
Executive Summary

This Executive Summary provides a synopsis of the North Steens 230-kV Transmission Line Project Draft Environmental Impact Statement (Draft EIS). The Draft EIS describes the Proposed Action, alternatives to the Proposed Action, and discusses the potential effects of the Proposed Action and alternatives on elements of the environment. The Draft EIS has been distributed to interested persons in hard copy and compact disk (CD) format, and hard copies are available for review at the BLM Burns District Office, local libraries, and other locations as specified in Section 4.0.

INTRODUCTION

In December 2008, Harney Electric Cooperative (HEC) filed a preliminary application for right-of-way (ROW) with the U.S. Department of Interior Bureau of Land Management (BLM), Burns District Office, for the construction, operation, and maintenance of a new double-circuit 230,000 volt (230-kilovolts or 230-kV) overhead electric transmission line and associated facilities on BLM-administered land in Harney County, southeastern Oregon. The proposed transmission line, known as the North Steens 230-kV Transmission Line Project, would transport electrical power generated at the Echanis Wind Energy Project to HEC's existing electrical transmission grid.

The Echanis Wind Energy Project (Echanis Project) is a 104 megawatt (MW) wind energy facility that would be constructed on a 10,500 acre privately owned tract near Diamond, Oregon. The ROW Applicant, Columbia Energy Partners (CEP), LLC of Vancouver, Washington, received a conditional use permit from the Harney County Planning Commission for the development of the Echanis Project in April 2007. The issuance of the permit was not appealed. The permit allowed for a maximum generating capacity of 104 MWs from 40 to 69 wind turbine generators. CEP commenced the environmental and cultural studies in support of the permit in 2007 and continued the studies in 2009. CEP has secured a 20-year power sales agreement with Southern California Edison for energy generated at the wind facility.

In 2009, Echanis, LLC (Echanis), a subsidiary of CEP, assumed responsibility from HEC for the ROW application submitted to BLM. In December 2009, Echanis filed a separate application with U.S. Fish and Wildlife Service (USFWS) to obtain rights for the proposed transmission line to cross portions of the Malheur National Wildlife Refuge (MNWR). Echanis is currently funding the transmission line project and would oversee the initial development and commissioning of the line. Once commissioned, the line would be deeded to HEC for long-term operation and maintenance and the line would be incorporated into the HEC electric transmission and distribution system serving southeast Oregon and northern Nevada. Once the line is deeded to HEC, it is proposed that the associated ROW would also be assigned to HEC.

Because development of the Echanis Project is dependent upon Federal approval of the ROW grant for the transmission line, the Echanis Project qualifies as a "connected non-Federal action" under 40 CFR 1508.7 and 40 CFR 1508.25(a). Therefore, this Draft EIS must analyze the potential environmental effects associated with development and operation of the Echanis Project as "indirect effects" associated with the North Steens 230-kV Transmission Line Project, as well as cumulative impacts from other reasonably foreseeable future actions. While this environmental review requires disclosure of potential effects on private lands, as a connected action, BLM and USFWS only have authority to approve, modify, or deny ROW grants for those actions occurring on public lands.

The BLM and USFWS are not responsible for the permitting of the Echanis Project. Rather, both agencies have been asked to approve a ROW request for a transmission line that would connect the Echanis Project to the existing grid.

The BLM and USFWS have prepared this Draft EIS as part of the ROW grant application review process. The Draft EIS allows the BLM, USFWS, and other cooperating agencies to assess the effects to the human environment prior to making a decision on the ROW grant application requested by Echanis. The Draft EIS analyzes the potential environmental effects (direct, indirect, and cumulative) of two Action Alternatives and the No Action Alternative. One Action Alternative also includes two sub-alternatives (i.e., route options).

PROPOSED AND CONNECTED ACTIONS

The Proposed Action under consideration in this analysis is the BLM's authorization of a new 150-foot ROW from the proposed Echanis Wind Energy Project to an existing 115-kV transmission line near Diamond Junction, Oregon operated by HEC. The proposed transmission line would cross 18.70 miles of private land, 8.85 miles of land administered by the BLM (Burns District Office), and 1.32 miles of the MNWR managed by USFWS. The new transmission line would be constructed on double-circuit steel-pole towers.

The transmission line, whether Proposed or Alternative routes, would be constructed on newly installed double-circuit steel-pole towers. During Phase I of transmission line development, the first circuit would be designed and constructed so that it could transmit 230-kV but it would only initially be energized and operated at 115-kV (three conductors) for the Echanis Project. Future plans for Phase II call for a second line to be placed on the other side of the towers that would be designed and operating at 230-kV. This second circuit would be installed at an unknown date when additional electrical system capacity is required to transmit the power generated by the West Ridge, East Ridge, or Riddle Mountain Projects. The second phase of construction would use the same laydown areas, tensioning sites, and overland routes used during the first phase. As such, the Phase I construction would be the "heavy lifting" portion of the Proposed Action, comprising installation of the new poles along with foundations and access roads. Phase II would only require stringing of three more conductors on the previously erected poles (no additional pole installation), and thus relatively "light" work. Finally, the initial Phase I 115-kV line could be "re-energized" (no construction required) to 230-kV operation (Phase III) to transmit power if more than one or two of the West Ridge, East Ridge, or Riddle Mountain Projects is constructed and the additional capacity is needed after Phase II was implemented. It should be noted that implementation of Phases II and III of the Project Applicant's transmission line system would also require upgrades of the Harney Electric Cooperative's existing transmission lines and ancillary facilities in the area, from 115-kV to 230-kV capacity and operation.

