PINE TREE
WIND DEVELOPMENT PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL ASSESSMENT (EIR/EA)

SCH#2004041076
BLM#CA-650-2005-13

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NOVEMBER 19, 2004

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The City of Los Angeles Department of Water and Power (LADWP), as the lead agency, has prepared an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Pine Tree Wind Development Project. The proposed project involves the construction of 80, 1.5-megawatt (MW) wind turbine generators, several meteorological towers, an electrical collection system, a substation, a transmission line and switching station to connect with the regional electrical grid, an operations and maintenance (O&M) building, and access roads. The project is being undertaken to increase the amount of electrical power that is produced using clean and renewable energy sources and to help meet overall demand for electrical power in the Southern California area.

LADWP is working with Wind Turbine Prometheus, LLC (WTP), a wind energy development company, to develop and construct the proposed project. Upon completion of construction, the project would be owned and operated by LADWP. As part of the proposed project, LADWP would also construct and operate approximately 8 miles of 230-kilovolt (kV) transmission line and a switching station, which would connect the proposed project substation to an existing LADWP 230-kV transmission line.

Since the proposed project also affects lands under jurisdiction of the U.S. Department of the Interior, Bureau of Land Management (BLM), an environmental document pursuant to the National Environmental Policy Act (NEPA) is also required. LADWP, as the CEQA lead agency, and BLM, as the NEPA lead agency, are cooperating to prepare one environmental document for the proposed project that satisfies both Acts.

ES.2 PROJECT LOCATION AND WIND RESOURCE

The proposed project property is located in the southern Sierra Nevada Mountains in Kern County, California. The property is approximately 6 miles west of California State Route 14 (SR-14) and about 12 miles north of the town of Mojave and 15 miles northeast of the city of Tehachapi (see Figure ES-1). The primary access to the project property is from SR-14 via Jawbone Canyon Road, which enters the property at its northeastern corner.

The proposed wind turbines would be located along selected ridgelines on privately owned land consisting of approximately 8,000 acres or approximately 12.5 square miles (see Figure 2-2 in Section 2). The property includes Sections 34, 35, and 36 of Township 30 South, Range 35 East; the west one-half of Section 31 of Township 30 South, Range 36 East; Sections 1, 2, 3, 11, 12, 13, and 14, and the east one-quarter of Section 4 of Township 31 South, Range 35 East; and the west one-half of Section 7 of Township 31 South, Range 36 East. This land is composed primarily of holdings of the Hansen Ranch (owned by the Hansen Family Limited Partnership) and GE Wind Energy, LLC, as well as a few other minor landholders. The Hansen Ranch lands are use mainly for cattle grazing. The property included in the project would be leased from these owners under a long-term agreement.

The project site has excellent wind resource characteristics. It is located in the Tehachapi Wind Resource Area (WRA), a demonstrated wind energy producing region. Average wind speeds at the

site are approximately 14 to 18 miles per hour with prevailing winds from the west and northwest. Occasional strong winds from the opposite direction do occur. Currently, nine meteorological towers measure wind data at the project site to confirm the wind resource potential.

ES.3 OBJECTIVES AND NEED

Each EIR is required by CEQA to include a statement of the objectives to be achieved by the proposed project (*CEQA Guidelines*, § 15124, subd. (b)). The objectives help the implementing agency develop a reasonable range of alternatives and assist decision-makers in preparing findings or a statement of overriding considerations, if necessary. Similarly, NEPA regulations require that each EA briefly specify the need to which the agency is responding in proposing various alternatives, including the proposed project (40 C.F.R. § 1508.9, subd. (a)).

ES.3.1 NEED FOR THE PROJECT

The proposed project is needed so that LADWP may meet commitments to supply an increased share of its electrical generation capacity from clean and renewable energy sources. In accordance with state requirements that public utilities develop a renewable energy portfolio standard, the City of Los Angeles City Council approved a resolution on June 29, 2004, supporting the concept of increasing the amount of energy LADWP generates from renewable power sources to 13 percent of its energy sales to retail customers by 2010 and to 20 percent by 2017. These goals are generally consistent with state mandates for investor owned utilities operating within California. This commitment to renewable sources is a means to provide sustainable energy resources that will reduce air pollutant emissions and dependence on fossil fuels for power generation.

The generation capacity from the proposed project is needed to help meet the future electrical energy demands of the Southern California region. Demand for electricity in Southern California has grown at a steady, moderate pace since the early 1990s. According to the LADWP Integrated Resource Plan, as amended and adopted by the Board of Water and Power Commissioners and the Los Angeles City Council (August 15, 2000), annual growth in demand in Los Angeles is expected to average about 1.5 percent, or an average of about 80 MW per year, over the next 16 years. It is estimated that between the years 2004 and 2010, the net peak demand for electricity in the city will grow by 450 MW, or approximately 7.5 percent (from 5,920 MW to 6,370 MW).

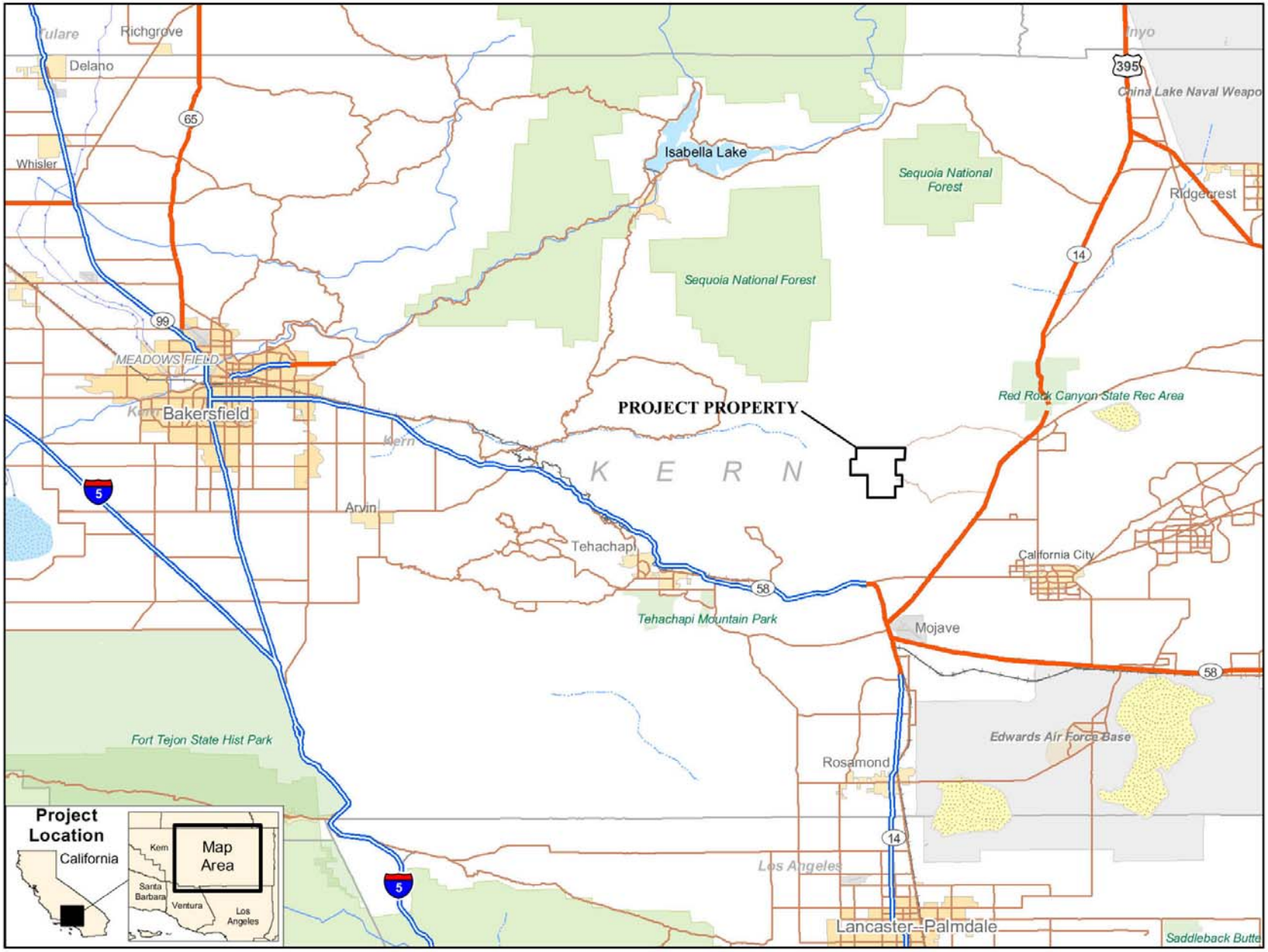
ES.3.2 OBJECTIVES

To meet the project needs, LADWP, in its capacity as CEQA Lead Agency, has the following objectives for the project.

- *Energy Demand:* Provide a wind energy electrical generation facility with an annual generating capacity of approximately 330 gigawatt hours (GWh).

- *Renewable Energy Sources:* Increase LADWP's renewable energy production by about 1.5 percent of its total electrical production capacity.

- *Private Property Development:* Locate the primary project facilities on private property to avoid or minimize impacts to public lands and resources.



Source: ESRI Data & Maps 2004

Figure ES-1
Project Region

- *Available Transmission Capacity:* Locate the proposed project turbines relatively close to existing transmission lines that are controlled by LADWP and have available capacity to accommodate the power generated by the proposed project.

BLM, in its capacity as NEPA Lead Agency responsible for management of federal lands that would provide road and electrical transmission access to the proposed project site, has the following objectives for the proposed project.

- *Regulatory Compliance:* Ensure that project-related right-of-way grants for the use of federal land are issued in accordance with relevant federal laws, regulations, and policies.

- *Plan Conformance:* Ensure that the use of federal lands for road and electrical transmission access for the proposed project conforms to existing BLM land use and resource management plans.

- *Wind Energy Development Policy:* Promote the appropriate development of wind energy as a component of the President's National Energy Policy to encourage the development of renewable energy resources.

ES.4 REGULATORY REQUIREMENTS AND COMPLIANCE

In addition to meeting the requirements of NEPA and CEQA, the Pine Tree Wind Development Project environmental documentation has been prepared to facilitate compliance with federal and state laws and the subsequent project approval by various federal, state, and local agencies having jurisdiction over one or more resources potentially affected by the project.

ES.5 PROJECT COMPONENTS

ES.5.1 WIND TURBINES

The primary component of the proposed project is a series of 80, 1.5-MW nameplate capacity wind turbines. The proposed wind turbines would be grouped along separate ridges in these zones, or "strings," ranging in groupings of from 2 to 16 towers (Figure 2-2 in Section 2). The turbine strings are significant from the standpoint that the zones surrounding the strings would receive the Wind Energy Combining District zoning designation from Kern County, allowing for the construction of the turbine generators. The wind turbines must be located within these zones. The proposed location of all project facilities, including the individual wind turbines, is shown in Figure 2-3 in Section 2.

Analysis for the siting of the proposed wind turbines considered a broader study area of approximately 21,500 acres. Due to constraints imposed by such factors as terrain and military training routes (MTRs), and in an effort to minimize potential impacts to existing sensitive biological and cultural resources, the boundaries of the project property were narrowed to their present configuration, encompassing approximately 8,000 acres. Within these narrowed boundaries, the objective of the project is to optimize wind energy production based on a cost-benefit analysis that balances construction, operations, and maintenance considerations with the anticipated output of each turbine. A primary factor in this analysis is the quality of the wind resource at a particular site within the property.

To operate and maintain the turbines, the proposed project would require a network of service roads to provide access to the turbine sites, the substation, and the O&M facility. These roads would generally need to be 16 feet wide. However, to deliver large and heavy components and equipment to the turbine sites during project construction, most project roads would need to be 20 feet wide. In addition, to operate large equipment, including large truck- or track-mounted cranes, access roads approximately 34 feet wide would be required within the turbine strings to provide access to each turbine site.

ES.5.2 SUBSTATION AND O&M FACILITY

A substation would be required on-site to convert the voltage of the electrical energy generated by the wind turbines from a lower to higher voltage so that it can be transmitted. The substation would be located on an 11-acre parcel consisting of a fenced yard area containing the step-up transformer, substation, and related electrical control equipment. The voltage will be increased from 34.5-kV to 230-KV. A 34.5-kV collection system would link the individual turbines to the substation. The O&M facility would be located on a 10-acre parcel and consist of a storage and equipment yard and an approximate 35-foot-high, 60-foot by 120-foot building containing offices for O&M personnel, a control and relay room, a workshop area, spare parts storage, training rooms, restrooms, and a lunchroom. The locations of these facilities are shown in Figure 2-3 in Section 2.

ES.5.3 ELECTRICAL TRANSMISSION LINE AND SWITCHING STATION

An overhead 230-kV transmission line would connect the project substation to an existing LADWP transmission line located west of and generally paralleling SR-14 (see Figure 2-3 in Section 2). The proposed transmission line would be approximately 8 miles in length. It would originate at the project substation in the south-central part of the project property and travel southeastward through privately owned land until it intersected Pine Tree Canyon Road to the southeast of the project property. The line would then generally parallel Pine Tree Canyon Road eastward to a proposed switching station at LADWP's existing regional transmission line (Inyo-Rinaldi 230-kV line) near SR-14. This proposed route would cross three parcels of BLM land for a total length of approximately 1.1 miles. LADWP intends to secure a 150-foot-wide right-of-way for the transmission line alignment through BLM-administered land. This right-of-way would not be fenced.

The switching station would be constructed adjacent to the existing Inyo-Rinaldi 230-kV line right-of-way, approximately 1,500 feet north of where this regional transmission line crosses the existing Pine Tree Canyon dirt road. The station would be constructed on private land between the Inyo-Rinaldi line towers adjacent to the east side of the right-of-way.

ES.6 PROJECT CONSTRUCTION

The project construction would be performed in several stages and would include the following primary activities:

- Grading of roads, turbine pads, and crane pads
- Grading of substation, O&M building, switching station, materials laydown, and equipment staging areas
- Construction of the turbine tower foundations and transformer pads
- Installation of the electrical collection system
- Erection and assembly of the wind turbines

- Construction and installation of the substation and O&M facility, including water well and septic system
- Construction of the 230-kV transmission line and switching station, including water well and septic system
- Plant commissioning and energization

Discussion of each stage of construction is included in Section 2 of this document.

While the overall project footprint extends over much of this property, the actual area of new ground disturbance caused by the project (excluding existing roads that would be used by the project) would total approximately 238 acres. This would include approximately 106 acres of temporary disturbance related to construction activities, including temporary roads, spoils areas, materials laydown areas, etc. These areas would be revegetated after the completion of construction. The area of permanent disturbance related to the project facilities would total approximately 132 acres, including areas for the wind turbines, maintenance access roads, the substation and O&M building, and the transmission line and switching station. Existing on-site roads that would be used by the project would total approximately 30 more acres. A total of approximately 2 acres of permanent disturbance would occur on public lands, associated with the transmission line in Pine Tree Canyon. The estimated approximate area of temporary and permanent disturbance from the proposed project on private property and BLM-administered land is listed below.

	Private Land	**BLM Land**	**Total**
Temporary	102 acres (96.2 %)	4 acres (3.8 %)	106 acres
Permanent	130 acres (98.5 %)	2 acres (1.5 %)	132 acres
Total	232 acres (97.5 %)	6 acres (2.5 %)	238 acres

ES.7 PROJECT OPERATIONS AND MAINTENANCE

Routine maintenance of the turbines would be necessary to maximize performance and detect potential problems. 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. Periodic exchanging of lubricants and hydraulic fluids in the operating mechanisms of the turbines and towers would occur.

ES.8 PROJECT DECOMMISSIONING

Decommissioning refers to the dismantling of the project elements and restoration of the site upon completion of the operating life of the facility. Periodic replacement of equipment can extend operating life indefinitely, depending on future demand for electricity generated by the project. Therefore, the estimated life of the project depends primarily on the demand for power, which is expected to continue growing. However, the project is expected to have a minimum of 20-year life.

At the end of the project's useful life, LADWP would obtain any necessary authorization from the appropriate regulatory agencies and from the landowners to decommission the facilities. Decommissioning would involve removing the turbines and support towers, transformers, and substation, and removing the upper portion of foundations so that they are not exposed at the surface.

Site reclamation would be based on site-specific requirements and techniques commonly employed at the time the area is reclaimed. As necessary, this could include regrading, spot replacement of topsoil, and revegetation of project-disturbed areas. Foundations would be removed to a depth of 2 feet, or less if bedrock is encountered. Project access roads would be reclaimed or left in place based on landowner preference. The land would then revert exclusively to landowner control.

ES.9 AFFECTED ENVIRONMENT

ES.9.1 GEOLOGY AND SOILS

The project site is situated in the southern section of the Sierra Nevada Geomorphic Province and is characterized by deeply incised valleys, steep hillsides, and mountains that lie on the eastern side of the Pacific Crest line descending towards the Mojave Desert. The project site is considered to be in a seismically active area. The closest major active faults to the site include the Garlock Fault system, the Southern Sierra Nevada Fault zone, and the White Wolf Fault zone. The project facilities themselves are not underlain by known active faults.

The project site is typically underlain by a highly varied series of sedimentary formations (e.g., sandstone, limestone, dolomite, siltstone, shale, chert, conglomerate), volcanic formations (e.g., andesite, basalt, tuff, tuffaceous sandstone, rhyolitic felsite), granitic rocks (e.g., quartz monzonite, granite, quartz diorite, hornblende diorite, gabbro), and metamorphic rocks (e.g., gneiss, schist, quartzite). Unconsolidated materials such as topsoil and colluvium, alluvial sediments, older alluvium, and slopewash deposits overlie theses units.

ES.9.2 HYDROLOGY AND GROUNDWATER

The proposed project lies within two major watershed areas, Jawbone Canyon and Pine Tree Canyon. Both Jawbone and Pine Tree canyons drain into the Fremont Valley, to the east of the project property. Drainage waters collected in the watershed flow in surface water and stream channels and eventually permeate into the coarse permeable soils of the channels and flow subsurface to aquifers in the valley.

Pine Tree Canyon falls approximately 3,260 feet over the 12-mile-long water course, with an average gradient of approximately 5 percent. A gradient of 5 percent reflects relatively unstable flow conditions within the watershed. The floodplain channel to the southeast of the project property is approximately 600 feet wide and 38 feet deep. Jawbone Canyon falls approximately 4,030 feet over the 24-mile-long watercourse with an average gradient of approximately 3 percent. A gradient of 3 percent reflects relatively stable flow conditions within the watershed. The floodplain channel on the northeast side of the project limits is approximately 1,450 feet wide and 38 feet deep.

ES.9.3 AIR QUALITY

The project site is located within the Mojave Desert Air Basin, which is under the jurisdiction of the Kern County Air Pollution Control District (KCAPCD). The project site is within an area that is in attainment for all federal criteria pollutants except ozone (O_3). On April 15, 2004, the U.S. Environmental Protection Agency (EPA) issued the initial designations for the 8-hour O_3 standard, and Eastern Kern County is classified as "basic nonattainment." Basic is the least severe of the six degrees of O_3 nonattainment. KCAPCD must submit an air quality plan to the USEPA to demonstrate how the 8-hour O_3 standard will be attained by June 2009. Relative to state standards,

Kern County has been classified as a nonattainment area for the state 1-hour O_3 and PM_{10} (particulate matter equal to or less than 10 microns in size) standards (CARB 2004).

ES.9.4 BIOLOGICAL RESOURCES

Thirty-two vegetation communities and cover types were identified within the project area during general surveys. Six generalized vegetation groupings and cover types are used to characterize and discuss the vegetation communities and land cover observed during the habitat assessments. These include scrubs and chaparrals, wetlands, grasslands and fields, woodlands, ecotones, and developed and disturbed.

Due to the large size of the project study area, the diverse assortment of vegetation communities, the variation in topographic relief, and the fact that the habitat is primarily undeveloped, a diverse array of wildlife species would be expected in the project area. A total of 114 wildlife species were identified during the various general and focused wildlife surveys conducted for the proposed project. Bird, mammal, reptile, amphibian, and insect species were widely distributed.

Sensitive vegetation communities are those that are considered rare in the region, support sensitive plant or wildlife species, or receive regulatory protection. In addition, vegetation communities listed on the California Natural Diversity Database (CNDDB) as having the highest inventory priorities are considered sensitive (CDFG 2003). Five vegetation communities within the project area are considered to be of high priority for inventory in the CNDDB, including Mojave desert wash scrub, Mojave riparian forest, southern riparian scrub, native perennial grassland, and Joshua tree woodland. In addition, the California Desert Conservation Area (CDCA) Plan identifies Unique Plant Assemblages (UPAs) for emphasis in the environmental review process and for special monitoring attention. All riparian systems in the CDCA are classified as UPA. On the project site, this would include all Mohave riparian forest, Mojave desert wash scrub, and southern riparian scrub vegetation communities.

ES.9.5 LAND USE

The project site is essentially undeveloped, but it is currently and has historically been used as grazing land for cattle. The project site is designated 8.3 Extensive Agriculture (minimum 80- or 20-acre parcel size) and 8.3/2.4 (Extensive Agriculture/Steep Slope) in the Kern County General Plan. The property is currently zoned Estate (20) (Estate – minimum lot size of 20 acres). The project site is not designated as Farmland by the California Department of Conservation; therefore, the project would not convert Farmland to non-agricultural use.

The area surrounding the proposed project property is also essentially undeveloped. The project site is bounded primarily by privately owned land except along a portion of its eastern boundary and a portion of its northern boundary, which adjoin federally owned land administered by the BLM. Much of this adjoining BLM property is located within a closed area that is open to public access by permit only. To the southeast of the project property, the Pine Tree Canyon Road transmission line alignment passes through approximately 7 miles of private land and approximately 1.1 miles of the BLM-administered land.

A segment of the Pacific Crest National Scenic Trail is located on private property approximately 1 to 2 miles west of the western boundary of the project property. The Jawbone Canyon access road to the project passes through the Jawbone Canyon Open Area, designated off-highway vehicle use area

managed by the BLM. Naval Weapons Station China Lake and Edwards Air Force Base both maintain low-altitude MTRs that overlay portions of the project property to conduct aviation training and testing missions. Structures taller than 200 feet that penetrate an MTR may represent obstructions to aviation navigation.

ES.9.6 TRANSPORTATION

SR-14 is the principal regional access route leading to the project area. It is a two-lane and four-lane north-south state highway that, along with U.S. Highway 395, connects Mojave, California, south of the project site, to the cities of Lone Pine, Big Pine, Bishop, and the Mammoth Mountain Resort areas to the north.

Primary access to the proposed wind turbine component would be taken from Jawbone Canyon Road at SR-14. Jawbone Canyon Road is a County-maintained paved road of approximately 25 feet in width. The County road travels westerly from SR-14 for approximately 6 miles, at which point it turns northward. A dirt road, which is controlled by a gate and on which public access is prohibited, continues southwestward to the project property for 4 miles through Jawbone Canyon. Traffic volumes on Jawbone Canyon Road are generally very low. However, use increases considerably on holiday weekends and winter weekends as recreational users visit the Jawbone Canyon Open Area.

Access to the transmission line component of the project would be taken from Pine Tree Canyon Road at SR-14. Pine Tree Canyon Road is a private dirt road located south of Jawbone Canyon Road that runs west from its intersection with SR-14. This roadway is very lightly traveled. It is maintained by LADWP to provide access to transmission facilities and the two Los Angeles aqueducts, which are located west of SR-14.

ES.9.7 CULTURAL RESOURCES

The cultural resources inventory and records search conducted for the project area resulted in the identification of 101 archaeological sites, including 43 previously recorded and 58 newly identified properties. Of these, 90 sites are within the project area. The majority are prehistoric resources, defined by flaked and ground stone artifact scatters, some with bedrock milling features or cultural middens. Twenty sites have the potential to be affected by project activities, depending upon which components (e.g., access roads, 230-kV transmission line, and laydown areas) are selected for use or construction. The remaining 70 sites do not occur within or immediately adjacent to proposed project components. Of the 20 sites with potential project impact, only seven are considered National Register of Historic Places-eligible properties, the remainder not qualifying due to lack of integrity and/or lack of research potential.

ES.9.8 VISUAL RESOURCES

The vegetative cover within the project property consists of a mix of pinyon-juniper woodland, oak woodland, scrub, and grassland. Terrain within the proposed project site ranges from rolling hills to moderately steep ridges. A number of rocky outcroppings are present on the property. Elevations range from approximately 3,000 feet above MSL in the northeastern corner of the project property to approximately 5,000 feet above MSL in the southwestern corner of the property. The project property is located entirely on privately owned land that is essentially undeveloped.

The Sky River Ranch wind development, located on the Sweet Ridge ridgeline about 1 to 2 miles west of the project property, consists of 342 approximately 100- to 150-foot-tall turbines sited along an approximate 6-mile length of the ridgeline. The Sky River Ranch wind turbines are visible from various locations within the project property and the surrounding area. A segment of the Pacific Crest National Scenic Trail is also located approximately 1 to 2 miles west of the western boundary of the project property. In the vicinity of the project property, the trail generally parallels the Sky River Ranch wind development primary access road. The trail is situated on private property for nearly the entire segment that is located to the west of the project.

