AUGUST 2001

CONDON WIND PROJECT

Final Environmental Impact Statement
DOE/EIS-0321

BONNEVILLE POWER ADMINISTRATION

Bonneville Power Administration has completed the Final Environmental Impact Statement (EIS) for the Condon Wind Project. This abbreviated Final EIS is made up of three parts:

1) an updated and corrected Summary of the Final EIS;
2) comments received on the Draft EIS and responses to them; and
3) changes and corrections to be made to the Draft EIS to make it final.

Since the changes and corrections to the Draft EIS are relatively minor, BPA has chosen to just print the changes to the Draft. The Final EIS includes both this abbreviated Final document and a copy of the Draft EIS.

Environmental Process

In May 2001, we completed the Draft EIS for the Condon Wind Project and made it available for review and comment. In response to the comments we received, we have made some changes that are included in this abbreviated Final EIS.

A decision on which alternative Bonneville will adopt will be made and recorded in a Record of Decision. We plan to have the Record of Decision available about one month after publication of this Final EIS.

For More Copies

If you need additional copies of the abbreviated Final EIS, or a copy of the Draft EIS, please call our toll-free document request line: 1-800-622-4520. Leave a message naming this project and the document(s) you desire, and your complete mailing address. Both documents are also available on our web site at: www.efw.bpa.gov.

Condon Wind Project Final Environmental Impact Statement (FEIS) (DOE/EIS-0321)

Responsible Agency: U.S. Department of Energy (DOE), Bonneville Power Administration (BPA)
Title of Proposed Action: Condon Wind Project
States Involved: Oregon

Abstract: BPA needs to acquire resources to meet its customers' load growth. In meeting that need for power, BPA will consider the following purposes: protecting BPA and its customers against risk by diversifying its resource portfolio; assuring consistency with its responsibilities under the Pacific Northwest Electric Power Planning and Conservation Act to encourage the development of renewable resources; meeting customer demand for renewable resources; assuring consistency with its resource acquisition strategy; and meeting the objectives of its Power Business Line's Strategic Plan. The FEIS evaluates the environmental impacts of the Proposed Action (to execute one or more power purchase and transmission services agreements to acquire and transmit up to the full electric output of the proposed project) and the No Action Alternative. BPA's preferred alternative is the Proposed Action. BPA has also identified the Proposed Action as the environmentally-preferred alternative.

The proposed project would be located on private agricultural land in Gilliam County, Oregon. The 38-acre project site is located within a 4,200-acre study area located on both sides of Oregon Highway 206, approximately 5 miles northwest of the town of Condon. The project would use 600-kilowatt (kW) wind turbines to convert energy in the winds to electricity that would be transmitted over the existing BPA transmission system. The project would be built in two phases: the first phase would use 41 wind turbines to yield a capacity of approximately 24.6 megawatts (MW); a second phase (if built) would use 42 wind turbines to yield a capacity of approximately 25.2 MW. For purposes of this FEIS, the size of the project is assumed to be 49.8 MW. Major components of the wind project include wind turbines and foundations, small pad-mounted transformers, an operation and maintenance building, power collection and communication cables, project access roads, meteorological towers on foundations, and a substation. During construction there would also be temporary equipment storage and construction staging areas. Impacts to most environmental resources would be minor. However, the project would alter the visual landscape, increase bird mortality by 50-230 birds per year, and bring jobs and tax revenue to the surrounding area. The first phase is proposed for construction in late 2001; the second phase could be constructed during spring/summer 2002 or later.

To request additional copies of the FEIS, please contact:
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You may access the FEIS, or find more information about BPA, on our web site at www.efw.bpa.gov.

For information on DOE National Environmental Policy Act (NEPA) activities, please contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance, EH-42, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington DC 20585. Phone: 1-800-472-2756; or visit the DOE NEPA Web at www.eh.doe.gov/nepa.

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Summary

Introduction

Bonneville Power Administration (BPA) is a federal agency responsible for purchasing, developing, and marketing electrical power to utility, industrial, and other customers in the Pacific Northwest, pursuant to the Bonneville Project Act of 1937, the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L. 96-501; the Northwest Power Act), and other statutes. BPA wishes to encourage the development of renewable energy resources in the Pacific Northwest to meet customer demand for power, to diversify its resource portfolio, and to meet its obligations under the Northwest Power Act.

Deregulation of the electric industry and subsequent energy supply issues, as well as the current low-water year, have emphasized the need for new and diverse energy sources in the region. Renewable resources like wind would not only help diversify BPA's resource portfolio, but are preferred by many consumers concerned about environmental effects of other power sources. BPA has developed and marketed output from renewable power projects as "green power" as a way to satisfy demand from these consumers and to increase the amount of new renewable energy resources in the region's power supply. The Northwest Power Planning Council's Fourth Conservation and Electric Power Plan recommended that Northwest utilities offer green power purchase opportunities as a way to help the region integrate renewable resources into the power system in the future.

In October 1999, SeaWest WindPower, Inc. (SeaWest) submitted a proposal to BPA to identify one or more sites in Oregon and Washington at which wind power facilities could be developed. After considering preliminary information regarding several sites identified by SeaWest, BPA decided to examine a proposed wind project located near Condon, Oregon, and to consider purchasing power from a wind power facility that would be constructed by SeaWest at the site.

The National Environmental Policy Act (NEPA) (42 U.S.C. Sections 4321 et seq.) requires federal agencies to prepare and circulate an environmental impact statement (EIS) for major federal actions or decisions that could significantly affect the quality of the human environment, including the natural and physical environment.

BPA's decision whether or not to purchase power from the proposed wind project and transmit it over BPA transmission lines will consider the information in this EIS, public comments, and other factors.

This EIS provides environmental information to the public and federal, state, and local agencies, officials, and decision makers regarding the effects of the proposed action and responds to public and agency comments on the Draft EIS, and provides necessary clarifications, elaborations, and minor revisions to the draft.

In the face of regional growth in electrical loads and increasing constraints on the existing energy resource base, BPA needs to acquire resources that will contribute to diversification of the long-term power supply in the region.

The purposes of acquiring a diverse resource portfolio include:

- protecting BPA and its customers against risk;
- ensuring consistency with BPA's responsibility under the Northwest Power Act to encourage the development of renewable energy resources;
- meeting customer demand for energy from renewable energy resources, thereby assuring consistency with BPA's Business Plan EIS (DOE/EIS-0183, June 1995) and Business Plan Record of Decision (ROD);
- ensuring consistency with the resource acquisition strategy of BPA's Resource Programs EIS (DOE/EIS-0162, February 1993) and ROD; and
- meeting the objective in the January 2000 Strategic Plan of BPA's Power Business Line to acquire at least 150 average megawatts (MW) of new renewable resources by the end of fiscal year 2006 in order to meet customer demand for new renewable resources.

BPA's preferred alternative is the proposed action to execute one or more power purchase and transmission services agreements to acquire and transmit up to the full electrical output of the proposed Condon Wind Project. The proposed action is the only alternative that meets the underlying need for action and best meets the purposes of action. The preferred alternative is also the environmentally preferred alternative.

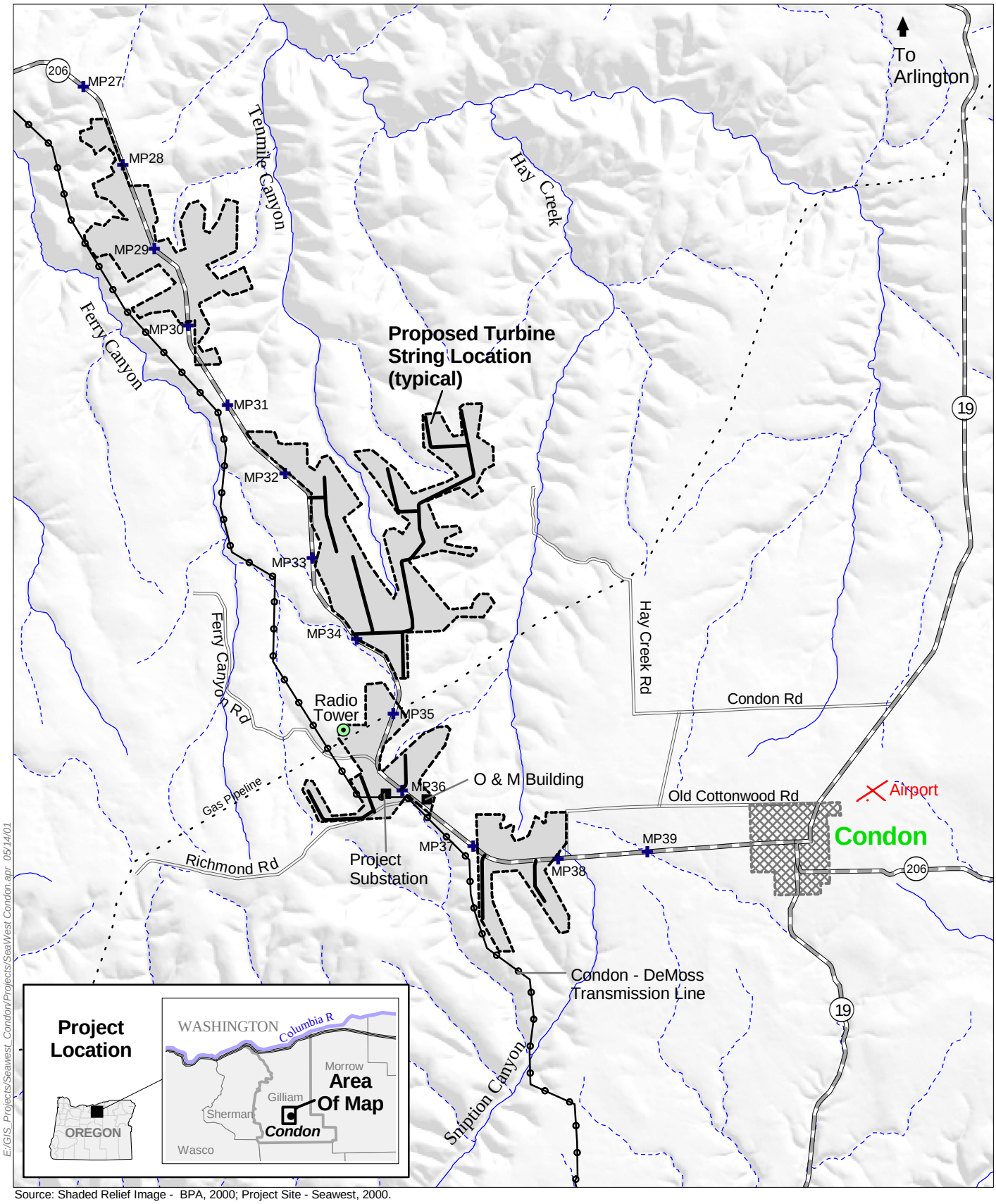
Project Site and Wind Resource

The project site is located on both sides of Highway 206 (ORE206), approximately 5 miles northwest of the town of Condon in Gilliam County, Oregon. The 38-acre project site is within a 4,200-acre study area[1] (see Figure S-1) consisting of gently sloping plateaus and rolling, arid hills traversed by shallow canyons. In general, the elevation of the project site and study area ranges from approximately 2,400 feet to 3,300 feet.

Within the project site, the wind project facilities would occupy a permanent footprint of approximately 21 acres for the 24.6-MW first phase and an additional 17 acres for the second phase (38 acres total). The project has been designed to locate the turbines on the relatively flat (and predominately cultivated) tops of plateaus to take advantage of the best wind resources while minimizing potential environmental impacts.

The project site consists of private farmland that is used for non-irrigated agriculture (primarily winter wheat and barley), cattle grazing, or land that is in the Conservation Reserve Program (CRP). The General Plan for Gilliam County, and the implementing zoning regulations, designate the project site as "Exclusive Farm Use." Facilities for generating electricity from wind energy can be permitted in Exclusive Farm Use zones pursuant to a conditional land use permit. Such a permit would be issued by Gilliam County, in accordance with county procedures.

[1] The *study area* is the 4,200-acre study area shown in Figure S-1. The *project site* is the location (covering 38 acres) within the broader study area, of the proposed phase 1 and phase 2 wind turbine strings, project access roads, O&M building, electrical substation, and electrical transmission line connecting to BPA's Condon-DeMoss line.



Source: Shaded Relief Image - BPA, 2000; Project Site - Seawest, 2000.

Legend

- Study Area
- Project Site/Turbine String/Access Road
- MP38 Highway with Milepost
- Stream
- Existing Transmission Line
- Gas Pipeline

N

1 0 1 Miles

Scale 1" = 1.5 Miles

Figure S-1
Project Site and
Study Area Location

The project site is well exposed to the winds in all directions; however, the prevailing winds blow from the southwest and northwest across the project site toward the east. The winds are expected to be strongest from late fall through spring.

Historical wind data collected near Wasco, Oregon; Goodnoe Hills, Washington; and Kennewick, Washington, indicate that the Condon area has sufficient winds for wind project development. Currently three temporary meteorological towers are measuring wind data at the project site to confirm the wind resource potential.

Project Components and Construction Phases

The proposed project would consist of a wind project and its associated electrical system. The project would use modern, efficient 600-kilowatt (kW) wind turbines to convert energy in the winds near Condon, Oregon, to electricity that would be transmitted over the BPA transmission system. The project would consist of one or two phases: the first phase would use 41 wind turbines to yield a capacity of approximately 24.6 MW. A second phase (if built) would use 42 wind turbines to yield a capacity of approximately 25.2 MW. The first phase is proposed for construction in late 2001; the second phase could be constructed during spring/summer of 2002 or later.

An estimated 60 to 70 delivery and construction workers and technicians would work onsite over the duration of the construction period for each phase. However, not all personnel would be onsite at the same time. Their presence onsite would be phased, depending on the pace of construction, over an estimated construction and equipment testing period of 4 to 5 months for each phase, or possibly longer if seasonal weather delays occurred. Estimated project employment would not exceed 30 workers at any one time.

Major components of the wind project include the following.

Wind turbines and foundations: The 600-kW wind turbines under consideration for the project have the design features shown in Table S-1. The poured concrete foundations would be approximately 12 feet in diameter. Foundation depth would depend on soil and local geologic (bedrock) conditions. The tubular support towers would be constructed of heavy rolled steel that would be fabricated offsite, trucked to the project site in two or more sections, and assembled onsite. The towers would be smooth, with no avian perch locations, and finished in a light gray to blend into the landscape and sky. There would be three rotor blades on each turbine. Each blade would be constructed in one piece, typically of fiberglass, or a fiberglass composite, with a smooth, white or black outer surface (a black coating may be applied to reduce blade icing). The wind turbines would be fitted with self-diagnostic computer monitoring and control systems located inside the turbine towers.

The Federal Aviation Administration may recommend that tower markings or aviation safety lighting be installed on a portion of the towers or nacelles. Otherwise, the completed project would normally have no lights at night.