For the Echanis Project, each turbine would have a 3-bladed up-wind rotor connected to a nacelle that houses a generator, gearing, and internal controls. Each nacelle would be mounted on steel tubular towers, varying in height from 213 to 263 feet tall. Each tower would be anchored to a steel and concrete foundation. The towers, including the rotor blades (at 12:00 o'clock position) would be approximately 415 feet tall. The normal maximum generation capacity of each turbine would range from 1.5 to 2.5 MW of electricity, depending upon the final number of turbines developed on the site.

Renewable energy generated at the Echanis wind facility would be transmitted and distributed to the regional power market via the proposed North Steens transmission line and the regional electrical transmission grid. Echanis anticipates that the new transmission line and ancillary facilities could be used to transmit electric power from other potential wind energy projects developed in the Harney County area.

Echanis has indicated that the North Steens 230-kV Transmission Line Project would improve ability to distribute available renewable energy as demand continues to grow for electric power from clean sources; reduce constraints in existing power generation and transmission infrastructure to meet current and future energy demands; increase transmission capacity and improve system reliability and flexibility; and, allow for cost-effective electric transmission and economical power sales and transfers.

If a decision is made by the agencies to grant the ROW request, construction of access roads along the transmission line corridor and to the Echanis Wind Energy Project site would begin in spring of 2011.

Construction of the towers and installation of the transmission line would occur during spring, summer, and fall 2011, as dictated by ground conditions and weather. Construction of the Echanis Wind Energy Project would begin in 2011 and last approximately 9 to 12 months, depending upon weather and site conditions.

ALTERNATIVES

This Draft EIS analyzes the following three alternatives:

- Alternative A – No Action
- Alternative B, the West Route (the Proposed Action) - as described above, and also includes two additional route options (South Diamond Lane Route Option and Hog Wallow Route Option)
- Alternative C, the North Route - this 230-kV transmission line would begin at a new Substation located on the Echanis Wind Energy Project site and end at a new interconnection station constructed adjacent to the existing HEC 115-kV transmission line near Crane, Oregon. The transmission line would be approximately 45.95 miles long, with approximately 33.66 miles crossing private land, approximately 12.10 miles crossing land administered by the BLM, and approximately 0.19 mile crossing state land.

This Draft EIS has rigorously explored and objectively evaluated all reasonable alternatives as described above. Each alternative was evaluated for potential temporary and permanent impacts to geology and soils; water resources and floodplains; vegetation, special-status plant species, and noxious weeds; wetlands and riparian areas; fish, wildlife and special-status animal species; land uses, grazing, and realty; recreation; public services; visual resources; cultural resources; social and economic values and environmental justice; wild horses, burros, and areas of critical environmental concerns; Steens Mountain Wilderness, wilderness study areas, and wild and scenic rivers; transportation; public health and safety; air quality and climate change/greenhouse gases; noise; and energy.

SCOPING

Public and agency scoping was conducted to determine issues relative to the Proposed Action. A Notice of Intent (NOI) to “Prepare an Environmental Impact Statement and Possible Resource Management Plan Amendments for the North Steens Transmission Line Project in Harney County, OR” was published in the Federal Register on July 27, 2009. Publication of the NOI initiated a 30-day public scoping period that formally concluded on August 26, 2009. The scoping period was subsequently extended to September 18, 2009 to allow for additional comments and one additional public meeting. A scoping notice and informational materials also were mailed to potentially interested parties during the summer of 2009. Five scoping meetings were held in Oregon during July 21-23 and September 18, 2009. All issues identified during scoping and BLM and Interdisciplinary Team reviews were evaluated to identify key issues that drove development of the alternatives and the impact analyses. Issues identified for analysis in the Draft EIS included potential project impacts on: vegetation and the spread of noxious weeds; migratory birds and bats, sage grouse and their habitat, and raptors and their nests; general wildlife and big game habitat; noise impacts on wildlife; potential effects on recreation; visual/aesthetics, including glare/light pollution from turbine lighting; sensitive archaeological resources and properties listed on the National Register of Historic Places; areas valuable to Native Americans; and the economic effects of the Project on rural communities and landowners (e.g., jobs and tax revenues).

ENVIRONMENTAL EFFECTS

Geology, Soils, Biological Soil Crusts, and Erosion

Earthquakes and landslides are natural processes in the region and, without infrastructure, pose little risk. Seismic and landslides would be seen as hazards by all Action Alternatives. Construction of all Action Alternatives has the potential to increase soil erosion due to larger amounts of runoff during construction and clearing. Soils also have the potential of being affected by potential spill of harmful materials during construction. All Action Alternatives also have the potential to increase runoff due to roads and impervious surfaces. In the areas that are cleared during construction, biological soil crusts may be impacted. Additionally, in the implementation of any Action Alternative, biological soil crusts may be impacted by introduction of exotic vegetation that does not support biological soil crust recovery.