Potentially sensitive viewpoints within the area surrounding the proposed project include SR-14 as it passes to the east of the project site; the Jawbone Canyon Open Area, located northeast of the project site; and the Pacific Crest Trail as it passes to the west of the project site. More distant but potentially sensitive viewpoints include California City, located approximately 10 miles southeast of the project site, and Red Rock Canyon State Park, located approximately 10 miles to the northeast.

ES.9.9 SOCIO ECONOMICS

The areas surrounding the project site are predominantly sparsely populated, unincorporated areas of Kern County, with concentrations of population in several smaller cities and communities. Although Kern County as a whole and portions of the project study region experienced relatively rapid population growth over the last decade, the project study region has, with the exception of Tehachapi, more than matched this growth with additional housing unit growth. While a number of census tracts within the study area show higher proportional populations of certain racial minorities, in general, populations within the study area remain markedly below county racial and ethnic averages. Although income levels within the majority of census tracts and communities within the study area were generally above the county average, a limited number of areas in the study area reported incomes significantly below that of the county average. The study area generally remained below county average in percent of population living at or below poverty levels, and recent unemployment levels within Tehachapi, California City, and Mojave remained below that of Kern County as a whole.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
GEOLOGY AND SOIL		
Seismic-Related Public Safety Hazards		
Impact 2.1 Implementation of the proposed project could expose people and structures to geologic hazards, including earthquakes and ground shaking.	**MM 2.1:** To mitigate the exposure of people and structures to potential strong ground motion: • All habitable structures shall include engineered design and earthquake-resistance construction to increase safety of persons occupying the buildings. • A qualified professional engineer will design the wind turbine structures, including foundations, constructed on the site. • The minimum seismic design will comply with the Kern County Building Code, Chapter 17, and applicable California Building Codes.	Less than significant.
Impact 2.2 Construction in areas of shallow groundwater could expose people and structures to liquefaction hazard during significant seismic events.	**MM 2.2:** Any damage to the unpaved roads caused by exposure to liquefaction of underlying alluvium shall be repaired after the event. For the transmission line, mitigation shall consider densifying the soil in place with vibroreplacement (stone columns), compaction grouting, use of deeper than normal foundations, and/or other recommendations of the engineering geologist. Any damage caused to the power lines by liquefaction of underlying alluvium shall be repaired after the event.	Less than significant.
Impacts Due to Grading and Construction		
Impact 2.3 Grading for project facilities could affect slope stability by increasing the potential for landslides, debris flows, and rock falls.	**MM 2.3:** To mitigate the impacts associated with slope stability, landslides, and rock falls, geotechnical evaluations shall be performed to evaluate slope stability and provide recommendations for project construction. Specific recommendations for remedial actions shall be made and could include any of the following: • A qualified engineering geologist shall provide design recommendations to reduce potential for slope failure and to	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	ensure proper placement and design of facilities, foundations, and remediation of unstable ground. • Grading will be conducted pursuant to Kern County Grading Codes, Chapter 17.28, and BMPs. • No project structures or grading shall occur in areas where potential for severe hazard exists that cannot be mitigated with engineering. • Measures to stabilize slopes shall consider retaining walls, soil nails, geofabric stabilized earth, wire retention devices, berms to deflect debris, and buttress fills. The construction manager shall implement the plans, and an engineering geologist shall certify that slopes have been properly stabilized. • At project abandonment, the project owner or successors will ensure ongoing stability. All fill slopes shall be engineered to provide long-term stability (drainage, reseeding, etc.). • To mitigate the potential soil corrosiveness impacts, appropriate concrete mix design shall be used to resist against sulfate attack, and appropriate cathodic protection or encapsulation of steel shall be employed. • Wind turbine sites where slopes exceed 4:1 will require specific consultation and approval by the Kern County Engineering and Survey Services Department, with site-specific mitigation measures implemented.	
Impact 2.4 Grading of soils and rock units for construction of proposed facilities would result in potentially significant impacts, including the use of blasting to assist excavation.	**MM 2.4:** The impacts associated with blasting are mitigated through compliance with local and state laws and by preparing and complying with a blasting plan approved by Kern County Planning Department, in consultation with Kern County Engineering and Survey Services Department, Kern County Fire Department, and Kern County Air Pollution Control District (KCAPCD). The blasting plan shall include the following essential elements: • The contractor performing blasting at the site shall comply	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	with applicable regulations and standards established by the regulatory agencies, codes, and professional societies including the rules and regulations for storage, transportation, delivery, and use of explosives. • Blasting operations shall be conducted so as to prevent impact on special status plant and wildlife species and migratory birds. • Whenever blasting operations are in progress, explosives shall be stored, handled, and used as provided by law, including safety and health regulations for construction. • The contractor shall ensure that flyrock, air blast, and ground vibration are controlled so as not to affect the known archaeological and historical sites prior to data recovery.	
Impact 2.5 Construction activities associated with the proposed project could result in increased erosion and associated sedimentation in the Jawbone Canyon and Pine Tree watersheds.	**MM 2.5-1:** Measures shall be incorporated into the design of the project to minimize erosion and sedimentation. Turbine generator pads and roads should be graded to divert flow away from natural slopes and toward permanent culverts and swales leading to natural drainage courses. Depending on the slope, energy dissipaters and/or detention basins may be needed at the end of the culverts or swales. Road design shall consider opportunities to provide sheet flow drainage from surfaces where erosion can be avoided. Where roads cross streams, the crossing should be made at right angles to the stream to the extent possible, and engineered measures such as flow dissapators, adequately sized culverts, and sediment traps shall be used to minimize erosion. **MM 2.5-2:** The following measures shall be implemented throughout construction to minimize the impacts of erosion to an acceptable level: • Areas where ground disturbance will need to occur shall be identified in advance of construction and limited to only those areas approved by LADWP. • All construction vehicles shall be confined to the designated	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	access routes, roads, and staging areas. • Site disturbance shall be limited to the minimum necessary to complete construction activities. • Consider crushing vegetation rather than blading in construction laydown areas. • Inform all supervisory construction personnel of environmental concerns, permit conditions, and final rehabilitation specifications. • Significantly weak soils may be stabilized with granular base with possible geotextile underlayment. • Where the soil is too wet such that ruts occur, restrict access to area or avoid by rerouting vehicles if possible. **MM 2.5-3:** To mitigate the potential adverse effects of erosion, the Applicant shall prepare and implement an Erosion and Sedimentation Control Plan and SWPPP. The plan shall include BMPs identified in reference documents, including BMPs for construction of wind power projects on BLM lands, BMPs for Erosion and Sediment Control (FHWA FLP 94-005), Kern County Grading requirements, and measures provided in MM 2.5-1 and 2.5-2 above. In addition, the following shall be used as a guide to develop these plans. • Restore disturbed areas to pre-construction contours to the extent feasible. • Salvage, store, and use the highest quality soil for revegetation. • Discourage noxious weed competition and control noxious weeds through physical or chemical removal and prevention (chemical removal on BLM lands requires specific authorization from BLM). In particular, efforts to prevent yellow starthistle from inhabiting the site shall include use of weed-free native seed mixes and prevention of noxious weeds from entering the site via vehicular sources. For instance, implement Trackclean or other method of vehicle cleaning for vehicles coming and going from the site. Earth-	

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	moving equipment shall be cleaned prior to transport to the project site. Weed free rice straw or other certified weed free straw shall be used or all hay employed for erosion control. • Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. • Cease topsoil-stripping activities during significantly wet weather. • For areas that require permanent erosion control structures, stepped footings or retaining walls designed to preserve the natural landforms should be used. • Use bales and/or silt fencing as appropriate. • Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. • Following completion of each area of construction, weed-free mulch shall be applied to disturbed areas within ten days in order to reduce the potential for short-term erosion. • Soils, other than access roads, shall not be left exposed during the rainy season. • Establish provisions for construction operations during foul weather. • Filter fences and catch basins shall be used to intercept sediment before it reaches stream channels. • Spoil sites shall be located such that they do not drain directly towards a natural spring. At spoils sites draining toward a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and revegetated to reduce the potential for erosion. • Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated.	

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Impacts Due to Project Operations		
Impact 2.6 During project operations, travel on dirt roads, maintenance activities, and storm water runoff from project facilities could cause soil erosion.	**MM 2.6:** To mitigate potential long-term impacts of soil erosion and sedimentation, the project site access roads, turbine sites, and other structures and areas will be regularly monitored for erosion, sedimentation, and to ensure that drainage control features are in good working order. Drainage and erosion control devices will be repaired prior to start of each rainy season. Revegetated areas shall be monitored for a period of time as specified in the erosion control plan.	Less than significant.
HYDROLOGY AND GROUNDWATER		
Surface Water Impacts		
Impact 3.1 The project has the potential to alter runoff volumes through clearing and grading for project components and by access road crossings of stream channels.	**MM. 3.1**: All required approvals and permits, including drainage plan approval, shall be obtained from the Kern County Engineering and Survey Services Department prior to construction. For coordination purposes, materials, studies, and responses from the CDFG and the BLM regarding permitting of crossings or watercourses within the project limits shall be provided to the Kern County Engineering and Survey Services Department.	Less than significant.
Impact 3.2 Construction that occurs within the 100-year flood plains in Jawbone and Pine Tree canyons could alter flood plains established by FEMA.	100-year flood plains would be avoided or flood plain assessment required; therefore, no mitigation measures required.	Less than significant.
Surface Water Quality		
Impact 3.3 Grading for project facilities has the potential to cause soil erosion that could temporarily increase turbidity and total suspended solids in runoff water.	No additional mitigation measures are required since detailed erosion measures are provided in Soil and Geology section.	Less than Significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Impact 3.4 Use of construction equipment on the site could increase the potential for accidental fuel or lubricant spills or leaks that could degrade water quality.	Standard preventive measures contained in SWPPP.	Less than significant.
AIR QUALITY		
Impact 4.1 During construction, local CEQA air quality significance thresholds would be exceeded for ROC, NOx, and PM_{10} emissions.	**MM 4.1-1:** To mitigate fugitive dust and PM_{10} emissions, all construction operations will be conducted in accordance with KCAPCD Rule 402, either the 2004 Final Draft version or a subsequently approved version, including use of an approved dust control plan. The dust control plan, to be approved by KCAPCD, shall incorporate the appropriate Reasonably Available Control Measures (RACMs) to minimize fugitive dust emissions. The dust control plan shall consider and/or incorporate the use of chemical dust suppressants, application of water, use of wind screens, speed controls on dirt roads, and other applicable methods as provided in Rule 402. Additionally, a method to prevent mud and dirt tracked out onto paved roads shall be provided for the Pine Tree and Jawbone canyons construction area egress points. Relative to ROC and NO_x emissions, the most effective emissions reductions from diesel engines is a new technology using exhaust gas recirculation (EGR). Emission reductions with EGR are on the order of 40 percent for NO_x and 90 percent for ROC. Other new technologies include exhaust catalysts, which provide 20 percent NOx reduction and no ROC reduction. These technologies have been developed in response to USEPA regulations issued in 2002, requiring manufacturers to provide the cleaner engines beginning in 2004. While some EGR and catalyst equipment is available, it would not be reasonable to require complete use of the newer equipment in the near term. Therefore, the following measures are incorporated into this EIR/EA:	The adverse construction impacts would be less than significant under NEPA but significant under CEQA. Implementation of MM 4.1-1, 4.1-2, and 4.1-3 would reduce emissions but would not reduce the emission rates to less than the Kern County and KCAPCD thresholds of significance. Therefore, for the period of construction, which would be 10 months or less, air quality impacts would be significant and unavoidable both individually and cumulatively under CEQA.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	MM 4.1-2: At least 10 percent of the diesel engine-driven construction equipment on site will be equipped with EGR or low NO_x exhaust catalytic equipment. This measure is not mandatory if it is demonstrated that this quantity of newer technology equipment would be unavailable for the expected construction window (July 2005 to May 2006). **MM 4.1-3:** Use of aqueous diesel fuels in diesel-driven construction and long-haul equipment could reduce construction NO_x emission by up to 14 percent. Aqueous diesel fuel will be used in all project diesel engine-driven construction equipment if it is commercially available in the project area.	
BIOLOGICAL RESOURCE		
Vegetation Communities **Impact 5.1** Construction of the proposed project would directly and permanently impact approximately 1.23 acres of native perennial grassland considered sensitive by CDFG.	No Mitigation proposed due to minimal impact.	Less than significant.
Impact 5.2 Construction of the proposed project would have temporary direct impacts on approximately 17.37 acres of wetland habitat and permanent direct impacts to approximately 1.96 acres of wetland habitat.	**MM 5.2-1:** Mitigation requirements for temporary direct impacts to wetland communities are generally met by restoring the wetland habitats in-place. Thus, restoration of 17.37 acres of wetland habitat in-place will be required to mitigate project-related impacts. Mitigation requirements for permanent direct impacts to wetland communities (1.96 acres) are to be met by a combination of wetland creation, restoration, or enhancement. A mitigation site shall be preserved at a suitable area near the impact area. Mitigation requirements for permanent impacts to wetlands resulting from project-related construction shall be provided at a	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	ratio acceptable to CDFG and shall be finalized as part of a Streambed Alteration Agreement with CDFG. **MM 5.2-2:** Mitigation requirements for permanent direct impacts to ephemeral drainages will require habitat creation, enhancement or restoration, and preservation at a location approved by CDFG and other relevant regulatory agencies. Mitigation compensation requirements for these impacts shall be finalized as part of a Streambed Alteration Agreement with CDFG.	
Impact 5.3 Construction of the proposed project would have permanent direct impacts to approximately 1.11 acres of Joshua tree woodland vegetation community.	**MM 5.3-1:** Mitigation requirements for permanent direct impacts to Joshua tree woodland (1.11 acres) and individual Joshua trees will be satisfied through either avoidance, salvage, or replacement of the existing habitat or trees at a ratio to be determined through discussions with CDFG and other relevant regulatory agencies. In addition, these agencies shall approve where the mitigation is to occur and whether preservation or restoration is the preferred method to mitigate for project impacts. **MM 5.3-2:** The construction crews and contractors shall be responsible for working around all shrubs and trees within the construction zone to the extent feasible. Particular avoidance shall be applied to Joshua trees and riparian trees (i.e., cottonwoods and willows). Shrubs and trees shall be flagged by a qualified botanist or arborist to indicate top priority for avoidance.	Less than significant.
Impact 5.4 Construction of the proposed project would directly and permanently affect approximately 131.83 acres of the various habitat types and directly and temporarily affect an additional 105.60 acres of various habitats.	**MM 5.4-1:** The construction crew and any contractor(s) shall be informed of the biological constraints of the project through a contractor education program presented by a project biologist. The construction crews and contractor(s) shall be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas ultimately approved for impacts by the Co. of Kern and resource agencies.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	MM 5.4-2: The anticipated impact zones, including staging areas, equipment access, and disposal or temporary spoils areas, shall be delineated with stakes and flagging prior to construction to avoid impacts to natural resources where possible. Construction-related activities outside of the impact zone shall be avoided. **MM 5.4-3:** Spoils shall be stockpiled in disturbed areas or other designated areas. Stockpile areas shall be marked to define the limits where stockpiling may occur. Topsoil shall be segregated from the other stockpiled material and shall be reapplied as the topsoil layer to assist revegetation. **MM 5.4-4:** BMPs shall be employed to prevent further loss of habitat resulting from erosion caused by project-related impacts (i.e., grading or clearing for new roads). All detected erosion shall be remedied within two days of discovery. **MM 5.4-5:** Fueling of equipment shall take place within designated construction areas or other approved parking areas and not within or adjacent to drainages or native habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. **MM 5.4-6:** Mitigation of potential permanent indirect impacts to vegetation communities will be achieved by applying an approved native seed mix in the bare areas after construction is complete to minimize the potential for exotic species introductions. The native seed mix shall be approved by CDFG and BLM and shall be dispersed in the fall, prior to winter rains.	
Impact 5.5 There is a potential for permanent and temporary direct impacts on vegetation communities, including sensitive habitats, that results from the construction of access roads or	**MM 5.5:** To mitigate for the potential permanent and temporary direct impacts on vegetation communities that could occur from changes in the project construction footprint, the following protocol will be implemented.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
other facilities outside of the established construction footprint.	1. The construction manager and owner's representative (or design engineer) will assess the variance needed to complete the construction task. 2. The owner's representative will review the location and potential resources affected by variance. 3. Should conditions dictate, a qualified environmental monitor would be called to evaluate impacts and supervise construction activity. 4. Conditions warranting evaluation and observation by an environmental monitor include construction that is (a) within desert tortoise and Mojave ground squirrel habitat areas, (b) in a riparian community, streambed, or other sensitive communities such as Joshua tree or oak woodland, (c) within 50 feet of a known archaeological or historical site, and (d) more than 50 feet from the previously surveyed or staked area. 5. A report of the construction deviations shall be provided to the LADWP prior to the completion of construction for use in making any necessary adjustments to mitigation ratios, habitat compensation, and other mitigation requirements.	
Sensitive Plant Species **Impact 5.6:** Permanent direct impacts to approximately 150 individual Joshua trees would result from project-related construction activities.	**MM 5.6:** Mitigation Measure 5.3-1 is applicable to the impact on Joshua trees.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Sensitive Wildlife Species **Federally Listed Wildlife Species** **Impact 5.7** Construction of the proposed project would result in direct temporary and permanent impacts to the federally listed desert tortoise.	**MM 5.7-1:** Mitigation requirements for temporary direct impacts to desert tortoise habitat are generally met by restoring the habitat in-place and through on-site monitoring of construction activities in all areas with the potential to support the species. Mitigation requirements for permanent direct impacts to habitats occupied or presumed to be occupied by the desert tortoise are met by conservation of in-kind habitat of equal or greater value than that impacted at the site at a ratio determined through consultation with USFWS and CDFG. Funding (as approved by USFWS and CDFG) for the long-term management of the preserved habitat shall also be provided. **MM 5.7-2:** Mitigation requirements to avoid or minimize permanent direct impacts to the desert tortoise would include on-site monitoring of construction activities. A qualified biologist with extensive knowledge and experience with desert tortoise and who has a valid handling permit shall monitor construction activities. Because active tortoise burrows would be avoided to the extent feasible through project design features, the monitoring biologist would only handle a desert tortoise if a tortoise or an active burrow were discovered within the impact area. In this situation, the tortoise would be removed from the burrow and placed into an existing burrow outside of the area of impact. If no existing burrows are located, the monitoring biologist would construct a new burrow and place the tortoise inside. The monitoring biologist's duties shall include: • Implementation of a preconstruction contractor education program; • Pre-construction tortoise clearance surveys within the impact area; • Relocation of any desert tortoise located within the impact	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	area to a location 100 feet from the impact area; • Burrow construction, if needed; and • Preparation of construction monitoring and desert tortoise relocation reports. During construction activities, monthly and final compliance reports shall be provided to USFWS, CDFG, and other relevant regulatory agencies documenting the effectiveness of mitigation measures and the level of take associated with this project. **MM 5.7-3:** Mitigation requirements for permanent indirect impacts to the desert tortoise resulting from habitat fragmentation shall include the implementation of a contractor education program, on-site signage, and speed limit restrictions along the access roads in the Pine Tree area. No berms shall be placed along dirt roads to ensure that tortoises are able to move between habitat fragments. **MM 5.7-4:** New and existing roads that are planned for either construction or widening shall not extend beyond the planned impact area. All vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.	
Impact 5.8 During operations, the proposed project would have permanent indirect impacts on the federally listed desert tortoise due to potential vehicle strikes on project access and patrol roads within the habitat areas. The areas of impact include Jawbone Canyon Road in the vicinity of SR-14 (east of the active off-road vehicle Open Area) and a portion of the proposed transmission facilities.	**MM 5.8:** Indirect impacts from vehicle strikes are minimized by employee education on the proper procedures upon encountering desert tortoises on roads, by maintaining safe speed limits on access/patrol roads, and by prohibiting travel off the established roadways.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
State-Listed Wildlife Species		
Impact 5.9 Construction of the proposed project would have direct impacts on the state-listed threatened Tehachapi slender salamander if project activities occur within the suitable habitat.	Project avoids habitat areas.	No impact.
Impact 5.10 Construction of the proposed project would result in direct temporary and permanent impacts to the state-listed Mohave ground squirrel.	**MM 5.10-1:** Mitigation requirements for temporary direct impacts to Mohave ground squirrel habitat are generally met by restoring the habitat in-place and through on-site monitoring of construction activities in all areas with the potential to support the species. Mitigation requirements for permanent impacts to this species shall be met by conservation of in-kind habitat of equal or greater value than that impacted at a location and ratio approved by CDFG. Funding for the long-term management of the land preserved would also be provided as part of the mitigation measure. **MM 5.10-2:** Mitigation requirements to avoid or minimize permanent direct impacts to the Mohave ground squirrel shall include on-site monitoring of construction activities by a qualified biologist in all areas with the potential to support the Mohave ground squirrel. During construction activities, monthly and final compliance reports shall be provided to CDFG and other relevant regulatory agencies documenting the effectiveness of mitigation measures and the level of take associated with this project.	Less than significant.
Impact 5.11 Project operations would result in indirect permanent impacts to the state-listed Mohave ground squirrel. Indirect permanent impacts on the state-listed Mohave ground squirrel would occur from potential vehicle strikes on project access and patrol roads within the habitat areas.	**MM 5.11:** Indirect impacts from vehicle strikes are minimized by employee education on the proper procedures for operating vehicles on the site, including using proper vigilance to avoid wildlife, maintaining safe speed limits on access/patrol roads, and by prohibiting travel off the established roadways.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
The areas of impact include Jawbone Canyon Road in the vicinity of SR-14 (east of the active off-road vehicle Open Area) and Pine Tree Canyon Road and the location of the proposed transmission facilities from SR-14 west to the first Los Angeles Aqueduct.		
Impact 5.12 Construction of the proposed project would result in indirect temporary impacts to the desert tortoise and Mohave ground squirrel.	**MM 5.12:** BMPs shall be employed to prevent further loss of habitat due to erosion caused by project-related impacts (i.e., grading or clearing for new roads). All detected erosion shall be remedied within two days of discovery.	Less than significant.
Impact 5.13 Operation of the proposed project would result in potential direct and permanent impacts to the state-listed American peregrine falcon through potential collisions with wind turbines and potential electrocution associated with operation of the electrical transmission line.	See mitigation measure MM 5.14-1.	Less than significant.
BLM Sensitive Wildlife (and Other Non-listed Species)		
Impact 5.14 Operation of the project would result in potential direct and permanent impacts to BLM and other non-listed sensitive raptors and bats due to collisions with rotating turbine blades.	**MM 5.14-1:** To ensure that the predicted rates of raptor mortality due to collisions with wind turbines remain low and insignificant, avian and bat mortality associated with the proposed project shall be monitored for the life of the project. LADWP 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 and a reporting protocol approved by USFWS. **MM 5.14-2:** LADWP will report, by telephone, injuries or mortalities of species listed in Table 3.5-3 as endangered or threatened (and any species listed in the future) to USFWS or CDFG within 24 hours following observation.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	MM 5.14-3: If lighting is used for aircraft safety purposes, lights should be placed when practicable on meteorological towers, or lights should be placed on towers with the least potential to attract birds, but consistent with FAA lighting requirements.	
Impact 5.15 Permanent direct impacts to BLM and other non-listed, sensitive raptors could also result from electrocution from electrical power transmission and distribution lines in areas where raptors nest or forage.	**MM 5.15:** The proposed project includes design features to protect birds from electrocution, including perch guards, adequate separation of conductors, line insulators, and monopole towers.	Less than significant.
Impact 5.16 Permanent and temporary direct impacts to birds listed under the MBTA or BEPA would be considered by the USFWS to be a violation of these federal acts.	**MM 5.16:** To avoid or minimize impacts to birds covered under the MBTA and/or BEPA, project-related construction activities shall not be conducted within 500 feet of an active nest. A preconstruction nest survey shall be performed to ensure that raptors have not inhabited the site.	Less than significant.
LAND USE		
Impact 6.1 To construct the proposed project, a zone change on portions of the project site would be required.	Project to be developed consistent with local zoning requirements.	No impact.
Impact 6.2 The construction and operation of the proposed project would occur on some lands currently used for livestock grazing under federal grazing allotment.	**MM 6.2-1:** During construction, the existing cattle guards shall be maintained and new cattle guards provided if none exist at entry gates on Jawbone Canyon Road to prevent livestock from entering the Jawbone Canyon Open Area. A manned security station would be located at the Jawbone Canyon access road gate during project construction.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Impact 6.3 Construction of the proposed project would potentially conflict with designated military training routes and flight corridors above the property.	**MM 6.3-1:** All turbines are limited to a height not to exceed 400 feet above ground level. During project planning and construction, LADWP shall consult with representatives at EAFB and NWSCL regarding any changes, if necessary, to proposed wind turbine locations. **MM 6.3-2:** Prior to issuance of any permits, including grading, a letter shall be submitted to the Kern County Planning Department from all military authorities responsible for operations in the R-2508 airspace complex that provides written concurrence that the height of the proposed structures would create no significant impacts to military mission. The project shall comply with all provisions of Kern County Ordinance G-7130, if still in effect, and if not in effect, any other ordinances regarding structures under military low-level flight routes, and all provisions of the Zoning Ordinance that apply to the siting and height of wind turbines.	Less than significant.
Impact 6.4 The proposed project could conflict with CDCA Plan management objectives that have been established for public lands through the designation of Multiple Use Classes for BLM property.	Project is consistent with CDCA land use classifications.	No impact.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
TRANSPORTATION		
Construction Phase Project Impacts **Impact 7.1** During construction, the proposed project will generate additional peak hour trips on State Route 14.	Impact does not exceed significance threshold.	Less than significant.
Impact 7.2 The movement of large vehicles from SR-14 onto Jawbone Canyon Road and Pine Tree Canyon Road may result in a safety hazard to motorists.	**MM 7.2:** To mitigate potential safety impacts caused by haul truck movements onto and off of Jawbone Canyon and Pine Tree Canyon roads, the following measures are proposed: • The contractor shall apply for encroachment permits with Caltrans and County of Kern and post warning signs in state and local road rights-of-way (State Route 14 and Jawbone Canyon Road) • The contractor shall discuss construction plans for truck movements with State and County transportation officials prior to the start of construction. • The contractor shall apply for installation of appropriate Caltrans warning signage for Jawbone and Pine Tree intersections. This could include Caltrans Warning Sign SW-40 Truck Crossing and/or Warning Sign SC-5 Special Event Ahead pursuant to State Highway Design Guidelines. • As required by state or local transportation departments, traffic control flaggers, pilot cars, and signage warning of construction activity shall be employed.	Less than significant.
Impact 7.3 Oversize loads, and in particular overweight loads, required to transport equipment to the site during construction can physically damage roadways, which would be a significant adverse impact.	**MM 7.3:** While the project is under construction, the condition of Jawbone Canyon Road shall be monitored and the roadway shall be kept in a safe operating condition using generally accepted methods of maintenance. At the conclusion of construction, repair of damage to the roadway shall be completed to the satisfaction of the KCRD.	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Impact 7.4 There is a potential safety hazard from construction traffic and transportation of oversize loads on Jawbone Canyon Road during high recreation use periods of the Jawbone Canyon Open Area.	**MM 7.4:** LADWP will consult with BLM to develop a transportation safety plan for construction traffic transiting the Jawbone Canyon Open Area. The plan will primarily address construction traffic but will also address operations traffic. The plan will include the following specific components: • Transportation of oversize or overweight loads will be minimized to the extent practicable on certain holidays and high use weekends, to be determined in consultation with BLM. • Signs shall be posted to warn visitors of potential construction activity and possible temporary facility/road closures. • On weekends during the fall (peak use seasons), speed limits, pilot cars, warning signs, and flaggers shall be employed. • Prior to construction, LADWP shall notify the OHV community, off-road groups, BLM Steering Committee, and nearby recreational facilities (such as Red Rock State Park and Jawbone Store) of the start date and anticipated duration of construction activities. • A copy of the Transportation Safety Plan shall be posted at the Jawbone BLM station and on an information kiosk to be erected near Jawbone Canyon Road in the Open Area.	Less than significant.
CULTURAL RESOURCES		
Impact 8.1 Construction of the proposed project would potentially affect archaeological sites; however, the current project configuration would avoid a substantial number of these sites.	Mitigation for specific sites provided. See MM 8.2.	Less than significant.
Impact 8.2 Construction of the proposed project would potentially directly affect 20 archaeological sites depending upon which components are selected.	**MM 8.2**: Mitigation for the seven identified sites affected by project construction involves preparing and implementing a data recovery program that includes further investigations at each of the seven sites. The recommendations for each site are described	Less than significant.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
	in detail in the Cultural Resources Report (see Table 4-1 of Appendix F) and in Table 3.8-4. The treatment strategy developed for the data recovery program incorporates a flexible program of surface reconnaissance, surface collection, surface transect units, controlled excavation, and laboratory studies to ensure the recovery of sufficient data before the site is affected by project activities.	
VISUAL RESOURCES		
Impact 9.1 The proposed wind turbines could result in potential visual impacts when viewed from SR-14.	Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.	Less than significant.
Impact 9.2 The proposed transmission line could result in potential visual impacts when viewed from SR-14.	Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.	Less than significant.
Impact 9.3 The proposed wind turbines could result in potential visual impacts when viewed from Jawbone Canyon Open Area.	Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.	Less than significant.
Impact 9.4 The proposed wind turbines could result in potential visual impacts when viewed from the Pacific Crest National Scenic Trail.	Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.	Less than significant.
Impact 9.5 The proposed wind turbines could result in potential visual impacts when viewed from California City.	Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.	No impact.