Table S-1. Project Wind Turbine Features

Design Feature	Description
Rated output of turbine	600 kW
Minimum wind speed for turbines to begin operating	10 mph
Number of blades	Three
Rotor (blade) diameter	154 feet
Tower type	Tubular steel
Tower hub (nacelle) height	197 feet
Total height (to top of vertical rotor blades)	274 feet
Rotational speed	24 rotations per minute
Color	White or black blades and gray towers and nacelles

Meteorological towers: Two to four permanent meteorological towers are planned. The towers would house wind measurement instruments. Each tower would have a small concrete foundation with supporting cables extending to anchor points.

Power collection and communication system: The electrical system for the proposed project would collect and convert the electricity from each wind turbine into higher voltage electricity which would be conveyed through a project substation to BPA's Condon-DeMoss transmission line. Electrical and communication cables would be installed underground where possible, or overhead on poles, or a combination of both installation techniques.

Operation and maintenance (O&M) building: The O&M building would consist of an enclosed bay for storage of back-up equipment parts and supplies; an office for administration and monitoring of the facility, including the wind turbines; an emergency shelter for workers during winter storms; and parking for vehicles. The O&M building may be located either on the project site or offsite in an existing structure within the City of Condon. If located onsite, the O&M building would probably be located east of ORE206, south of the grange hall (Figure S-1).

Project access roads: Access to the project site would be directly from ORE206 onto project access roads located on private farmland. Some of the project access roads are existing farm roads that would be graveled and/or relocated for project use, while the balance of project access roads would be new.

Lands used temporarily during construction (such as construction staging areas, excess road margins, etc.) would be restored to their approximate condition prior to construction. Since most construction would occur on land that is ordinarily plowed fields, reclamation of those lands may consist of replowing and planting for the next crop season. On all other disturbed lands, reclamation activities would be planned to complement landowner decisions as to compatibility between crops, as well as reclamation practices and plant species to be used. If any areas of native vegetation on the project site were disturbed, they would be revegetated with species native to the area and appropriate for that location.

Project Operation and Maintenance

Routine maintenance of the turbines would consist primarily of daily travel, generally by pickup trucks, of two to four operation/maintenance staff who would test and maintain the wind facilities (or six personnel after phase 2 is completed). Most servicing would be performed "up-tower" (within the nacelle, without using a crane to remove the turbine from the tower). Occasionally the use of a crane and possibly equipment transport vehicles may be necessary for cleaning, repair, adjustments, or replacement of the rotors or equipment contained in the nacelle. Additionally, all roads, pads, and trenched areas would be regularly inspected and maintained to minimize erosion.

Monitoring the operations of the wind turbines would be conducted both from computers located in the base of each turbine tower and from the O&M facility using telecommunication linkages and computer-based monitoring.

Project Decommissioning

At the end of the project's useful life, the owner would obtain any necessary authorization from the appropriate regulatory agencies and from the landowners to decommission the facilities. Decommissioning involves removing the turbines and support towers, transformers, and substation, and removing the upper portion of foundations so that they do not interfere with agricultural practices. Generally turbines, electrical components, and towers would either be resold or recycled. All unsalvageable materials would be disposed of at authorized sites in accordance with laws and regulations.

No Action Alternative

An EIS must consider the alternative of not taking the proposed action. Under the No Action Alternative, BPA would not execute one or more power purchase and transmission services agreements to acquire and transmit up to the full electrical output of SeaWest's proposed Condon Wind Project. Because BPA's transmission line is the only transmission line nearby, it is highly unlikely that the project would be implemented without a commitment from BPA to acquire the energy output or transmit it over BPA transmission lines to another purchaser. Without BPA's commitment, the project would not be constructed or operated, and the resulting environmental impacts described in this EIS would not occur.

However, the region's need for power is expected to continue to grow (as documented in the Northwest Power Planning Council, Fourth Northwest Power Plan; Energy Information Administration, Annual Energy Outlook 2001). Under the No Action Alternative, a greater proportion of other energy resources would be developed. The predominant resource is most likely to be combined-cycle combustion turbines (CTs) fueled by natural gas (Northwest Power Planning Council, Northwest Power Supply Adequacy/Reliability Study Phase 1 Report, Paper Number 2000-4, March 6, 2000). BPA's Resource Programs EIS (RP EIS) and Business Plan EIS included an evaluation of the environmental impacts of energy resources including CTs.

Affected Environment and Environmental Impacts

The affected environment, potential impacts, and mitigation for the resource disciplines evaluated in this EIS are briefly described below. Potential impacts of the proposed project are summarized and the level of each impact is included in parentheses following the impact description.

Table S-2, at the end of this Summary, displays the potential impacts from the proposed project and mitigation measures in a matrix format.

Land Use and Recreation

Affected Environment

The majority of Gilliam County is zoned Exclusive Farm Use (EFU), including the study area and adjacent lands. The proposed wind power project would require a Conditional Use Permit for construction in the EFU zone. The proposed project would also necessitate a Goal Exception to Oregon Statewide Planning Goal 3, which states that agricultural lands shall be preserved and maintained for farm use.

The project site and study area are composed of privately owned land used primarily for non-irrigated agriculture (primarily crops, including barley and wheat). A small portion of the project site and study area (13 percent and 8 percent, respectively) is currently held as CRP land.

Additional land uses within and adjacent to the study area include an active gravel quarry, a grange hall, a meteorological station, abandoned farming/ranching equipment and implements, and low-density houses with barns and accompanying outbuildings. A PGT-PG&E natural gas pipeline traverses northeast to southwest across the southern part of the study area, and the 69-kV BPA Condon-DeMoss transmission line runs generally parallel to ORE206.

There are no formal recreational amenities within the study area. Hunting may be allowed by landowner permission in some portions of the study area.

Construction Impacts

- Approximately 104 acres temporarily disturbed (58 acres in phase 1 and 46 acres in phase 2). Phase 1 temporary disturbance includes approximately 30 acres cultivated cropland and 4 acres CRP land; phase 2 temporary disturbance includes approximately 35 acres cropland and 10 acres CRP land. (Low)
- Temporary interruption of upland bird hunting in the vicinity of the project site. (Low)
- Potential minor increase in roadside sightseeing. (Low)

Operation and Maintenance Impacts

- Conversion of approximately 38 acres for permanent project facilities (21 acres for phase 1, 17 acres for phase 2). Total land converted includes approximately 25 acres cropland and 5 acres CRP land, which represents a very small to negligible portion of the agricultural acreage in the study area and Gilliam County. (Low)

Decommissioning Impacts

- Same as construction. (Low)

Mitigation Measures

- No mitigation measures are warranted for the low potential impacts to land use or recreation from the proposed project.

Geology, Soils, and Seismicity

Affected Environment

The project site and study area are located in the north-central portion of Oregon within the Deschutes-Columbia Plateau, with geology dominated by Columbia River Basalt. The project site and study area are located along ridges and uplands that are dissected by a network of streams. The ridges have a relatively thin layer of soil (1 to 3 feet deep) over basalt. The erosion potential is generally slight to moderate, and higher on steep slopes. None of the study area is irrigated farmland, so it does not qualify and has not been designated as prime, unique, or of statewide importance under the Farmland Protection Policy Act.

The type of earthquake events likely to occur in the project site and study area would be expected to cause slight damage to property and structures.

Construction Impacts

- Modification of topography and temporary soil disturbance from road improvements, road construction, staging area clearing, and underground trenching could potentially induce erosion or unstable slopes. (Low)
- Removal of vegetation. (Low)
- Stormwater runoff. (Low)
- Potential for earthquake damage to facilities. (Low)

Operation and Maintenance Impacts

- Potential erosion at project facility. (Negligible)

Decommissioning Impacts

- Similar to construction. (Low)

Mitigation Measures

- No mitigation measures are required beyond the standard approved construction practices and erosion management techniques that would be employed to prevent mass wasting and control potential erosion to near existing levels.

Fish

Affected Environment

No fish-bearing streams are located in the project site or study area. Several fish-bearing streams drain the general project vicinity, including Hay Creek, Dry Fork Hay Creek, and Sixmile Canyon (perennial) and Tenmile Canyon, Ferry Canyon, and Sniption Canyon (seasonal). These streams eventually drain to the John Day River and then to the Columbia River.

Summer steelhead, which are federally listed as threatened under the Endangered Species Act, have been reported in portions of Hay Creek, Ferry Canyon, Dry Fork Hay Creek, and Sixmile Canyon. Tenmile and Sniption Canyons could also support summer steelhead, although habitat maps do not indicate the presence of this species in these two streams.

The Pacific lamprey, listed by the state as vulnerable, may be present in some streams in the project vicinity. Non-listed fish species in the general project vicinity may include redband trout, red sided shiner, largescale sucker, bridge lip sucker, long nose dace, speckled dace, torrent sculpin, and mottled sculpin.

Potential Impacts and Mitigation Measures

No impacts to fish are expected, and no mitigation would be required.

Vegetation

Affected Environment

Cultivated winter wheat (*Triticum* spp.) and spring barley (*Hordeum* spp.) compose the dominant vegetation cover in the project site and study area. Some of the more sloping areas have been converted to Conservation Reserve Program (CRP) status and planted with crested wheatgrass and like perennials. The steepest lands (outside the project site and study area) support some high-quality native shrub-steppe communities (sagebrush and bunch grass), usually within the lower reaches of the drainage draws and away from cultivated areas. No special vegetation resources, such as high-quality native plant communities, are present on the project site.

The U.S. Fish and Wildlife Service has indicated that no federally-listed endangered, threatened, proposed, or candidate plant species are known to exist within the project site or study area. No state-listed plant species are present on the project site or in the study area. One state-listed plant (Laurence's milk-vetch, *Astragalus collinus* var. *laurentii*) and two candidate plants (disappearing monkeyflower, *Mimulus evanescens,* and hepatic

monkeyflower, *Mimulus jungermannioides*) have been found within a 10-mile radius of the project site.

Construction Impacts

- Total project (phase 1 and 2) would temporarily disturb approximately 65 acres of cropland during construction, with about 25 acres of cropland remaining in the permanent footprint for the 20-year project life. (Low)
- Approximately 14 acres of CRP land would be temporarily disturbed during construction, with approximately 5 acres permanently impacted (total for phase 1 and 2). Permanent CRP land impact represents approximately 36 percent of CRP land on the project site and approximately 1 percent of CRP land in the study area. (Low)
- Total project (phase 1 and 2) would temporarily disturb approximately 2 acres of non-high-quality shrub-steppe vegetation, with about 1 acre remaining in the permanent footprint for the 20-year project life. This represents less than 1 percent of the total shrub-steppe in the study area. (Low)
- Establishment of noxious weeds. (Low)

Operation and Maintenance Impacts

- Vegetation loss due to fire. (Low)
- Weeds could become established around or downwind of project roads and facilities. (Low)

Decommissioning Impacts

- Similar to construction. (Low)

Mitigation Measures

Mitigation measures for vegetation impacts include:

- Construction corridors would be marked in shrub-steppe plant communities in the vicinity of construction areas to minimize disturbance to this vegetation type.
- To minimize opportunities for weed infestations, exposed soils would be reseeded with a seed mix approved by the Natural Resources Conservation Service and/or reestablished as cropland after construction is complete.
- Construction equipment would be limited to construction corridors and designated tower and building construction and staging areas.
- Due to the rarity of trees in the area, no trees would be removed. In the unlikely event that tree removal is unavoidable, new trees would be planted at a ratio of five trees for every tree lost that has a diameter greater than 4 inches.
- SeaWest or its successor would prepare and implement a Weed Management Control and Response Plan, to be approved by the Gilliam County Weed Control Board. Weed

management would include monitoring site facilities annually for infestation by noxious weeds. Weeds would be controlled in consultation with local landowners. Infestations would be addressed within 2 weeks and reported to appropriate staff at the Gilliam County Weed Control Board.

- All project vehicles would be equipped with basic fire-fighting equipment, including extinguishers, shovels, and other equipment deemed appropriate (such as tools for fighting grass fires).
- Electrical power poles would be placed to minimize impacts on shrub-steppe vegetation and any exposed soil would be revegetated after poles are installed.
- Revegetation guidelines would be prepared and implemented for areas that would be disturbed during construction, with guidelines as to whether native or non-native seed mixes would be used.
- To minimize establishment of noxious weeds, construction crews would limit transport of seeds to agricultural lands from roadside areas by complying with the Weed Management Control and Response Plan.

Wildlife

Special-Status Species

The USFWS identified the bald eagle as the only wildlife species listed as threatened or endangered that is known to occur in the vicinity of the proposed project. No occurrence has been reported for the project site or study area, and no threatened species were observed during the four-season avian surveys conducted for the proposed project. The study area contains marginal habitat for bald eagles, and the project site contains no typical bald eagle habitat. The most likely time for bald eagles to enter the study area or project site would be from late fall to early spring. Bald eagles may occur rarely in the vicinity during winter.

Several state-listed species potentially occur in the project site and study area. Grasshopper sparrow, long-billed curlew, Swainson's hawk, loggerhead shrike, sage sparrow, and silver-haired bat were observed during the project's avian and bat surveys. Other state-listed species, such as olive-sided flycatchers and bank swallows, may fly through the project site and study area during migratory periods.

Birds

In 2000 and 2001, a four-season avian study was conducted by URS, Inc. URS prepared a study plan in consultation with USFWS and ODFW.

Horned lark, western meadowlark, vesper sparrow, and Brewer's blackbird are by far the most common species of any avian group in the project site and study area. They occur throughout the year and accounted for over three-quarters of all bird observations during the avian surveys.

Passerine migration through the study area is believed to be moderate. The area is located between known breeding areas to the north and known wintering areas to the south. Most

migrants are expected to fly past the study area above turbine height rather than lingering to feed or rest because the study area contains little cover or food that may attract migrants to land. Large flocks of migrating passerines were not observed during the avian survey. However, based on local birding reports, several types of passerines migrate through Gilliam County.

Northern harriers were regularly observed during the avian survey. American kestrel was the most commonly observed raptor during the field studies. Red-tailed hawk was the second most commonly observed raptor in the project site/study area.

Swainson's hawks, listed by the state as a sensitive/vulnerable species, were observed soaring and flying at the project site during spring and summer. The nearest Swainson's hawk nest site observed is located more than 3 miles from the project site.

Golden eagles are known to forage within canyons in the general project vicinity. The nearest nesting site found during the nest survey was more than 12 miles from the project site. All golden eagle observations were outside the areas where turbines would be placed.

Species observed in the avian surveys during the hawk migration season were American kestrel, northern harrier, red-tailed hawk, rough-legged hawk, Cooper's hawk, prairie falcon, and golden eagle. Other species not observed in the surveys, but reported to migrate through the general vicinity, include northern goshawk, sharp-shinned hawk, merlin, peregrine falcon, and osprey.

Rough-legged hawks are common winter residents in the study area.