Water Resources and Floodplains

Surface Water

Construction of all Action Alternatives has the potential to increase sedimentation in streams that would be crossed or in areas adjacent to construction. The Echanis Project would have nine water body crossings, including one of Kiger Creek, three of Mud Creek, two of an intermittent tributary of Mud Creek, and three of an intermittent tributary of Kiger Creek. Alternative B would cross four perennial streams, five intermittent streams, and two intermittent canals. These crossings would occur using circular or open-bottom (i.e., arch) culverts and potential effects to surface and ground water would be minimized through standard construction Best Management Practices (BMPs). Water bodies would also be permanently impacted where streams are crossed by roads or transmission lines. Roads would not be paved with impervious surfaces, but would be cleared and graded. Permanent effects would include reduced interception and infiltration of precipitation. Increased runoff due to roads and impervious surfaces has the potential to impact floodplains through increased flooding and erosion.

Groundwater

During times of seasonal flooding, digging below the water table could introduce sediment into subsurface or surface waters. In addition, potential spills to ground water during construction may occur from equipment fueling or storage.

For the Alternative B options, temporary effects to water resources would also occur where a 1.35 mile long segment of the existing 24.9-kV distribution line would be buried in a six-foot deep trench within the existing distribution line ROW, parallel to South Diamond Lane, east of Highway 205. The excavation of the trench could introduce sediment to surface waters during rain events or if groundwater is present in the trench. If pumping groundwater out of the trench is necessary, sediment-laden water would be controlled through the use of sediment barriers, hay-bale structures, or filter bags at a controlled rate to prevent sedimentation. Additional precautions to avoid impacts from dewatering operations include those described in Section 2. Where the relocated distribution line would cross the Donner und Blitzen River and the Buena Vista Canal, directional boring methods would be used.

Vegetation, Special-Status Plant Species, and Noxious Weeds

Vegetation may be affected by construction and operation of the access roads, transmission lines, wind turbines, and associated structures. Loss of vegetation has the potential to occur from construction of Project facilities, construction of new access roads, improvement of existing access roads, and construction of string roads. The Echanis Project would result in the loss of habitat of about 54.0 acres for new or improved access

roads, 2.4 acres for turbine towers, 1.8 acres for the substation, and 1.3 acres for the overhead electrical lines. Alternative B would result in the loss of habitat of about 25.3 acres for overland access roads, 4.3 acres for new or improved access roads, 1.9 acres for the overhead electrical lines, and 0.7 acre for the substation. The majority of this vegetation would be sagebrush steppe (52.1 acres for the Echanis Project and 10.8 acres for Alternative B) and juniper woodland (22.3 acres for the Echanis Project and 6.0 acres for Alternative B), with smaller amounts native grassland, dwarf sagebrush steppe, exotic annual grassland, agricultural lands, and other vegetation types affected.

If any special-status plant species are present in the Project Area, they may experience direct or indirect impacts, such as use of herbicides to control noxious weeds. The Project includes protection measures for special-status plants to reduce the potential for impacts to such species, including BLM best management practice requirements to avoid overspraying.

Any ground-disturbing or construction activity has the potential to further propagate invasive plant species populations in the location of the Project and its surroundings, either through introduction from other areas or through natural propagation.

Wetlands and Riparian Areas

Potential effects to wetlands from the Proposed Action and alternatives include alterations to wetland hydrology, alterations to the wetland plant communities, and loss of wetlands due to filling or sedimentation. No effects to wetlands would occur on the Echanis Wind Energy Project site. The majority of wetland impacts (2.44 acres) from the Echanis Project would be associated with construction and improvement of the main access road on private lands. Alternative B would span, but not be placed in, about 1.2 miles of wetland areas, 0.01 acre would be affected by pole placement, and another 0.74 acre would be affected by overland access roads. Where constructed or improved roads parallel or cross riparian areas or wetlands, temporary, construction-related effects could be experienced, including effects of equipment working within and adjacent to these areas. Vegetation in riparian areas may be temporarily altered due to construction activities; effects may be more pronounced in areas of shrub scrub vegetation than those with herbaceous vegetation.

Fish, Wildlife, and Special-Status Animal Species

Fish

The Echanis Project would directly affect two perennial streams through the placement of culverts during construction of the access road, including one crossing of Kiger Creek and three crossings of Mud Creek. Alternative B would cross four perennial fish bearing streams: Kiger Creek, Cucamonga Creek, McCoy Creek, and the Donner und Blitzen River. It would not directly affect fish resources in these rivers and streams because no Alternative B features, including transmission line poles, access roads, or the interconnection station, would be located in or immediately adjacent to these water bodies.

Habitat Conversion

The Echanis Project would result in the conversion of over 56 acres of sagebrush habitat and 20 acres of juniper woodlands. Road construction and improvements would result in the additional permanent loss of over 53 acres of sagebrush habitat and 21 acres of juniper woodland.