Table ES-1
Potential Impacts and Mitigation of the Proposed Pine Tree Wind Project

IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Impact 9.6 The proposed wind turbines could result in potential visual impacts when viewed from Red Rock Canyon State Park.	Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.	No impact.
SOCIO ECONOMICS		
There would be no adverse socioeconomic effects.	No mitigation measures are required as there would be no adverse socioeconomic effects.	No impact.

ES.10 ALTERNATIVES TO THE PROPOSED PROJECT

In accordance with CEQA Guidelines, alternatives to the proposed project have been considered to foster informed decision making and public participation. Section 15126.6 (a) of the CEQA Guidelines requires that "an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Under NEPA (specifically, BLM's NEPA Handbook H-1790-1), an EA must briefly describe the alternatives to the proposed action, if any, considered. The alternatives to the proposed project are discussed in Section 3.13, including the following:

- Alternative 1: No Project (CEQA and NEPA required)
- Alternative 2: Develop Alternative Energy Sources
- Alternative 3: Resite Turbines within the Project Study Area
- Alternative 4: Install Smaller Turbines
- Alternative 5: Relocate the Proposed Project
- Alternative 6: Repower Existing Wind Turbine Site
- Alternative 7: Use Alternate Access Routes
- Alternative 8: Roadless Construction

Table ES-2
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
1	**No Project**	Feasible	• Would not provide electrical power from clean and renewable energy sources • Would not help meet the electrical energy demands • Would ensure federal regulatory compliance and management plan conformance since no actions would occur on BLM land • Would not promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would avoid site-specific impacts associated with the proposed project since no construction activities or long-term operations would occur at the project site	• Would result in a continued dependence on fossil fuels to generate the power that would have been realized from proposed project • Would result in continued air pollutant emissions and greenhouse gases associated with the sustained use of these fossil fuels
2	**Develop Alternative Energy Sources**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative
3	**Resite Turbines within Project Study Area**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative
4A	**Install Smaller Turbines: Maximize Turbine Output**	Feasible	• Would not attain basic project objectives for production of electrical power from clean and renewable energy sources • Would not attain basic project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would reduce the width of some roads required for project construction, which would reduce impacts related to site grading	• Would increase the number of project wind turbines and the length of roads required for project construction and maintenance, which would require additional site grading

Table ES-2
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
4B	**Install Smaller Turbines: Install Turbines Shorter than 200 Feet AGL**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would reduce the width of some roads required for project construction, which would reduce impacts related to site grading	• Would substantially increase the number of project wind turbines and the length of roads required for project construction and maintenance, which would require additional site grading • Would locate wind turbines in areas avoided by the proposed project, which may result in increased impacts to potentially significant biological, cultural, and visual resources
5	**Relocate Proposed Project**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would not eliminate or reduce any impacts associated with the proposed project	• May result in additional impacts to visual resources and avian wildlife

Table ES-2
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
6	**Repower Existing Wind Turbine Site (in Tehachapi Pass area)**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative
7A	**Use Pine Tree Canyon Road as Primary Project Access**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would eliminate impacts related to conflicts between project construction traffic and off-road vehicle recreation use in the Jawbone Canyon Open Area	• Would result in additional significant impacts to cultural and biological resources in Pine Tree Canyon and may increase impacts related to erosion and runoff
7B	**Use Sky River Ranch as Primary Project Access**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would eliminate impacts related to conflicts between project construction traffic and off-road vehicle recreation use in the Jawbone Canyon Open Area	• Would result in other impacts related to construction traffic in Sand Canyon and Horse Canyon and may increase impacts related to erosion, runoff, and stream crossings

Table ES-2
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
7C	**Use Jawbone Canyon as Project Transmission Line Alignment**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would eliminate impacts related to the disturbance of desert tortoise and Mohave ground squirrel habitat in Pine Tree Canyon	• Would increase impacts related to the disturbance of desert tortoise and Mohave ground squirrel habitat in Jawbone Canyon • Would result in additional impacts related to safety and use conflicts with off-road vehicle recreation function in the Jawbone Canyon Open Area
8	**Roadless Construction**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative

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SECTION 1.0 INTRODUCTION

1.1 BACKGROUND

The City of Los Angeles Department of Water and Power (LADWP), as the lead agency, has prepared an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Pine Tree Wind Development Project. The proposed project involves the construction of 80, 1.5-megawatt (MW) wind turbine generators, several meteorological towers, an electrical collection system, a substation, a transmission line and switching station to connect with the regional electrical grid, an operations and maintenance (O&M) building, and access roads. The project is being undertaken to increase the amount of electrical power that is produced using clean and renewable energy sources and to help meet overall demand for electrical power in the Southern California area.

LADWP is working with Wind Turbine Prometheus, LLC (WTP), a wind energy development company, to develop and construct the proposed project. Upon completion of construction, the project would be owned and operated by LADWP. As part of the proposed project, LADWP would also construct and operate approximately 8 miles of 230-kilovolt (kV) transmission line and a switching station, which would connect the proposed project substation to an existing LADWP 230-kV transmission line.

Since the proposed project affects two areas of land under jurisdiction of the U.S. Department of the Interior (DOI), Bureau of Land Management (BLM), the proposed project is subject to review under the National Environmental Policy Act (NEPA). Two right-of-way grants would be required from the BLM. One would be required to cross approximately 1.1 miles of BLM-administered land along Pine Tree Canyon Road for the proposed project transmission line (in Section 13 of Township 31 South, Range 36 ½ East; and Sections 14 and 22 of Township 31 South, Range 36 East). To provide access to the project property for both construction activities and long-term project O&M, a right-of-way would also be required to cross approximately 4.7 miles of BLM-administered land in Jawbone Canyon (in Sections 20, 22, and 27 of Township 30 South, Range 37 East; Section 24 of Township 30 South, Range 36 ½ East; and Sections 22, 24, 28, and 30 of Township 30 South, Range 36 East). The BLM determined that a NEPA Environmental Assessment (EA) should be prepared to evaluate potential environmental impacts from the project relative to areas of BLM jurisdiction. LADWP, as the CEQA lead agency, and BLM, as the NEPA lead agency, are cooperating to prepare one environmental document for the proposed project that satisfies both acts. The document is prepared in the general format of a CEQA EIR but includes the content requirements of an EA under NEPA. Thus, the environmental document meets the legal requirements of both the CEQA (*California Public Resources Code*, Section 21000 et seq.) and the NEPA (42 *United States Code* [USC] Section 4321 et seq.).

Guiding the determination of the type of environmental documentation to prepare is the consideration of the extent of impact the project would have on resources under state or federal jurisdiction. LADWP, as CEQA lead agency, determined that the impacts of the project were sufficient to trigger an EIR under the impact thresholds typically applied to CEQA evaluations. The BLM determined that the project entails a relatively minor involvement of federal lands (i.e., the proposed project's access on existing roads crossing 4.7 miles of the BLM-administered land and transmission line crossing 1.1 miles of BLM land). Thus, a NEPA EA may satisfy BLM decision-making

requirements. The EA shares many attributes of the EIR, including consideration of alternatives. Both NEPA and CEQA also require governmental agencies to involve the public in evaluating the environmental impacts of proposed projects before making formal decisions regarding the projects.

Due to the obligation under CEQA to mitigate "significant effects on the environment" when feasible, impacts are characterized as being either "significant" or "less than significant." Thus, this EIR/EA has been written in a manner that identifies "significance thresholds" for anticipated impacts. No such obligation exists under NEPA. CEQA thresholds of significance for various environmental factors are developed using applicable regulations or standards, where they exist, or professional judgment where standards do not exist.

The process of completing the EIR/EA includes issuing the Draft EIR/EA for a public review and comment period. Decision makers, responsible and trustee agencies, and the public have the opportunity to review the information set forth in the document and comment on its findings. During this period, one or more public meetings will be held to discuss the project and the information in the Draft EIR/EA. This public process is being implemented pursuant to CEQA and NEPA guidelines.

After completion of public review and consideration of the comments generated during the review, the EIR/EA will be finalized and considered for approval by the lead agencies. If the analysis provided in the document supports a finding that the proposed action would have no significant adverse effect on the environment in relation to matters of federal jurisdiction, a Finding of No Significant Impact (FONSI) will be prepared by BLM. However, if the document supports a finding that the proposed action may result in a potentially significant effect on the environment, an Environmental Impact Statement (EIS) would be required. (Note: "Action" is the equivalent under NEPA to "project" under CEQA. Throughout the balance of the document, the term project will be employed to refer to the proposed wind turbine development.)

Under CEQA, the analysis provided in the Final EIR/EA will be considered by LADWP, the lead agency, prior to certifying the document and considering the project for approval. LADWP may approve the project with one or more significant effects by making one or more findings relative to those effects and adopting a statement of overriding considerations.

1.2 OBJECTIVES AND NEED

Each EIR is required by CEQA to include a statement of the objectives to be achieved by the proposed project (*CEQA Guidelines*, § 15124, subd. (b)). The objectives help the implementing agency develop a reasonable range of alternatives and assist decision-makers in preparing findings or a statement of overriding considerations, if necessary. Similarly, NEPA regulations require that each EA briefly specify the need to which the agency is responding in proposing various alternatives, including the proposed project (40 CFR § 1508.9, subd. (a)).

1.2.1 NEED FOR THE PROJECT

The proposed project is needed so that LADWP may meet commitments to supply an increased share of its electrical generation capacity from clean and renewable energy sources. In accordance with state requirements that public utilities develop a renewable energy portfolio standard, the City of Los Angeles City Council approved a resolution on June 29, 2004, supporting the concept of increasing the amount of energy LADWP generates from renewable power sources to 13 percent of its energy sales to retail customers by 2010 and to 20 percent by 2017. These goals are generally consistent

with state mandates for investor owned utilities operating within California. This commitment to renewable sources is a means to provide sustainable energy resources that will reduce air pollutant emissions and dependence on fossil fuels for power generation.

The generation capacity from the proposed project is needed to help meet the future electrical energy demands of the Southern California region. Demand for electricity in Southern California has grown at a steady, moderate pace since the early 1990s. According to the LADWP Integrated Resource Plan (IRP), as amended and adopted by the Board of Water and Power Commissioners and the Los Angeles City Council (August 15, 2000), annual growth in demand in Los Angeles is expected to average about 1.5 percent, or an average of about 80 MW per year, over the next 16 years. It is estimated that between the years 2004 and 2010, the net peak demand for electricity in the city will grow by 450 MW, or approximately 7.5 percent (from 5,920 MW to 6,370 MW).

1.2.2 OBJECTIVES

To meet the project needs, LADWP, in its capacity as CEQA lead agency, has the following objectives for the project.

- *Energy Demand:* Provide a wind energy electrical generation facility with an annual generating capacity of approximately 330 gigawatt hours (GWh). This capacity would be supplied from 80 wind turbines with a nameplate capacity of 1.5 MW each. Nameplate capacity refers to a turbine's maximum ability to generate electricity under ideal conditions. Based on the wind characteristics at the project site, the project would produce at an approximate 31 to 32 percent net capacity factor. The net capacity factor is a ratio of the actual total annual production and the total potential annual production for all turbines net of losses. The total potential annual production is a product of total nameplate capacity (120 MW) and the total hours in a year. Using an estimated annual average residential usage for the LADWP service area of 5,900 kilowatt hours (Brown and Koomey 2002), the annual electrical production from the project would provide power for approximately 56,000 homes. Using a factor of approximately three persons per home in Los Angeles County (U.S. Census Bureau), the proposed project would meet the residential energy needs of approximately 168,000 people in Southern California.

- *Renewable Energy Sources:* Increase LADWP's renewable energy production by about 1.5 percent of its total electrical production capacity. Based on wind characteristics at the project site, periods of peak generation for the proposed project are expected to coincide with periods of peak demand for electricity in Southern California, during the summer months. Generation of electricity from the proposed project would produce no air pollutant emissions and would offset the need to provide an equivalent quantity of power through combustion of fossil fuels. Based on the projected generating capacity of the project and a conservative estimate that assumes the most efficient fossil fuel generators in the LADWP system would be supplanted, the reduction in the combustion of fossil fuels that would be realized from the proposed project is predicted to lower air emissions of nitrogen oxides by at least 8 tons per year and lower emissions of carbon monoxide by at least 11 tons per year. In addition, emissions of carbon dioxide, a "greenhouse" gas believed to contribute to global warming, would be reduced by at least 200,000 tons per year. Because it is dependent only on wind to produce electricity, the proposed project would not require the extraction, refinement, transmission, or combustion of fossil fuels.

- *Private Property Development:* Locate the primary project facilities on private property to avoid or minimize impacts to public lands and resources. Because of the relatively large overall land

requirements for the proposed project and the need for long-term access to and between the facilities, this private property must be consolidated or contiguous. The project property must also be concentrated in the hands of relatively few landowners to reduce costs and to facilitate lease agreements and the implementation of the project.

- *Available Transmission Capacity:* Locate the proposed project turbines relatively close to existing transmission lines that are controlled by LADWP and have available capacity to accommodate the power generated by the proposed project. Using existing transmission lines with available capacity to deliver power to the LADWP service area would avoid the significant cost and potentially significant environmental impacts associated with the construction of new transmission lines. Using LADWP transmission facilities would guarantee access for the proposed project and allow the proposed wind turbines to operate at peak efficiency with no restrictions related to insufficient transmission capacity.

BLM, in its capacity as NEPA lead agency responsible for management of federal lands that would provide road and electrical transmission access to the proposed project site, has the following objectives for the proposed project.

- *Regulatory Compliance:* Ensure that project-related right-of-way grants for the use of federal land are issued in accordance with relevant federal laws, regulations, and policies (including Title V of the Federal Land Policy and Management Act [FLPMA] of 1976 and Title 43 CFR 2800, et seq.). The BLM's authority to administer public lands is established in a framework of federal laws. All BLM actions, including the granting of rights-of-way, must be consistent with the laws that govern use of public lands.

- *Plan Conformance:* Ensure that the use of federal lands for road and electrical transmission access for the proposed project conforms to existing BLM land use and resource management plans. The California Desert Conservation Area (CDCA) Plan of 1980, as amended, establishes guidelines for sensitive species protection, recreational access, and resource use and conservation on federal lands within the project area.

- *Wind Energy Development Policy:* Promote the appropriate development of wind energy as a component of the President's National Energy Policy to encourage the development of renewable energy resources. In accordance with the BLM's Interim Wind Energy Development Policy (IM2003-020), rights-of-way should be managed to encourage the development of wind energy in acceptable areas while minimizing impacts to natural, cultural, and visual resources on the public lands.

1.3 REGULATORY REQUIREMENTS AND COMPLIANCE

In addition to meeting the requirements of NEPA and CEQA, the Pine Tree Wind Development Project environmental documentation has been prepared to facilitate compliance with federal and state laws and the subsequent project approval by various federal, state, and local agencies having jurisdiction over one or more resources potentially affected by the project. These various agencies and regulations are described in this subsection.

1.3.1 DECISIONS ADDRESSED BY THE EA

NATIONAL ENVIRONMENTAL POLICY ACT

This EIR/EA has been prepared by BLM pursuant to regulations implementing **NEPA (42 USC 4321 et seq.)**, which requires federal agencies to assess the impacts that their actions may have on the environment. The BLM's discretion to issue a right-of-way grant for the project access road and transmission line requires that the BLM assess the potential environmental effects of the proposed action and describe them in either an EA or EIS. BLM's decision-making process includes preparation of an EA with public review.

FEDERAL ENDANGERED SPECIES ACT, SECTION 7

The **Federal Endangered Species Act (ESA) (16 USC 1531-1544, December 28, 1973, as amended 1976-1982, 1984 and 1988)** requires federal agencies to ensure that their actions do not jeopardize endangered or threatened species or their critical habitats. The ESA provides broad protection for species of fish, wildlife, and plants listed as threatened or endangered in the United States or elsewhere. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) and by the National Marine Fisheries Service (NMFS). However, there are no fisheries affected by the proposed action, so only the USFWS is involved. The ESA defines procedures for listing species, designating critical habitat for listed species, and preparing recovery plans. The ESA also specifies prohibited actions and exceptions. Prohibited actions defined in Section 9 of the ESA include "take" of a listed species. Take is defined as any action that would harass, harm, wound, or kill a listed species. Section 7 of the ESA enables the USFWS to issue a permit to a federal agency for incidental take (that is, unintentional take of a listed species resulting from otherwise legal activities). The occurrence of special-status species in the study area, and potential impacts on these species, are discussed in Section 3.5, Biological Resources, of this EIR/EA. A Biological Assessment (BA) has been prepared to evaluate impacts to federally listed species and to support the Section 7 ESA consultation process.

OTHER FEDERAL REGULATORY REQUIREMENTS

The Fish and Wildlife Conservation Act of 1980 (16 USC 2901 et seq.) encourages federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the **Fish and Wildlife Coordination Act (16 USC 661 et seq.)** requires federal agencies undertaking projects affecting water resources to consult with the USFWS and the state agency responsible for fish and wildlife resources.

The proposed project would be located in an area where candidate, sensitive, and special status species, such as desert tortoise, Mohave ground squirrel, raptors, and various sensitive plant species are known to occur. The potential impact of the project on these species is addressed in Section 3.5, Biological Resources, of this EIR/EA. The USFWS was consulted about the potential impacts to species under the agency's jurisdiction.

The **Bald Eagle Protection Act (BEPA), 16 USC 668-668d, June 8, 1940, as amended 1959, 1962, 1972, and 1978,** prohibits the taking or possession of and commerce in bald and golden eagles, with certain exceptions. The proposed project is subject to this Act.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, directs each federal agency that is taking actions having or likely to have a negative impact on migratory bird populations to work with the USFWS to develop an agreement to conserve those birds. The protocols developed by this consultation are intended to guide future agency regulatory actions and policy decisions; renewal of permits, contracts, or other agreements; and the creation of or revisions to land management plans. The proposed project is subject to this Executive Order.

The **Migratory Bird Treaty Act (16 USC 703-712)** prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. The proposed project is subject to this Act.

The **Farmland Protection Policy Act (7 USC 4201 et seq.)** directs federal agencies to identify and quantify adverse impacts of federal programs on farmlands. The Act's purpose is to minimize the number of federal programs that contribute to the unnecessary and irreversible conversion of agricultural land to non-agricultural uses. The proposed project site is not designated as Farmland by the California Department of Conservation; therefore, the project would not convert Farmland to non-agricultural use.

Recreation Resources: The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities. However, the Jawbone Canyon access road to the project property passes through the Jawbone Canyon Open Area (a designated off-highway vehicle (OHV) use area). The proposed project property is also located approximately 2 miles east of a segment of the Pacific Crest National Scenic Trail.

Global Warming: Emissions of carbon dioxide, a "greenhouse" gas believed to contribute to global warming, would be reduced by at least 200,000 tons per year. Because it is dependent only on wind to produce electricity, the proposed project would not require the extraction, refinement, transmission, or combustion of fossil fuels.

Heritage Conservation: Regulations established for the management of cultural resources include:

- Antiquities Act of 1906 (16 USC 431-433);
- Historic Sites Act of 1935 (16 USC 461-467);
- Reservoir Salvage Act of 1960;
- Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.), as amended (1999);
- Archaeological Data Preservation Act (ADPA) of 1974 (16 USC 469 a-c);
- American Indian Religious Freedom Joint Resolution of 1978;
- Archaeological Resources Protection Act (ARPA) of 1979 (16 USC 470 et seq.), as amended;
- NEPA;
- Executive Order 11593 (Protection and Enhancement of the Cultural Environment);
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001 et seq.); and
- Executive Order 13007 (Indian Sacred Sites).

Section 106 of the NHPA requires federal agencies, before any action, to identify cultural resources that may qualify as eligible for inclusion in the National Register of Historic Places (National Register). If significant resources (i.e., National Register eligible) are identified and would be adversely affected by the proposed project implementation, then federal agencies are directed to take

prudent and feasible measures to avoid or reduce adverse impacts. In addition, the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) must be provided an opportunity to review and comment on these measures. The cultural resources inventory of the Pine Tree Wind Development Project was conducted to comply with Section 106 of the NHPA, even though only a small part of the project site is on federal land.

NAGPRA requires consultation with appropriate Native American tribal authorities prior to the excavation of human remains or cultural items (including funerary objects, sacred objects, and cultural patrimony) on federal lands or for projects that receive federal funding. NAGPRA recognizes Native American ownership interests in some human remains and cultural items found on federal lands and makes illegal the sale or purchase of Native American human remains, whether or not they derive from federal or Indian land. Repatriation, on request, to the culturally affiliated tribe is required for human remains.