Based on habitat, short-eared and barn owls would be relatively common breeders and residents in the general project vicinity, although the avian surveys resulted in only one short-eared owl observation and no barn owl observations. Great horned owls are also present in the general project vicinity. A great horned owl nest was found 10 miles east of the project site during a spring helicopter survey. The study area also lies within the range of western screech owls and burrowing owls, but none were sighted during the avian surveys.

Several species of owl may migrate through the project vicinity. Snowy owls are expected to be occasional visitors in the general project vicinity; they were reported in November and December 1996 near Condon. Snowy owls were not detected during the avian field survey.

The long-billed curlew, classified by the state as a sensitive/vulnerable species, and killdeer, a common species, are the only shorebirds known to occur in the general project vicinity. Both migrant and resident populations occur. Long-billed curlews were observed during the avian surveys.

A few flocks of ducks and geese were noted in the avian surveys during the fall migration period, but overall, the amount of activity appears relatively low. During fall 2000, one large and one small flock of sandhill cranes, totaling 103 birds, were observed migrating over the study area. Canada geese were observed during summer and fall surveys in 2000.

Mourning doves are relatively common in the study area based on avian surveys.

Bats

Bat surveys conducted with the avian study in July and September 2000 confirmed the presence of big brown bat and silver-haired bat, as well as bats in the genus Myotis (likely little brown myotis and California myotis). The state assigns the silver-haired bat's status as sensitive/undetermined.

The bat surveys indicate that most bat activity in the project vicinity occurs in canyons (outside the project site and study area) rather than on the ridgetops where the project turbines would be installed. In general, important bat habitat such as roost sites (where bats rest) and foraging areas could be provided by the scattered trees and farm buildings in the project vicinity, and in isolated rock outcrops in Ferry and Tenmile Canyons. The silver-haired bat was detected in the September survey, and is very likely a migrant.

Game Species

Mule deer are common throughout eastern Oregon, including the study area and vicinity. Pronghorn antelope are also present in the general project vicinity. Game bird species in the study area include chukar, gray partridge, California quail, and ring-necked pheasant.

Other Wildlife Species

Common wildlife species expected to occur in the project site, study area, and general project vicinity include mule deer, pronghorn antelopes, cottontails, coyotes, foxes, badgers, bobcats, yellow-bellied marmots, gophers, skunks, ground squirrels, voles, deer mice, pocket mice, pocket gophers, and snakes. Cougars may also occasionally move through the general project vicinity to feed on deer, particularly in winter. Most wildlife activity would be expected to occur on uncultivated lands throughout much of the year, although deer, pronghorn antelopes, voles, snakes, and mice may feed in wheat and barley fields.

Special Habitat Types

CRP lands in the project site and study area provide habitat for snakes and small mammals, raptors, common birds, mule deer, and other wildlife.

No trees are present on the project site, and trees are scarce in the study area, except for a few scattered groves or individual trees usually associated with current or former farms (black locust is the most common tree species). Such upland trees provide habitat for nesting and roosting birds and bats, and they are essential to Swainson's hawks because suitable nest trees are often the limiting factor to the species' distribution and abundance. Trees may also provide forage for browsing mule deer and antelope.

Riparian habitats with trees are not present on the project site and are very rare in the study area and project vicinity. Riparian vegetation other than trees occurs as narrow strips along drainage bottoms in the general project vicinity.

Shrub-steppe is an essential habitat for many native species, including species classified as sensitive by the state such as sage sparrow and loggerhead shrike. The general project

vicinity supports three types of shrub-steppe: big sagebrush/bluebunch wheatgrass, stiff sagebrush/Sandberg's bluegrass, and big sagebrush/gray rabbitbrush/annual grasses.

Streams and wetlands in the study area are discussed below, under "Water Resources and Wetlands."

Scattered human structures in the study area (none on project site) also provide important wildlife habitat. Existing utility poles and fences provide perches for raptors. Abandoned homesteads and associated trees provide hiding and nesting cover for a variety of wildlife.

Construction Impacts

- Construction noise and activities would cause some wildlife to avoid areas of active construction. (Low)
- Approximately 14 acres of CRP habitat disturbed (less than 1 percent of CRP land in study area). (Low)

Operation and Maintenance Impacts

- Annual bird mortality for the full project due to collision with turbines is expected to be 50 to 230 (0.6 to 2.8 birds/turbine/year) (mostly passerines with 0-3 raptors). Annual bat mortality due to collision with turbines is expected to be 60 to 160 (0.7 to 1.9 bats/turbine/year). Some birds may also collide with guy wires of the project's meteorological towers. (Low to Moderate)
- Mortality of birds due to electrocution by electrical transmission lines. (Low)
- General decline in wildlife use of the project site due to the presence of turbines and associated operation and maintenance activities. (Low)

Decommissioning Impacts

- Temporary increase in noise and visual disturbance potentially affecting wildlife. (Low)
- Elimination of bat and avian mortality caused by the project. Wildlife activity and habitat at the project site could return to pre-project conditions. (None)

Mitigation Measures

The following measures would be employed to minimize potential project impacts on wildlife:

- To prevent bald eagles from being attracted to the project site, project personnel and avian monitoring crews would look for large carrion (dead deer or cattle) on the project site between November 15 and March 31 of any given year. If found, large carrion would be relocated from the project site within 24 hours to similar habitats more than 2 miles from the closest turbine. Sites for such relocations would be identified by BPA.
- Due to inherent uncertainty in avian and bat mortality associated with the proposed project, and the need to further scientific understanding of avian and bat mortality

associated with wind energy generation, the following monitoring standards would be implemented:

1. SeaWest or its successor will monitor avian and bat mortality for the first year of the project's life, and submit a quarterly report to BPA, ODFW, and USFWS. The monitoring will follow standard protocols that have been established at other wind resource projects.
2. SeaWest staff (or its successor) will maintain a record of all wildlife injury and mortality that is observed on the project site. This record will include a photographic record of injury and mortality using a standard protocol approved by ODFW and the USFWS.
3. SeaWest or its successor will report, by telephone, injuries or mortalities of species listed in Table 3.6-1 (and any species listed in the future) to the designated BPA, ODFW, and/or USFWS representatives within 24 hours following observation.

Water Resources and Wetlands

No streams exist within the project site or study area, but several streams and drainages occur in the general project vicinity, including Hay Creek to the west, Tenmile Canyon (which drains to Hay Creek) to the north, Ferry Canyon to the east, and Sniption Canyon (which drains to Thirtymile Canyon) to the south. Streams in the general project vicinity typically exhibit poor water quality, including high temperatures, low oxygen levels, and pollution such as sediments, bacteria, fecal coliform, nutrients, and toxic effluents. Smaller streams generally dry up during summer, while larger streams flow year-round.

No wetlands are present on the project site. One 0.1-acre wetland is present in the northern portion of the study area near MP 28. Three seasonal wetlands totaling about 0.17 acre are located within draws just outside the study area. These sites were dry during field studies in July 2000. One pond located just outside the study area is believed to hold water throughout the year.

Potential Impacts

No impacts on water resources and wetlands are anticipated from the proposed project for the following reasons. First, no wetlands are located within 500 feet of proposed wind turbine locations or access roads on the project site. Second, the erosion control and soils management techniques to be employed during construction, operation and maintenance, and decommissioning are expected to prevent fine sediments—the main type of potential pollutant from the project—from being introduced into downstream drainages above existing levels (see Section 3.3 for further discussion of these techniques). Third, it is anticipated that any accidental spills of hazardous or toxic materials used or stored on the project site (fuels, lubricants, solvents) would be in quantities small enough to allow for containment and clean-up before the contaminants reached downstream drainages.

Mitigation Measures

No mitigation for water resources would be required.

Cultural Resources

The primary and traditional Native American groups to utilize the study area were the Cayuse, Umatilla, Walla Walla, and Nez Perce. Sahaptin-speaking Yakama, Warm Springs, and Tenino and the Numic-speaking Northern Paiute also are known to have utilized this area. The ethnographic research shows that as many as 100 plant species were regularly used in past times as food resources and many of these plants maintain their importance in modern times.

Tribal consultation was initiated by BPA, consistent with the agency's 1996 Tribal Policy. Representatives from BPA and SeaWest met with the Cultural Resources Committees of the Confederated Tribes of Warm Springs Reservation and Confederated Tribes of the Umatilla Reservation during the scoping period for the EIS. The purpose of the meetings was to inform the tribes about the proposed project and to hear any comments or concerns they may have regarding it. Both tribes mentioned the presence of native plant species within the project vicinity that were and still are part of traditional root-gathering forays. Prior to cultural resource field surveys, the tribes declined an invitation to take part in walking over the study area but requested an opportunity to comment on the Draft EIS.

Three previously identified hunter-fisher-gatherer sites are recorded adjacent to the study area. These consisted of stone flakes, projectile points, animal bones, shell fragments, and charcoal. One of these sites is eligible for inclusion on the National Register of Historic Places. During the 2000-2001 field surveys, three hunter-fisher-gatherer isolated artifacts were identified north of Richmond Road in the study area. No artifacts were found on the project site.

Recorded historic sites in the study area mainly center on themes of homesteading, ranching, mining, and transportation. These sites date from the late 19th through early 20th centuries. The most common sites are wooden homesteads or cabins or their remains, along with associated features such as wells, outhouses, windmills, trash dumps, and non-native trees. Corrals, fences, flumes, canals, and farm equipment also are present on some sites.

Construction Impacts

- Project construction activities would not adversely affect any previously recorded archaeological site or historic property. (No Adverse Effect)

Operation and Maintenance Impacts

- None anticipated.

Decommissioning Impacts

- Same as construction. (No Adverse Effect)

Mitigation Measures

Mitigation measures for cultural resources include:

- If archaeological or historic materials are discovered during construction, further surface-disturbing activities at the site would cease, and BPA, State Historic Preservation Officer, and Tribal personnel would be notified to ensure proper handling of the discovery.

Visual Resources

The visual setting of the study area includes plateaus of gently rolling hills incised by ravines, undulating fields of grasses, low, dense native shrub-steppe, and a few human elements such as transmission lines, windmills, and buildings. The visual quality of the study area is rural, with no urban or developed areas.

Primary viewer types associated with the proposed project include residents, local or business travelers, occasional recreationists (primarily hunters), agricultural workers, and other types of workers in the area. The most visually sensitive viewers would be people in residences located in or adjacent to the study area.

Construction Impacts

- Temporary alterations to viewscape from construction activities. (Low to High)

Operation and Maintenance Impacts

- Change in viewscape from presence of turbines and meteorological towers. Impacts would be greatest for residential viewers along ORE206 and between Condon and the project site where views of the project are not obstructed. The impacts could be positive or negative, depending on viewer perceptions of wind turbines. (Low to High)

Decommissioning Impacts

- Same as construction. (Low to High)

Mitigation Measures

Mitigation measures for visual impacts include:

- Site all construction staging and storage areas away from locations that would be clearly visible from ORE206 to the extent practical.
- Provide a clean-looking facility by storing equipment and supplies out of sight, if practical; by promptly removing any damaged or unusable equipment; and by promptly repairing or decommissioning (and removing) turbines that are not functioning or not being used.
- Keep turbines and towers clean and touch up paint when needed.
- Coordinate with Oregon and federal recreational facilities and areas, as well as the Oregon Department of Transportation, to determine the feasibility and safety of providing signs directing sightseers along ORE206 to public viewing places that could provide safe viewing areas of the project site.

Socioeconomics, Public Services, and Utilities

Nearly 40 percent of the labor force in Gilliam County is employed in farming. Other employment sectors include transportation and public utilities (23 percent); government (18 percent); wholesale and retail trade (11 percent); services (6 percent); finance, insurance and real estate (2 percent); and construction and mining (less than 1 percent).

The number of people below the poverty level (based on Census threshold definition) was 12 percent in both Gilliam County and the State of Oregon in 1989. In 2000, the racial composition of Gilliam County was approximately 97 percent white and 2 percent Hispanic or Latino, with the rest of the population a mixture of other races. During the same period, the population of Oregon was approximately 87 percent white, 8 percent Hispanic or Latino, 3 percent Asian, and the remainder composed of other races.

Fire service for the project would be provided by the South Gilliam County Rural Fire Protection District. Police service would be provided by the Gilliam County Sheriff's Office, located in downtown Condon.

Gilliam County Medical Center in Condon is staffed by two physician assistants with supervision by a medical doctor from Hermiston. The nearest hospital is located in The Dalles, 70 miles northwest of Condon. The City of Condon is served by a volunteer Emergency Medical Technician crew with two fully equipped ambulances, and by Life Flight helicopters, out of Bend (120 miles south), for major emergencies.

A substation southwest of the project site reduces the 69-kV power from the BPA Condon-DeMoss transmission line to 7.2 kV for distribution. Columbia Basin Electric Co-op, a full-requirements customer of BPA, serves the community.

There are no municipal or cooperative water or sewer systems serving the project site and study area. All farming is dryland.

Solid waste collection in the project vicinity is provided by Columbia Ridge Landfill and Recycling Center, and Sunrise Sanitation.

Construction Impacts

- Potential benefit to local and regional economies through employment opportunities and purchase of goods and services. (Beneficial)
- Minor increased in demand on local emergency response resources such as fire, police, and medical personnel and facilities. (Adverse)
- Potential benefit to minority or low-income people if they become part of the construction workforce. (Beneficial)

Operation and Maintenance Impacts

- Very minor increased in demand for emergency services and schools. (Adverse)
- Local economic benefit from employment opportunities, increased tax revenues and purchase of goods and services. (Beneficial)

- Economic benefit to landowners in the form of annual land lease payments. (Beneficial)

Decommissioning Impacts

- Potential benefit to local and regional economies through employment opportunities and purchase of goods and services. (Beneficial)
- Minor increased in demand on local emergency response resources such as fire, police, and medical personnel and facilities. (Adverse)
- Loss of up to six full-time jobs created as part of the project. (Adverse)
- Potential benefit to minority or low-income people if they become part of the decommissioning workforce. (Beneficial)

Mitigation Measures

- No mitigation measures are required.

Transportation

Highway 19 (ORE19) is a major north-south arterial located approximately 5 miles east of the project site, where it intersects with ORE206 at the City of Condon (Figure S-1). It extends from Interstate 84 along the Columbia River south to Wheeler County, Oregon. Highway 206 (ORE206) extends from Interstate 84 along the Columbia River southeast through Condon and into Morrow County, east of Gilliam County.

Approximately 100 miles of Gilliam County roads are paved, while over 300 miles are gravel roads. Three county roads provide access to the project site: Richmond Lane and Ferry Canyon Road, located east of ORE206, and Old Cottonwood Road, located north of and parallel to ORE206 (Figure S-1).

The average daily two-way traffic (ADT) volume on ORE206 approximately 0.4 mile east of Condon was 238 vehicles in 1999. The 1999 ADT volume on ORE19 (approximately 4 miles south of Arlington) was 855 vehicles. Traffic volumes are not available for Gilliam County roads. However, traffic volume is relatively low, and these roads are generally used to access local residences.