Permanent effects on wildlife resources from Alternative B would result from construction and operation of the transmission line, interconnection substation, and access roads. There would be 30.9 acres of habitat permanently lost, including 12.0 acres of sagebrush habitat, 9.3 acres of grasslands, 6.4 acres of juniper woodlands, 2.4 acres of agricultural lands, 0.7 acre of wetlands, and 0.1 acre of developed lands. Overland

travel roads would account for 25.3 of the 28.5 acres affected by access roads, transmission line poles would have a total footprint of 1.9 acres, and the interconnection substation and operation and maintenance building would require 0.7 acre. New access roads would further fragment the existing habitat, reducing the size of contiguous sagebrush, grassland, juniper, and riparian habitats.

Birds and Bats

Displacement of the above habitats by permanent Project features would affect big game, small and medium mammals, reptiles, and birds year-round. Estimates of bird fatalities from the Echanis Project, based upon wind farm developments in the Pacific Northwest, range from 24 to 690 birds annually, with 19 to 538 (about 78 percent) of these being passerine species. The estimate of fatalities for other species include 0 to 22 raptors annually, 28 to 235 bats annually (mostly hoary and silver-haired bats), and minimal waterfowl and shorebirds.

Birds would be the group of animals most at-risk to injury and mortality from the Alternative B transmission line, because they are susceptible to collision. Raptors are known to occur along the entire length of the Proposed Action, while waterfowl and shorebirds would most likely be affected in and near the MNWR. Bats are not known to collide with transmission lines, based on mortality surveys, so would be unlikely to have any effect beyond displacement by permanent Alternative B Project features.

General Wildlife

The Echanis Project would result in the loss of less than one percent of habitat in the game management units for mule deer winter range, elk winter range, pronghorn antelope range, and bighorn sheep habitat. Alternative B would cross 101.7 acres of elk winter habitat, 342.5 acres of mule deer winter range, and 86.9 acres of antelope habitat. Access roads would be widened through 2.4 acres of mule deer winter range and new access roads would convert 0.7 acre of mule deer winter range to gravel surfaced roadway. Overland travel would occur through 14.5 acres of mule deer winter range, 4.2 acres of antelope range, and 4.8 acres of elk winter range. The transmission line would not require vegetative control in any of the antelope range, but in the elk and mule deer winter ranges the junipers and aspens would be periodically cut to control their height within the ROW. The existing mosaic of grassland, sagebrush, and juniper habitats in the winter ranges would be permanently altered by vegetation management within the ROW, but the removal of trees is not expected to limit winter range quality. The presence of grassland and sagebrush habitat in winter range is a benefit to big game for forage, and the limited removal of woodland habitat would cause only a negligible loss of cover.

Special-Status Animal Species

Echanis Project

Permanent effects from the Echanis Project are likely limited for Preble's shrew, because once new construction is completed Project support activities (including travel) would be primarily restricted to developed areas which would not be inhabited by this species.

The rarity of California Wolverines suggests that they would have a low probability of crossing Project lands, but if they were to be present, they likely would be displaced from areas with active use. The wolverine would be indirectly affected by project maintenance activities and the presence of vehicles and pedestrians in the Project Area by displacing individuals that may enter the Project Area.

Of the 10 special status bat species that could occur on-site, the silver-haired bat and hoary bat are the only two that have been documented as fatalities at other area wind developments. However, these two species

comprise the majority of bat fatalities in the Pacific Northwest, and would likely account for nearly all of the 28 to 234 bat deaths estimated per year.

Greater sage-grouse would likely be displaced from their summer and winter habitats in the Echanis Project Area during maintenance activities, and likely would greatly reduce their time spent near the access roads and wind turbines. Direct mortality from collision with wind turbines is likely to be very low, because few deaths have been documented. No leks are known to occur within three miles of the proposed turbine locations on the Echanis site, so courtship and breeding would not likely be affected by the project. Increased vehicle use on the Echanis site could lead to a slight increase in direct mortality from collisions.

Special status raptor species include bald eagle, golden eagle, northern goshawk, ferruginous hawk, and western burrowing owl. No suitable habitat exists on the Echanis site or main access road for the burrowing owl, and no northern goshawks or ferruginous hawks were observed during field surveys. Ferruginous hawks are unlikely to be present except during migrations. One bald eagle was observed in the fall during its southern migration over the Echanis site, but the bald eagles' preference for sites near water would make it likely to occur only as a migrant at Echanis. Bald eagle winter roost areas are not present on the Echanis site. No bald eagle has been documented as a fatality from wind turbine collision. Golden eagles were present at both the Echanis site and immediately west of the Echanis site, but were observed over canyons and away from ridges where turbines are proposed. No raptor nests for any special status species was found within two miles of the Echanis site. Given the potential for a lethal collision of a golden eagle with the proposed transmission line or wind development components, a Programmatic BGEPA permit would be required from the USFWS to provide operational coverage for the Project from the USFWS.

There is a low likelihood that the six special status passerine species that occur at the site could be affected by collisions with the turbines at the Echanis site. During spring or fall migration these species may be at greater risk of collision with turbines.

Other wind developments are not known to have been constructed in mountain quail habitat, so no records of mortality exist. However, other gamebird species have been found as fatalities at other wind developments, so it is possible that the Echanis Project could cause a low level of mortality for this species from collision with turbines. Increased collision with vehicles from maintenance and other operational traffic may occur, although it is likely to be undetectable.