Executive Order 13007 addresses "Indian sacred sites" on federal and Indian land. "Sacred site" is defined as any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion, provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site. This order calls on agencies to do what they can to avoid physical damage to such sites, accommodate access to and ceremonial use of Indian sacred sites, and facilitate consultation with appropriate Indian tribes and religious leaders and the expeditious resolution of disputes relating to agency action on federal lands.

State, Areawide, and Local Plan and Program Consistency: The Council on Environmental Quality regulations for implementing NEPA (CFR 1506.2) requires agencies to consider the consistency of a proposed action with approved state and local plans and laws.

Section 10 of the Rivers and Harbors Act (33 USC 403) regulates all work done in or structures placed below the ordinary high water mark of navigable waters of the U.S. There are no navigable waters on the project site.

Executive Order 11990 (Wetlands): Executive Order 11990 is an overall wetlands policy for all agencies managing federal lands, sponsoring federal projects, or providing federal funds to state or local projects. The order requires federal agencies to follow "avoidance-mitigation-preservation" procedures with public input before proposing new construction in wetlands and requires federal agencies to avoid impacts on wetlands where practicable. There are no federal wetlands associated with the proposed project.

Federal Executive Order 11988 (Floodplain Management): Executive Order 11988 requires federal agencies to prepare floodplain assessments for proposals located within or affecting floodplains. If an agency proposes to conduct an action within a floodplain, it must consider alternatives to avoid adverse effects and incompatible development of the floodplain. If the only practicable alternative involves siting of structures in a floodplain, the agency must minimize potential harm to or within the floodplain and explain why the action is proposed in the floodplain.

Permits for Right-of-Way on Public Lands: A right-of-way grant would be required from the BLM to cross approximately 1.1 mile of BLM-administered land along Pine Tree Canyon Road for the proposed project transmission line (ROW Grant No. CACA45220). To provide access to the

project property for both construction activities and long-term project O&M, a right-of-way grant would also be required from the BLM to cross approximately 4.7 miles of BLM-administered land along Jawbone Canyon Road (ROW Grant No. CACA46659).

The **Clean Air Act (CAA), as revised in 1990, (PL 101-542, 42 USC 7401)** requires the U.S. Environmental Protection Agency (EPA) and states to carry out programs intended to ensure attainment of National Ambient Air Quality Standards. The General Conformity Requirements of the Code of Federal Regulations require that federal actions do not interfere with state programs to improve air quality in nonattainment areas. A conformity analysis is included in Section 3.4.3.

The **Clean Water Act (CWA) (33 USC 1251 et seq.)** regulates discharges into waters of the U.S. It sets national goals and policies to eliminate discharge of water pollutants into navigable waters, to regulate discharge of toxic pollutants, and to prohibit discharge of pollutants from point sources without permits. The primary instrument for implementing the CWA is the National Pollutant Discharge Elimination System (NPDES) permit.

Section 404 of the CWA: Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (Corps) to issue permits for the discharge of dredged or fill materials into waters of the U.S., including wetlands (33 USC 1344). The Corps is authorized to issue either individual or general permits under Section 404.

The proposed project site does not contain any federally protected wetlands or waters as defined by Section 404 of the CWA. The Corps was consulted, and it confirmed that the project does not affect waters used for interstate commerce or meet other requirements for navigability under 33 CFR Part 328.3(a) (1). Based on this statute and the Solid Waste Agency of Northern Cook County Supreme Court decision (No. 99-1178), the Corps determined that a Section 404 permit is not required. Therefore, the proposed project would not adversely affect federally protected waters.

Section 401 of the CWA: Section 401 of the federal CWA requires that state water quality standards not be violated by the discharge of pollutants into waters of the U.S. (as defined in Section 404 of the CWA), including wetlands (33 USC 1344). Under this section, applicants for a permit to conduct activities that may result in a discharge of pollutants into waters of the United Sates must request and obtain a certification from the state in which the discharge would originate.

The project site does not contain any federally protected wetlands or waters as defined by Section 404 of the CWA; therefore the project is not subject to Section 401.

Permit for Discharges into Waters of the U.S.: On December 8, 1999, the EPA adopted rules pertaining to storm water discharges into surface water bodies **(40 CFR 122-124)**. The amended regulations require that NPDES permits be obtained for construction activities, including clearing, grading, and excavation, that disturb 1 to 5 acres of land. Under **Section 402 of the CWA**, federal facilities (or projects) are subject to these permitting requirements. Administration of this program has been delegated to the state; however, for federal projects, the EPA administers this program. The best management practices described in Section 3.3, Hydrology and Groundwater of this EIR/EA would be implemented to address the potential impacts occurring to surface waters.

The **Safe Drinking Water Act (42 USC Section 300f et seq.)** protects the quality of public drinking water and its source. No public drinking water supplies will be developed or affected by the proposed action.

The **Noise Control Act of 1972 as amended (42 USC 4901 et seq.)** sets forth a broad goal of protecting all people from noise that jeopardizes their health or welfare. It places principal authority for regulating noise control with states and local communities. The allowable hourly noise levels under California state law and potential noise impacts associated with the project have been determined to be less than significant (see Section 3.1, Introduction, of this EIR/EA for more detail).

Hazardous Materials: The **Spill Prevention Control and Countermeasures Act**, **Title III of the Superfund Amendments and Reauthorization Act**, and the **Resource Conservation and Recovery Program** potentially apply to the proposed project. However, the types of hazardous materials needed are routinely used by LADWP in its operations and would be stored and handled according to state and federal laws and regulations (see Section 3.1.2 of this EIR/EA for additional information).

The **Toxic Substances Control Act (15 USC 2601-2671)** regulates the use, storage, and disposal of polychlorinated biphenyls (PCBs). Transformers on the wind turbines would contain cooling oil that does not contain PCBs. The **Federal Insecticide, Fungicide, and Rodenticide Act (7 USC 136 et seq.)** registers and regulates pesticides. Herbicides would not be stored on site, nor would any excess herbicides be disposed of on site.

Environmental Justice: In February 1994, **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations**, was released to federal agencies. This order directs federal agencies to incorporate environmental justice as part of their missions. As such, federal agencies are specifically directed to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks: Each agency needs to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

The proposed project has been evaluated for potential disproportionately high environmental effects on minority and low-income populations, and children (see Section 3.10, Socioeconomics, of this EIR/EA). There would not be a human health or environmental impact on minority and low-income populations, or children, from the proposed project.

Notice to the Federal Aviation Administration: As part of project design, the proponent would comply with Federal Aviation Administration (FAA) procedures. Because the project turbines and meteorological towers would exceed 200 feet in height (340 feet), a Notice of Proposed Construction or Alteration (Form 7460-1) would need to be filed with the FAA. Final locations of structures, structure types, and structure heights would be submitted to the FAA for review. The FAA may then conduct its own study of the project and make recommendations to the proponent regarding possible airway marking, lighting, and other safety requirements.

1.3.2 DECISIONS ADDRESSED BY THE EIR

The following specific state laws are addressed by the EIR. It is noted that LADWP as a local agency within California is required to comply with federal laws discussed previously, as well as the following state laws and regulations.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

This EIR/EA was prepared to comply with CEQA, based on LADWP's determination that the Pine Tree Wind Development Project constitutes a "project" under CEQA (*CEQA Guidelines* Section 15378[a]). Key among the CEQA provisions is the requirement to identify all significant impacts. Significance thresholds are identified for each issue area to allow the reader to clearly see at what point a given environmental impact would be considered significant.

FISH AND GAME CODE, SECTIONS 1602, 2050, AND 2081

Section 1602, Streambed Alteration Agreement: Any entity subject to California law proposing an activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the California Department of Fish and Game (CDFG) must receive a discretionary Stream Alteration Agreement permit from the CDFG. Generally, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources. Construction cannot be initiated at the project site until a Streambed Alteration Agreement has been issued by the CDFG. LADWP, as the CEQA lead agency, will submit an application to CDFG for a streambed alteration agreement the year that construction is expected to commence. The contractor will be required to sign the Section 1602 streambed alteration agreement, which binds the contractor to the terms of the agreement.

The proposed project has the potential to adversely affect some riparian habitats on the site. Several predominantly ephemeral drainages within the project footprint would be modified to facilitate crossing or use during construction and operations. Most of these improvements will require consideration under Section 1602 of the California Fish and Game Code pertaining to Notification of Streambed Alteration. The EIR/EA will include evaluation of issues and impacts associated with construction affecting riparian areas.

Sections 2050 and 2081, California Endangered Species Act (CESA): State-listed species are fully protected under the mandates of the CESA. The project would be located in an area where candidate, sensitive, and special status species, such as desert tortoise, Mohave ground squirrel, raptors, and various sensitive plant species are known to occur. The potential impact of the project on these species is addressed in Section 3.5, Biological Resources, of the EIR/EA. CDFG was consulted about the potential impacts to species under the agency's jurisdiction. A Biological Technical Report to evaluate the project's impact on biological resources is included in Appendix D.

OTHER CALIFORNIA REGULATORY REQUIREMENTS

General Order (2004-0004-DWQ) for Dredge or Fill Material to Waters Deemed by the Corps to be Outside of Federal Jurisdiction: The California Regional Water Quality Control Board (RWQCB) now regulates some discharges to waters deemed outside the purview of Section 404 of the CWA. Such discharges to waters of the state may be covered under the Statewide General Order if the project meets certain eligibility criteria identified in the general order (e.g., no more than 0.2

acres and 400 linear feet of impact). Waters of the state are more liberally defined than federal waters, and the project would not qualify for the general order. Thus, a report of waste discharge (ROWD) will be processed with the RWQCB.

California Department of Transportation Right-of-Way Encroachment Permit for State Route 14 (SR-14): The Encroachment Permit process ensures that local projects are compatible with highway use and safety and protect the highway. All proposed projects must conform to Department standards and follow established state policy and procedures for encroachment permits, including the preparation of the Permit Engineering Evaluation Report or any other appropriate report, such as a Combined Project Study Report/Project Report . A Cooperative Agreement or a Highway Improvement Agreement is occasionally required for Encroachment Permit projects.

Permit for transport of oversize loads: Permits for over-dimensional and/or overweight vehicles or loads on state, city, or county streets or roads are necessary for the proposed project. For SR-14, the California Department of Transportation (Caltrans) would issue the permit. For Jawbone Canyon Road construction access, the County of Kern Road Department would issue the permit. In addition, the California Highway Patrol requires notification of transporting oversize loads on state highways.

KERN COUNTY ORDINANCES

The County of Kern is a key public agency with authority over land use and would be a "responsible" agency for purposes of complying with CEQA. It is anticipated that the Pine Tree Wind Development Project would require the following permits, approvals, and/or confirmations from the County of Kern prior to construction of the project facilities.

Construction, Grading, and Building Permits: The proposed project requires obtaining necessary construction, building, and grading permits consistent with Kern County Codes.

Change of Zone: The proposed project would require a zone change for project facility areas to Wind Energy (WE) Combining District by the County of Kern. According to the Kern County Zoning Code, the intent of the WE designation is to promote the use of wind power as "an alternative to fossil-fuel-generated electrical power in areas of the county that are identified to have suitable wind resources for production of commercial quantities of wind-generated electrical power" and to develop this resource "in a manner that provides a harmonious balance between the suitability of a project site with existing area land use and physical surroundings." According to the Energy Element of the Kern County General Plan, the County "shall allow for the continued development of wind energy in primary wind resource areas." The WE Combining District designation would apply to bands of property approximately 400 feet wide surrounding the wind turbines.

The WE district contains specific development standards and conditions that apply to all construction and siting of wind turbines in this zone. These conditions are implemented through the submittal of a detailed plot plan and review and approval by the Planning Director prior to issuance of construction permits.

Specifically, the proposed project requires a zone change from "E-20" (Estate Residential-20 acre minimum) to "A" (Exclusive Agriculture) on approximately 7,800 acres with "A-WE" Districts on approximately 425 acres within the boundaries of the project property (ref. Zone Change: Zone Map 131, Zone Map 150, Zone Map 151).

Variance From Ordinance G-7130 (Amending Interim Ordinance G-7081, Extending Interim Ordinance G-7072, and Amending Section 19.08.160 of the Kern County Zoning Ordinance) Relating to a 200-Foot Maximum Height Limit for Structures Under Military Flight Routes, Corridors, or any part of the R2508 Complex: This ordinance establishes a maximum height limit of 200 feet for any structure located under a low level flight route or corridor or any part of the R2508 complex. To obtain a variance from the ordinance and exceed the height restriction, a military authority responsible for operations in the flight area must provide the County with written concurrence that the height of the proposed structure would create no significant military mission impacts.

Ordinance G-7081, as amended, also requires that written notice be given to the appropriate military authorities for structures located under a low level flight route or corridor, or any part of the R2508 complex for construction of proposed structures exceeding 100 feet but not exceeding 200 feet in height.

Conditional Use Permit: The use of a temporary concrete batch plant on private lands at the project site requires issuance of a Conditional Use Permit (CUP). The CUP would be processed concurrently with the zone change.

1.4 SCOPING AND MAJOR ISSUES

1.4.1 NOTICE OF PREPARATION AND SCOPING

Scoping refers to a time early in a project when the public has an opportunity to express opinions on which issues should be considered in an EIR/EA. On April 16, 2004, LADWP issued a Notice of Preparation of Draft EIR (NOP), announcing that LADWP and BLM were cooperating to prepare an environmental document for the proposed project. LADWP developed a mailing list of persons, agencies, and organizations that would likely be interested or affected by the proposed project. Currently, the mailing list contains about 216 persons, agencies, and organizations.

On April 16, 2004, a letter was mailed to everyone on the list that explained the project, the environmental process, and how to participate in that process (see Appendix A). A project scoping meeting was held at the Kern County Planning Department on May 7, 2004. Written and verbal comments on the project were collected at this meeting. Some of the particular issues identified during the scoping meeting included:

- Collateral Royalties and Development Royalties: A commenter suggested that consideration be given to whether the wind power development at the project site would foreclose options for development of wind power on public lands and thus potentially foreclose royalties accruing to the government.

- Transmission Line Facilities: A commenter questioned whether the transmission line facilities for the project would be developed as stand-alone facilities or if they could be developed in concert with the transmission needs of other Tehachapi projects? Wind generating capacity of the Tehachapi wind resource area is limited by transmission capacity.

- Special District for Wind Power: A commenter suggested creating a special district with authority over wind power as a primary mitigation vehicle. Such a special district could be approved by the Kern County Board of Supervisors and would have authority with specific

elements of wind power development in created WE districts such as soils management, resource management, site security, data sharing, and community benefits.

- Community Benefits: A commenter suggested that the communities affected by wind power developments should receive some benefits, either some of the energy produced or other benefits.

- Military Airspace Issues: A commenter stated that an evaluation of how the military's mission is affected by wind power development in the area should be conducted, including resolution of flight corridor issues. A representative of Edwards Air Force Base stated that LADWP had worked with the military to resolve flight corridor issues.

1.4.2 RESPONSES TO NOP

The comment letters received during the NOP review period, which began on April 19, 2004, and ended on May 18, 2004, are included in Appendix A of this EIR/EA. The following comment letters were received during the NOP period:

- Department of Transportation – April 29, 2004
- California Energy Commission – May 13, 2004
- Integrated Energies – May 17, 2004
- Sierra Club, Kern-Kaweah Chapter – May 17, 2004
- Sandra Lee Hare – May 17, 2004
- Kern Kaweah Chapter of the Sierra Club – May 17, 2004
- County of Kern, Planning Department– May 18, 2004
- Consulting Practice, Environmental – Culture – Energy – May 18, 2004

Comments received during the scoping meeting and the responses to the NOP were considered by the lead agencies in determining the scope of the issues to be addressed in the environmental document. While the comments are not directly addressed, or in some cases, have not been incorporated in the environmental document, all comments received are included in Appendix A and become part of the project record.

1.4.3 OTHER OUTREACH

During project development, LADWP held two informal community meetings to inform the public about the project and receive public comments, and LADWP has also met with BLM's Citizen Steering Committee on two occasions. The community meetings were held on May 28, 2003, in Tehachapi, California and May 29, 2003, in Mojave, California. These meetings discussed the progress of project planning and design and raised several issues pertaining to the project, including:

- Potential for impact on wildlife and habitats, raptors in particular,
- Possible riparian effects,
- Potential effects related to recreation resources, in particular the Jawbone Canyon Open Area,
- Potential for impacts due to soil disturbance,
- Requirements for lighting of the wind turbines, and
- Restoration considerations for turbine sites and access roads.

1.5 DOCUMENT ORGANIZATION

The CEQA Guidelines provide that each EIR contain required descriptions and analyses. Table 1-1 identifies the content required by CEQA and NEPA and the corresponding sections in this EIR/EA.

Table 1-1
Sections Contained in EIR/EA

Required Description and Analysis	Section of EIR/EA
1. Table of Contents or Index (Section 15122)	Table of Contents
2. Summary (Section 15123 of Guidelines)	Section ES
3. Objectives and Need	Section 1.2
4. Description of Project (Section 15124 of Guidelines)	Section 2.0
5. Description of Environmental Setting (Section 15125 of Guidelines)	Sections 3.2 – 3.10
6. Environmental Impact (Sections 15126, 15126.2, 15126.4, and 15130 of Guidelines) a. Significant Environmental Effects b. Cumulative Impacts c. Mitigation Measures d. Significant Unavoidable Impacts (as Residual Impact After Mitigation)	 Sections 3.2 – 3.10 Section 3.11 Sections 3.2 – 3.10 Sections 3.2, 3.4, 3.5, 3.6, 3.7, and 3.8
7. Significant Irreversible Environmental Changes (Section 15126 of Guidelines)	Section 3.12
8. Alternatives to the Proposed Project (Section 15126.6 of Guidelines)	Section 3.13
9. Growth Inducing Impacts (Section 15126 of Guidelines)	Section 3.14
10. List of Preparers and Organizations, Agencies, and Persons Consulted (Section 15129)	Section 4.0
11. References	Section 5.0
12. List of Acronyms and Abbreviations	Section 6.0

Source: EDAW, Inc.

SECTION 2.0 DESCRIPTION OF THE PROPOSED PROJECT

2.1 INTRODUCTION

LADWP proposes to construct the Pine Tree Wind Development Project, consisting of 80, 1.5 MW wind turbine generators for a total installed capacity of 120 MW. The project would be built in one phase and is planned to be online by May 2006. The project is being undertaken to increase the amount of electrical power that is produced using clean and renewable energy sources and to help meet overall demand for electrical power in the Southern California area. The proposed project is described in this section.

2.2 PROPOSED PROJECT AND PLAN OF DEVELOPMENT

2.2.1 PROJECT LOCATION

The proposed project property is located in the southern Sierra Nevada Mountains in Kern County, California. The property is approximately 6 miles west of California SR-14 and about 12 miles north of the town of Mojave and 15 miles northeast of the city of Tehachapi (see Figure 2-1). The primary access to the project property is from SR-14 via Jawbone Canyon Road, which enters the property at its northeastern corner.

2.2.2 PROJECT PROPERTY

The proposed wind turbines would be located along selected ridgelines on privately owned land consisting of approximately 8,000 acres or approximately 12.5 square miles (Figure 2-2). This is frequently referred to as the project property in this EIR/EA. In accordance with the U.S. Public Land Survey System, the project property consists of the follow parcels: Sections 34, 35, and 36 of Township 30 South, Range 35 East; the west one-half of Section 31 of Township 30 South, Range 36 East; Sections 1, 2, 3, 11, 12, 13, and 14, and the east one-quarter of Section 4 of Township 31 South, Range 35 East; and the west one-half of Section 7 of Township 31 South, Range 36 East. This land is composed primarily of holdings of the Hansen Ranch (owned by the Hansen Family Limited Partnership) and GE Wind Energy, LLC, as well as a few other minor landholders. The Hansen Ranch lands are used mainly for cattle grazing. The project property would be leased from these owners under a long-term agreement.

While the overall project footprint extends over much of this property, the actual area of new ground disturbance caused by the project (excluding existing roads that would be used by the project) would total approximately 238 acres. This would include approximately 106 acres of temporary disturbance related to construction activities, including temporary roads, spoils areas, materials laydown areas, etc. These areas would be revegetated after the completion of construction. The area of permanent disturbance related to the project facilities would total approximately 132 acres, including areas for the wind turbines, maintenance access roads, the substation and O&M building, and the transmission line and switching station. Existing on-site roads that would be used by the project would total approximately 30 more acres. A total of approximately 2 acres of permanent disturbance would occur on public lands, associated with the transmission line in Pine Tree Canyon. The estimated approximate area of temporary and permanent disturbance from the proposed project on private property and BLM-administered land is listed below.

	Private Land	BLM Land	Total
Temporary	102 acres (96.2 %)	4 acres (3.8 %)	106 acres
Permanent	130 acres (98.5 %)	2 acres (1.5 %)	132 acres
Total	232 acres (97.5 %)	6 acres (2.5 %)	238 acres

The project property consists of moderately steep terrain ranging from about 3,000 feet above mean sea level (MSL) in elevation in the northeastern corner of the property to about 5,000 feet above MSL in the southwestern corner. Several small intermittent streams are located on the property, all of which ultimately drain into either Jawbone Canyon, along the north side of the property, or Pine Tree Canyon, to the south side of the property. Both Jawbone and Pine Tree canyons drain into the Fremont Valley, to the east of the project property.

The term project site is used in this EIR/EA to refer to the area affected by construction and operation of the various project components. This would include all facilities on the project property as well as the proposed 230-kV transmission line through Pine Tree Canyon, the proposed use of Jawbone Canyon Road as the primary site access, and the proposed switching station near LADWP's regional electrical transmission line.

Additionally, this EIR/EA makes reference to the project study area. This study area consists of approximately 21,500 acres. It encompasses the approximately 8,000-acre project property and includes additional land located to the southwest, south, and southeast of the property. A number of the project technical studies were conducted over the entire study area. The study area boundary is shown in Figure 2-2.

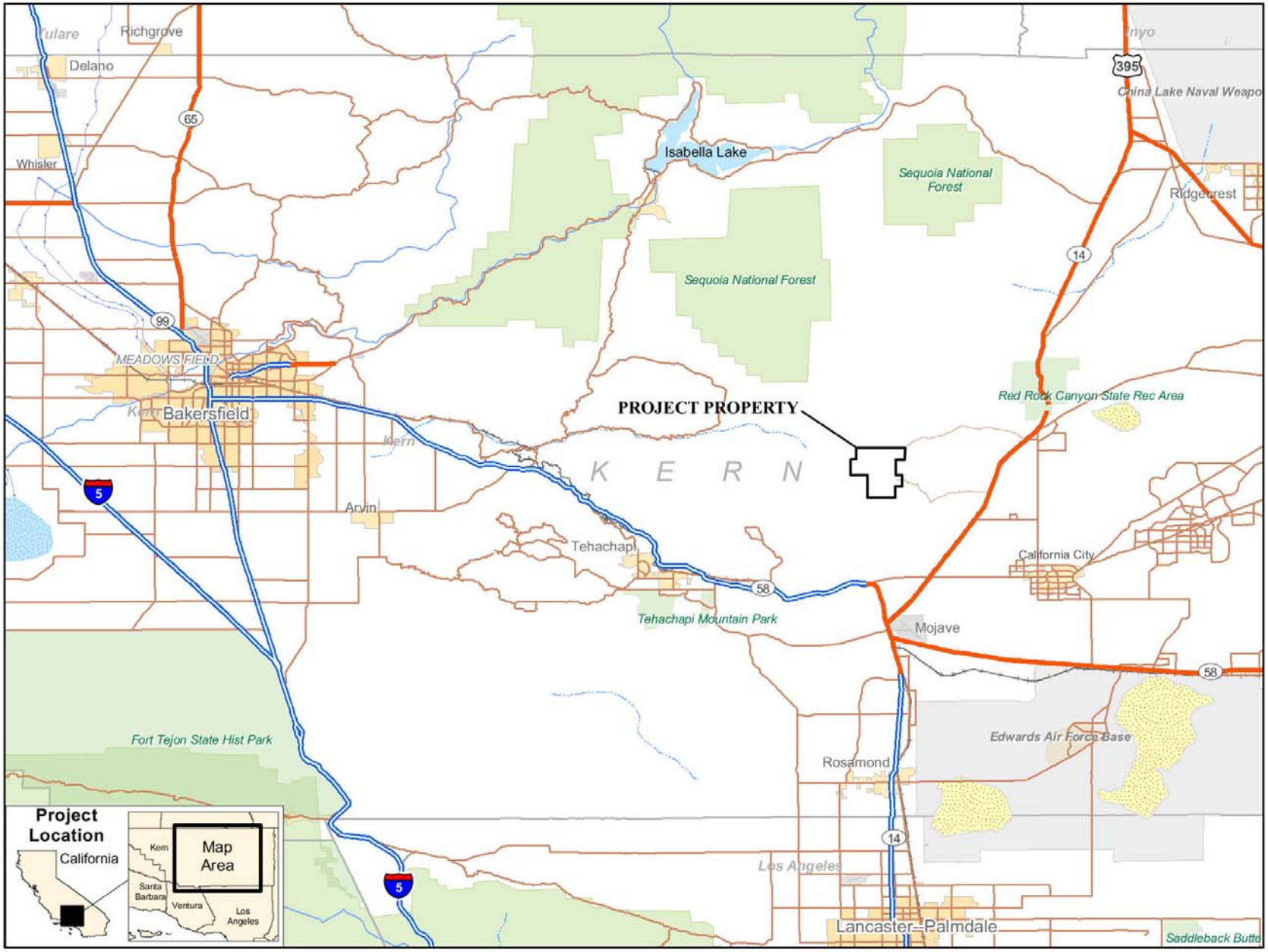
2.2.3 WIND RESOURCE

The project property has excellent wind resource characteristics. It is located in the Tehachapi Wind Resource Area (WRA), a demonstrated wind energy producing region. Average wind speeds at the property are approximately 14 to 18 miles per hour, with prevailing winds from the west and northwest. Occasional strong winds from the opposite direction do occur. Currently, nine meteorological towers measure wind data at the project property to confirm the wind resource potential.