Construction Impacts

- Increase in average daily two-way traffic of 21 to 42 percent on ORE206 and 6 to 12 percent on ORE19 (based on 1999 volumes). (Low)
- Potential for short delays in local traffic during delivery of equipment or components. (Low)

Operation and Maintenance Impacts

- Based on 1999 volumes, average daily trips would increase a maximum of 3 percent on ORE206 and a maximum of 1 percent on ORE19. (Low)

Decommissioning Impacts

- Similar to construction. (Low)

Mitigation Measures

Mitigation measures for transportation impacts include:

- Coordinate routing of construction traffic with Gilliam County Public Works Department.
- Employ traffic control flaggers and signs warning of construction activity and merging traffic as required.
- Repair any damages to state and/or county roads caused by the project.

Air Quality

The air quality attainment status of Gilliam County is not currently classified and air quality in the county is not monitored. Because of the sparse population and rural nature of the area, Gilliam County is likely to be in attainment for all criteria pollutants. Existing sources of air pollution are likely to be minimal.

The climate in the area is very dry (16 inches of precipitation annually). Wind-blown dust is prevalent in non-irrigated agricultural areas such as the project site and study area because soils are often composed of fine-grain silt loams. Dust is generated in such environments by agricultural activities, vehicles traveling on dirt roads, construction, and other activities that disturb soil.

Construction Impacts

- Combustion pollutants from equipment exhaust and fugitive dust particles from disturbed soils becoming airborne. (Low)

Operation and Maintenance Impacts

- Emissions and dust generated from maintenance vehicles and equipment. (Negligible)

Decommissioning Impacts

- Similar to construction. (Low)

Mitigation Measures

No mitigation measures for air quality impacts are necessary beyond standard practices that would be employed to control dust.

Noise

The existing noise environment in the project site and study area is relatively quiet, with occasional noise resulting from vehicles on local roads, scattered farm machinery, wind, and

birds. Background noise levels at locations distant from traveled roadways are relatively low.

Construction Impacts

- Residents in the vicinity of the project site could experience construction noise (associated with grading and earthmoving activities, hauling of materials, building of structures, and construction of turbines) slightly above Oregon noise standards. (Moderate to High)

Operation and Maintenance Impacts

- Two of 12 sound measurement locations in the study area would experience noise above measured background levels but still below Oregon standards. (Low to Moderate)

Decommissioning Impacts

- Similar to construction. (Moderate to High)

Mitigation Measures

Mitigation measures for noise impacts include:

- All equipment would have sound-control devices no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust.
- No noise-generating construction activity would be conducted within 1,000 feet of an occupied residence between the hours of 10 p.m. and 7 a.m.
- In the event of adjacent landowner complaints, and as directed by the county, the contractor would implement appropriate noise-reducing measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, and notifying adjacent residents in advance of construction work.

Public Health and Safety

The study area is a sparsely populated rural area of agricultural land, grassy canyons and ridgetops. Potential hazards in the area include the fire hazard presented by dry crops and grasses, especially in the summer months, and utility crossings. The BPA 69-kV Condon-DeMoss transmission line parallels and crosses the study area, and an underground PGT/PG&E gas pipeline crosses the project site/study area in a southwest-northeast direction. The Condon airport is located approximately 4 miles east of the project site.

Construction Impacts

- Health and safety risks for workers and visitors. (Low)

Operation and Maintenance Impacts

- Potential health and safety risks to workers, farmers, aviators, and visitors. (Low)

Decommissioning Impacts

- Similar to construction. (Low)

Mitigation Measures

- No mitigation measures are required for public health and safety.

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
Land Use and Recreation		
Construction		▪ None warranted for the low potential impacts to land use or recreation for the proposed project.
▪ Approximately 104 acres temporarily disturbed (58 acres in phase 1 and 46 acres in phase 2). Phase 1 temporary disturbance includes approximately 30 acres cultivated cropland and 4 acres CRP land; phase 2 temporary disturbance includes approximately 35 acres cropland and 10 acres CRP land.	Low	
▪ Temporary interruption of upland bird hunting in the vicinity of the project site.	Low	
Operation and Maintenance		
▪ Conversion of approximately 38 acres for permanent project facilities (21 acres for phase 1, 17 acres for phase 2). Total land converted includes approximately 25 acres cropland and 5 acres CRP land, which represents a very small to negligible portion of the agricultural acreage in the study area and Gilliam County.	Low	
▪ Potential minor increase in roadside sightseeing.	Low	
Decommissioning		
▪ Same as construction.	Low	
Geology, Soils, and Seismicity		
Construction		▪ No mitigation measures are required beyond the standard approved construction practices and erosion management techniques that would be employed to prevent mass wasting and control potential erosion to near existing levels.
▪ Modification of topography and temporary soil disturbance from road improvements, road construction, staging area clearing, and underground trenching could potentially induce erosion or unstable slopes.	Low	
▪ Removal of vegetation.	Low	
▪ Stormwater runoff.	Low	
▪ Potential for earthquake damage to facilities.	Low	
Operation and Maintenance		
▪ Potential erosion at project facility.	Negligible	

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
Decommissioning		
▪ Similar to construction.	Low	
Fish		
Construction, Operation and Maintenance, and Decommissioning		
▪ None anticipated.	None	▪ None required.
Vegetation		
Construction		
▪ Total project (phase 1 and 2) would temporarily disturb approximately 65 acres of cropland during construction, with about 25 acres of cropland remaining in the permanent footprint for the 20-year project life.	Low	▪ Construction corridors would be marked in shrub-steppe plant communities in the vicinity of construction areas to minimize disturbance to this vegetation type. ▪ To minimize opportunities for weed infestations, exposed soils would be reseeded with a seed mix approved by the Natural Resources Conservation Service and/or reestablished as cropland after construction is complete. ▪ Construction equipment would be limited to construction corridors and designated tower and building construction and staging areas. ▪ Due to the rarity of trees in the area, no trees would be removed. In the unlikely event that tree removal is unavoidable, new trees would be planted at a ratio of five trees for every tree lost that has a diameter greater than 4 inches. ▪ SeaWest or its successor would prepare and implement a Weed Management Control and Response Plan, to be approved by the Gilliam County Weed Control Board. Weed management would include monitoring site facilities annually for infestation by noxious weeds. Weeds would be controlled in consultation with local landowners. Infestations would be addressed within 2 weeks and reported to appropriate staff at the Gilliam County Weed Control Board.
▪ Approximately 14 acres of CRP land would be temporarily disturbed during construction, with approximately 5 acres permanently impacted (total for phase 1 and 2). Permanent CRP land impact represents approximately 36 percent of CRP land on the project site and approximately 1 percent of CRP land in the study area.	Low	
▪ Total project (phase 1 and 2) would temporarily disturb approximately 2 acres of non-high-quality shrub-steppe vegetation, with about 1 acre remaining in the permanent footprint for the 20-year project life. This represents less than 1 percent of the total shrub-steppe in the study area.	Low	
▪ Establishment of noxious weeds.	Low	
Operation and Maintenance		
▪ Vegetation loss due to fire.	Low	
▪ Weeds could become established around or downwind of project roads and facilities.	Low	

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
Decommissioning		
▪ Similar to construction.	Low	
Wildlife		
Construction		
▪ Construction noise and activities would cause some wildlife to avoid areas of active construction.	Low	▪ Construction would be primarily within areas that are private farmland that is only marginally productive as habitat.
▪ Approximately 14 acres of CRP habitat disturbed (less than 1 percent of CRP land in study area).	Low	▪ None required, because loss represents a negligible reduction of this habitat type in the study area.
Operation and Maintenance		▪ The project is sited in an area of low avian use. Project design includes tubular (not lattice) towers, slow-rotating turbine blades, and turbine location at the top or downwind side of ridges.
▪ Annual bird mortality for the full project due to collision with turbines is expected to be 50 to 230 (0.6 to 2.8 birds/turbine/year) (mostly passerines with 0-3 raptors). Annual bat mortality due to collision with turbines is expected to be 60 to 160 (0.7 to 1.9 bats/turbine/year). Some birds may also collide with guy wires of the project's meteorological towers.	Low to Moderate	▪ The proponent would monitor avian and bat mortality for the first year of the project's life, and submit a quarterly report during that year to BPA, ODFW, and USFWS. The monitoring would follow standard protocols that have been established at other wind resource projects.
▪ Mortality of birds due to electrocution by electrical transmission lines.	Low	▪ The proponent would maintain a record of all wildlife injury and mortality that is observed at the project site.
▪ General decline in wildlife use of the project site due to the presence of turbines and associated operation and maintenance activities.	Low	▪ To prevent bald eagles from being attracted to the project site, project personnel and avian monitoring crews would remove any large carrion (dead deer or cattle) at the project site between November 15 and March 31 of any given year. Carrion would be relocated within 24 hours to habitat more than 2 miles from the project.
Decommissioning		
▪ Temporary increase in noise and visual disturbance potentially affecting wildlife.	Low	▪ Overhead electrical power lines and other transmission facilities would be designed to prevent electrocution hazard to raptors and other birds by incorporating features such as perch guards, separation of wires, or line insulators.
▪ Elimination of bat and avian mortality caused by the project. Wildlife activity and habitat at the project site could return to pre-project conditions.	None	
Water Resources and Wetlands		
Construction, Operation and Maintenance, and Decommissioning		
▪ None anticipated.	None	▪ None required.

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
Cultural Resources		
Construction		
▪ Project construction activities would not adversely affect any previously recorded archaeological site or historic property.	No Adverse Effect	▪ If archaeological or historic materials are discovered during construction, further surface-disturbing activities at the site would cease, and BPA, State Historic Preservation Officer, and Tribal personnel would be notified to ensure proper handling of the discovery.
Operation and Maintenance		
▪ None anticipated.	None	
Decommissioning		
▪ Same as construction.	No Adverse Effect	
Visual Resources		
Construction		
▪ Temporary alterations to viewscape from construction activities.	Low to High	▪ Site all construction staging and storage areas away from locations that will be clearly visible from ORE206 to the extent practical. ▪ Provide a clean-looking facility by storing equipment and supplies out of sight, if practical; by promptly removing any damaged or unusable equipment; and by promptly repairing or decommissioning (and removing) turbines that are not functioning or not being used. ▪ Keep turbines and towers clean and touch up paint when needed. ▪ Coordinate with Oregon and federal recreational facilities and areas, as well as the Oregon Department of Transportation, to determine the feasibility and safety of providing signs directing sightseers along ORE206 to public viewing places that could provide safe viewing areas of the project site.
Operation and Maintenance		
▪ Change in viewscape from presence of turbines and meteorological towers. Impacts would be greatest for residential viewers along ORE206 and between Condon and the project site where views of the project are not obstructed. The impacts could be positive or negative, depending on viewer perceptions of wind turbines.	Low to High	
Decommissioning		
▪ Same as construction.	Low to High	
Socioeconomics, Public Services, and Utilities		
Construction		
▪ Potential benefit to local and regional economies through employment opportunities and purchase of goods and services.	Beneficial	▪ None required.

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
▪ Minor increased in demand on local emergency response resources such as fire, police, and medical personnel and facilities.	Adverse	
▪ Potential benefit to minority or low-income people if they become part of the construction workforce.	Beneficial	
Operation and Maintenance		
▪ Very minor increase in demand for emergency services and schools.	Adverse	
▪ Local economic benefit from employment opportunities, increased tax revenues and purchase of goods and services.	Beneficial	
▪ Economic benefit to landowners in the form of annual land lease payments	Beneficial	
Decommissioning		
▪ Potential benefit to local and regional economies through employment opportunities and purchase of goods and services.	Beneficial	
▪ Minor increase in demand on local emergency response resources such as fire, police, and medical personnel and facilities.	Adverse	
▪ Loss of up to six full-time jobs created as part of the project.	Adverse	
▪ Potential benefit to minority or low-income people if they become part of the decommissioning workforce.	Beneficial	
Transportation		
Construction		
▪ Increase in average daily two-way traffic of 21 to 42 percent on ORE206 and 6 to 12 percent on ORE19 (based on 1999 volumes).	Low	▪ Coordinate routing of construction traffic with Gilliam County Public Works Department. ▪ Employ traffic control flaggers and signs warning of construction activity and merging traffic as required.
▪ Potential for short delays in local traffic during delivery of equipment or components.	Low	▪ Repair any damages to state and/or county roads.

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
Operation and Maintenance		
▪ Based on 1999 volumes, average daily trips would increase a maximum of 3 percent on ORE206 and a maximum of 1 percent on ORE19.	Low	
Decommissioning		
▪ Similar to construction.	Low	
Air Quality		
Construction		
▪ Combustion pollutants from equipment exhaust and fugitive dust particles from disturbed soils becoming airborne.	Low	
Operation and Maintenance		
▪ Emissions and dust generated from maintenance vehicles and equipment.	Low	▪ No mitigation measures for air quality impacts are necessary beyond standard practices that would be employed to control dust.
Decommissioning		
▪ Similar to construction.	Low	
Noise		
Construction		
▪ Residents in the vicinity of the project site could experience construction noise (associated with grading and earthmoving activities, hauling of materials, building of structures, and construction of turbines) slightly above Oregon noise standards.	Moderate to High	▪ All equipment would have sound-control devices no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust. ▪ No noise-generating construction activity would be conducted within 1,000 feet of an occupied residence between the hours of 10 p.m. and 7 a.m. ▪ In the event of adjacent landowner complaints, and as directed by the county, the contractor would implement appropriate noise-reducing measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, and notifying adjacent residents in advance of construction work.
Operation and Maintenance		
▪ Two of 12 sound measurement locations in the study area would experience noise above measured background levels but still below Oregon standards.	Low to Moderate	
Decommissioning		
▪ Similar to construction.	Moderate to High	

Table S-2. Potential Impacts and Mitigation of the Proposed Condon Wind Project

Potential Impact	Impact Level	Mitigation
Public Health and Safety		
Construction		
▪ Health and safety risks for workers and visitors.	Low	
Operation and Maintenance		
▪ Potential health and safety risks to workers, farmers, aviators, and visitors.	Low	▪ None required.
Decommissioning		
▪ Similar to construction.	Low	

Changes to the Draft EIS that, combined with the Draft EIS, constitute the Final EIS for the Condon Wind Project.

[AMEND DEIS] *Section 1.2—Need for Action, add paragraph 2:*
Technologies like wind power generation can help displace additions to the power system that might otherwise come from fossil fuel combustion or hydro-powered generation. Wind power can help meet energy needs without additional emissions of greenhouse gases. The Condon Wind Project is an opportunity to satisfy consumer demand for increasing the amount of renewable energy resources in the region's power supply.