Northern sagebrush lizard would be susceptible to crushing by vehicles from maintenance operations where access roads traverse suitable sagebrush habitat occupied by the lizard. It is likely that the elevated levels of vehicle use during maintenance activities could cause an undetectable increase in mortality.

Alternative B

The permanent effects of Alternative B for Preble's shrew, California wolverine, and northern sagebrush lizard would be qualitatively the same to the effects described for the Echanis Project in this Draft EIS. Alternative B would result in a very small permanent loss of potential pygmy rabbit habitat and displacement due to the transmission line poles, access road improvements, and the interconnection station.

Greater sage-grouse are known to avoid roads and transmission lines, so effects to this species would be limited primarily to displacement by permanent Project features. It is likely that where suitable sagebrush and riparian habitat occur along the Alternative B ROW, grouse would spend less time in those locations to avoid being close to the disturbed areas. It is unlikely that Alternative B would have any effect on the Little Kiger lek, since it would be out of direct line-of-sight of the transmission line.

Special status raptor species have excellent eyesight and tend not to fly during low light conditions (dusk, inclement weather), which in part explains why raptors generally do not collide with transmission lines or anchoring wires for poles.

Special status waterfowl are prone to collisions with transmission lines, and where Alternative B crosses the MNWR it is expected that some mortality would take place. Seven species of special status waterbirds occur in the Project Area: western least bittern, white-faced ibis, black tern, trumpeter swan, snowy egret, Franklin's gull, and American white pelican. The MNWR is highly valued waterfowl habitat and is located along a migratory pathway. Special measures would be implemented to reduce the incidence of collision.

Special status passerine and woodpecker species would be displaced from their locations of suitable habitat where the transmission lines, transmission poles, and substation are built. The displacement into adjacent habitat would cause an undetectable effect on these species, because of the small Project footprint and because most flight time for these birds would be below the vertical elevation of the transmission lines. An undetectable level of mortality could occur for some of these species from collision with the transmission lines.

Mountain quail are ground birds that make low-level flights that would occur primarily below the transmission line and are, therefore, unlikely to collide with transmission lines.

Land Uses, Grazing, and Realty

Land use within the Project Area is characterized by a mix of public and private land holdings managed and regulated by the BLM, USFWS, the State of Oregon, and Harney County. The BLM Burns District administers over 3.2 million acres of public land, primarily in Harney County, including major portions of the Project Area and surrounding area. BLM lands are managed under a set of coordinated land use plans that address a wide range of resource management activities under individual unified plans. Lands within the Project Area administered by the USFWS include the MNWR, which is managed under USFWS prepared resource management plans. Privately owned lands within the Project Area are managed and regulated by the Harney County Planning Department through a county-wide comprehensive planning process, which is implemented through the Harney County Zoning Ordinance.

The nearly 19 mile long main access road for the Echanis Project would cross about 14.7 miles of the Andrews Resource Area (RA) and 4.2 miles of the Three Rivers Resource Area, including about 7.1 miles within the Steens Mountain Cooperative Management and Protection Area (CMPA). Of that main access road, about 17.5 miles (84.7 acres) would be located on private property and about 1.5 miles (about 7.2 acres) would be located on public land administered by the BLM. No portion of the main access road to the Echanis site would be located on public land within the CMPA. Approximately 17.1 miles (33.2 acres) of additional service roads (i.e., string roads) also would be developed on the Echanis site, converting existing rangeland to non-rangeland use. The wind turbines would convert about 2.4 acres to non-rangeland use, while the new substation and operation and maintenance building would convert about 1.9 acres to non-rangeland use.

The Proposed Action and Alternatives (including transmission line route options, design options, and access roads) would require ROW grants from the BLM and USFWS. ROW would also be needed from approximately 10 to 30 property owners (depending upon alternative or route option) to construct transmission lines and access roads across private lands, including two parcels owned by the state of Oregon. For all Action Alternatives the permanent ROW width would be 150 feet. In certain areas, an additional 10 feet of temporary construction easement would be required on each side of the ROW to allow for equipment operation during installation of poles, conductors and any required guy wires. A 40-foot wide ROW would be required on public lands to accommodate new and improved access roads.

The Project Applicant has submitted applications to BLM and USFWS for ROW grants to cross Federal lands. Of the 28.8 miles of transmission line ROW under Alternative B, approximately 8.9 miles (about 158 acres) would cross BLM-administered land and about 1.32 miles (24.0 acres) would cross lands administered by the USFWS. However, the actual footprint of the poles would only occupy about 0.6 acre of BLM-administered land and 0.07 acre of USFWS-administered land. Approximately 26.3 miles of the transmission line would cross the Andrews RA and 2.6 miles would cross the Three Rivers RA. No portion of the transmission line that would cross public land would be located within the CMPA.

The Project Applicant is also currently negotiating agreements with private land owners to develop 18.7 miles (343.3 acres) of transmission line ROWs and 22.0 miles of associated new or improved access road ROWs on private lands. However, the actual footprint of the poles would only occupy about 1.2 acres of private land. Approximately 5.9 miles of the transmission line and overland road that would be located on private land would also be located within the Steens Mountain CMPA. The Applicant has made formal arrangements with the owners of the Echanis site to deploy between 40 to 69 wind turbines, 14.8 miles of new access roads, a system of underground electric cables, a substation, and an operations and maintenance building on the site.

