers.

Several of the commenters reference a "federal subsidy" for the project, which is apparently a reference to the Federal Production Tax Credit (PTC) that Congress has authorized for qualifying wind power plants that achieve commercial operation before the end of 2003 (a proposal to extend this tax credit until the end of 2006 is currently before Congress). The PTC is available for projects such as the Maiden Wind Farm whether or not BPA is interested in purchasing the power, so long as they are constructed within the timeframes specified. Tax subsidies such as the PTC are common in energy markets and have been provided to traditional energy industries (hydro, coal, oil, nuclear) for decades. The PTC and other factors have helped reduce the cost of wind energy to the point where it can be competitive with other resources.

If BPA decides to execute the proposed power purchase agreement for the Maiden Wind Farm, this decision would not be expected to result in a perceptible change in power rates paid by BPA's customers because the volume and cost of power supplied from the project, when added to BPA's existing bulk supply, would be too small and inconsequential to affect average prices. BPA will consider the cost before making a decision on whether to purchase power from the proposed project.

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## Project Feasibility

**Comment 08:** *I was the original flow wind person in California. We put 509 vertical axis and 220 horizontal axis turbines in and now they are all scrapped. . . . Most of the other projects that we have been involved with over the years have been dead-ended. That was in a much healthier power environment than we have right now. . . . [W]hen you get to the economics of it all one has to do is look at the past experience of the other wind projects and the current economic situation and you can pencil it out and it does not make sense.*

**Comment 24:** *None of us know when the wind will blow so this type of a generation resource is not reliable, schedulable or of much actual value. This project will only generate approximately 1/3 of the time so the value of the generation is far less than other types of resources such as combustion turbines and hydro projects. In fact, without the federal tax subsidy of \$.015 per kwh wind projects on their own, without subsidies, would not be developed.*

**Comment 24:** *Without subsidies these projects cannot survive. BPA will pay approximately .035 per kwh to Washington Wind Corp, whereas today BPA would sell non firm power on the open market for close to nothing. In other words there is very little value in non-reliable energy resources. We as consumers of electricity will lose.*

**Response:** The opinions of the commenters concerning the feasibility of the project are noted. Contemporary wind turbine design, improved reliability, warranties from reputable manufacturers, continued research and wind data collection, and long-term power purchase agreements all help to make modern wind projects economically competitive. These developments have led to a decrease in the cost of electricity from wind plants by more than 80 percent over the past 20 years. In addition, wind developers typically monitor winds at a given site before proposing wind development at that site, as was done at the Maiden Wind Farm site, which increases the probability of project viability at that site.

The fact that wind blows intermittently does not necessarily affect the feasibility of wind resources. Wind energy generally is used with other types of resources that can help "firm" the energy.

Regarding federal subsidies for the project, see the "Project Costs and Funding" section of this Final EIS for information on the PTC. While the PTC is important to the project developer to ensure an adequate return on investment, it is not certain that the project would not be developed if the PTC were unavailable. Regardless, the PTC is available whether or not BPA decides to purchase power from the project. For additional information on why BPA is considering purchasing power from this project even if costs are incrementally higher than other resources, please see EIS Sections 1.2 and 1.3.

More information about the feasibility of wind projects can be found at [www.awea.org](http://www.awea.org), and in a report entitled “United States Wind Energy Growth and Policy Framework” (Calvert and Hock, 2001), available at [www.nrel.gov/publications/](http://www.nrel.gov/publications/).

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## Resource Viability

**Comment 08:** *It is not that you won't have wind a third of the time, maybe you will have some wind a third of the time, but I doubt that you will have full rated power maybe 5 or 6 percent of the time, maybe 8 percent at the stretch.*

**Comment 24:** *Rattlesnake is not that windy (I grew up on Rattlesnake) ...*

**Comment 24:** *It should be remembered that the wind does not always blow, nor can anyone tell the wind when to blow, in fact Bonneville acknowledges that only in a small area of the gap in Rattlesnake along State Route 241, is the wind consistent enough to generate acceptable power output. The Rattlesnake Hills are just not that windy.*

**Response:** In addition to historical, local wind data, the project developer has been studying the wind on the project site using meteorological towers to determine if a wind project could be viable there. Viable wind projects generally have a capacity factor of over 30 percent (that is, they produce power at least one-third of the time). Modern wind turbine technology is such that newer turbines operate more efficiently and at lower wind speeds. The project developer believes there is sufficient wind resource at the proposed site to have a viable project.

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## Siting Wind Projects

**Comment mtg:** *I am in favor of wind power on my land.*

**Comment mtg:** *I am interested in having a wind farm on my property.*

**Comment mtg:** *If I'm going to have to look at them, I might as well sign up and have them on my land.*

**Response:** Individuals interested in pursuing wind development on their property may contact the American Wind Energy Association ([www.awea.org](http://www.awea.org)) for names and addresses of wind developers.

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## Requests for Further Discussions

**Comment 27:** *We hope that further communication between ourselves, the project proponent, Yakima and Benton Counties, BPA and U.S. and State wildlife authorities can take place prior to the Final EIS to discuss the above topics and establish parameters for the Maiden Wind Farm project that will avoid permanent environmental damage.*

**Comment 27:** *We strongly encourage evaluation of the above documents as well as further discussion with ourselves, WDFW and US Fish and Wildlife prior to the development of the Final EIS for the Maiden Wind Farm project.*

**Comment 30:** *We look forward to meeting with you regarding mitigation opportunities and development of a comprehensive mitigation plan.*

**Response:** Comment noted.

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# Chapter 4. Copies of Comments Received

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The 34 comment letters, emails, phone calls, and public meeting comments received on the Draft EIS are reprinted on the following pages. Each comment is given a unique identifying number that begins with the letters MWDEIS (Maiden Wind Draft EIS).

<u>Log No.</u>	<u>Name</u>	<u>Affiliation</u>
01	Rex C. Crawford	Washington Department of Natural Resources
02	Dan Tamsky	Yakima County Public Works Department
03	Victor E. Robert	
04	Steve Smith	
05	Rich Dorset	
06	Paul Boynton	University of Washington
07	Doug Packard	
08	John Becker	John Becker & Associates
09	Mike Rauch	
10	Herb Johnson	
11	Geraldine McDonnell	
12	Anonymous	
13	Debra Salstrom	Washington Native Plant Society
14	Pam Hedges	
15	Daniel R. Sisk	
16	Found to be duplicative	
17	Elizabeth Bloomfield	The Nature Conservancy
18	Kathryn E. Kaser	
19	C.A. Simsen	
20	Anonymous	
21	Donna Crawford	
22	David Jepson	
23	Preston Sleeper	US Department of the Interior
24	John & Joanne Porter	
25	Richard J. Leaumont	Lower Columbia Basin Audubon Society
26	Sonja Ling	Renewable Northwest Project
27	Brenda McMurray	Yakima Valley Audubon Society
28	Troy A. Suing	Washington Department of Transportation
29	Rebecca J. Inman	Washington Department of Ecology
30	Paul E. LaRiviere	Washington Department of Fish & Wildlife
31	Gregory M. Hughes	US Fish & Wildlife Service
32	Judith Leckrone Lee	US Environmental Protection Agency
33	Robert N. Wahpat	Confederated Tribes & Bands of the Yakama Nation
34	Paul Boynton/ Riley Newman	University of Washington/ University of California Irvine
35	Milton D. Johnston	Washington Department of Natural Resources