[AMEND DEIS] *Figure 2.1-3—Turbine Features, 600 kW, replace with figure that follows this page.*

[AMEND DEIS] *Section 3.3.5—Environmental Consequences—No Action Alternative, replace section with:*
Under the No Action Alternative, the potential impacts to geology, soils, or from seismic activity at the project site would remain the same as under present conditions, without the influence of the proposed project. Energy resources built instead of the proposed project could have impacts to the geology, soils, or from seismic activity in the project area. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Sections 3.4.4.2, 3.4.4.3 and 3.4.4.4, delete DEIS sections and replace with:*

3.4.4.2 Impacts during Construction

No impacts on fish or other aquatic resources are expected during construction of either phase 1 or phase 2 of the proposed project. Because no fish-bearing streams are located on the project site, neither fish nor fish-bearing streams would be directly impacted during construction. The only potential impact would occur if creeks draining the project site experienced changes in water flow patterns or water quantity/quality, thus indirectly affecting reaches of creeks downstream. However, as described in Section 3.7 for water resources, such impacts are highly unlikely. In addition, the project would have no effect on downstream woody debris, seed deposition, nutrient cycling, or other key fish habitat components. The proposed action includes several best management practices to protect water quality and prevent erosion, which would in turn protect fish. Therefore phase 1 and phase 2 of construction would have no effect on fish species listed under the ESA or otherwise result in violations of local, state, or federal regulations related to fish and fish habitat (Hoefer pers. comm.).

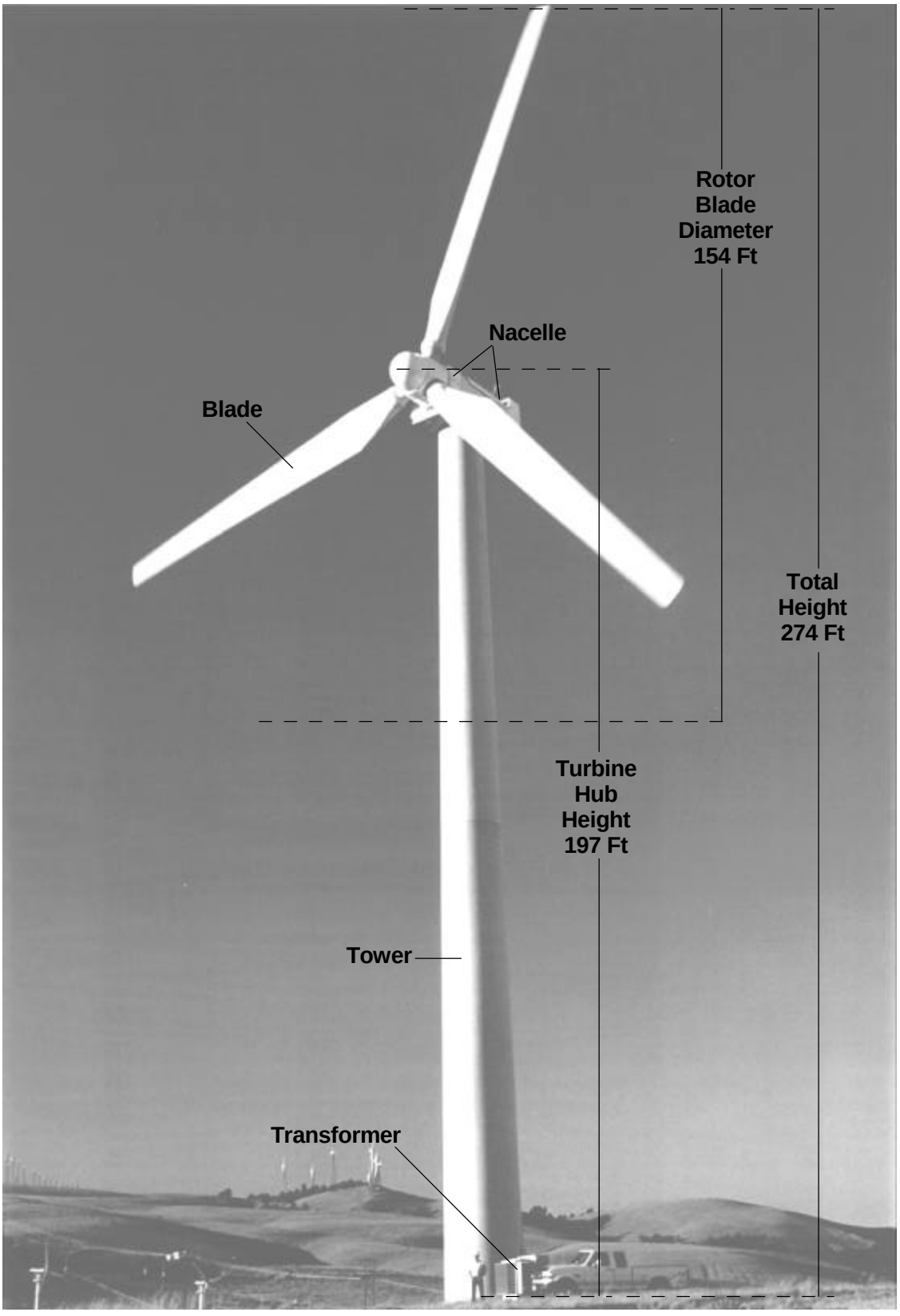
3.4.4.3 Impacts during Operation, Maintenance, and Decommissioning

Operation and maintenance would have no effect on fish or other aquatic resources. Since fish-bearing streams are absent from where project activities would occur, only downstream impacts in streams receiving drainage from the project site are possible, and these are highly unlikely. Therefore, project operation and maintenance would have no effect on fish species listed under the ESA or otherwise result in violations of local, state, or federal regulations related to fish and fish habitat.

Decommissioning impacts would be similar to those described earlier for construction; no impacts on fish are expected.

3.4.4.4 Mitigation

No mitigation measures are required because no effects on fish have been identified.



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Source: Seawest, 2000.

Figure 2.1-3
Turbine Features, 600-KW

[AMEND DEIS] *Section 3.4.5—Environmental Consequences—No Action Alternative, replace section with:*
Under the No Action Alternative, fish in the project vicinity would continue to exist without the influence of the proposed project. However, other energy resources (most likely CTs) would be built in the region. These resources could be sited in areas where they would have effects on fish populations including threatened, endangered, or sensitive species.

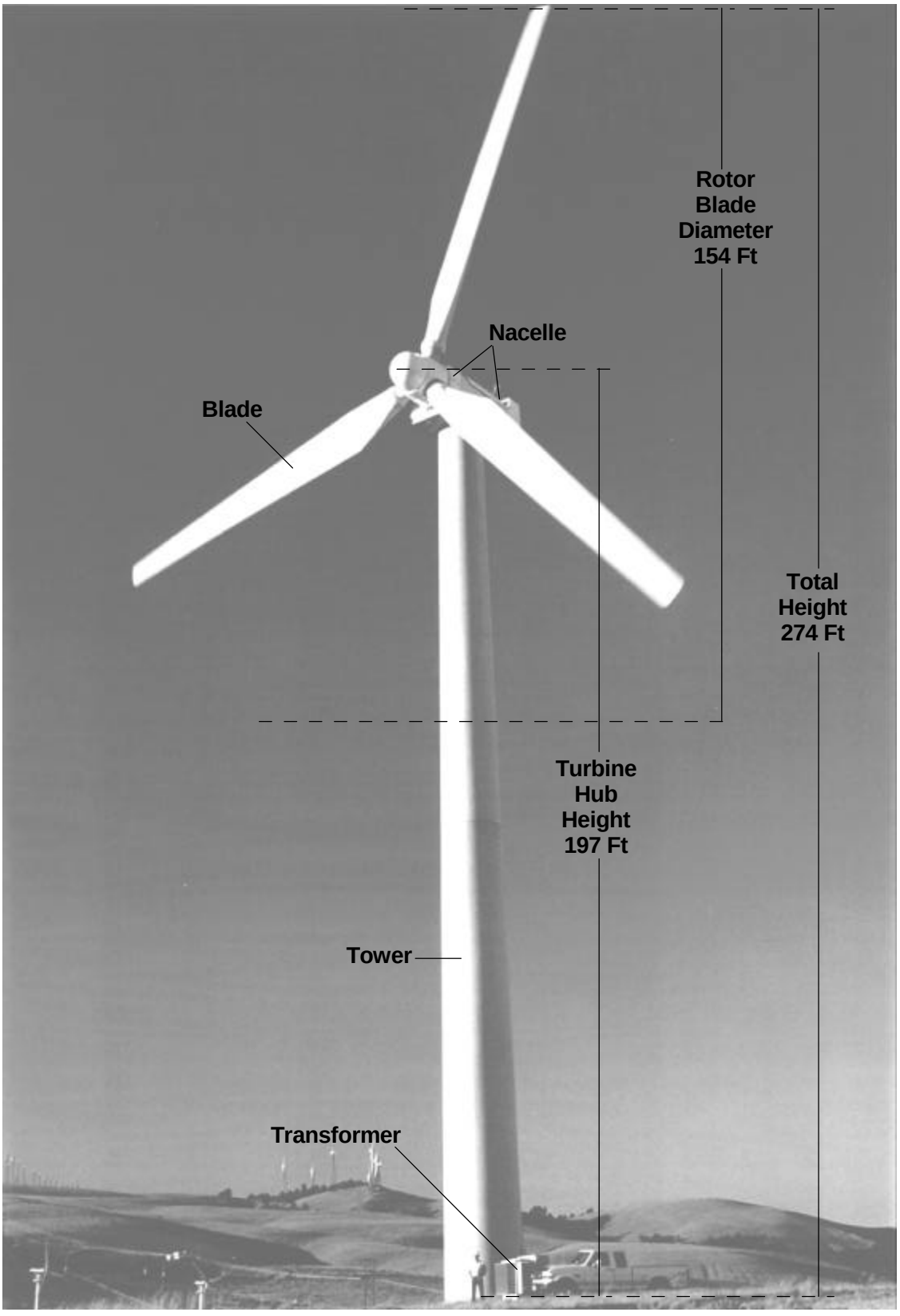
[AMEND DEIS] *Section 3.6.3.4—Migrant Passerine Use, correct second reference in third paragraph:*
Most passerines undertake long-distance migration flights at night, typically flying at altitudes well above the highest reach of wind turbines (Bellrose in Alerstam 1990). However, flight altitudes do occasionally fall within the height of wind turbines, and mortality of migrating passerines has been reported at existing wind resource areas (Johnson et al. 2000; Erickson et al. 2000), although no large mortality events like those reported for communication towers (Kerlinger 2000) have been reported at wind projects.

[AMEND DEIS] *Section 3.6.4.3—Birds, replace first paragraph with:*
With current technology, avian mortality from collisions with the turbines and meteorological tower guy wires is an unavoidable consequence of wind resource development such as the proposed project. It follows that some avian mortality would occur at the project site over the life of this project. The average number of birds killed per year for the proposed project from collisions with wind turbines is expected to be in the range of 25 to 115 individuals for phase 1, and an additional 25 to 115 individuals for phase 2 (0.6 to 2.8 birds/turbine/year for the full project). This average is based on average per-turbine impacts reported at two similar wind projects—the Vansycle (Umatilla County, Oregon) and Buffalo Ridge (Minnesota) wind resource areas—where a combined total of 5 years of mortality data have been systematically gathered. These two projects are appropriate for comparison to the proposed project since (1) they use similar turbine designs (tubular steel towers, relatively large rotor diameter and height); (2) they are located in open agricultural areas; (3) they are located on ridges perpendicular to the primary wind direction; and (4) raptors and other birds occur in similar abundance.

[AMEND DEIS] *Section 3.6.4.3—Birds, correct reference in fourth paragraph to read:*
At the Buffalo Ridge site, the mean number of avian fatalities was 2.83 birds/turbine/year (Johnson, et al. 2000). As with Vansycle, most avian fatalities (just over 75 percent) were passerines. Other fatalities detected were waterfowl, waterbirds, upland gamebirds, shorebirds, and one raptor.

[AMEND DEIS] *Section 3.6.4.3—Birds, replace seventh paragraph with:*
Due to the seasonal timing of reported fatalities, it appears likely that many of the fatalities are migrants, and most passerines migrate at night. A total of nineteen raptor nests were found within a 10-mile radius of the avian study area plots (1.4 nests/10,000 hectares). This density is extremely low compared to density found in similar surveys at other wind projects, including the Vansycle/Stateline wind site in Oregon (3.9-7.8 nests/10,000 hectares).

[AMEND DEIS] *Section 3.6.4.3—Bats, replace first paragraph with:*
Based on per-turbine estimates found at the Vansycle and Buffalo Ridge sites, annual bat mortality for the proposed project could be in the range of 30 to 80 individual bats for the first phase and an additional 30 to 80 individuals for the second phase (0.7 to 1.9 bats/turbine/year for the full project). Individuals killed are most likely to be hoary, silver-haired, and little brown bats, based on the species found at the Vansycle site.



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Source: Seawest, 2000.

Figure 2.1-3
Turbine Features, 600-KW

[AMEND DEIS] *Section 3.6.5—Environmental Consequences—No Action Alternative, replace section with:*
Under No Action, the project would not be built, and the wildlife of the study area would continue without influence of the proposed project. Energy resources built instead of the proposed project could have wildlife impacts. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Section 3.7.5—Environmental Consequences—No Action Alternative, replace section with:*
Under the No Action Alternative, the project site would likely remain as farmland used for non-irrigated agriculture. Potential impacts to water resources and wetlands associated with the study area would remain the same as under present conditions. Energy resources built instead of the proposed project could have water or wetlands impacts. For example, CTs use an average of 3.4 acre-feet of water per MW per year. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Section 3.9.4.5—Mitigation, replace third bullet statement with:*
- coordinating with Oregon and federal managers of recreational facilities and areas, as well as the Oregon Department of Transportation, to determine the feasibility and safety of providing signs directing sightseers along ORE206 to public viewing places that could provide safe viewing areas of the project site; and

[AMEND DEIS] *Section 3.10.3.6—Electrical Services, add paragraph 2:*
Output from the project would be melded with output from BPA's other energy resources – it would not be earmarked or specifically identifiable as the energy marketed to Gilliam County or any other BPA customers. There would be no impact on BPA's rates because the cost of purchasing output from the Condon Wind Project was included in BPA's rates for the fiscal year 2002-2006 rate period. Only if there is a surplus of power can BPA sell outside its Pacific Northwest service territory.

[AMEND DEIS] *Section 3.10.4.3—Impacts of Operation and Maintenance, replace paragraph 1 with:*
During operation of the project, no impacts are expected to housing, and only minor adverse impacts could occur to emergency services and schools. Beneficial impacts on the local economy would result from increased tax revenues and the purchase of goods and services. In addition, acquisition of the output of the project by BPA would help reduce BPA's energy resource deficit**.** Electricity produced by the project would flow into the Northwest power grid and would be used to serve regional loads, exchanged with other regions, or sold as surplus power (if available).