Recreation and Visual Resources

Impacts of the Echanis Wind Energy Project to recreational areas would be primarily visual. The boundary of the Echanis site includes approximately 2,353 acres of the Steens Mountain CMPA. However, no wind turbines would actually be constructed within the CMPA. Alternative B would be located from 800 feet to 2.8 miles away from key observation points (KOPs) on Diamond Lane, North Diamond Loop Road, and Highway 205 southbound. No road closures are anticipated during construction. Noise and visual disruption to recreation areas could occur due to the presence of workers, equipment, vehicles, and materials.

The Echanis Project would be most visible from the Mann Lake Recreation site, Fish Lake Campground, and travelers on the Fields-Denio Road. Hikers would be able to see the turbines from portions of the Little Blitzen, Mud/Ankle, Big Indian, and Nye trails. It is anticipated that the visual quality for some recreational visitors would decline as a result of the presence of the wind turbines, while other visitors would find the wind turbines interesting and would come to view the new development as positive.

Additionally, visual impacts would be experienced from the creation of roads and transmission lines for all of the Action Alternatives. Hikers could have distant and intermittent views of the transmission line from the Buena Vista Trail and portions of the Little Blitzen, Mud/Ankle, Big Indian, and Nye trails. Few travelers on the Oregon High Desert National Recreation Trail would be affected by walking under the transmission line because much of the trail currently follows existing roads. The transmission line also would be visible to travelers on the Blitzen Valley Auto Tour Route and the High Desert Scenic Byway (Highway 205), where the ROW would cross those routes. It also would be visible near the intersection of South Diamond Lane and Lava Beds Road, and would remain visible until near the town of Diamond. For KOP 3, where the Alternative B Project Area is in a Class II area, the Project facilities would have a low to moderate contrast rating due to the use of non-reflective, pre-rusted monopoles that would reduce color contrasts with the rolling landscape composed of brown and gold hues. KOPs 4, 11, 38, and 72, where the Project appears in a Class III area, the permanent effect was evaluated as low because of the relatively low scenic quality, proximity to sensitive viewers, and moderate to low contrast rating. The Action Alternatives are expected to create little to no change in the total number of visitors to nearby non-roaded recreational amenities. Views of the transmission line are not expected to detract from the recreational experience because the views, if they occur at all, would be distant and intermittent along trails.

Construction and improvement of roads for all Action Alternatives would provide increased access to areas that were previously inaccessible by vehicle. The public use of roads would be determined on a case-by-case basis with BLM and USFWS. To limit new or improved recreationist accessibility into areas, all new access roads that would not be required for maintenance would be closed, as appropriate and in coordination with the

BLM or USFWS Authorized Officer. In the event of a conflict between the Applicant's road requirements and the BLM or USFWS, BLM or USFWS requirements would take precedence. For those roads where access to public lands can be obtained, it is expected that no changes to recreational resources would occur because the principal use of those lands is for dispersed recreation. BLM would retain the right to decide permanent road closures for its land.

Public Services

Potential impacts to public services during construction arise primarily from the presence of the construction workforce and equipment in the region. During operations, public service effects would be based upon the size of the operations workforce and indirect employment in the region, as well as the operating requirements of the transmission line. The Project Area is located in a region susceptible to large-scale wildfires. The biggest two risks of fire for the transmission line ROW and the Echanis Project are catastrophic failure of transmission line and wind power equipment and lightning strikes.

Cultural Resources

Archaeological Resources

The Applicant identified 23 archaeological resources eligible or potentially eligible for listing in the National Register of Historic Places (NRHP) under Criterion D within the Project Area of Potential Effect (APE). Within the Echanis Project APE, there are two NRHP eligible or potentially eligible sites and one NRHP-eligible cultural feature that would be affected. There are 10 NRHP-eligible or potentially eligible sites that would be affected within the Alternative B - West Route APE, 10 NRHP-eligible or potentially eligible sites that would be affected within the Alternative C - North Route APE, and one NRHP-eligible site (35HA8) is located in both the Hog Wallow Route Option and the Alternative B - West Route APE that would be affected.

The Applicant did not make NRHP eligibility recommendations for archaeological sites that are located on USFWS-administered land, based on an understanding that USFWS cultural resources staff would make any NRHP eligibility recommendations regarding these sites. However, site 35HA1266 is situated on both private and USFWS-administered land within the Alternative B - West Route APE. The portion of 35HA1266 that falls on private land is recommended for avoidance and/or further inventory. In addition to site 35HA1266, there are five sites on USFWS-administered land that the agency determined eligible or potentially eligible for the NRHP. Based upon research conducted at site 35HA8, the site is eligible for listing in the NRHP. Sites 35HA997, 35HA1000, 35HA1002, and Site FWS1 are considered to be potentially eligible for listing. All six of the sites on USFWS-administered lands are recommended for avoidance.