2.2.4 PROJECT COMPONENTS

WIND TURBINES

The primary component of the proposed project is a series of 80, 1.5-MW nameplate capacity wind turbines. Although each turbine has the ability to generate a maximum of 1.5 MW of electricity under ideal operating conditions, the actual conditions related to wind speed at the project property vary considerably on a seasonal, daily, and site-specific basis. Based on wind characteristics and other factors at a particular site, the actual energy output for a turbine over a year's time can be expressed as a percentage of the maximum nameplate capacity. This is known as the turbine's capacity factor. Based on meteorological analysis of the project property, the estimated net capacity factor for the entire project ranges from 31 percent to 32 percent. According to this range of capacity factors, the 80 turbines would provide an annual generation capacity of approximately 330 GWh.



Source: ESRI Data & Maps 2004

Figure 2-1
Project Region

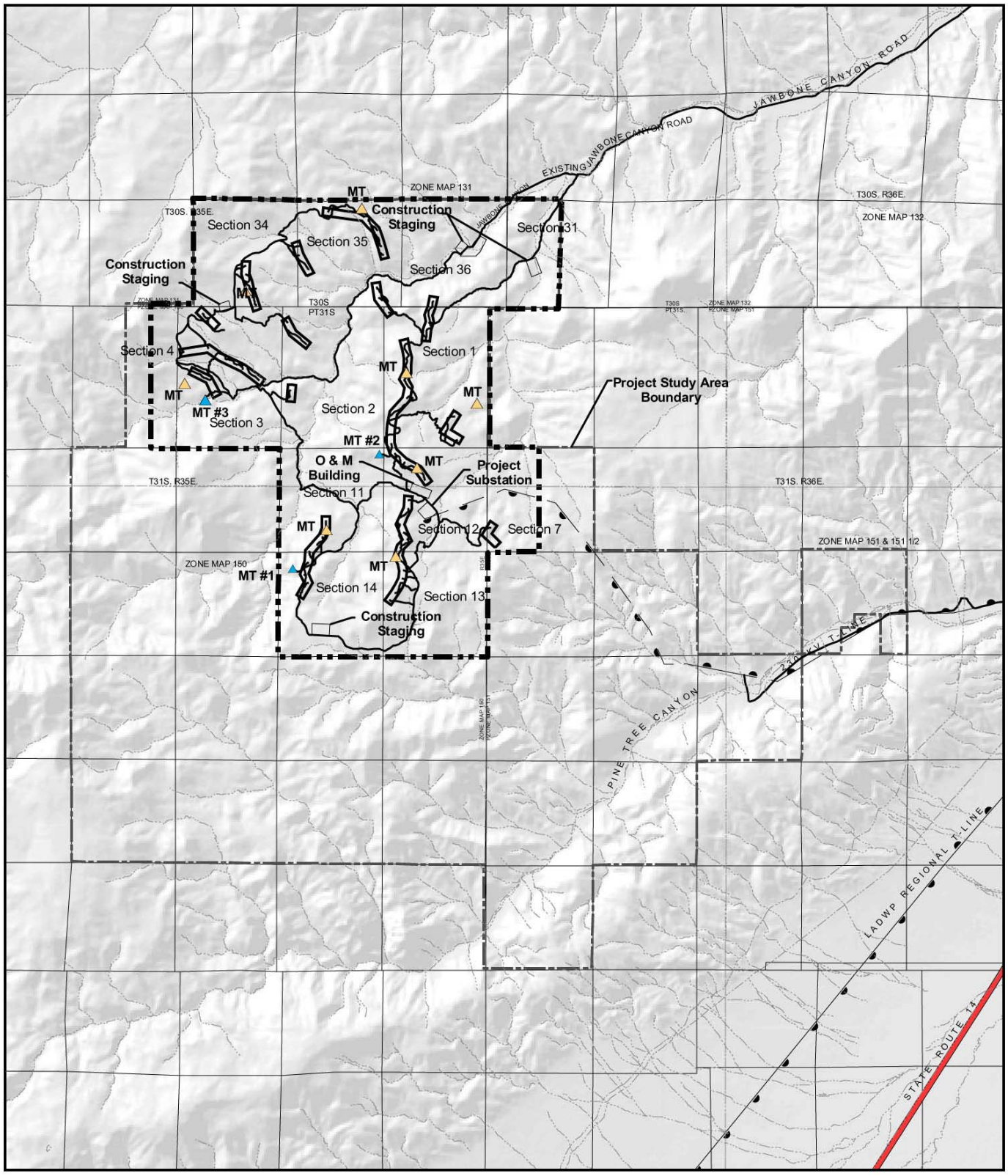


Figure 2-2
Turbine String Location

Turbine Strings

The proposed wind turbines would be grouped along separate ridges in zones, or "strings," ranging in groupings of from 2 to 16 towers (Figure 2-2). The spacing between individual towers within a string would be an average of 2.0 and a minimum of 1.4 times the diameter of the rotor blades (approximately 353 feet), but towers within a string would otherwise be located based on environmental and engineering considerations to minimize impacts and facilitate construction. The turbine strings are significant from the standpoint that the zones surrounding the strings would receive the WE (Wind Energy) Combining District zoning designation allowing for the construction of the turbine generators. The wind turbines must be located within these zones. The proposed location of all project facilities, including the individual wind turbines, is shown in Figure 2-3. The turbines are numbered by section. For instance, turbines in Section 12 are numbered, 12-1, 12-2, 12-3, and so on.

Figure 2-3 includes 80 primary turbine sites and 7 alternate turbine sites, which are differentiated by symbol. The alternate sites provide some flexibility in final turbine siting during construction. An alternate site would be utilized only when it was determined, based on further field investigations, that a primary site was infeasible from a construction standpoint. All 87 turbine sites (primary and alternate) and the associated access roads were evaluated relative to potential environmental impacts, although only 80 turbines would ultimately be constructed for the project.

Physical and Operating Characteristics

The proposed turbines have a horizontal axis with a three-bladed rotor. The turbines would be mounted on tubular steel towers with internal maintenance access ladders. The total height of the tower to the hub of the rotor blades is 65 meters (213 feet). The diameter of the rotor is 77 meters (253 feet). The total height of the turbine at the highest point of the rotor blade's rotation is 103.5 meters (340 feet; Figure 2-4). The ground clearance for the rotor blades at their lowest point of rotation is 26.5 meters (87 feet). The base of the tower is approximately 15 feet in diameter. The towers and turbines would be light gray in color and would have a non-reflective finish, similar to the turbine shown in Figure 2-5, GE 1.5-MW Wind Turbine.

The rotor blades would turn at approximately 20 rpm at peak production. The gearbox in the nacelle would increase the rotational speed of the high-speed shaft that drives the generator at 870 to 1600 rpm to provide electrical power at 60 hertz. The blades are made of fiberglass and epoxy resin and are equipped with a sophisticated lightning suppression system. The turbines are designed to withstand wind speeds in excess of 120 miles per hour, a speed that exceeds recorded and projected maximum wind speeds in the project area. When wind speeds exceed a prescribed level (between 55 and 70 miles per hour), the turbines are equipped to reduce speed through an individual blade pitch control system that feathers the blade out of the wind. During emergency conditions, the mechanical braking system would automatically engage to fully stop the rotor after the rotor reaches a predetermined minimum speed. After an emergency stop is executed, the turbine must be inspected in person, and the stop-fault must be reset manually before automatic operation will be reactivated. Additionally, each turbine nacelle is equipped with an internal fire detection system with sensors located in the nacelle as well as the tower base. In the event of a fire, the turbine is immediately shut down and an alarm is activated to signal the operating personnel.

Turbine Siting Considerations

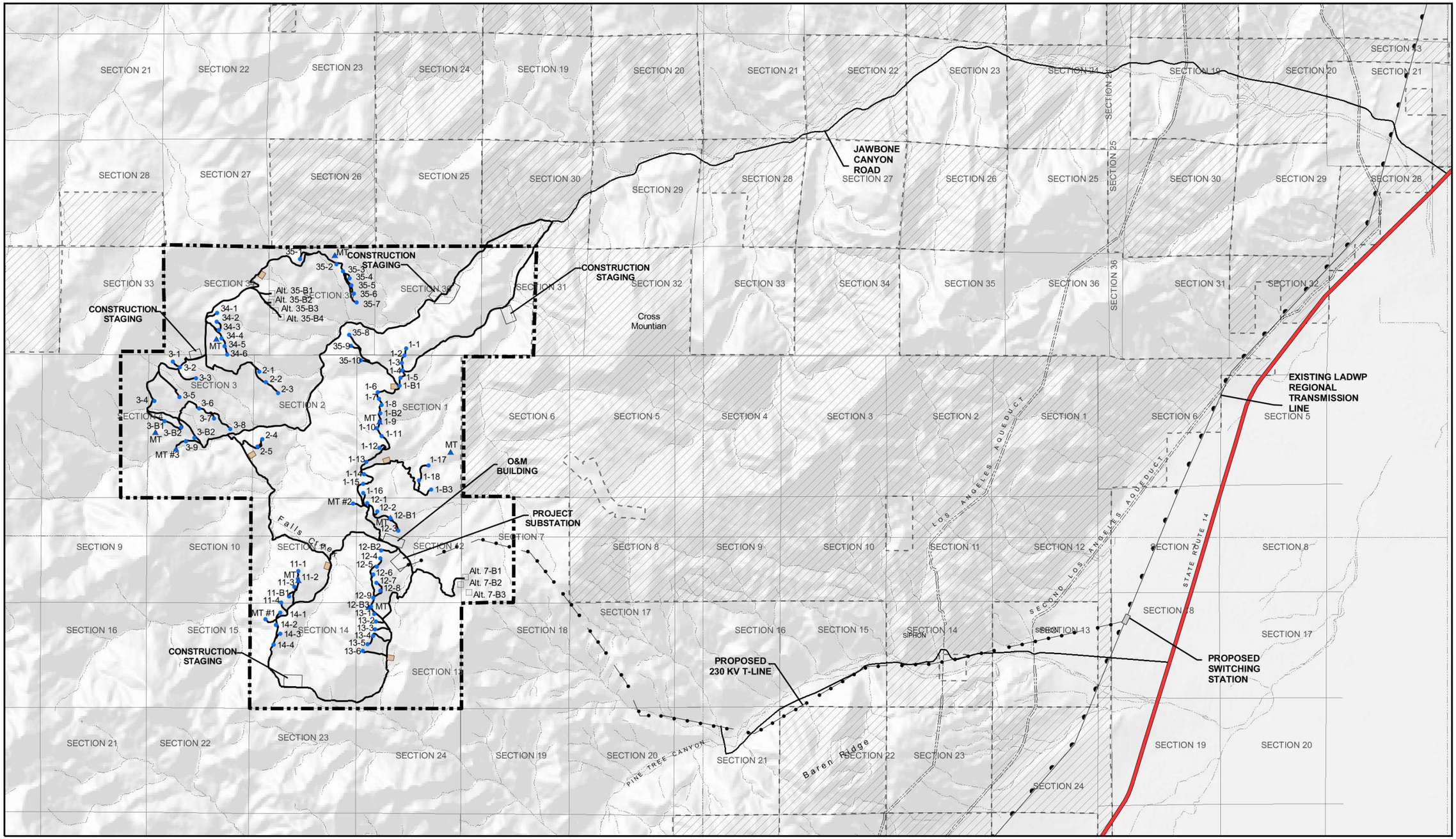
Previous planning analysis for the siting of the proposed wind turbines considered a broader study area of approximately 21,500 acres. Due to constraints imposed by such factors as terrain and military training routes (MTRs), and in an effort to minimize potential impacts to existing sensitive biological and cultural resources, the boundaries of the project property were narrowed to their present configuration, encompassing approximately 8,000 acres. Within these narrowed boundaries, the objective of the project is to optimize wind energy production based on a cost-benefit analysis that balances construction, operations, and maintenance considerations with the anticipated output of each turbine. A primary factor in this analysis is the quality of the wind resource at particular sites within the property.

The project area is located within the Joint Service Restricted R-2508 airspace complex, and both Edwards Air Force Base (EAFB) and Naval Weapons Station China Lake (NWSCL) maintain MTRs that overfly the vicinity of the proposed project. The military is concerned about any vertical obstructions located within the boundaries of the MTRs because of the potential impact they may have on critical testing and training missions. The proposed project has been closely coordinated with representatives from both EAFB and NWSCL, and significant MTR-related constraints on turbine siting within the broader project study area have been identified. Among other considerations, the proposed turbine sites were selected considering these constraints. (See Appendix A for copy of written confirmation of project suitability from the Department of Defense R-2508 Complex Sustainability Office.)

Access Roads

To operate and maintain the turbines, the proposed project would require a network of service roads to provide access to the turbine sites, the substation, the O&M facility, and other project facilities. These roads would be 16, 20, or 34 feet wide. To deliver large and heavy components and equipment to the turbine sites during project construction, most project roads would need to be 20 feet wide. To operate large equipment, including large truck- or track-mounted cranes, access roads approximately 34 feet wide would be required primarily within the turbine strings to provide access to each turbine site. A dust control plan pursuant to applicable regulations would be prepared and implemented to minimize airborne dust during project construction.

As discussed above, an extensive network of roads currently exists within the project property. These roads would be used for the project to the extent possible. However, some regrading, reconstruction, and/or widening of most existing roads that would be used for the project would be necessary. Some blasting may be necessary for road grading activities. Approximately 1.8 miles of existing 20-foot-wide road would be upgraded and utilized for the project construction and operations. Approximately 1.8 miles of existing 16-foot-wide road would be upgraded and used during construction only. Approximately 12.4 miles of existing roads would be widened to 20 feet, and approximately 5 miles of existing road would be widened to 34 feet for both construction and operations. About 0.5 mile of new 20-foot-wide road and about 9 miles of new 34-foot-wide road would be required for both construction and operations. In addition, about 1.2 miles of new temporary construction road would be required. Due to topography, grading of access roads will in some limited cases disturb an area of 100 feet or more on either side of the centerline to accommodate appropriate cut or fill slopes. These widths have been accounted for in the total area of project disturbance. Jawbone Canyon Road would need to be improved at several locations, including near the eastern end of the road to improve drainage and wet weather access and where the road crosses the Los Angeles Aqueducts. None of these road improvements would occur on BLM-



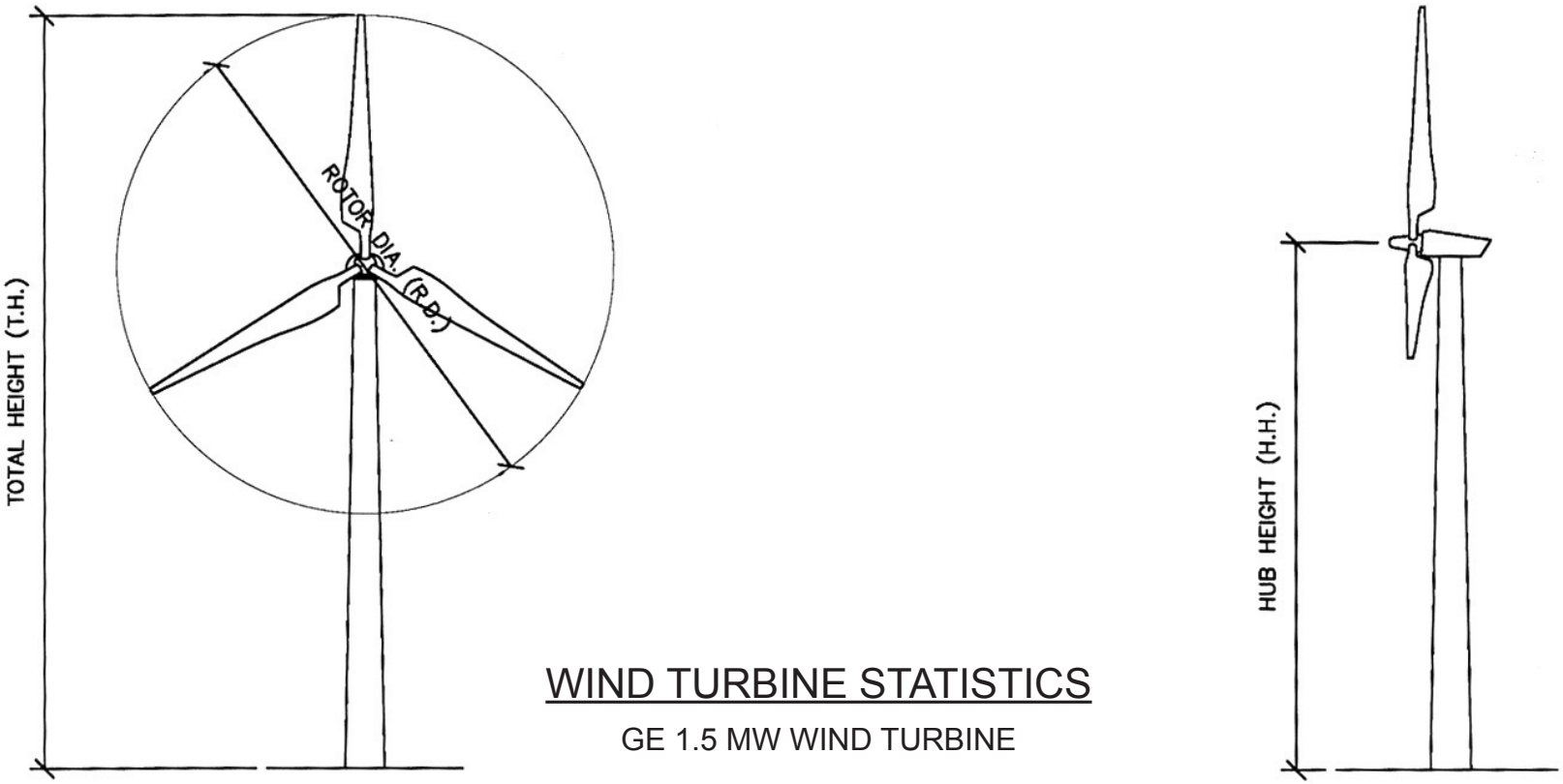
Legend

- Project Propoerty
- BLM Parcel
- Temp. Spoil Area 2 AC (12 AC)
- Proposed 230 KV T-line
- SR 14
- Access Road
- Stream
- Aqueduct
- Proposed Turbine
- Alternate Turbine
- Meteorological Tower

0.5 0 0.5 1 Miles

EDAW

Figure 2-3
Siting of Project Components



WIND TURBINE STATISTICS

GE 1.5 MW WIND TURBINE

MANUFACTURE	CAPACITY	UNITS	HUB HEIGHT (HH) METER / FEET	ROTOR DIAMETER (RD) METER / FEET	TOTAL HEIGHT (TH) METER / FEET
GE WIND	1.5 MW	80	65.0 / 213.3	77 / 252.6	103.5 / 339.6

EDAW PATRICK & HENDERSON INC. CIVIL & GEOTECHNICAL ENGINEERING N.T.S.

Figure 2-4
Turbine Features

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Figure 2-5
GE 1.5-MW Wind Turbine

administered land. The unpaved portion of the road from the end of the Jawbone Canyon Road (paved segment) to the staging area would be stabilized with rock material generated from site construction. A manned security station would be located at the Jawbone Canyon entrance to the project property during construction.

LIGHTING

No lighting is proposed for the turbines or electrical transmission towers during the day or at night. Because the project turbines and meteorological towers would exceed 200 feet in height, a Notice of Proposed Construction or Alteration (Form 7460-1) would need to be filed with the FAA.

Accordingly, the FAA will review the proposed project prior to construction and may recommend that tower markings or lighting be installed for aviation safety. As noted previously, the project underlies several MTRs that have influenced placement of facilities on the site.

SUBSTATION AND O&M FACILITY

A substation would be required on-site to convert the voltage of the electrical energy generated by the wind turbines from a lower to higher voltage so that it can be transmitted. The substation would be located on an 11-acre parcel consisting of a fenced yard area containing the step-up transformer, substation, and related electrical control equipment. The voltage will be increased from 34.5 kV to 230-kV. A 34.5-kV collection system would link the individual turbines to the substation. The O&M facility would be located on a 10-acre parcel and consist of a storage and equipment yard and an approximately 35-foot-high, 60-foot by 120-foot building containing offices for O&M personnel, a control and relay room, a workshop area, spare parts storage, training rooms, restrooms, and a lunchroom. A septic system would be installed for the workers at the O&M building. During project operations, bottled water would be used for potable uses, and relatively small amounts of water from a new on-site well would provide for non-potable needs. The locations of the substation and O&M facility are shown in Figure 2-3.

ELECTRICAL TRANSMISSION LINE AND SWITCHING STATION

Alignment

An overhead 230-kV transmission line would connect the project substation to an existing LADWP regional transmission line located west of and generally paralleling SR-14 (see Figure 2-3). The proposed transmission line would be approximately 8 miles in length. It would originate at the project substation in the south-central part of the project property and travel southeastward through privately owned land until it intersected Pine Tree Canyon Road, to the southeast of the project property. The line would then generally parallel Pine Tree Canyon Road eastward to a proposed switching station at LADWP's existing regional transmission line (Inyo-Rinaldi 230-kV line) near SR-14. This proposed route would cross three parcels of BLM land for a total length of approximately 1.1 miles (approximately 0.1 mile in Section 13 of Township 31 South, Range 36 ½ East; and 0.75 mile in Section 14 and 0.25 mile in Section 22 of Township 31 South, Range 36 East). LADWP intends to secure a 150-foot-wide right-of-way for the transmission line alignment through BLM-administered land. This right-of-way would not be fenced.

Transmission Line Tower Structures

Three conductor wires would be needed to transmit the power from the site to the regional transmission line. The conductor wires would be suspended on galvanized tubular steel monopole towers or natural-colored spun cast concrete poles for the length of the alignment with the exception of certain critical angle points that may require use of a freestanding steel lattice tower. At present, it is anticipated that one of these angle points would be located where the line crosses Pine Tree Canyon wash.

The typical height of towers would be 120 feet. The approximate diameter of the tower would be about 5 feet at the base, narrowing toward the top end. A round concrete footing (approximately 5 feet in diameter) would anchor the tower structure. The footings for the tower structure would be cast in place in a drilled shaft. Using 120-foot-tall towers, the average span length between towers would be about 500 to 600 feet, or approximately 10 structures per mile for flat and rolling terrain. The number of structures per mile may increase in rugged and mountainous terrain.

The portion of the transmission alignment in Sections 7, 8, 17, and 18 of Township 32 South, Range 36 East (north of Pine Tree Canyon) are near an established military flight-training corridor and within the R2508 Airspace Complex. The military has reviewed the transmission tower locations and has determined that there would be no impact on their training activities or mission.

The three conductor wires would be strung on Horizontal Vee hardware assemblies on each tower. Two conductor wire assemblies would be placed on one side of the tower with one conductor wire assembly on the opposite side. The Horizontal Vee assembly angles downward from the tower at a 45-degree angle to a strut insulator supporting the conductor wire. The strut insulator will be attached horizontally between the conductor wire and tower to keep the conductor wire a minimum of 6 feet from the tower. A 15-foot vertical distance would be maintained between the two conductor wires on the same side of the pole. The lowest conductor wire would be a minimum of 30 feet from the ground at its low-point between towers. The fiberglass Horizontal Vee assemblies are angled downward such that perching by birds would be difficult. The insulators, though horizontal, are made of silicon and grooved to discourage perching. A fiber optic wire would be hung on the towers between the site substation and the switching station to provide communications.

Switching Station

The switching station would be constructed on private land adjacent to the existing Inyo-Rinaldi 230-kV line right-of-way, approximately 1,500 feet north of where the Inyo-Rinaldi line crosses the existing Pine Tree Canyon dirt road. The station would be constructed between the Inyo-Rinaldi line towers adjacent to the east side of the right-of-way.

The switching station yard would be 500 feet long by 250 feet wide, or 125,000 square feet (about 2.9 acres). Within the yard, there would be a control room and/or communication room(s) in addition to the electrical switching equipment. The switching station would not be manned on a daily basis. A septic system would be installed for the workers at the switching station. Bottled water would be used for potable uses, and relatively small amounts of water from a new on-site well would provide for non-potable needs.

Equipment piers and foundations and the cable trench would be reinforced concrete. A 25-foot-wide compacted roadway would be built around station equipment, and the remainder of the yard would have a crushed rock surface to a depth of 6 inches.