BPA is a wholesaler of energy to many retail and public utility distributors in the region, including the two that serve Gilliam County: Columbia Basin Electric Cooperative and PacifiCorp. There would be no impact on the cost of power bought by the local utilities from BPA because the cost of purchasing output from new renewable energy sources like the Condon Wind Project was included in BPA's rates for the fiscal year 2002-2006 rate period. Regardless, the annual cost of power from the Condon Wind Project would be extremely small compared to BPA's annual budget, which exceeds $2 billion. Therefore, there would be no impact from the project on power rates in Gilliam County or elsewhere in the region.

[AMEND DEIS] *Section 3.10.4.3—Impacts of Operation and Maintenance, replace paragraph 8 with:*
Gilliam County has indicated its intention to file an Enterprise Zone request to include areas that would encompass the proposed project. If the request is approved, on a year to year basis, partial and

temporary property tax relief, over the initial several years, could somewhat reduce operating costs for the owner of the project during those years.

[AMEND DEIS] *Section 3.10.5—Environmental Consequences—No Action Alternative, replace section with:*
Under the No Action Alternative, the socioeconomic conditions in the project vicinity and surrounding area would continue without influence from the proposed project. The county would not benefit from the tax revenues and employment opportunities brought by the project. Energy resources built instead of the proposed project could have socioeconomic impacts. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Section 3.11.5—Environmental Consequences—No Action Alternative, replace section with:*
With the No Action Alternative, transportation in the project vicinity would continue without influence of the proposed project. Roads that would have been improved for the project would be left unimproved. Energy resources built instead of the proposed project could have transportation impacts. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Section 3.13.5—Environmental Consequences—No Action Alternative, replace section with:*
Under the No Action Alternative, existing background noise levels in the project site, study area, and project vicinity would continue without influence of the proposed project. Energy resources built instead of the proposed project could have noise impacts. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Section 3.14.4.3—Impacts during Operation and Maintenance, replace 6th paragraph with:*
Because the project turbines and meteorological towers would exceed 200 feet in height, a Notice of Proposed Construction or Alteration (Form 7460-1) has been filed by the proponent with the FAA. The FAA is evaluating the project and will make recommendations to the proponent regarding possible airway marking, lighting, and other safety requirements which would become part of the project.

[AMEND DEIS] *Section 3.14.4.3—Electric and Magnetic Fields, replace section with:*
Electric and magnetic fields (EMF) are associated with electric transmission and distribution lines. BPA completed an extensive review of EMF in its *Electrical and Biological Effects of Transmission Lines: A Review* in December 1996. Although the study focused on high-voltage transmission lines, it also reviewed related research on distribution lines. In general, reviews of the epidemiological and biological research on EMF consistently conclude that no causal link has been established between EMF and adverse human health effects. However, since most of the studies acknowledge there are still unanswered questions, steps to prevent or reduce exposures are recommended.

Steps to prevent or reduce exposures are not necessary for this project because the nearest residence to any part of the proposed facilities is about 2,000 feet away. The strength of EMF diminishes rapidly as the distance from the source increases. During project operation, the overhead power lines and substation would produce EMF in the immediate vicinity of these facilities. However, no residences are located in the vicinity of the proposed substation. Any fields generated by the transmission line would diminish to background levels within a few hundred feet. Thus, the nearest residence is located beyond the reach of any possible EMF effects. The power generated by the proposed project would not raise background EMF to levels that would be substantially different from existing levels. As a result, there would be no EMF exposure to residences and no significant increase in background levels of exposure to the general public caused by the proposed project.

[AMEND DEIS] *Section 3.14.5—Environmental Consequences—No Action Alternative, replace section with:*
Under the No Action Alternative, existing health and safety risks associated with ongoing agricultural activities and with existing power lines on the project site would continue without influence of the proposed project. Energy resources built instead of the proposed project could have health and safety impacts. The intensity of impact would depend on the location of those energy resources.

[AMEND DEIS] *Section 3.17—Unavoidable Adverse Impacts, replace fourth paragraph with:*
Wildlife: Birds and bats may collide with wind turbines or guy wires on meteorological towers. Annual bird mortality is estimated at between 50 and 230 for the full project (mostly passerines with 0-3 raptors/year). Annual bat mortality is estimated at between 60 and 160 (most likely hoary, silver-haired, and myotis varieties).

[AMEND DEIS] *Chapter 4—Cumulative Impacts, replace chapter with:*
A "cumulative impact" is the impact on the environment that results from the incremental impact of an action, such as this proposed action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

The proposed project is the only wind energy development planned in the Condon area to BPA's knowledge. The size of the Condon project, and of any possible further projects in the Condon area, is constrained by the limitation of available transmission capacity in the area. Expansion of wind facilities in the Condon area is not likely in the near future, if at all. Thus, while further wind projects in the vicinity of Condon are a remote possibility, such additional projects are highly speculative and not reasonably probable at this time. If future additional wind projects were to be developed in the study area or Condon area, and the same siting criteria were applied as were used for the proposed project (such as avoiding wetlands and unstable slopes, and avoiding local avian flyways), then they would have incremental additive increases in effects (beneficial and adverse) similar to the Condon project and proportional to the size of any new projects. No other developments, projects or changes of any type are planned or foreseen in and around the project vicinity that would affect any aspect of the physical and biological environment there. So, no other cumulative impacts are anticipated.

Since the Draft EIS was published, BPA has begun working with another developer in the initial planning phases of determining the feasibility, siting and sizing of a wind project in the north part of Gilliam County, identified as the Wheat Field Wind Project, approximately 19 air miles from the north end of the study area for the proposed Condon project. The Wheat Field project is far enough away to have no cumulative impacts to land use and recreation, geology, fish, vegetation, water resources, cultural resources, visual resources, transportation, air quality, noise, or public health and safety. The only potential cumulative impacts would be to socioeconomic and avian impacts.

If the Wheat Field Wind Project is developed, the county would benefit from additional employment opportunities, increased tax revenues and local purchases of goods and services. Additional increases in demand on local services such as fire, police, and medical facilities may be an adverse cumulative impact of having both projects operating in the same county.

If the Wheat Field Wind Project is developed, additional bird and bat mortality within 20-25 miles of the Condon Project may occur due to collisions with turbines and meteorological towers at that project site. It is very speculative to provide mortality projections for a future wind project without additional information on the habitat, bird and bat utilization, and species composition of the project site. However, it can be assumed that additional bat and avian mortality would occur, and an

undetermined number of these would be migrants that could possibly pass through both wind project areas during migration. For the most part, resident birds would not use both areas because the distance between the two projects is farther than the usual range of most resident birds. More specific projections, reflecting the results of the avian and bat studies undertaken for the Wheat Field Project, would be provided during the environmental review process for that project.

[AMEND DEIS] *Chapter 6—References, add:*

Lee, J.M. 1996. Electrical and Biological Effects of Transmission Lines: A Review. U.S. Department of Energy, Bonneville Power Administration. Portland, OR

The following pages replace pages ES-3 and ES-5 in Appendix C—Technical Baseline Study – Executive Summary.

10,000 hectares within the 10-mile radius of the SA during the 2000 surveys. This density is low compared to densities estimated from similar surveys at the Vansycle/Stateline wind site in Oregon (3.9 to 7.8 nests per 10,000 hectares) and Foote Creek Rim in Wyoming (7 nests per 10,000 hectares).The raptor species observed during aerial surveys included red-tailed hawks (4 active nests), unknown raptors (4), Swainson's hawks (3), and prairie falcons (2). Great horned owl and golden eagle nests were observed beyond the 10-mile radius. Common ravens were also recorded during the aerial survey and were the most abundant nesting species observed (6 nests) of the known nests.

During the avian use plot surveys a total of 50 bird species or best possible identification was recorded. Horned lark comprised 40 percent of the total birds counted, raptors 11 percent, western meadowlark 10 percent, waterbirds 3 percent, and upland game birds 1 percent. The other 35 percent of the total consisted of mostly other species of passerine birds such as sparrows, unidentified passerines, blackbirds, and common ravens, the only corvid observed. American kestrel was the most frequently observed raptor, followed by unidentified buteos, red-tailed hawk, northern harrier, rough-legged hawk, unidentified raptors, and golden eagle. Most of the "unidentified" birds were those recorded farther than 600 meters from the observer.

Overall, more species were observed in the SA during the spring and summer (26 and 28 respectively) than during the fall (15) and winter (14). However, the number of species/ unique groups identified per 15-minute plot survey was significantly higher in the spring than during the other seasons. There were no statistically significant differences between indices of use by any bird group or season between the plots within the proposed project area (the PA, where wind turbine development is proposed) and the plots outside the proposed project area (the OSPA). An analysis of seasonal differences within all of the plots combined (the Condon Analysis Area or CAA, consisting of the plots in the PA and OSPA) revealed that corvid use was significantly higher during the fall than other seasons. Raven use was highest of all large bird species and groups in the CAA in the summer, fall, and winter and was second-highest in the spring. Raven use in the fall was approximately ten times that of the next species (abundant in this case refers to an index of use, not true abundance). Raptor use was highest during spring but not quite significantly different from the other seasons. Use by the horned lark/meadowlark group was significantly lower during the summer than all the other seasons. Combined use by all birds was significantly higher in summer than other seasons.

The ten large bird species, whose use in at least one season was in the top ten species, were the common raven, American kestrel, ring-necked pheasant, northern harrier, long-billed curlew, red-tailed hawk, gray partridge, golden eagle, rough-legged hawk, and turkey vulture. Small bird species in the "top ten" in at least one season were the horned lark, western meadowlark, vesper sparrow, and savannah sparrow.

sites but myotis (which could not be identified to species), big brown, and State Sensitive silver-haired bats were detected. Considerable activity at stream and pond sites at and in the vicinity of the SA was detected, but only myotis species were identified. Myotis species were also recorded at various mobile sample points: the area with the most activity was a riparian area along Ferry Canyon. No bats were captured by mist netting at ponds. Although myotis calls could not be definitively identified to species, most of the calls recorded were typical of little brown bats and several were typical of California myotis.

Small birds most often observed in the zone of risk were horned larks, blackbirds (unidentified and Brewer's blackbirds), western meadowlarks, swallows (cliff and unidentified), and American goldfinches. Horned larks and blackbirds were both estimated to be greater than seven times more likely to be found in the zone of risk than any other small birds. Note that of these species, only a horned lark was represented in the list of carcasses found during the one-year monitoring study at the Vansycle Wind plant in northeast Oregon, and it may have been killed by a car collision (Erickson et al. 2000). Horned lark was the most commonly observed passerine at the Foote Creek Rim Wind plant in Wyoming, had the highest risk index, and was the most abundant turbine-related collision observed.

Large birds most likely to be observed in the zone of risk are rough-legged hawks, American kestrels, common ravens, and northern harriers. The golden eagle is estimated to be 10 times less likely to be observed in the zone of risk than American kestrels and approximately 20 times less likely than common ravens.

Raptor relative use estimates for the Condon SA were compared to estimates from other wind plants where comparable data exists. Raptor use estimates were taken from three studies where data were collected from fixed-radius survey plots using protocols very similar to the protocol used on the Condon study. Monitoring studies included the Buffalo Ridge Wind Resource Area (WRA), Minnesota in 1996-1999 (Johnson et al. 2000a); the monitoring studies at the Foote Creek Rim WRA in 1995, 1997, 1998 and 1999 (Johnson et al. 2000b, 2001); and the Vansycle Avian Baseline Study (URS 1997). Due to differences in the time of surveys and possible differences in the quality of viewsheds out to 800 meters, some biases may exist.

Of the four sites, the estimated raptor use is highest during the spring, summer and fall at the Foote Creek Rim Wind Plant. During the winter, raptor use is highest at the Vansycle Wind Plant. Otherwise, similar use estimates exist for the CAA, the PA, the Vansycle WRA, and the Buffalo Ridge Project area, with none of these studies having consistently higher or lower raptor use estimates across all seasons. No turbine-related raptor fatalities were observed during a one-year monitoring effort at the Vansycle Wind Plant (Erickson et al. 2000) and only one red-tailed hawk fatality was found during a 5-year monitoring effort at the Buffalo Ridge WRA. Three turbine-related raptor fatalities (3 American kestrels, 1 northern harrier and 1 short-eared owl) were observed at the Foote Creek Rim Phase I Windplant (69 turbines) during two years of

Our organization has reviewed your draft EIS for the proposed Condon Wind Project. Our concerns regarding this proposed project, issues with the draft EIS, and alternative suggestions are outlined as follows:

I. The likely mortality of birds, bats and other avian species resulting from the implementation of this project is unacceptable.

Since the project area is predominantly a dry, open agricultural area, and the project is predicted to have only minor effects on relatively common species at a local level with negligible effect on population viability, the impacts are assessed as having low to moderate impact. The four-season avian use survey and bat survey looked for high-use areas so turbines could be located elsewhere. Although no high-use areas were observed for either birds or bats, certain areas were identified as potential avian use areas and wind turbines were relocated away from those areas.

Potential effects to birds and bats are shown in EIS section 3.6.4 and have been updated for the Final EIS. The high end of the avian mortality projection was incorrectly calculated due to an error in interpreting mortality data collected at the Buffalo Ridge Windplant reported in Johnson et al. (2000). The mean fatality rate used for making the high end projection in the DEIS was an estimate of reference mortality (natural mortality) and not turbine mortality. The turbine mortality estimate averaged over the 4 years of study at Buffalo Ridge is 2.8 avian fatalities/turbine/year. Applying this to the Condon project yields an estimate of approximately 115 avian fatalities for phase 1 and 115 fatalities for phase 2 per year. The low end of the range is correct and is based on the one year Vansycle, Oregon, study (Erickson et al. 2000).

A. At this time, rather than approving the project as proposed, at most only a small pilot study wind power generation project should be temporarily, and conditionally, permitted to proceed. This pilot project should cover no more than five acres and employ turbines spaced 1.5 to 3 times more distant from each other than the proposed alternative. The pilot project should be licensed for a period of no more than five years and should be mandated to accomplish the following:

1. Research the total number of birds, bats, and other avian species killed, wounded, or otherwise adversely affected by the project and disclose the results yearly, and/or seasonally.

2. Establish an interdisciplinary team of wildlife biologists (ornithologists, etc.) and wind generation research engineers whose mission and objectives are to design, develop, and deploy wind power generation turbines which further successfully reduce and minimize mortality impacts to avian species. This team will explore utilizing methods and devices which warn and/or deter avian species from the generation area. Among known options are: 1. visible flagging, 2. sounds beyond the range of human hearing, 3. signals detectable by bats and other avian species, 4. deflection devices, 5. decoys of predators, etc. This team should also explore alternative development of wind generators which do not utilize large revolving blades. options which exist include funneled wind-tunnel tubes (with screening, warning, and/or deflecting devices), as well as the development of wind velocity amplifiers and inverters.