Architectural/Historical Resources

The seven architectural/historical resources within the APE that are eligible for listing in the NRHP were evaluated for potential effects from the Project. The Applicant identified six NRHP-eligible architectural/historical resources in the Alternative C - North Route APE and one in the South Diamond Lane Route Option APE. Temporary/short-term and permanent/long-term effects to architectural/historical properties were evaluated.

Social and Economic Values and Environmental Justice

The construction phase employment effects on the county would be primarily from labor hired to construct the Echanis Project and any of the Action Alternatives. During the operations phase of the Echanis Project, maintenance and operations jobs would be generated. The Applicant estimated that the Echanis Project

would directly employ approximately 10 workers. Employment opportunities resulting from the purchase of Project-related materials for the Echanis Project, such as the total spending on local goods and services, would be fairly low (\$20,000 for the Echanis Project). Some employment, however, is expected to result from increased household spending due to Project-related income. In particular, household spending of income from the Echanis site lease payment during the operations phase are expected to generate approximately five jobs in the county. Total employment effects during the nine-month Echanis Project construction is estimated to be 145 jobs. Long-term operation of the Echanis Project is expected to generate 15 jobs (10 direct jobs and 5 induced jobs) over the next 20 years (the 20-year timeframe was used instead of 40 years to conservatively estimate the economic benefits).

County income due to the Echanis Project is expected to rise during the construction period by approximately \$4.9 million. Long-term annual income during the 20-year operations phase is expected to increase by an estimated \$1.3 million. In present value terms, county income over the life of the Project would increase by approximately \$23.6 million.

Property on which the Echanis Project would be located would experience viewshed effects but also would be compensated with an annual lease payment. No property value effects are estimated for wind farm proximity/viewshed impairment. Additionally, no homes are nearby (within 500 feet) the Alternative B, further suggesting that there would be no effects on residential home values.

Overall, the effect of the Echanis Project on community services is expected to be negligible. It is expected that the increase in public service demands would either have been funded directly by the Applicant or would be met locally by public service providers paid by Applicant. Therefore, the net fiscal effects are expected to equal the additional tax revenues generated by the Echanis Project. The average annual property and real estate taxes paid for the Echanis Project would be \$0.6 million and the total present value of the taxes would be \$9 million. As noted above, if the Echanis Project exists for longer than 20 years, the total present value of tax payments over the life of the Project would be greater.

No disproportionate effects were identified for minority or low-income populations as a result of the Echanis Project and the North Steens Transmission Line Project. However, they would result in a change in the character of the area from a rural, undeveloped, and open landscape to a developed one, thereby representing a change to the lifestyle and social values held for the Project Area.

Wild Horses, Burros, and Areas of Critical Environmental Concerns

The primary effects on BLM lands designated as wild horse herd management areas (HMAs) and areas of critical environmental concerns (ACEC) would be from construction and operation of the transmission line and access roads, including periodic maintenance inspections and repairs. Permanent effects include loss of vegetation consumed by wild horses or used as refuge (i.e., juniper treed) from various permanent project features, including transmission line poles, access roads, or interconnection stations. Temporary effects include vegetation damage or increased risk of fire due to heavy equipment operation or the transport and storage of construction materials. Mitigation is proposed where permanent and temporary effects could be reduced by implementing reasonable and effective mitigation measures.

Steens Mountain Wilderness, Wilderness Study Areas, and Wild and Scenic Rivers

Under all of the Action Alternatives, potential effects to wild and scenic rivers (WSRs) would be from the introduction of man-made structures that would impair views and generate noise during operation. The only WSR situated within the five-mile analysis area is the Kiger Creek WSR. Located over 2 miles from the southern tip of the Echanis Project, the lands situated within the Kiger Creek WSR would not be affected by Project operational noise and would not have views of operating wind turbines. Topographic screening,

namely the walls of the Kiger Gorge, would preclude views of the Echanis wind turbines from areas within the boundary of WSR-designated lands. About 37.9 acres or 2.7% of the total 1,420 acre Kiger Creek WSR would have background views of the transmission line where it would cross private and public lands. Due to the approximately six-mile distance of the transmission line from the Kiger Creek WSR, the effects on views within the Kiger Creek WSR would be minimal because the transmission lines would appear in the background.

Since no Project facilities would be constructed within the Kiger Creek WSR, none of the Project Action Alternatives would impair the free-flowing characteristics of Kiger Creek or affect the scenic, geologic, recreational, fish, wildlife, vegetation and botanical, cultural, or historic off-road recreational vehicles (ORVs) specific to these WSR designated lands. Lastly, none of the Action Alternatives would affect the characteristics that support the designation of the Kiger Creek WSR as being “wild.” The Project would not impair the free-flowing characteristics specific to WSR lands.

No wilderness areas, wilderness study areas (WSAs), and WSR's are located within five miles of the northern portions of the transmission line alternatives located to the north of the analysis area. However, one wilderness area, five WSAs, and one WSR do fall within the boundaries of the analysis area, as defined by the five-mile radius viewshed. Approximately 822 acres (0.5%) of the wilderness area would have foreground to middleground views of the transmission line. Opportunities for solitude would be diminished on those parts of the Steens Mountain Wilderness that would have views of the Project.