2.2.5 PROJECT CONSTRUCTION

PRIMARY CONSTRUCTION ACTIVITIES

The project construction would be performed in several stages and would include the following primary activities:

- Grading of roads, turbine pads, and crane pads;
- Grading of substation, O&M building, switching station, materials laydown, and equipment staging areas;
- Construction of the turbine tower foundations and transformer pads;
- Installation of the electrical collection system;
- Erection and assembly of the wind turbines;
- Construction and installation of the substation and O&M facility, including water well and septic system;
- Construction of the 230-kV transmission line and switching station, including water well and septic system; and
- Plant commissioning and energization.

ROAD CONSTRUCTION AND SITE GRADING

For the wind turbine site, approximately 31.7 miles of roads would be necessary, including about 19.2 miles of existing roads (upgraded or widened) for construction and operations; 1.8 miles of existing roads for construction only; 9.5 miles of new roads for construction and operations; and 1.2 miles of new roads for construction only. All these roads would be unpaved.

For the transmission line component, maintenance/patrol roads are planned along portions of the alignment (from tower to tower), except where topography is too steep or the existing Pine Tree Road is adjacent to the towers. In some cases, short spur roads would be constructed from the existing Pine Tree Canyon Road to tower sites. In general, spur roads would be 14 feet wide and maintenance/patrol roads would be 24 feet wide.

In addition to roads, a number of other areas associated with project construction and operations must be cleared and graded. During the construction phase, equipment and materials laydown and staging areas would be required. These areas, totaling approximately 45 acres, would be located in the northeastern, northwestern, and southern portions of the project property. They would provide for the offloading of all major components and construction equipment from flatbed trucks for temporary storage and restaging for delivery to individual wind turbine sites or the substation/O&M facility site.

Several relatively small (up to 2 acres) temporary material stockpile and turnout areas would also be located throughout the project property during construction. Anticipated locations of these facilities are shown in Figure 2-3. A small concrete batch plant and a rock crusher would also be located at one of the laydown and staging areas to provide concrete and materials for the turbine, substation, and O&M building foundations. Non-potable water for construction (including dust suppression) would be obtained primarily from the Los Angeles Aqueduct (in Jawbone Canyon) and trucked to the site. Additional water for construction may be derived from a new water well on site. Average water usage during construction of the project is estimated to be approximately one million gallons per month.

Portions of the 21 acres designated for the substation and O&M building would be cleared and graded to accommodate facilities. These facilities are sited on relatively level terrain in the south-central portion of the property to minimize the length of the electrical collection system.

Each turbine tower would require a level pad of approximately 50 feet by 50 feet. To accomplish the erection and assembly of the turbines, a large truck- or track-mounted crane would be required to hoist the extremely heavy components as high as the hub height of 213 feet. A cleared and level area approximately 35 feet by 60 feet would be required adjacent to each tower site to accommodate the crane.

It is planned that cut and fill from road and pad grading would be balanced on site. Initial estimates show that cut materials would amount to approximately 465,095 cubic yards and fill materials would amount to 300,095 cubic yards, with approximately 165,000 cubic yards of surplus material. Surplus sand and gravel from on-site grading activities are anticipated to be of a sufficient amount to meet the needs of the project without resorting to a construction borrow pit. For instance, some of this material would be used to improve the unsurfaced portion of the Jawbone Canyon Road. No fill material would be deposited in canyons. Project road construction and site grading would involve the use of several pieces of heavy machinery, including bulldozers, track-hoe excavators, front-end loaders, dump trucks, motor graders, water trucks, rock drills, and rollers.

TURBINE FOUNDATIONS AND ERECTION

Depending on the soil and geotechnical conditions at each turbine site, the turbine tower would be mounted on a spread footing type foundation or a vertical mono-pier foundation. Excavation for the foundation would be required at each turbine site. Some blasting may be required. Some of the excavated material would be used as fill for road and site grading. The remainder would be stockpiled at the turbine site while the concrete foundations are poured and cured. The stockpiled material would be properly protected with coverings, and the surrounding area would be protected with fences, hay bales (consisting of weed free rice straw or other certified weed free straw), or other barriers to contain sediment flows. After the foundations have properly cured, the excavated material would be used as backfill around and above the foundations. Regardless of the foundation type used, the area of the foundation exposed at the surface would be only slightly larger than the diameter of the tower base (15 feet) to allow for the bolting of the tower to the foundation. A pad-mounted transformer would be located adjacent to the base of each tower, requiring an approximately 8-foot by 8-foot concrete pad.

Because of its height, the turbine's monotube tower would be erected on the foundation in three sections. The nacelle housing the main mechanical components of the turbine would then be hoisted by crane onto the completed tower. The rotor blades would be erected in one of two methods. Either

they would be attached to the nose cone on the ground, and the entire rotor assembly would then be hoisted into place on the nacelle, or they would be individually hoisted into place on the nose cone already attached to the nacelle. The large crane necessary for the turbine erection would move between individual turbine sites along the 34-foot-wide roads within each turbine string. After a string of turbines was completed, the crane would be broken down and transported by tractor-trailer to the next turbine string along the 20-foot-wide project access roads. This approach would minimize the amount of road grading required for project construction.

METEOROLOGICAL TOWERS

Several temporary and permanent anemometer (wind measurement) stations are located in strategic positions on the project site. The anemometers measure wind speeds at different heights above ground level on the meteorological tower. Each tower has a small concrete foundation (up to 5 feet square, depending on site conditions), with supporting cables extending to small concrete anchor points on the ground. Three 213-foot-tall permanent meteorological towers are planned for the proposed project. As required by the FAA, these towers may be lighted for aviation safety reasons.

ELECTRICAL COLLECTION SYSTEM

Electrical power generated by the wind turbines would be collected through a network of cables that would terminate at the project substation. Power from the turbines (at 575 volts) would be fed through a breaker panel located at the turbine base inside the tower and connected to a pad-mounted step-up transformer. The transformers would step up the power from the turbines to 34.5 kV and would be connected to underground cables that would interconnect all of the turbines electrically. The underground cables would generally run at the edge of project roads and would typically be buried 3 to 4 feet deep.

Due to terrain or to avoid excessively long runs, the collection cables would occasionally become overhead lines for relatively short distances. The collection cables would connect to larger feeder lines that would run to the main substation. At the substation, the electrical power from the turbines would be stepped up to transmission level at 230 kV. In locations where two or more sets of underground lines converge, underground vaults and/or pad-mounted switch panels would be used to tie the lines together into one or more sets of larger feeder conductors. The project will require approximately 20 miles of underground and up to 0.5 mile of overhead lines to collect all of the power from the turbines and route it to the substation.

ELECTRICAL TRANSMISSION SYSTEM

During the construction of the transmission line, tower site work areas, crane pads, pull/tensioning sites, and other temporary areas would be required. The area of temporary disturbance associated with each of these components is listed below for both private property and BLM-administered land involved in the transmission line construction.

Component	Private Land	BLM Land
Tower Site Work Areas (100 x 100 feet)	74 towers, 17 acres	12 towers, 2.8 acres
Crane Pads (25 x 30 feet)	74 pads, 1.3 acres	12 pads, 0.2 acre
Pull and Tensioning Sites (150 x 200 feet)	6 sites, 4.1 acres	1 site, 0.7 acre
Splicing Sites (50 x 50 feet)	4 sites, 0.2 acre	1 site, 0.1 acre
Guard Structures (10 x 30 feet)	2 structures, 0.1 acre	0 structures
Total area of temporary disturbance	22.7 acres (85.7 %)	3.8 acres (14.3 %)

A tower site pad is rarely constructed or graded. Most of the heavy equipment used during the different phases of construction would be moved around the tower site by means of overland travel. Moderate disturbance to vegetation would occur within the work site area.

The transmission line access roads would be cut using a dozer and motor grader. Foundations for the transmission towers would be drilled shaft reinforced concrete type. The foundation holes would be dug using a truck- or track-mounted drill rig. A hydraulic crane or boom truck would be used to set and position rebar cages and anchor bolt cages in the holes. The concrete for the foundations would be ready-mixed concrete delivered to the site in trucks. The transmission towers would be delivered to the site on a flat bed tractor-trailer, and cranes would be used to erect the towers in place. A man lift would be used to stack and secure the tower sections. Hardware, insulators, and stringing sheaves for the overhead ground wire and conductors would be installed on the tower using a crane and man lift. Stringing equipment will be staged at the pull and tensioning sites in preparation for wire stringing. Stringing sections will vary in length, from a single span up to approximately 14,000 feet, depending on the terrain, number and degree of line angles, and under-crossings.

EROSION CONTROL

The drainage concept for the wind turbine site has been developed with the goal of retaining runoff flows at pre-development levels (See Section 3.3, Hydrology and Water Quality). Wind turbine sites are to include detention basins designed to reduce any peak discharge rates to pre-project values and to provide silt capture. Incidental roadway drainage intercepted from side-slope cuts is to be returned to natural courses at frequent intervals to reduce concentration. Grading of roadways will be performed in such a fashion as to distribute drainage back to its original courses. The use of berming and rock riprap will be necessary to minimize erosion. On both the upstream and downstream portions of the drainage crossings, riprap would be placed within the drainage up to the point where included in Appendix C, Hydrology Study). Grading of roadways and turbine sites are to adhere to the following design concepts.

1. Rerouting of drainage to another discharge point in a different water course is to be avoided.
2. Regular use of over-side drains should be implemented to avoid longitudinal concentration of drainage along the roadways.
3. Exiting points of culverts and over-side drains are to be protected with rock riprap.
4. Minor stilling basins are to be created by elevating grated inlets above flow line grade so as to minimize silt transport and detain drainage waters.
5. Detention basins for peak flow reduction are to be used at the turbine sites when drainage has the potential to increase runoff to any one watershed.
6. Whenever possible, grading is to be designed to evenly distribute runoff rather than concentrate it.

A Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented for the project to minimize erosion and the potential for discharge of pollutants from the site due to clearing, grading, and other construction activities. The SWPPP will be prepared along with the project grading plan. The SWPPP will be prepared to meet County of Kern grading requirements; however, BLM has specified that drainage and erosion control should also meet Federal Highway Administration standards contained in *Best Management Practices for Erosion and Sediment Control* (FHWA FLP-94-005, 1995). Site-specific Best Management Practices (BMPs) will be developed and implemented emphasizing the control of erosion and sedimentation through such measures as retaining the original vegetative cover where possible; reducing the velocity of surface runoff and directing it away from disturbed areas; and promptly stabilizing disturbed areas through revegetation or the use of inert materials such as straw mulching or erosion control matting. Silt fences and sediment barriers would be maintained throughout construction and beyond until disturbed areas have been fully stabilized with vegetation. Check structures, such as rock dams, hay bale check dams (consisting of weed free straw or other certified weed free straw), dikes, and swales, would be used where appropriate to reduce runoff velocity as well as to direct surface runoff away from disturbed areas.

2.2.6 PROJECT OPERATIONS AND MAINTENANCE

Routine maintenance of the turbines would be necessary to maximize performance and detect potential problems. 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.

Periodic exchanging of lubricants and hydraulic fluids in the operating mechanisms of the turbines and towers would occur. All lubricants and hydraulic fluids would be carefully stored, used, and disposed in accordance with applicable laws and regulations.

2.2.7 WORKFORCE

CONSTRUCTION

It is anticipated that the wind turbines and transmission line would require a total of about 10 months to construct. The average workforce on site for both the wind turbine and transmission line components of the project would consist of approximately 180 workers. During peak periods, it is expected that about 210 personnel would be on site at once, as multiple disciplines complete their work simultaneously. Construction activity would normally take place during single 10-hour shifts, 6 days per week, for the duration of project construction. However, to ensure that construction activities remain on schedule and to take advantage of weather conditions, additional shifts may be employed at times during construction. During peak periods of construction activity, it is anticipated that, with carpooling, the daily employee trips would average about 210, including trips both to and from the site. The laydown and staging areas would provide sufficient space for construction crew

vehicle parking, and no other construction-related parking areas would need to be provided on the property.

OPERATIONS

With completion of construction, approximately 10 to 12 employees would operate and maintain the wind turbines on a permanent basis. The transmission line and switching station would not be manned on a daily basis, and no additional employees would be required.

2.2.8 TRAFFIC

CONSTRUCTION

Traffic generated during construction would also include truck traffic associated with the on-site batch plant; truck traffic for transporting wind turbine components, concrete and reinforcing steel, mechanical equipment, and construction consumables; water trucks; and the delivery of construction equipment such as cranes and earth-moving machines. Approximately nine transportation loads of components and materials per wind turbine location are anticipated. Approximately 1,440 truck trips may be required throughout the construction period for the erection of the 80 turbines, including inbound laden and outbound unladen trips. The heaviest loads anticipated would be the main power transformer, which weighs approximately 320,000 pounds, and the turbine nacelles, which weigh approximately 112,000 pounds. The nacelles are assembled in nearby Tehachapi, so trips on public highways would be relatively short. Trucks delivering earth-moving and other construction equipment to the project property would unload the equipment and depart the site, only to return when construction was completed. It is anticipated that approximately two large and nine small cranes would be required during construction, along with approximately 20 bulldozers, trenchers, and other earth-moving machines. Concrete trucks used in the construction of all foundations would be delivered to and remain at the project site until foundation construction is complete. The BLM will be consulted regarding the delivery of large loads on Jawbone Canyon Road to reduce impacts to recreational use in the Jawbone Canyon Open Area. A traffic control plan, including procedures and limitations on Jawbone Canyon Road, will be developed and implemented for the construction of the proposed project (see Section 3.7, Transportation). Approximately 572 trips would be required to deliver components for the transmission line and switching station construction, including inbound laden and outbound unladen trips.

OPERATIONS

Routine activities related to maintenance at the turbine site would consist primarily of daily travel, generally by pickup trucks, of O&M personnel who would test and maintain the wind generation facilities. The transmission line would be inspected primarily by helicopter. LADWP would provide 24-hour manned security of the project property once the proposed project was operational.

2.2.9 DECOMMISSIONING

Decommissioning refers to the dismantling of the project elements and restoration of the site upon completion of the operating life of the facility. Periodic replacement of equipment can extend operating life indefinitely, depending on future demand for electricity generated by the project. Therefore, the estimated life of the project depends primarily on the demand for power, which is expected to continue growing. However, the project is expected to have a minimum 20-year life.

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

Site reclamation would be based on site-specific requirements and techniques commonly employed at the time the area was reclaimed. As necessary, this could include regrading, spot replacement of topsoil, and revegetation of project-disturbed areas. Foundations would be removed to a depth of 2 feet, or less if bedrock is encountered. Project access roads would be reclaimed or left in place based on landowner preference. The land would then revert exclusively to landowner control.

2.3 ALTERNATIVES TO THE PROPOSED PROJECT

In accordance with CEQA Guidelines, alternatives to the proposed project have been considered to foster informed decision making and public participation. Section 15126.6 (a) of the CEQA Guidelines requires that "an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Under NEPA (specifically, BLM's NEPA Handbook H-1790-1), an EA must briefly describe the alternatives to the proposed action, if any, considered. The alternatives to the proposed project, as discussed in Section 3.13, include the following:

- Alternative 1: No Project (CEQA and NEPA required)
- Alternative 2: Develop Alternative Energy Sources
- Alternative 3: Resite Turbines within the Project Study Area
- Alternative 4: Install Smaller Turbines
- Alternative 5: Relocate the Proposed Project
- Alternative 6: Repower Existing Wind Turbine Site
- Alternative 7: Use Alternate Access Routes
- Alternative 8: Roadless Construction

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SECTION 3.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL IMPACTS AND MITIGATION

3.1 INTRODUCTION

3.1.1 ORGANIZATION OF THE SECTION

This section presents the existing environmental conditions, environmental impacts, mitigation measures, and residual impacts that would remain after mitigation for various environmental factors analyzed in detail in the EIR/EA. These factors were identified in the CEQA Initial Study based on the potentially significant environmental impacts that may be created by the proposed project. The Initial Study is contained in Appendix A of this EIR/EA.

The major environmental factors addressed in this section of the document include the following:

- Geology and Soils
- Surface Hydrology and Groundwater
- Air Quality
- Biological Resources
- Land Use and Recreation
- Transportation
- Cultural Resources
- Visual Resources
- Socioeconomics

The analysis of each factor is structured in the following manner:

1. ***Existing and Affected Environment:*** This section describes the existing regional and local conditions using the most current information available. This information is used as the environmental baseline for analyzing the significance of potential effects of the proposed project with respect to each specific resource area (See *CEQA Guidelines*, § 15125, subdivision (a) (CELSOC 2002)).

2. ***Regulatory Framework:*** In addition to meeting the requirements of NEPA and CEQA, the proposed project environmental documentation has been prepared to facilitate compliance with federal and state laws and the subsequent project approval by various federal, state, and local agencies having jurisdiction over one or more resources affected by the project.

3. ***Environmental Impacts:*** As required by the *CEQA Guidelines* (CELSOC 2002), the impacts of a proposed project are defined as "changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is prepared" (Section 15126.2).

> ***Methodology:*** This section addresses the techniques used to obtain information for the description of the existing environment and the methodologies used to evaluate and assess environmental impacts.

Thresholds of Significance: This section presents the criteria and thresholds used to identify potentially significant effects on the environment in accordance with California Public Resources Code Section 21082.2, *CEQA Guidelines* (CELSOC 2002) Sections 15064 and 15065, and Kern County CEQA Implementation Document (June 1, 2004). "Thresholds" include guidance provided by the *CEQA Guidelines*, agency standards, legislative or regulatory requirements as applicable, local standards, and professional judgment.

Impact Analysis: The impacts section describes how implementation of the proposed project would affect the existing conditions related to the site, surrounding area, and region in relation to the thresholds of significance. This section provides both qualitative and/or quantitative analysis where applicable.

4. ***Mitigation Measures:*** The mitigation measures section identifies the measures recommended to avoid, reduce, or eliminate significant environmental impacts. According to CEQA requirements, this section contains reasonable feasible mitigation measures that would reduce adverse impacts to a level considered less than significant.

5. ***Residual Impact After Mitigation:*** Impacts that can be mitigated are either reduced to a less than significant level or are lessened but not reduced to a less than significant level and remain unavoidable adverse impacts of the proposed project. If the impacts cannot be adequately mitigated, they are noted as unavoidable adverse impacts.

3.1.2 EFFECTS FOUND NOT TO BE SIGNIFICANT

As a result of the Initial Study analysis for the project and based on the consideration of the existing conditions, various potential environmental impacts were determined not to be significant. These environmental factors and impacts are not discussed in the detailed environmental analysis in this EIR/EA. Brief explanations for why these impacts were found not to be significant are provided below.

HAZARDS AND HAZARDOUS MATERIALS

The proposed project does not have a potential to create significant hazardous impacts to the public or the environment based on the following reasons:

- Hazardous materials expected to be used during construction of the project include petroleum products for lubrication and fuel. Operation of the project would require routine use of a relatively small amount of hazardous materials, including lubricants and hydraulic fluids. These materials would be transported, used, and disposed according to applicable safety standards and current law.

- There are no site-specific conditions that would pose reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

- Though the project would bring construction activities into an area that at times has high wildland fire hazard, the wind power industry safely operates in other similar areas of the County, including Sky River Ranch on the Sweet Ridge ridgeline, located 1 to 2 miles west of the project property. LADWP has significant operating experience in such areas as well.

LADWP will implement proper safety precautions to protect both natural resources and investment in equipment. Typical fire safety standards that would be implemented include: (1) all construction and maintenance vehicles at the site would carry a shovel and fire extinguisher, (2) a minimum 10-foot-wide fuel break would be maintained around all permanent facilities except roads, (3) mats, shields, and wind breaks would be used during welding in open areas, (4) cigarette smoking would be allowed in designated areas only, and (5) Occupational Safety and Health Administration, County, and LADWP fire prevention requirements would be enforced. These safety standards are implemented as a matter of standard practice, thus no significant impacts would occur.

NOISE

The proposed project does not have a potential to expose people to significant noise impacts during construction or operation for the following reasons.

- There is one ranch house in the northwest portion of the project site that is occasionally occupied but does not serve as a place of primary residence. In accordance with Chapter 19.64 (WE Combining District) of the Kern County Zoning Ordinance, a legal agreement would be reached with the owner of this ranch house indicating the owner's written consent for the project, and a noise impact easement for the construction and operation of the project would be acquired. This ranch house belongs to the Hansen Family, which is a party to the lease of land for the wind turbines. The area surrounding the project property is generally undeveloped, with no noise-sensitive uses, as defined in Chapter 19.64 of the Kern County Zoning Ordinance and in the Noise Element of the Kern County General Plan, within several miles. Based on the requirements and standards established in Chapter 19.64, which require noise impact analysis if any sensitive uses are located within 1 mile in a prevailing downwind direction or within 0.5 mile in any other direction of the project's exterior boundary, the project would not expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance.

- The operation of the wind turbines would not generate perceptible groundborne vibrations.

- The project would increase the ambient noise levels at the project site due to wind turbine operations. However, this increase in ambient noise is not expected to create a significant impact.

- Construction of the project would cause a temporary or periodic increase in ambient noise levels in the project vicinity. Construction noise would include heavy construction equipment and could include blasting to assist site grading. However, the project occurs in an area with no permanent occupants within several miles of the project boundaries. While blasting may be audible in areas surrounding the project site, the distance from source to receptor of well over 1 mile would conform to County zoning requirements and would be less than significant. Construction traffic would also create noise in the Jawbone Canyon Open Area, but this would not be considered a significant impact given the current primary use of the area as a major OHV recreation site.

- The project is not located within an airport land use plan area or within 2 miles of a public airport or the vicinity of a private airstrip. The military has been consulted concerning proximity to MTRs, and the proposed use is not noise sensitive.

UTILITIES AND PUBLIC SERVICES

The proposed project does not have a potential to result in significant demand for utilities and public services based on the following reasons.

- Proper fire-safety standards would be followed relative to construction and operations. Due to the short duration of the potential increase in fire hazard during construction, new fire protection facilities would not be needed. Operation of the project does not emit sparks or otherwise pose an increased fire hazard. Wind turbines will incorporate state-of-the-art lightning suppression systems. Therefore, the project would not increase the demand for fire protection or necessitate the construction of new fire protection facilities.

- The project would not permanently increase the local population and would not require the construction of new police protection facilities. While the project area is technically under the jurisdiction of the Kern County Sheriff's Department, the project would not necessitate the increase in patrol by the Sheriff's Department since the wind turbine site would remain private, with controlled access. Private security forces would be used to secure on-site facilities during construction and operations.

- The project would not permanently increase the local population and would not require the construction of new schools or new parks.

- Upon completion of project construction, the project would be owned and operated by LADWP, a public utility. In this regard, the project facilities would become public facilities and part of the LADWP power generation infrastructure. The project would not permanently increase the local population and would not require the construction of other new public facilities.

- The project would not be connected to a wastewater treatment facility; thus no impact to these facilities would occur.

- The project would not require the construction or expansion of new community wastewater treatment facilities. Septic systems would be installed for the workers at the O&M building and switching station. The sludge accumulated in this system would be periodically pumped from the septic tank, hauled off-site, and properly disposed by a commercial vendor. Non-potable water for construction would be obtained primarily from the Los Angeles Aqueduct (in Jawbone Canyon) and trucked to the site. Additional water for construction may be derived from a new water well on site. During project operations, bottled water would be used for potable uses, and relatively small amounts of water from two new on-site wells, one serving the O&M building and one serving the switching station, would provide for non-potable needs. The construction of wells would require a permit from Kern County.

- The project site is not served by existing storm water drainage facilities and would not require the construction or expansion of existing public facilities related to storm water drainage.

- LADWP has sufficient water supplies to serve the proposed project during construction. Potable water use during operations would be minimal and primarily served via commercial bottled water company. Small volumes of non-potable water for sanitary functions during project operations may be obtained from a new on-site well.

- The project would not generate a substantial quantity of solid waste during construction. This solid waste would be hauled from the site and properly recycled or disposed in a landfill. Because the amount of construction-related waste would be relatively small and its generation would be temporary, it is not expected to create a significant impact on landfills. Once the project construction is completed, the small amount of solid waste that would be generated during O&M activities would be removed from the site by personnel.

- The project would comply with federal, state, and local statutes and regulations related to solid waste and disposal of other wastes such as lubricating oils and hydraulic fluids.

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3.2 GEOLOGY AND SOILS

The information in this section is based on a geotechnical reconnaissance of the project site performed by registered geotechnical engineers. A report summarizing the geotechnical conditions and potential project impacts is included in Appendix B under separate cover.

3.2.1 EXISTING AND AFFECTED ENVIRONMENT

GEOLOGIC SETTING

The project site is situated in the southern section of the Sierra Nevada Geomorphic Province. The province covers an approximately 400-mile area extending north of the Mojave Desert to near Lassen Peak in Northern California. Overall, the province consists of rugged Pre-Tertiary crystalline rocks and Tertiary and Quaternary sediments and volcanic rocks, underlain by Jurassic metavolcanic and metasedimentary rocks and Cretaceous igneous rocks.