A small pilot study would not meet BPA's need for action as stated in section 1.2 of the EIS. "In the face of regional growth in electrical loads and increasing constraints on the existing energy resource base, BPA needs to acquire resources that will contribute to diversification of the long-term power supply in the region." In addition, it would not meet any of the purposes of action listed in Section 1.3. In proposing the Condon Wind Project, SeaWest considered factors such as wind speeds, market

prices, length of purchase agreement, and economies of scale to determine project size and viability. A smaller project at this site would not be feasible for the developer or meet BPA's need for action.

In this EIS, the BPA is analyzing whether to buy and transmit power from the project proposed and designed by SeaWest (Chapter 2). BPA's role is limited to analyzing the effects of the project as proposed and deciding if buying the power from the project aligns with BPA's business objectives. Analyzing different types of proposals, or different sites or sizes for the existing proposal, would be impractical and not a reasonable effort since no developer has proposed such alternatives.

Mitigation measures that reduce the potential for impacts to birds and reflect the state-of-the-art knowledge about minimizing impacts to raptors and other avian species are built into the siting and design of the project and are addressed in Section 3.6.4. BPA does have some influence on mitigation of the proposed project to make it more desirable environmentally and economically. For example, some turbines were moved from their original planned sites after those sites were identified by the four-season avian study as potential crossing areas for birds. Other mitigation measures would be employed to minimize potential project impacts to birds and other wildlife as discussed in section 3.6.4.5. These measures include monitoring avian and bat mortality for the first year of operation and submitting a quarterly report to BPA, the Oregon Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service.

II. The continuing sprawl of modern technological society's impacts upon surrounding/outlying natural, rural, agricultural areas must be minimized, and where possible reversed. In addition to or in lieu of I.A above, BPA and SeaWest should explore comprehensive research on location utilization and production--site specific energy production and conservation. Among viable options are: utilization of solar, wind, and rain power generation devices at the numerous diverse locations of energy need--eg: rooftops, gutter, incorporation into building designs and structures--as well as energy efficiency, conservation, and cogeneration--all within the urban and industrial areas themselves. Need based self sufficient site production also has the added benefits of: 1. eliminating the need for much of the current large grid required for energy consolidation and distribution (as well as the inefficient energy loss due to this), 2. independence from the domino impacts of power outages, failures, limited available supply, 3. increasing the capacity to meet growing power demands which exceed that of the current grid systems' ability to deliver, 4. keeping industrial and technological impacts within already developed areas, thus preserving more natural and rural agricultural areas, 5. minimizing the further spread of the adverse impacts of emfs.

Section 3.2.4 describes the effects of changing the land use scenario in the Condon project area to include the proposed development of wind power generation. The effects of doing off-site generation using other sources equates to not proceeding with the proposed Condon Wind Project. The effects of doing nothing with the Condon Wind Project are disclosed in the discussion of the No Action Alternative.

BPA is an agency within the U.S. Department of Energy subject to national energy and development policies set by the President and Congress. While BPA is aware of the effects of "the continuing sprawl of modern technological society's impacts upon surrounding/outlying natural, rural, agricultural areas," which you describe, BPA is not in a position to unilaterally undertake the endeavors you suggest. Those must be national priorities directed by the President or Congress. Instead, BPA works within its statutory authorizations to achieve much of what you recommend by, for example, helping our customers conserve energy, marketing green energy, and funding research in new sources of energy such as fuel cells. Please call or visit BPA's Public Reading Room to find information on these and other conservation and renewable resource programs BPA has undertaken.

III. The draft EIS fails to adequately and accurately disclose the many known adverse impacts of electro-magnetic fields upon human health (including workers as well as area residents), the environment, and wildlife species. A supplemental EIS should be issued which fully discloses this necessary pertinent information, so that both the public as well as the decision maker(s) are fully informed as required by the NEPA.

Effects on humans from electric and magnetic fields (EMF) are discussed in Section 3.14.4.3. BPA completed an extensive review of EMF in its *Electrical and Biological Effects of Transmission Lines: A Review* in December 1996. Although the study focused on high-voltage transmission lines, it also reviewed related research on distribution lines. In general, reviews of the epidemiological and biological research on EMF consistently conclude that no causal link has been established between EMF and adverse human health effects. However, since most of the studies acknowledge there are still unanswered questions, steps to prevent or reduce exposures are recommended. At the Condon site, any EMF generated by the project would diminish to background levels within a few hundred feet from the substation or any overhead powerlines. The nearest residence to proposed developments is located well beyond the reach of EMF effects (about 2000 feet away). The power generated by the proposed project would not raise background EMF to levels that would be substantially different from existing levels.

Effects of EMF to plants and animals were not studied in this EIS because facilities emitting similar or higher levels of EMF have been operating for many decades, and no substantial adverse effects to plants or animals have been reported. Chapter 4 of BPA's December 1996 review discusses the effects of EMF on animals and plants. Studies of plants growing near transmission lines generally found no adverse effects of EMF on overall growth. The studies that have been done provide no evidence for harmful effects of EMF on animal behavior or health.

Section 3.14.4.3 in the EIS has been updated.

IV. The EIS fails to present a comprehensive range of viable alternatives to the proposed action, including those presented in IA and II above.

BPA's Resource Programs EIS (RPEIS, DOE/EIS-0162, February 1993), a programmatic document, evaluates the environmental tradeoffs among generic resource types (both conservation and generation) and the cumulative effects of adding these resources to the existing system. In BPA's April 1993 Record of Decision for the RPEIS, the administrator chose the Emphasize Conservation Alternative because it was the most cost effective and environmentally responsible. The Emphasize Conservation Alternative included all cost-effective conservation, efficiency improvements, co-generation, and renewables, supplemented with thermal resources such as combustion turbines (CTs). The RPEIS documented a strategy for tiering site-specific project analyses that are consistent with the Emphasize Conservation Alternative. Specific projects will be evaluated on a go/no-go basis. The Condon Wind Project EIS is tiered to the RPEIS and evaluates the potential site-specific impacts of the proposed Condon Wind Project and a No Action alternative to help BPA make its decision.

The proposed action is for BPA to purchase and transmit the power produced by the Condon Wind Project (section 2.1). Other sources of power were not proposed by SeaWest as an alternative to the Condon Wind Project, so BPA's role is limited to analyzing the effects of purchasing and transmitting power from the project as presented, and the No Action Alternative.

In conclusion, we strongly advocate that this proposed project either be modified to incorporate the above concerns and recommendations, or that a new comprehensive EIS be completed which addresses the above issues and brings this proposed project into compliance with NEPA.

Your comments and interest in BPA actions are appreciated. BPA hopes the responses above clarify the scope of the analysis to your satisfaction.

Additional issues: EIS fails to assess cumulative impacts-past, present, & likely future impacts of this project and other area management/development impacts to avian species and area environment.

The cumulative effects analysis is found in EIS Chapter 4. It has been amended to clarify and elaborate upon the expected impacts to birds and the environment in general. Since the Draft EIS for the Condon Project was issued, BPA has begun working with another developer in the preliminary phases of determining the feasibility, siting and sizing of another wind project in the north part of Gilliam County, about 19 air miles from the north end of the Condon project study area. If that project proceeds, BPA would analyze its environmental effects in a separate NEPA document, which would include a more detailed cumulative effects analysis incorporating the Condon Wind Project.

Fails to address noise levels as turbines and their bearings age as well.

Impacts associated with noise are disclosed in EIS section 3.13. Since ambient noise levels in the project area are currently low and are projected to remain low during operation of the project, and since no new noise-generating activities are anticipated in or around the project area in the foreseeable future, no substantial cumulative effects are anticipated. Furthermore, routine maintenance would detect and correct problems with turbine performance; and periodic inspection/monitoring and lubrication would occur to prevent mechanical problems that could generate noise (EIS section 2.1.6).

The Renewable Northwest Project (RNP) appreciates the opportunity to comment on the Draft Environmental Impact Statement for the Condon Wind Project. RNP is composed of environmental groups, consumer organizations, renewable energy developers and energy efficiency companies. Operating in Oregon, Washington, Idaho and Montana, RNP works for clean air and sustainable energy through the implementation of cost-effective, workable, renewable technologies.

Renewable resources need to be examined within the context of the resources they displace and the problems they help avoid. Investing in properly sited renewables protects the environment, promotes economic development, diversifies the power system and keeps the region competitive.

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 friendly manner.

In the Condon Wind Project EIS, the No Action Alternative assumed that the most likely generation to be developed in the region would be CTs. Therefore, brief discussions of the impacts of a CT are included under Environmental Consequences—No Action Alternative throughout Chapter 3.

RNP appreciates BPA's leadership and commitment in developing renewable resources. We support the development of Condon Wind Project.

Tightened energy supplies coupled with the energy crisis in the Northwest have resulted in the support of short-term small generation policies relying on diesel fuels and the proposal of more than 16,000 MW of new gas-fired power plants in the region. Fossil fuels are major sources of acid rain, pollution-caused illnesses, habitat destruction, smog and greenhouse gases. The fuel cycle, from extraction to combustion of fossil fuels, results in the vast majority of human-made releases of greenhouse gases.

BPA's recent short-term small capacity generation policy was a temporary response to the regional energy crisis. BPA, in accordance with its Business Plan, prefers to promote conservation and renewable energy (such as the Condon Wind Project) to help supply the region's power demands. As new permanent sources of energy come online and the energy crisis is alleviated, short-term small generation should no longer be needed.

The Condon Wind Project comes at crucial time in the Pacific Northwest. In comparison to developing a new gas plant, the 24.6 MW Project, operating at 30% capacity factor could displace annual emission of at least 27,152 tons of CO2, and 2.7 tons of acid rain precursors (SOx and NOx). In terms of global warming impacts, this is the equivalent to planting of 10,200 acres of trees.

As new gas plants come on line over the next 2 to 3 years, our reliance on fossil fuels will worsen. According to the Clean Air Task Force, a 250 aMW gas plant will produce at least 958,000 tons of CO2, 2.38 tons of SO2 and 88 tons of NOx each year.

The EIS discloses the expected emissions from the proposed project and the No Action alternative in section 3.12. For sake of comparison, the EIS includes a cursory estimate of what a natural gas powered CT generator might produce in Section 3.12.5.

The Condon Wind Project provides an opportunity to diversify the region's fuel mix and avoid the adverse environmental impacts associated with fossil-fueled resources and hydro.

The desire to diversify the power supply portfolio is vital to BPA as shown in Section 1.2 – Need for Action and Section 1.3 – Purpose of Action.

We appreciate Bonneville and SeaWest's effort in taking the necessary steps to developing a beneficial wind project in the region.

RNP is pleased to see that there are low to minor avian and wildlife impacts, and that threatened wildlife species are not likely to be adversely impacted. SeaWest has taken the necessary steps to minimize wildlife impacts by adopting monitoring standards once the project is in operation.

Thank you for your comment. Please note that the analysis on summer steelhead (Middle Columbia River Evolutionarily Significant Unit) has been changed to a "no effect" finding on advice from the National Marine Fisheries Service (Section 3.4.4.2 and Section 3.4.4.3).

The no action alternative should better document the air pollution and water quality impacts that will result from a greater reliance of fossil fuels in the status quo. In particular, the avian impacts from fossil fuel emissions need to be identified. The no action alternative in this EIS underestimates the impacts. 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.

"No action" means not meeting the need for action. Our need for action is to acquire resources that will contribute to diversification of the long-term power supply in the region. For this EIS, no action means BPA would pass on this opportunity to diversify the power supply, and the power from the Condon Wind Project would not be purchased or transmitted by BPA. Other resources, most likely CTs, would continue to be built and operated to provide electricity for the region. Therefore, the analysis of the no action alternative references potential impacts from energy resources (assumed to be CTs) built instead of the proposed project. This is done to provide a point of reference for generically comparing wind energy impacts to an example of the least impacting fossil fuel generation system. Additional cumulative impact analyses from greater development of fossil fuel generation sources are in BPA's Resource Programs EIS and Business Plan EIS. In addition, BPA's new Regional Air Quality Study describes the potential air quality impacts of operating up to 45 proposed CTs in the region.

BPA's RP EIS was incorporated by reference into the Condon Wind Project EIS (Section 1.5). The RP EIS includes an analysis of impacts from thermal generation on wildlife (Section 5.4.4), particularly impacts from changes in air quality. A complete discussion of the wildlife impacts is in Appendix F of the RP EIS, and is summarized in Section 5.4.4 of the RP EIS. The analysis noted that many smaller animals, and especially birds, take in more air per unit of body weight so they are more susceptible to impacts from certain criteria pollutants (particulates and nitrogen oxides) and acidic deposition.

Renewable resources neither harm fish nor create air, water and land pollution associated with fossil fuels or hydro. The growing need to control greenhouse gas emissions will create a greater need for zero emission resource, such as wind.

We fully support the development of the project because developing renewable resources for power can lead to a sustainable environment and economy.

Thank you for your comment.

I have studied the Condon Wind Project DOE/EIS-0321. Very informative and well done. As a participant, I'm much in favor. This should be very good for Gilliam County, and should be beneficial for the nation. A source of good clean renewable power.

Thank you for your comment.

The EPA's earlier concerns in a scoping letter about bird collisions with the turbines were satisfactorily answered with a detailed analysis on avian mortality from other wind power projects and with proposed actions to mitigate those effects:

- ***Avian use in the study area is low.***
- ***The design of tubular steel towers rather than lattice towers minimize bird perching or nesting opportunities.***
- ***The slow-moving blade rotation (one revolution every two seconds) increases the visibility of blades.***
- ***Turbines would be located on the top or downwind sides of ridges, where raptor use is less.***

- ***Where feasible, transmission facilities would be located underground to reduce the number of locations near turbines where birds may be attracted to perch.***

Potential effects to birds and bats are shown in EIS section 3.6.4 and have been corrected for this Final EIS (see response to first comment). Mitigation measures that apply to effects on birds are included in section 3.6.4 (design and location of turbines) and section 3.6.4.5 (including inventory and monitoring).

The Need for Renewable Energy Sources
Because of the current energy supply issues, we are pleased that BPA is expanding the use of renewable energy sources. BPA's goal is to have renewable energy sources make up 5 percent of its total sales by 2006. Technologies like these can help displace power currently generated by fossil fuel combustion and hydro, and meet energy needs without additional emissions from greenhouse gases. The project is an opportunity to help the region integrate renewable resources into the power system in the future, and to satisfy consumer demand to increase the amount of new renewable energy resources in the region's power supply.

EIS section 1.2, Purpose of Action, has been amended with a second paragraph to elaborate on the need for renewable energy sources like the Condon Wind Project.

Power Rates
One of the issues raised by the public during the scoping process was how the project would affect power rates. The FEIS should include information on the Gilliam County's power rates, which according to BPA staff, will not change because of this project's small size. But the EIS should discuss whether the electricity will be sold within the region or to outside markets, as well as potential reductions in impacts from other types of power generation. Also, include what type of power generation is wind likely to substitute for.