No Project facilities would be located within the Steens Mountain Wilderness and thus would not affect its natural condition. Opportunities for primitive and unconfined recreation would still exist in all WSAs, no facilities would impair access to these forms of recreation, and no project facilities would be constructed within any WSAs so that all would retain their naturalness values. The effects on a visitor's desired experience would vary with each individual. For some visitors, the disruption of quiet and solitude would be short term and fleeting as they move through the area. The effect would be greater for visitors who stay in the affected area for a longer period.

Transportation

To support the Project, access roads would be improved and some new roads would be built across both private and public lands, as described above. There would likely be occasional increased traffic and short delays in the vicinity of construction. Specialized trucks would be used to transport the large components that make up each wind turbine to the Project site. During peak activity, up to 36 truck trips per day would access the Project site using state highways and county roads.

Public Health and Safety

Fire Hazards

While unlikely, a potential fire risk from malfunction of the wind turbine generators and transformers at the Echanis Project exists. Temporary effects to public health and safety related to fire hazards could occur if sparks from equipment used during construction made contact with combustible material. When the transmission line is energized during operation, it could potentially cause a fire hazard if a conducting object were to come into proximity of the transmission line, resulting in a flashover to ground, or if an energized phase conductor were to fall to the earth and remain in contact with combustible material long enough to heat this material and cause a fire. Sparks from equipment used during operation and maintenance of the transmission line, interconnection stations, and substation also pose a risk of fire. Permanent effects from operation of the transmission line, interconnection stations, and substation also include increased risk of fire due to inadequate clearance between vegetative fuel loads and Project facilities.

Hazardous Materials

In general, most potential effects associated with hazardous materials would involve the release of toxic materials into the environment from improper use, storage, or disposal of these materials. Direct effects of such releases could include contamination of vegetation, soil, and water, which could result in indirect effects to human and wildlife populations. These effects have the potential to occur during construction, operation, and maintenance activities; therefore, the effects described below would be both permanent and temporary.

Use of hazardous materials during Project construction, operation, and maintenance would pose potential health and safety hazards to construction and maintenance workers and nearby residents. These effects would be associated with blasting during Project installation, use of hazardous substances during construction and maintenance activities, and the potential for spills.

Electric and Magnetic Fields

Electric and magnetic fields (EMFs) associated with wind projects occur during the transmission of the energy produced by the turbines to the main electricity transmission grid for distribution. Short-term effects from transmission line electric fields are associated with perception of induced currents and voltages or the perception of the field. Induced current or spark discharge shocks can be experienced under certain conditions when a person contacts objects in an electric field. Such effects occur in the fields associated with transmission lines that have voltages of 230-kV or greater. These effects could occur infrequently under the proposed North Steens Transmission Line Project.

Magnetic fields associated with transmission and distribution systems can induce voltage and current in long conducting objects that are parallel to the transmission line. The expected electric field levels from the proposed line at minimum design clearance would be comparable to those from existing 115-kV and 230-kV lines in Oregon, and elsewhere. The expected magnetic field levels from the proposed line would also be comparable to those from other 115-kV and 230-kV lines in Oregon, and elsewhere.

The electric fields from the proposed line would meet regulatory limits for public exposure in Oregon and all other states that have limits and would meet the regulatory limits or guidelines for peak fields established by national and international guideline setting organizations. The magnetic fields from the proposed line would be within the regulatory limits of the two states that have established them and within guidelines for public exposure established by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the Institute of Electrical and Electronics Engineers (IEEE). The state of Oregon does not have limits for magnetic fields from transmission lines.

Short-term effects from transmission line fields are well understood and can be mitigated. Nuisance shocks arising from electric field induced currents and voltages could be perceivable on the ROW of the proposed transmission line. Such occurrences are anticipated to be rare. It is common practice to ground permanent conducting objects during and after construction to mitigate against such occurrences.

Air Quality and Climate Change/Greenhouse Gases

The potential effects on local and regional air quality and global climate change from the proposed Echanis Project and North Steens Transmission Line would be minor. Short-term temporary construction effects may occur from criteria pollutants (combustion contaminants), fugitive dust (earthmoving and road usage), and greenhouse gases as a result of construction, but would be below thresholds and no construction mitigation would be required.

Noise

The impact of noise pollution as a result of the Echanis Project and North Steens Transmission Line would mainly result from a temporary increase in ambient noise levels due to the use of on-road vehicles, off-road equipment, and aircraft in the immediate vicinity of the site and ROW. In addition, construction activity could temporarily cause ground-borne vibration if rock drilling, pile driving, or blasting is required. Routine inspection and maintenance activities could also briefly increase ambient noise levels once construction is complete. Due to the remote location of the wind farm on Steens Mountain, construction and maintenance noise and vibration effects would be minimal.

Energy

The project would result in an increased supply and transmission of clean, renewable wholesale electric power available to utilities for retail sales in the states of California and Oregon.

MITIGATION MEASURES

Project Design Features (PDFs), as part of the proposed Echanis Project and the North Steens Transmission Line Project, and best management practices (BMPs) meeting regulatory agency requirements are summarized at the end of Section 2 and in Appendix A. Mitigation measures suggested or proposed by the technical experts who prepared this Draft EIS appear within the impact assessments prepared for each technical section.