The project site is characterized by deeply incised valleys, steep hillsides, and mountains that lie on the eastern side of the Pacific Crest line descending towards the Mojave Desert. The site is bound by Jawbone Canyon to the north and Pine Tree Canyon to the south. Elevation ranges from about 3,000 feet at the Jawbone Canyon entrance to the project site to about 5,000 feet at the southwest part of the project. Lithological units near the site include pre-Cretaceous metamorphic rocks, Mesozoic granitic rocks, Tertiary sedimentary and volcanic rocks, Quaternary alluvium, and artificial fill.

The project site is typically underlain by a highly varied series of sedimentary formations (e.g., sandstone, limestone, dolomite, siltstone, shale, chert, conglomerate), volcanic formations (e.g., andesite, basalt, tuff, tuffaceous sandstone, rhyolitic felsite), granitic rocks (e.g., quartz monzonite, granite, quartz diorite, hornblende diorite, gabbro), and metamorphic rocks (e.g., gneiss, schist, quartzite). Unconsolidated materials such as topsoil and colluvium, alluvial sediments, older alluvium, and slopewash deposits overlie theses units (see Figure 3.2-1, Geologic Map).

POTENTIAL GEOLOGIC HAZARDS

Faulting, Surface Rupture, and Seismicity

Faults are fractures or zones of fracture along which displacement of one side occurs, relative to another side. This displacement can take a number of forms, including vertical, horizontal, or a combination of displacement directions. The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate surface faulting hazards associated with structures intended for human occupancy.

The project site is considered to be in a seismically active area. Within the Southern California area, there are multiple active and potentially active faults, which are capable of generating earthquakes that could affect the Southern Sierra area. The Sierra Nevada Geomorphic Province is bounded on the south and east by a group of faults and fault zones trending roughly east-west and north-south. Several of these faults, which are shown in Figure 3.2-2, Fault Location Map, are considered active faults, (i.e., faults that exhibit evidence of ground displacement in the last 11,000 years). The closest major active faults to the site include the Garlock Fault system (left lateral, strike-slip), located approximately 5 miles to the south of the turbine sites and lying very near the proposed switching station site; the Southern Sierra Nevada Fault zone (normal fault), located to the east of the project

area; and the White Wolf Fault zone (reverse fault), located to the northwest. The inactive Jawbone Canyon Fault is mapped approximately 2 miles northeast of the site. The Garlock Fault is capable of producing a magnitude 7.3 earthquake and is located within a designated State of California Alquist-Priolo Earthquake Fault Zone.

Based on a Probabilistic Seismic Hazard Assessment for California issued by the United States Geological Survey/California Geological Survey, 2002 (Revised April 2003), the project site is located in a zone where the horizontal peak ground acceleration having a 10 percent probability of exceedance in 50 years is 0.33g (33 percent of the acceleration of gravity).

Based on the report prepared by the project geotechnical consultant, project facilities are not underlain by known active faults.

Liquefaction and Subsidence

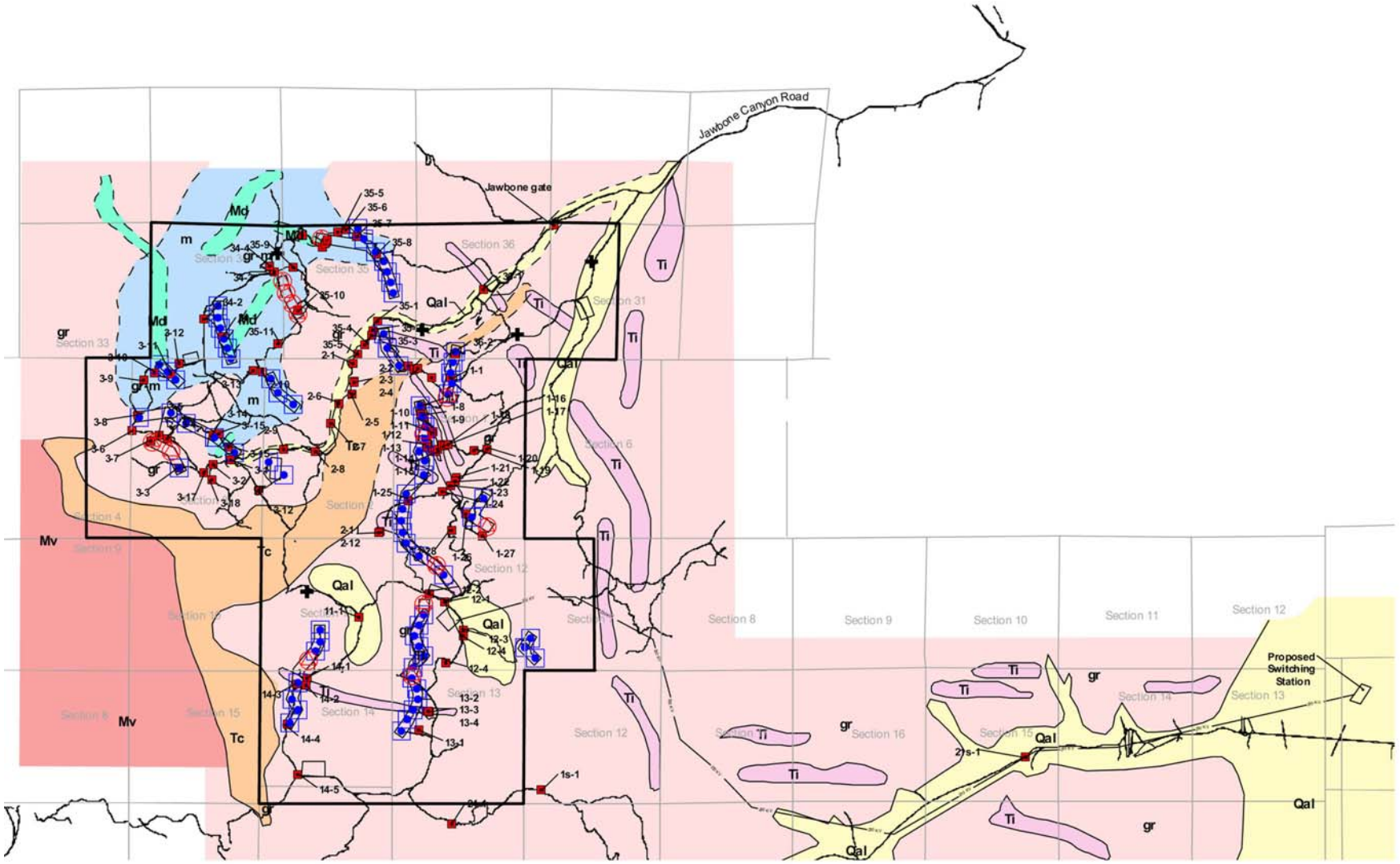
Ground motion can cause a range of ground failures, including liquefaction. Liquefaction is the loss of soil strength from sudden shock (usually earthquake shaking), causing the soil to become a fluid mass. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by a relatively shallow groundwater table are most susceptible to liquefaction. Ground motion can also cause dry sands to settle and densify. The amount of subsidence depends on relative density of the soil, ground motion, and earthquake duration. Uncompacted fill areas may be susceptible to seismically induced settlement.

The primary areas of the site with the potential for liquefaction include the loose alluvial soils in Jawbone Canyon, Little Jawbone Canyon, and Pine Tree Canyon, particularly after heavy rain storms when the ground water level may rise to near the surface in the valleys.

Slope Stability and Landslides

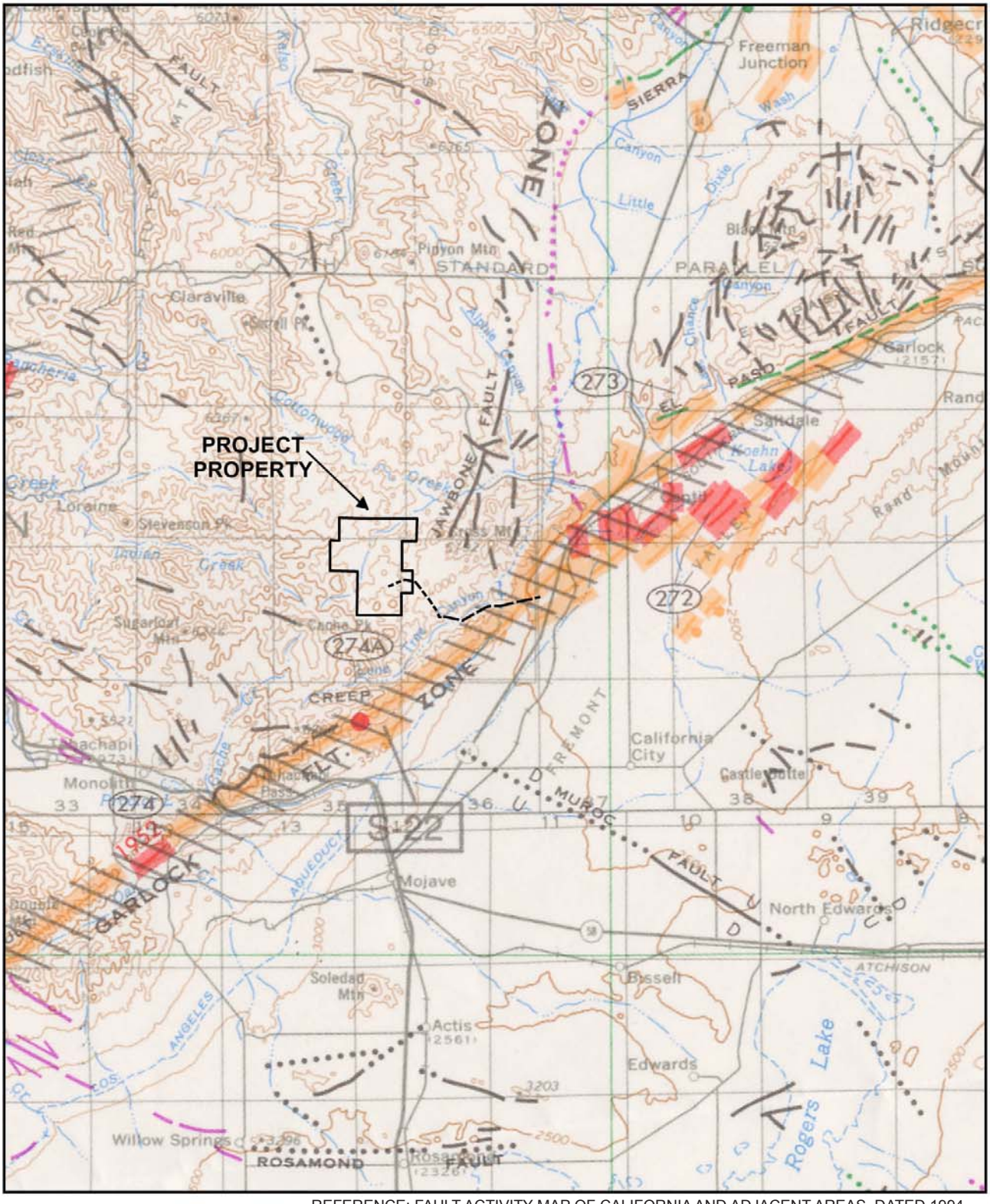
The terrain within the project property varies from flat to over 75 percent gradient. Portions of the proposed access roads and some of the turbines are located along steeply sloping terrain with gradients in excess of 50 percent. Some slopes, consisting of slopewash or alluvium, are approaching the angle of repose, the maximum angle at which unconsolidated materials are stable.

Seismically induced landslides can occur when ground motion causes unstable or steeply sloping and loosely aggregated soils and rocks to move down slope under the force of gravity. No deep-seated landslides were mapped or are known to underlie the subject site. However, a few areas of minor surficial slope failures/movement (generally less than 5 feet thick) were observed on-site. These features were generally observed on over-steeped natural slopes, and in areas where previous road grading created steep backcuts.



Source: Ninyo & Moore, 2004

Figure 3.2-1
Geologic Map



REFERENCE: FAULT ACTIVITY MAP OF CALIFORNIA AND ADJACENT AREAS. DATED 1994.

Legend

- Project Property
- Transmission Line
- Location of Holocene fault displacement
- Location of historic fault displacement

3 0 3 6 Miles

Figure 3.2-2
Fault Location Map

SOILS

Soil Characteristics

The primary source of information for soils within the project area was the Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service) of the U.S. Department of Agriculture (USDA). Published soil surveys were available for the project site. The soil surveys applicable to the project study area include the "Soil Survey of Kern County, Southeastern Part, California (NRCS 1981)."

The NRCS has mapped and delineated soils within the project area into soil series and soil map units. The objective of soil mapping is to separate the landscape into segments with similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, on-site investigations may be needed to precisely define and locate the soils and miscellaneous areas.

NRCS classification of soils include 104 Arizo in the lower channels; 204 White wolf at the mid-channel levels; and 206 Xeric Torriorthents, 148 Jawbone, and 170 Rock Outcrop in the upper areas. Except for the outcrops of rock, these soils are moderate to highly permeable and non-cohesive.

NRCS classification of soils over the Jawbone Canyon tributary area are 116 Cajon in the lower and mid-level channels, and 185 Torriorthents, 206 Xeric Torriorthents, and 170 Rock outcrop in the upper areas. Except for the outcrops of rock, these soils are also moderate to highly permeable and non-cohesive. Soil particles are typically transportable.

The following table shows ranges of infiltration rates for each soil type, which in turn attribute to relatively low rainfall to runoff ratios.

Table 3.2-1
Soil Characteristics

Soil Number and Name	USDA Texture	Hydrologic Group	Permeability, Inches per hour
104 Arizo	Gravely loamy sand	A	>6.0
116 Cajon	Gravely loamy sand	A	6.0 -20
170 Rock Outcrop	N/A	N/A	N/A
185 Torriorthents	N/A	N/A	N/A
204 White wolf	Loamy Sand	A	6.0 -20
206 Xeric Torriorthents	N/A	N/A	N/A

Source: Myers 2004 in Appendix C

These soils are generally a thin mantle of residual soils derived from the underlying parent rock. The majority of the soils are granular and silty sands, with limited areas of sandy to silty clay composition. The soils are expected to have low to moderate corrosiveness impacts on concrete and moderate to high corrosiveness impacts on bare steel. In addition, the NRCS data indicate that none of the soils on-site are classified as prime agricultural soils.

Erosion Potential

In general, the geomorphology at the project site includes a variety of terrain regimes, ranging from somewhat broad alluvial valleys near the northeastern portion of the site (Jawbone Canyon), to deeply incised drainages and steep mountainous terrain near the mid-portion of the site, and gently rolling hills that transition to a steep ridgeline on the northwest portion of the site. Erosion potential varies within each region and underlying parent material. As discussed above, soils generally are moderate to highly permeable; however, soil mapping for the entire site is not yet available from NRCS.

MINERAL RESOURCES

Review of Mines and Mineral Resources of Kern County, California (California Divisions of Mines and Geology [CDMG], 1963) indicates that although minor amounts of minerals such as gold, antimony, stone, and tungsten have been mined near the eastern side of the property, no commercial amounts of these minerals have been found within the property limits. Based on the review of referenced data, the proposed property is in an area where no significant mineral deposits are present or are considered likely to exist. Therefore, the potential for loss of mineral deposits due to development of the project is considered low.

GROUNDWATER

Groundwater levels can fluctuate due to seasonal variations, well pumping, and other factors. Depth to groundwater is anticipated to be highly variable across the site, with seasonal shallow groundwater within the more defined drainage courses and valleys. Groundwater is likely to be at depths greater than 100 feet over the majority of the site. In the major valleys on the site, such as Jawbone Canyon, groundwater can be expected near the surface, particularly during periods of wet weather. Portions of Jawbone Canyon, Little Jawbone Canyon, and Pine Tree Canyon to the south of the project are classified as Federal Emergency Management Agency (FEMA) 100-year floodplains. Several springs including Trail Springs, Peeping Tom Springs, and a number of unnamed springs are located within the project property. The springs typically would have constant shallow groundwater conditions. Project design purposely avoids construction of facilities near springs due to the importance of the features to wildlife.

3.2.2 REGULATORY FRAMEWORK

The primary regulatory requirements affecting the proposed project are related to compliance with applicable codes, regulations, and laws. The County of Kern Code of Building Regulations, Chapter 17.28, Grading Ordinance, would govern grading on private properties.

Grading and development on federal lands would be governed by the BLM. A primary source of specifications for development actions, including clearing and grubbing, grading, excavation and fill, storm drainage, use of explosives, seeding and soil remediation, is contained in the BLM 9100 Series Manuals. According to BLM, the U.S. Department of Transportation guidelines for erosion and sediment control are also used for construction mitigation (FHWA FLP 94-005, 1995).

In addition, the Farmland Protection Act Policy Act (7 USC 4201 et seq.) directs federal agencies to identify and quantify adverse impacts of their actions on farmland. The Act's purpose is to minimize conversion of agricultural land and soils to non-agricultural use.

3.2.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

A geotechnical assessment of the project site was conducted that included a review of readily available background information; including geologic maps, technical reports, soils surveys, and aerial photography. The assessment included a field geologic reconnaissance survey of the project site performed by a California Certified Engineering Geologist. The proposed project was then assessed against known geologic, geomorphic, and soil conditions present within the project study area, and recommendations were made to alleviate any potential effects identified.

THRESHOLDS OF SIGNIFICANCE

For purposes of this report, adverse impacts are considered significant if the project or alternatives would:

1. Expose people or structures to major geologic hazards, including rupture of a known earthquake fault, seismicity-related ground failure and liquefaction, landslides, and/or expansive/corrosive soils;
2. Involve changes in topography that would result in unstable soil conditions;
3. Increase erosion rates to a level that associated sedimentation levels could affect streams, rivers, or other water bodies;
4. Interfere with existing, proposed, or potential development of mineral resources; and/or
5. Disturb or eliminate unique geologic or topographic features.

IMPACT ANALYSIS

Seismic-Related Public Safety Hazards

The following impacts result from exposure of people or structures to potential geologic conditions that could occur over the operating life of the proposed project and/or that could be triggered by construction of the proposed project.

Impact 2.1: Implementation of the proposed project could expose people and structures to geologic hazards, including earthquakes and ground shaking.

During the life of the project, severe ground shaking from earthquakes originating on local and regional faults could occur. A major earthquake above magnitude 7 originating on the local segment of the Garlock Fault would be the critical seismic event that may affect the site within the design life of the proposed development. The project site is in Seismic Zone 4, soil profile Types S_B and S_C, and about 3.4 to 12.7 kilometers from a Type A seismic source as defined in the 2001 California Building Code (CBC). To mitigate the impact of placing people and structures within a seismic hazard area, structures shall be designed in accordance with the values and parameters given within the CBC (see Table 2 in Appendix B).

As discussed above, there are no known or observed active or potentially active faults within the proposed turbine site area. Therefore, surface rupture is not considered a risk for these components. However, the transmission line and, in particular, the switching station are sited near the Garlock Fault. See MM 2.1 in Section 3.2.4, below.

Impact 2.2: Construction in areas of shallow groundwater could expose people and structures to liquefaction hazard during significant seismic events.

The topography of the actual wind turbine sites, the lack of a shallow groundwater table, and the relatively dense nature of the subsurface materials in these areas indicate the potential for liquefaction in these areas is minimal. The principal areas that may be susceptible to liquefaction include the lower alluvial valleys of Jawbone Canyon and Pine Tree Canyon. No habitable structures are currently planned in these alluvial areas, but roadways, laydown areas, and power lines would be constructed and be exposed to liquefaction hazard. Due to the temporary nature of the laydown areas, no mitigation is needed. For roadways and power line mitigation, see MM 2.2.

Based on groundwater levels measured in nearby wells, groundwater beneath the proposed switching station is at a depth greater than 200 feet below surface; therefore, significant impacts related to liquefaction would not occur.

The potential for seismically induced ground subsidence is considered negligible at the site because of the shallow depth to bedrock. No significant impacts would occur.

Impacts Due to Grading and Construction

The following impacts occur primarily from grading and construction of the proposed project facilities.

Impact 2.3: Grading for project facilities could affect slope stability by increasing the potential for landslides, debris flows, and rock falls.

The project will require grading that would substantially alter the topography of the site. Many of the proposed roads and tower pads cross or are adjacent to slopes with inclinations steeper than 2:1. In addition, construction of roads and pads may create cut and fill slopes with inclinations steeper than 2:1. Slopes steeper than 2:1 may be subject to landslides, debris flows, and rock falls.

Any additional steepening of these slopes, such as cuts for roadway construction, may cause surficial soils to become unstable. These areas may be prone to slope instability such as rock falls and landslides.

The area has moderate to steep slopes, which contain blocky, volcanic rock outcrops and boulders that are a potential source of rock falls during strong earthquakes or large storms. Project facilities would be exposed to these hazards. Numerous drainages in the area are subject to debris flow and flash floods during sporadic heavy rainfall. Project facilities could also be exposed to potential debris flows, triggered by sustained heavy rainfall or during flash flooding events in some of the canyons and drainages over the life of the project.

Minor rock falls have occurred locally at the site in the past. Future rock falls may occur down some of the steep slopes within the subject site, particularly during periods of wet weather, or shaking due to a nearby seismic event. Such rock falls may produce relatively large boulders. See MM 2.3.

Impact 2.4: Grading of soils and rock units for construction of proposed facilities would result in potentially significant impacts, including the use of blasting to assist excavation.

Table 3.2-2 presents a summary of the published geologic units and anticipated geotechnical characteristics that may be encountered during construction of the proposed project. The table includes the geologic unit, relative age, lithologic description, slope stability, excavation characteristics, and occurrence.

Table 3.2-2
Summary of Geologic Units, Geotechnical Characteristics, and Potential Effects Related to Construction of Facilities

Geologic Unit (published name)	Age	Lithologic Description	Slope Stability	General Excavation Characteristics	Occurrence	Wind Turbine Towers/Laydown Areas or Structures
Fill (not a mapped unit)	Recent	Loose clay, silt, sand, gravel, and cobbles. (Generally derived from local geologic units.)	Unstable on slopes and subject to erosion.	Easy.	Generally associated with road construction and small earthen dams.	No wind turbine towers, laydown areas, or structures founded on existing fill.
Alluvium/ Stream channel deposits Colluvium/ Topsoil/ Slopewash (not a mapped unit)	Recent to Quaternary	Loose to dense, clay, silt, sand, gravel, and cobbles.	Unstable on slopes and subject to erosion.	Easy, relatively large boulders may be present in slopewash.	Alluvium is present in Jawbone Canyon, Little Jawbone Canyon, tributary drainages, and locally in broad valleys. Colluvium/ topsoil is present on hillsides and relatively steep slopes. Slopewash is present near the base of moderately steep to very steep slopes.	No wind turbine towers founded on these units. Laydown areas 5, 12, and 13, and a portion of Substation 11 and OM building may be underlain by alluvium.
Volcanic: (Kinnick Formation)	Tertiary	White tuff, tuffaceous and arkosic sandstone, basalt.	Moderately stable.	Moderate to very difficult in basalt.	Unit mapped adjacent to site.	No wind turbine towers founded on this unit.
Sedimentary: (Witnet Formation)	Tertiary	Arkosic sandstone, siltstone, conglomerate.	Moderately stable to unstable on steep slopes.	Moderately easy to excavate. Will vary with cementation. Conglomerate more difficult to excavate.	Conglomerate unit mapped across Section Nos. 1 through 4, 10, 11, 14, 15, and 36.	No wind turbine towers founded on this unit.
Volcanic Intrusive: (Tropico Group)	Tertiary	Rhyolite, rhyolitic felsite.	Generally stable.	Difficult to very difficult to excavate.	Intrusive rocks generally located on the northeast portion of the site.	**Tower No.** 35-8 **Tower Nos.** 1-7, 1-B2, 1-12, 1-16. **Tower Nos.** 12-1, and 12-2 through 12-8.

Table 3.2-2
Summary of Geologic Units, Geotechnical Characteristics, and Potential Effects Related to Construction of Facilities

Granitic Rocks	Meso-zoic	Undifferentiated, granite, quartz monzonite, tonolite.	Generally stable in non-fractured areas. Core stones may produce rock fall hazard.	Variable. Moderate to very difficult, due to weathering and fracture/jointing patterns and frequency. May require blasting.	Granitic rocks mapped across the site, except in Section No. 34.	**Tower Nos.** 1-2 through 1-6, 1-8 through 1-11, 1-13 through 1-15, 1-17, 1-18, 1-B1, 1-B2, 1-B3, and 35-10. **Tower Nos.** 2-4, 2-5. **Tower Nos.** 3-4 through 3-6, 3-8, 3-9, 3-B1, and 3-B2. **Tower Nos.** 7-B1, 7-B2 and 7-B3. **Tower Nos.** 11-1 through 11-4, and 11-B1. **Tower Nos.** 12-9, 12-B2, and 12-B3. **Tower Nos.** 13-1 through 13-6. **Tower Nos.** 14-1 through 14-4. **Tower No.** 1-1. **Tower Nos.** 35-4 through 35-7, and 35-9. **Section 35:** O&M building and a portion of the laydown area may be underlain by granite rock.
Metamorphic Rocks	Pre-Creta-ceous	Gneiss, schist, quartzite, with limestone/ Dolomite roof pendants.	Generally stable, resistant, ridge building material. Fractured zones may produce rock fall hazard.	Difficult to very difficult, depending on fractures and weathering, may require blasting.	Generally located near the northwest portion of the site, in portions of Section Nos. 2, 3, 4, 33, 34, and 35.	**Tower Nos.** 2-1 through 2-3. **Tower Nos.** 3-1, 3-2, 3-3, and 3-7. **Tower Nos.** 34-1 through 34-6. **Tower Nos.** 35-1, 35-2, 35-3, and 35-B1 through 35-B-4. **Section 35:** laydown area 5 AC.
Dolomite	Pre-Creta-ceous	Dolomite/limestone/ undiffierentiated roof pedants.	Generally stable; however, fractured zones may produce relatively large boulders/ rock fall hazard.	Moderately difficult to very difficult, may require blasting	Forms prominent ridges. Section Nos. 1, 2, 3, 12, 13, 33, 34, 35, and 36.	**Tower No.** 35-10. **Tower No.** 34-5.