Gilliam County is served by two electric utilities, Columbia Basin Electric Cooperative (CBEC) and PacifiCorp. Both purchase power from BPA. There would be no impact on the cost of power they buy from BPA because the cost of purchasing output from new renewable energy sources like the Condon Wind Project is included in BPA's rates for the fiscal year 2002-2006 rate period. Regardless, the annual cost of this proposed project is extremely small compared to BPA's annual budget, which exceeds $2 billion. Therefore, there would be no impact from the project on power rates in Gilliam County or elsewhere in the region.

Output from the project would be melded with output from BPA's other energy resources — it would not be earmarked or specifically identifiable as the energy marketed to Gilliam County or any other BPA customers. Only surplus power can be sold outside BPA's Pacific Northwest service territory. However, BPA does exchange power with other regions such as California.

It is not known what specific energy resources would be developed in lieu of the Condon Project. Most likely these resources would be CTs (see Section 2.4) since approximately 24,000 megawatts of natural gas-fired CTs have been proposed for construction in BPA's service area. Brief mentions of potential impacts from other means of power generation (particularly by CTs, the most likely substitute power generation source (see section 2.4)) appear in the EIS throughout chapter 3 within discussions of the effects of the No Action alternative. Several of these sections have been amended for this Final EIS.

Cumulative Effects
NEPA requires that cumulative impacts be addressed as a summary of the individual impacts of this and all other past, present and "reasonably foreseeable" future projects, including activities on

private adjacent land irrespective of what agency/entity has decision-making authority or analysis responsibility. The reasonably foreseeable development scenario may have a large impact on wind power generation facilities. Projections could vary for the number of turbines and turbine spacing and turbine locations, and future energy development.

In the Cumulative Impacts Section, Chapter 4, page 1, the EIS says that implementation of the proposed project may establish a precedent for wind energy development in the Condon area. However, if other projects are planned, potential cumulative impacts would be evaluated for visual impacts (more turbines) as well as impacts to birds and bats.

SeaWest should identify the reasonably foreseeable development scenario for their wind generation proposal, and BPA should evaluate this scenario further. Reasonable forecasting is implicit in NEPA and federal agencies should attempt to predict the environmental effects before they are fully known, unless obtaining such information is unreasonable. Development of wind electrical energy production capacity on the Condon site may encourage or promote additional transmission lines or additional wind generation facilities to be built. Such possibilities should be addressed in the EIS and incorporated into the reasonably foreseeable development scenario. Questions to be considered in the EIS should include: the likelihood that there will be future projects in the area; an estimate of the magnitude, and the environmental consequences of a reasonably foreseeable scenario.

Although the proposed project may establish a precedent for wind energy development in the Condon area, BPA is not aware of any other planned wind projects in the project vicinity. However, after issuing the Condon Wind Project Draft EIS, BPA began working with a another developer in the preliminary phases of determining the feasibility, siting and sizing of another wind project, identified as the Wheat Field Wind Project, in the northern part of Gilliam County, about 19 air miles from the Condon project study area. This project is not in the immediate vicinity of the Condon Wind Project, but it is within Gilliam County well to the north of Condon. If that project proceeds, BPA would analyze its environmental effects in a separate NEPA document, which would include a more detailed cumulative effects analysis incorporating the effects of the Condon Wind Project. The size of the Condon project, and of any possible further projects in the Condon area, is constrained by available transmission capacity in the area. Expansion of wind facilities in the Condon area is not likely in the near future, if at all. Thus, while further wind projects in the vicinity of the Condon Wind Project are a remote possibility, such additional projects are highly speculative and not reasonably probable at this time.

The Condon Wind Project is 19 air miles, and a much longer distance by highway, from the preliminarily designated site for the Wheat Field Wind Project. Due to this considerable distance, there are no anticipated significant cumulative impacts on visual, auditory, botanical, terrestrial wildlife, transportation, housing, recreational, or other resources of Gilliam County. The only potential exceptions are for avian species and socioeconomic impacts. Chapter 4—Cumulative Impacts, has been amended to include the Wheat Field project in the discussion of cumulative impacts to avian species and socioeconomics.

League Of Wilderness Defenders ~
Blue Mountains Biodiversity Project
HCR 82
Fossil, Oregon 97830

(541) 468-2305 Asante Riverwind
(541) 617-1009 voice mail
(541) 468-2028 Karen Coulter

July 16, 2001

Comments on the Condon Wind Project
Draft EIS

Sheila Riewer,
Communications, BPA
KC-7,
George Darr, Project Manager,

Our organization has reviewed your draft EIS for the proposed Condon Wind project. Our concerns regarding this proposed project, issues with the draft EIS, and alternative suggestions are outlined as follows:

I. The likely mortality of birds, bats and other avian species resulting from the implementation of this project is unacceptable.

A. At this time, rather than approving the project as proposed, at most only a small pilot study wind power generation project should be temporarily, and conditionally, permitted to proceed. This pilot project should cover no more than five acres and employ turbines spaced 1.5 to 3 times more distant from each other than the proposed alternative. The pilot project should be licensed for a period of no more than five years and should be mandated to accomplish the following:

1. Research the total number of birds, bats, and other avian species killed, wounded, or otherwise adversely affected by the project and disclose the results yearly, and/or seasonally.
2. Establish an interdisciplinary team of wildlife biologists (ornithologists, etc.) and wind generation research engineers whose mission and objectives are to design, develop, and deploy wind power generation turbines which further successfully reduce and minimize mortality impacts to avian species. This team will explore utilizing methods and devices which warn and/or deter avian species from the generation area. Among known options are: 1. visible flagging, 2. sounds beyond the range of human hearing, 3. signals detectable by bats and other avain species, 4. deflection devices, 5. decoys of predators, etc. This team should also explore alternative development of wind generators which do not utilize large revolving blades. Options which exist include funneled wind-tunnel tubes (with screening, warning, and/or deflecting devices), as well as the development of wind velocity amplifiers and inverters.

II. The continuing sprawl of modern technological society's impacts upon surrounding/outlying natural, rural, agricultural areas must be minimized, and where possible reversed. In addition to or in lieu of I.A above, BPA and SeaWest should explore comprehensive research on location utilization and production--site specific energy production and conservation. Among viable options are: utilization of solar, wind, and rain power generation devices at the numerous diverse locations of energy need--eg: rooftops, gutters, incorporation into building designs and structures--as well as energy efficiency, conservation, and cogeneration--all within the urban and industrial areas themselves Need based self sufficient site production also has the added benefits of: 1. eliminating the need for much of the current large grid required for energy consolidation and distribution (as well as the inefficient energy loss due to this), 2. independence from the domino impacts of power outages, failures, limited available supply, 3. increasing the capacity to meet growing power demands which exceed that of the current grid systems' ability to deliver, 4. keeping industrial and technological impacts within already developed areas, thus preserving more natural and rural agricultural areas, 5. minimizing the further spread of the adverse impacts of emfs.

III. The draft EIS fails to adequately and accurately disclose the many known adverse impacts of electro-magnetic fields upon human health (including workers as well as area residents) the environment, and wildlife species. A supplemental EIS should be issued which fully discloses this necessary pertinent information, so that both the public as well as the decision maker(s) are fully informed as required by the NEPA.

IV. The EIS fails to present a comprehensive range of viable alternatives to the proposed action, including those presented in IA and II above.

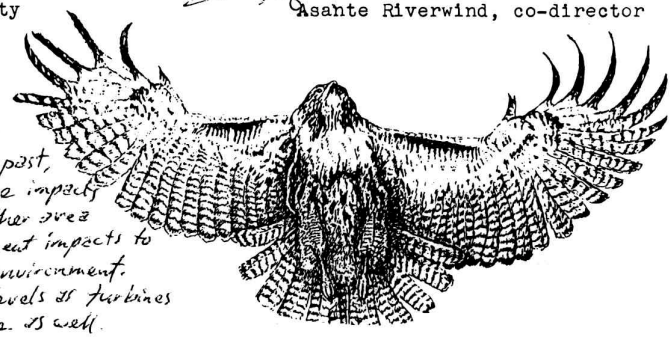
In conclusion, we strongly advocate that this proposed project either be modified to incorporate the above concerns and recommendations, or that a new comprehensive EIS be completed which addresses the above issues and brings this proposed project into compliance with the NEPA.

For the living earth,

Asante Riverwind, co-director

cc area residents
ONRC
NRDC
Audubon Society
WELC
NEDC
Sierra Club

Additional issues:
EIS fails to assess cumulative impacts - past, present, & likely future impacts of this project and other area management/development impacts to avian species & area environment.
Fails to address noise levels of turbines and their bearings age as well.



Renewable Northwest Project
917 SW Oak, Suite 303
Portland, OR 97205

July 16, 2001

Communications
Bonneville Power Administration, KC-7
P.O. Box 12999
Portland, OR 97212

Subject: Condon Wind Project Draft EIS

The Renewable Northwest Project (RNP) appreciates the opportunity to comment on the Draft Environmental Impact Statement for the Condon Wind Project. RNP is composed of environmental groups, consumer organizations, renewable energy developers and energy efficiency companies. Operating in Oregon, Washington, Idaho and Montana, RNP works for clean air and sustainable energy through the implementation of cost-effective, workable, renewable technologies.

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RNP appreciates BPA's leadership and commitment in developing renewable resources. We support the development of Condon Wind Project.

Environmental Benefits of the Project

Tightened energy supplies coupled with the energy crisis in the Northwest have resulted in the support of short-term small generation policies relying on diesel fuels and the proposal of more than 16,000 MW of new gas-fired power plants in the region. Fossil fuels are major sources of acid rain, pollution-caused illnesses, habitat destruction, smog and greenhouse gases. The fuel cycle, from extraction to combustion of fossil fuels, results in the vast majority of human-made releases of greenhouse gases.

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(SOx and NOx). In terms of global warming impacts, this is the equivalent to planting over 10,200 acres of trees.

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The Condon Wind Project provides an opportunity to diversify the regions fuel mix and avoid the adverse environmental impacts associated with fossil-fueled resources and hydro.

Draft EIS Comments

We appreciate Bonneville and SeaWest's effort in taking the necessary steps to developing a beneficial wind project in the region.

RNP is pleased to see that there are low to minor avian and wildlife impacts, and that threatened wildlife species are not likely to be adversely impacted. SeaWest has taken the necessary steps to minimize wildlife impacts by adopting monitoring standards once the project is in operation.

The no action alternative should better document the air pollution and water quality impacts that will result from a greater reliance of fossil fuels in the status quo. In particular, the avian impacts from fossil fuel emissions need to be identified. The no action alternative in this EIS underestimates the impacts. 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.

Summary

Renewable resources neither harm fish nor create air, water and land pollution associated with fossil fuels or hydro. The growing need to control greenhouse gas emissions will create a greater need for zero emission resources, such as wind.

We fully support the development of the project because developing renewable resources for power can lead to a sustainable environment and economy.

Sincerely,

Sonja Lin
Policy Associate

BONNEVILLE POWER ADMINISTRATION

Condon Wind Project

"I'd Like to Tell You . . ."

RECEIVED BY BPA
PUBLIC INVOLVEMENT
LOG#: CWP2-003
RECEIPT DATE: AUG 0 8 2001

1. When you prepare your environmental analysis, please consider:

2. Please avoid areas like:

3. I need more information about:

4. I have these other comments: I have studied the Condon wind Project DOE/EIS-0321. very informative and well done. As a participant I'm much in favor. This should be really good for Gilliam County, and should be beneficial for the nation. A source of good Clean renewable Power.

(If you need more space, please use the back.)

☑ Please put me on your project mailing list.

Name NORMAN FROMAN

Address 410 E SUMMITT St

CONDON OREGON 97823

Please mail your comments by August 7, 2000 to:

Bonneville Power Administration
Public Affairs Office - KC-7
P.O. Box 12999
Portland, OR 97212

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECO-088 00-038-BPA

July 26, 2001

Sarah Branum
Environmental Specialist -KEC-4
Bonneville Power Administration
P. O. Box 3621
Portland, OR 97208-3621

Dear Ms. Branum:

We have reviewed the draft environmental impact statement (EIS) for the **Condon Wind Project** according to our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA). Section 309, independent of NEPA, specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions and the document's adequacy in meeting NEPA requirements.

The Condon Wind Project is located on 38 acres of private non irrigated agricultural land within a 4,200-acre study area located on both sides of Highway 206, five miles northwest of Condon in Gilliam County, north-central Oregon. SeaWest Power proposes to build 41 wind turbines with a capacity of 24.6 megawatts (MW). The project most likely will include 42 additional wind turbines with 25.2 MW during a second phase. According to the Bonneville Power Administration (BPA), data reveals a less economic wind resource than anticipated and a larger project may be more economical.

The turbines would be located on top of plateaus to take advantage of the best wind and spaced (460 feet between towers) to allow room for agricultural use and crop dusting. Total height of each tower is 274.5 feet, constructed on 12- foot diameter concrete foundations. Phase one and two would each have 6.5 strings or rows. Depending on width, there would be between 14 and 17 miles of existing and new graveled roads in the project.

The EPA's earlier concerns in a scoping letter about bird collisions with the turbines were satisfactorily answered with a detailed analysis on avian mortality from other wind power projects and with proposed actions to mitigate those effects:

- Avian use in the study area is low.
- The design of tubular steel towers rather than lattice towers minimize bird perching or nesting opportunities.
- The slow-moving blade rotation (one revolution every two seconds) increases the

visibility of blades.
- Turbines would be located on the top or downwind sides of ridges, where raptor use is less.
- Where feasible, transmission facilities would be located underground to reduce the number of locations near turbines where birds may be attracted to perch.

Overall, we believe this EIS was well written and complete, and we have rated this document LO (Lack of Objections). We are pleased that the BPA is striving to meet the Department of Energy's (DOE) Wind Powering America initiative to supply 5 percent of U.S. electricity through wind technologies by 2020. Meeting this goal will avoid annual greenhouse gas emissions of more than 30 million metric tons of carbon equivalent in 2020. This rating and a summary of our comments will be published in the *Federal Register*. An explanation of the EPA rating system is enclosed for your review. However, there are a few comments needed for clarification that should be in the final EIS.

The Need for Renewable Energy Sources

Because of the current energy supply issues, we are pleased that BPA is expanding the use of renewable energy sources. BPA's goal is to have renewable energy sources make up 5 percent of its total sales by 2006. Technologies like these can help displace power currently generated by fossil fuel combustion and hydro, and meet energy needs without additional emissions from greenhouse gases. The project is an opportunity to help the region integrate renewable resources into the power system in the future, and to satisfy consumer demand to increase the amount of new renewable energy resources in the region's power supply.

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Thank you for the opportunity to review this project. If you have any questions, please call Val Varney (206) 553-1901.

Sincerely,

Judith Leckrone Lee

Judith Leckrone Lee, Manager
Geographic Implementation Unit

Enclosure