As indicated in the table, excavation is likely to be difficult at specific locations on the project site. Cuts into the rock will likely require ripping with heavy excavation equipment and possible blasting. Excavation for wind turbine pads and deep foundations on ridge tops may encounter relatively hard rock at shallow depths that would entail heavy ripping, blasting, and/or specialized drilling techniques. Roadway construction on steep slopes is also likely to encounter relatively hard rock at shallow depths that would entail blasting.

Potential blasting impacts during construction include flyrock, air blast and overpressure, and ground vibration. These are discussed separately below.

Flyrock: The generation of flyrock may be an issue for people, structures, and wildlife. Impacts of flying rock induced by the blast are controlled by the proper design and execution of the blasting program. This is accomplished by using small explosive charges strategically placed within the drill hole, proper stemming of each drill hole above the charge, and proper layout of the drill hole template at the tower foundations and other planned excavations. Use of slow timing sequences between charges allows the fragmented earth material to move within the planned excavation and reduce the energy escaping into the environment.

Air Blast or Overpressure: Blasting can create a change in barometric pressure or air overpressure of short duration (less than a few seconds), which is sensed by humans and wildlife. This pressure change can be monitored during construction and measured using a standard seismograph that is commonly used in blasting operations. The air blast is the "noise" created by the short duration change in barometric pressure. Specific measures can be implemented to reduce greatly the air blast created from blasting. For example, the proper stemming of drill holes, use of proper confinement factors, control of the blast by the proper selection and size of explosives, and use of environmentally friendly detonation cords can be employed in areas sensitive to air blast or overpressure.

Ground Vibration: Ground vibrations of short duration (less than several seconds) are produced during construction blasting that may cause damage to structures located close to the area of blasting. Vibrations can be monitored during construction and measured using a standard seismograph that is commonly used in blasting operations. For areas sensitive to vibrations, the blasting program shall be designed to minimize ground vibration impacts.

The effects of blasting would be minimal on humans since no existing occupied structures or off-site properties are located in proximity to areas of anticipated blasting. Nonetheless, potential impacts on wildlife and cultural resources could be significant without proper design of the blasting program in proximity to these resources. See MM 2.4.

Impact 2.5 Construction activities associated with the proposed project could result in increased erosion and associated sedimentation in the Jawbone Canyon and Pine Tree watersheds.

The surface soils are generally granular sands and silty sands and will provide suitable subgrade support for all-weather, unpaved access roads, but they are erodible. There are limited areas that have sandy to silty clay composition with shrink/swell potential. These soils are less suitable for subgrade during wet weather and may be prone to rutting with traffic.

Erosion and flooding are possible within existing alluvial washes that dissect the site. Proposed access roads will traverse granular soils that are erodible. Engineered culverts or stream crossings

can mitigate this hazard across significant washes. At the lower elevations of the site, such as Jawbone and Little Jawbone canyons, fluvial scour erosion and flooding are possible within the existing alluvial washes that dissect the site. Access roads traverse granular, cohesionless soils that are erodible. The granular nature of the majority of the site soils makes them susceptible to erosion.

There is an increased potential for erosion at the site due to construction activities. In addition, erosion may be accelerated due to road construction in or across stream drainages, along steep-sided slopes, or as a result of off-road vehicular traffic, particularly if terrain is traversed during wet conditions. See MM 2.5-1, MM 2.5-2, and MM 2.5-3.

Impacts Due to Project Operations

Impact 2.6: During project operations, travel on dirt roads, maintenance activities, and storm water runoff from project facilities could cause soil erosion.

Similar to construction, the project would increase the potential for erosion at the site due to vehicular travel on dirt roads and maintenance activities requiring soil disturbance. Natural erosion could occur in areas underlain by granitic parent material, where the granitic rock weathers to relatively coarse-grained, loose, or unconsolidated material that is highly susceptible to erosion, particularly on hillsides or steep slopes. See MM 2.6.

3.2.4 MITIGATION MEASURES

The following measures would be employed to minimize potential project impacts on geology and soils.

MM 2.1: To mitigate the exposure of people and structures to potential strong ground motion:

- All habitable structures shall include engineered design and earthquake-resistance construction to increase safety of persons occupying the buildings.
- A qualified professional engineer will design the wind turbine structures, including foundations, constructed on the site.
- The minimum seismic design will comply with the Kern County Building Code, Chapter 17, and applicable California Building Codes.

MM 2.2: Any damage to the unpaved roads caused by exposure to liquefaction of underlying alluvium shall be repaired after the event. For the transmission line, mitigation shall consider densifying the soil in place with vibroreplacement (stone columns), compaction grouting, use of deeper than normal foundations, and/or other recommendations of the engineering geologist. Any damage caused to the power lines by liquefaction of underlying alluvium shall be repaired after the event.

MM 2.3: To mitigate the impacts associated with slope stability, landslides, and rock falls, geotechnical evaluations shall be performed to evaluate slope stability and provide recommendations for project construction. Specific recommendations for remedial actions shall be made and could include any of the following:

- A qualified engineering geologist shall provide design recommendations to reduce potential for slope failure and to ensure proper placement and design of facilities, foundations, and remediation of unstable ground.
- Grading will be conducted pursuant to Kern County Grading Codes, Chapter 17.28, and BMPs.
- No project structures or grading shall occur in areas where potential for severe hazard exists that cannot be mitigated with engineering.
- Measures to stabilize slopes shall consider retaining walls, soil nails, geofabric stabilized earth, wire retention devices, berms to deflect debris, and buttress fills. The construction manager shall implement the plans, and an engineering geologist shall certify that slopes have been properly stabilized.
- At project abandonment, the project owner or successors will ensure ongoing stability. All fill slopes shall be engineered to provide long-term stability (drainage, reseeding, etc.).
- To mitigate the potential soil corrosiveness impacts, appropriate concrete mix design shall be used to resist against sulfate attack, and appropriate cathodic protection or encapsulation of steel shall be employed.
- Wind turbine sites where slopes exceed 4:1 will require specific consultation and approval by the Kern County Engineering and Survey Services Department, with site-specific mitigation measures implemented.

MM 2.4: The impacts associated with blasting are mitigated through compliance with local and state laws and by preparing and complying with a blasting plan approved by Kern County Planning Department, in consultation with Kern County Engineering and Survey Services Department, Kern County Fire Department, and Kern County Air Pollution Control District (KCAPCD). The blasting plan shall include the following essential elements:

- The contractor performing blasting at the site shall comply with applicable regulations and standards established by the regulatory agencies, codes, and professional societies including the rules and regulations for storage, transportation, delivery, and use of explosives.
- Blasting operations shall be conducted so as to prevent impact on special status plant and wildlife species and migratory birds.
- Whenever blasting operations are in progress, explosives shall be stored, handled, and used as provided by law, including safety and health regulations for construction.
- The contractor shall ensure that flyrock, air blast, and ground vibration are controlled so as not to affect the known archaeological and historical sites prior to data recovery.

MM 2.5-1: Measures shall be incorporated into the design of the project to minimize erosion and sedimentation. Turbine generator pads and roads should be graded to divert flow away from natural slopes and toward permanent culverts and swales leading to natural drainage courses. Depending on the slope, energy dissipaters and/or detention basins may be needed at the end of the culverts or swales. Road design shall consider opportunities to provide sheet flow drainage from surfaces where erosion can be avoided. Where roads cross streams, the crossing should be made at right angles to the stream to the extent possible, and engineered measures such as flow dissapators, adequately sized culverts, and sediment traps shall be used to minimize erosion.

MM 2.5-2: The following measures shall be implemented throughout construction to minimize the impacts of erosion to an acceptable level:

- Areas where ground disturbance will need to occur shall be identified in advance of construction and limited to only those areas approved by LADWP.

- All construction vehicles shall be confined to the designated access routes, roads, and staging areas.
- Site disturbance shall be limited to the minimum necessary to complete construction activities.
- Consider crushing vegetation rather than blading in construction laydown areas.
- Inform all supervisory construction personnel of environmental concerns, permit conditions, and final rehabilitation specifications.
- Significantly weak soils may be stabilized with granular base with possible geotextile underlayment.
- Where the soil is too wet such that ruts occur, restrict access to area or avoid by rerouting vehicles if possible.

MM 2.5-3: To mitigate the potential adverse effects of erosion, the Applicant shall prepare and implement an Erosion and Sedimentation Control Plan and SWPPP. The plan shall include BMPs identified in reference documents, including BMPs for construction of wind power projects on BLM lands, BMPs for Erosion and Sediment Control (FHWA FLP 94-005), Kern County Grading requirements, and measures provided in MM 2.5-1 and 2.5-2 above. In addition, the following shall be used as a guide to develop these plans.

- Restore disturbed areas to pre-construction contours to the extent feasible.
- Salvage, store, and use the highest quality soil for revegetation.
- Discourage noxious weed competition and control noxious weeds through physical or chemical removal and prevention (chemical removal on BLM lands requires specific authorization from BLM). In particular, efforts to prevent yellow starthistle from inhabiting the site shall include use of weed-free native seed mixes and prevention of noxious weeds from entering the site via vehicular sources. For instance, implement Trackclean or other method of vehicle cleaning for vehicles coming and going from the site. Earth-moving equipment shall be cleaned prior to transport to the project site. Weed free rice straw or other certified weed free straw shall be used or all hay employed for erosion control.
- Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff.
- Cease topsoil-stripping activities during significantly wet weather.
- For areas that require permanent erosion control structures, stepped footings or retaining walls designed to preserve the natural landforms should be used.
- Use bales and/or silt fencing as appropriate.
- Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic.
- Following completion of each area of construction, weed-free mulch shall be applied to disturbed areas within ten days in order to reduce the potential for short-term erosion.
- Soils, other than access roads, shall not be left exposed during the rainy season.
- Establish provisions for construction operations during foul weather.
- Filter fences and catch basins shall be used to intercept sediment before it reaches stream channels.
- Spoil sites shall be located such that they do not drain directly towards a natural spring. At spoils sites draining toward a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and revegetated to reduce the potential for erosion.
- Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated.

MM 2.6: To mitigate potential long-term impacts of soil erosion and sedimentation, the project site access roads, turbine sites, and other structures and areas will be regularly monitored for erosion, sedimentation, and to ensure that drainage control features are in good working order. Drainage and erosion control devices will be repaired prior to start of each rainy season. Revegetated areas shall be monitored for a period of time as specified in the erosion control plan.

3.2.5 RESIDUAL IMPACT AFTER MITIGATION

The mitigation measures require that appropriate design features and evaluations are incorporated into the wind project plans and specifications. Accordingly, the measures would reduce impacts from ground motion, liquefaction, slope instability, blasting, and erosion to a less than significant level. Given the nature of site soils and topography, aggressive application of erosion control is necessary. Impacts related to groundwater, fault rupture, subsidence, and flooding would be less than significant; therefore, no additional measures would be required.

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3.3 HYDROLOGY AND WATER QUALITY

A hydrology study that evaluated site surface hydrology and groundwater conditions and provided recommendations regarding the proposed development of the site was conducted by a professional civil engineer specializing in hydrology. The hydrology report is included in this EIR/EA document as Appendix C**.**

3.3.1 EXISTING AND AFFECTED ENVIRONMENT

HYDROLOGICAL SETTING

The proposed project lies within two major watershed areas: (1) Jawbone Canyon, located in the north portion of the project property and (2) Pine Tree Canyon, located to the south of the project limits. Both Jawbone and Pine Tree canyons drain into the Fremont Valley, to the east of the project property. Drainage waters collected in the watershed flow in surface water and stream channels and eventually permeate into the coarse permeable soils of the channels and flow subsurface to aquifers in the valley. All surface water drains toward Koehn (dry) Lake. An estimated 4,000 to 10,000 acre-feet of water per year is recharged from the western subsurface flows.

More specific information about groundwater in the Fremont Valley is available in a report entitled "Hydrogeologic Assessment of Fremont Valley", October 21, 1977, and is on file with the Kern County Water Agency (KCWA).

Pine Tree Canyon covers approximately 32 square miles upstream of the last proposed crossing and falls approximately 3,260 feet over the 12-mile-long water course, with an average gradient of approximately 5 percent. A gradient of 5 percent reflects relatively unstable flow conditions within the watershed. The floodplain channel to the southeast of the project property is approximately 600 feet wide and 38 feet deep.

Jawbone Canyon covers approximately 175 square miles upstream of the last proposed crossing and falls approximately 4,030 feet over the 24-mile-long watercourse with an average gradient of approximately 3 percent. A gradient of 3 percent reflects relatively stable flow conditions within the watershed. The floodplain channel on the northeast side of the project limits is approximately 1,450 feet wide and 38 feet deep.

SURFACE DRAINAGE

Hydrologic cover over the watershed can be classified as moderate to good condition. Native grasses and brush cover well over 75 percent of the ground surface and provide good stabilization of the soils. Existing washes in the upper tributaries are stable and show little sign of erosion. The lower confluence channel has the typical distinction of a desert watercourse, that is, loose granular channel bottoms and eroded steep banks. Lower flow meandering courses are evident within the main channel of both Pine Tree and Jawbone canyons. Relatively steep channel slopes dictate aggressive flow velocities for major rainfall events. Erosion and sediment transportation are natural characteristics of this major watercourse. Site drainages are ephemeral, containing water only during and for some period of time after rainfall. Surface water is evident for longer periods of time in minor drainages near springs.

FLOODING

The Pine Tree and Jawbone canyon watersheds are designated flood zones according to FEMA. Flood Insurance Rate Maps have been prepared by FEMA, which graphically depict designated flood zones of "A" within the defined channel ways. Community panel numbers 060075 1375B and 1125B, dated September 29, 1986, identify these areas having a 1 percent chance of flows being equaled or exceeded in any given year. Permanent structures placed in the floodplain would be subject to flood hazard review prior to issuance of building permits.

After heavy rains and flooding, a substantial amount of water and sediment from these drainages is deposited in the agricultural fields and open areas to the east of the site at Cantil. The resulting sediment and blowing dust has caused considerable problems for some nearby users such as the American Honda test facility.

GROUNDWATER

The State Department of Water Resources' Bulletin 118-80 contains some very general information on the project area as having water-bearing materials. The report states: "There are many wells located within the foothills of the Sierras and elsewhere in the State outside the identified groundwater basins shown in this report. Groundwater is available in most of these areas on a limited basis and has been used extensively for the development. The rapid increase of population in such areas has in some cases resulted in a number of wells that may interfere with each other's water levels and that together would pump more water than the local groundwater in rock fractures can provide.

"Specific conclusions about groundwater availability in such areas are not possible because the open fractures are not always interconnected and water does not move rapidly from one area to another. In such areas, fractures are not continuous and also become smaller with depth. Even though these areas are not identified as groundwater basins in this report, the problem can be a significant one locally."

3.3.2 REGULATORY FRAMEWORK

As noted in the Introduction section, the stream channels and water courses on the project site are not considered waters of the U.S. relative to the CWA. Consequently, Sections 401 and 404 of the CWA are not applicable to the proposed project. The California RWQCB now regulates some discharges to waters deemed outside the purview of Section 404 of the CWA. Such discharges to waters of the state may be covered under the Statewide General Order if the project meets certain eligibility criteria. However, it is likely that an ROWD addressing discharge of fill and other activities in state waters would need to be filed with RWQCB.

The RWQCB implements provisions of Section 402 of the CWA and, in particular, administers permitting procedures for the NPDES. The proposed project would be subject to the NPDES Construction Activities Storm Water General Permit requirements pursuant to 40 CFR, Parts 122-124. As part of the general permit, a SWPPP would be required. The SWPPP would identify appropriate BMPs to reduce pollutants in storm water discharges and to otherwise protect water quality in receiving waters from construction site runoff both during and after construction.

The project is subject to an Executive Order relating to floodplain management. Executive Order 11988 – Floodplain Management requires federal agencies to prepare a floodplain assessment for actions located within or affecting floodplains.

Numerous watercourses within the project limits are to be crossed by construction and maintenance roads. These crossings will come under the jurisdiction of the CDFG, the BLM, and the County of Kern for review of grading and road design.

The CDFG has authority to review and regulate all proposed alteration of streambeds under the Fish and Game Code Sections 1602.

The project falls within the defined boundary for "The Water Quality Control Plan for the Lahontan Region – North and South Basins." While "Upper Cottonwood Creek," a tributary to Jawbone Canyon and a portion of the Fremont Hydrologic Unit, is listed in Table 2-1 (Beneficial Uses of Surface Waters of the Lahontan Region) of the Control Plan, no specific water quality objectives are listed. The California RWQCB regulates some discharges to waters deemed outside the purview of Section 404 of the CWA. Thus, ROWD will be processed with the RWQCB.

The Clean Water Action Plan, initiated in 1998, established a collaborative process between federal agencies, stakeholders, and the public to develop a Unified Watershed Assessment (UWA) and to make recommendations for allocation of new federal funds for watershed protection. The Plan called for watersheds to be placed into categories ranging from I to IV, with Category I being watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (emphasis on aquatic systems). Category I is the lowest category in terms of overall environmental quality. The UWA also calls for the participants to establish priorities among Category I watersheds for the purpose of targeting proposed federal funds that would be available during the 1999 and 2000 federal fiscal years. The proposed project is located in the Antelope-Fremont Valleys watershed and is designated a Category I impaired watershed. However, the watershed is not identified as a priority watershed to receive funding for restoration and water quality improvements under the initial program funding or subsequent funding.

3.3.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

The hydrological study of the project site included a review of readily available background information including watershed maps, technical reports, soils surveys, and aerial photography.

Hydrology calculations were performed in accordance with the Kern County Subdivision Standards and Hydrology Manual. The design parameters for local roadway crossings of drainageways would be the 10-year event (10 percent chance), known as the intermediate storm design discharge . The design parameters for arterial roadways owned and operated by the County of Kern would be the 100-year event (1 percent chance), known as the capital storm design discharge . These criteria for the county road would only apply if any changes to the existing water courses or road surface profile would be required to facilitate the project. Few improvements are proposed in the paved (County-controlled) areas of Jawbone Canyon Road. In the event culverts are needed in Jawbone Canyon Road, they will be designed to pass the 1 percent chance event with overtopping not to exceed that specified by the County Standards.

The runoff calculations for the purpose of sizing culverts and road crossings were performed using an accepted regional analysis. Formulas used to estimate the 10-year and 100-year events were taken from "Magnitude and Frequency of Floods in California" by the U.S. Geological Survey Water Resources Investigations Bulletin No. 77-21, and formulas used by the South Lahontan-Colorado Desert Region for watershed discharge. This type of regional analysis is only indirectly related to rainfall, as empirical studies determine anticipated runoff from measured streams. Nonetheless, the expected rainfall volumes for the design events are 3.94 inches for a 10-year, 24-hour rainfall and 6.00 inches for a 100-year, 24-hour rainfall.

Drainage courses and their associated tributary areas were then defined utilizing U.S. Geological Survey (USGS) Quadrangle sheet and project aerial topography. Since the South Lahontan-Colorado Desert Region formulas are related only to area, the flows were calculated directly and applied to the sizing of crossings and pipes.

The proposed project was then assessed against known hydrologic, groundwater, and soil conditions present within the project study area, and recommendations were made to alleviate the potential effects.

THRESHOLDS OF SIGNIFICANCE

The project would have a significant effect on the environment if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche, tsunami, or mudflow.

IMPACT ANALYSIS

The primary impacts associated with the proposed project include potential increases in surface water runoff from the site and potential water quality impacts from project development. The project site is not in an area that is at risk of inundation by seiche, tsunami, or mudflows. Additionally, there are no existing or planned public storm water drainage systems in the project vicinity. Therefore, the

project would not contribute to exceeding the capacity of existing or planned public storm water drainage systems.

Surface Water Impacts

Impact 3.1: The project has the potential to alter runoff volumes through clearing and grading for project components and by access road crossings of stream channels.

Implementation of the project requires vegetation clearing, widening of existing dirt roads, and grading of new dirt roads. Other project components, such as staging areas and power distribution structures, would also require clearing and grading. Approximately 238 acres of vegetation would be removed to accommodate construction of project facilities, and about 106 acres would be revegetated upon completion of construction. Surface runoff from graded areas has the potential to be higher than runoff from vegetated areas. Access to various project components would require multiple stream crossings during construction and operation of the project.

The conceptual drainage plan for the proposed project addresses several elements of project development affecting surface water. The objective is to eliminate and/or minimize drainage course changes and to incorporate erosion and sedimentation control systems and devices such as rock riprap, detention basins, revegetation, and other control devices on disturbed areas. In every case, drainage waters would be returned to their original courses in the same magnitude as that prior to the project. Permanent disturbance of the surface would only occur in those areas that are in actual use for the purpose of ongoing project maintenance and operations. Construction and maintenance of roads would be designed to limit erosion and siltation to what would naturally occur prior to project implementation. Areas of disturbance to the natural ground cover for side-slopes and unused graded portions of the project are to be replanted with native cover. Cover is to be re-established with species similar to those that existed prior to the construction disturbance.

Other elements of the drainage concept include providing detention basin design at the turbine sites to reduce peak discharge rates to pre-project values and to provide silt capture. Incidental roadway drainage intercepted from side-slope cuts is to be returned to natural courses at frequent intervals to reduce concentration. The use of berming and rock riprap will be necessary to minimize erosion. On both the upstream and downstream portions of the drainage crossings, riprap would be placed within the drainage up to the point where it meets the natural channel slope and grade. Natural angular rock excavated on-site during project construction would be used. Drainage control and approval of drainage plans is under the jurisdiction of the County of Kern (on private lands) and BLM (on federal lands). See Mitigation Measure 3.1.

No impervious surface is proposed for the project. With proper collection and returning to original courses, increased flows due to increases in disturbed areas would be insignificant.

There are approximately 106 locations on the site where access roads cross existing drainages that would require some level of improvement (see Figure 3.3-1). These locations are further inventoried in the Hydrology Report in Appendix C. The drainage concept includes five basic types of stream drainage crossing design as discussed below and illustrated in Appendix C.

Minor At-Grade Crossing – This crossing would be utilized in locations where drainageways are poorly defined and at nearly the same grade as the roadway. This crossing may also be required at the direction of the CDFG. Upstream and downstream rock riprap is to be utilized along with

roadway base rock to stabilize when flows occur. Downstream construction of a stilling basin may also be necessary.

Major At-Grade Crossing – This crossing would be utilized for the major canyon crossings. This crossing will consist of a roadway set at the channel bed level with rock riprap stabilization. A downstream apron and energy dissipation basin will be required to minimize channel bed degradation across the roadbed.

Over-Side Drains – The over-side drains along with berming will be utilized to minimize drainage concentration along road alignments. Collection of drainage from cut banks and these localized drainages will better manage erosion and siltation. Rock riprap at the over-side drain outlets will return drainage waters to their courses at the points of their original natural fall. These structures will fall within the normal limits of the cut and fill banks.

Pipe Culvert Crossing – Pipe culvert crossings will be utilized for most of the drainage crossings. These will be considered when roadway grades occur well above the channel inverts. Riprap will be used to return flows back to original line and grade.

At-Grade Crossings in Restricted Areas - At-grade crossings will be utilized in the BLM and the private property along the Jawbone Canyon access to the project property. In these locations, right-of way procurement is very difficult outside of the existing disturbed areas. The purpose of this crossing is to establish a stable roadbed in an existing drainage way. Grade is to adapt to the existing ground in the drainage way with virtually no change to the existing drainage.

With implementation of the drainage concept discussed above and the required preparation and adherence to a SWPPP (for prevention of pollution for storm water runoff), the proposed project would not result in significant adverse impacts on surface waters. No mitigation measures are required.

Impact 3.2: Construction that occurs within the 100-year flood plains in Jawbone and Pine Tree canyons could alter flood plains established by FEMA.

Project design avoids placement of structures in the 100-year floodplains within Jawbone and Pine Tree canyons. Some grading will occur in the floodplains in both washes to form at-grade roadbeds to facilitate crossing the washes by construction and maintenance traffic. A 0.5-mile segment of Jawbone Canyon Wash would be used for temporary construction access; however, no structures would be placed in the floodplain and the natural roadbed would not alter the flood hydrology of wash. The construction of the transmission line in Pine Tree Canyon would place tower structures near the floodplain. Final design may require adjustment of tower locations. If any of these structures require location in the floodplain, a flood hazard assessment pursuant to FEMA requirements would be required.

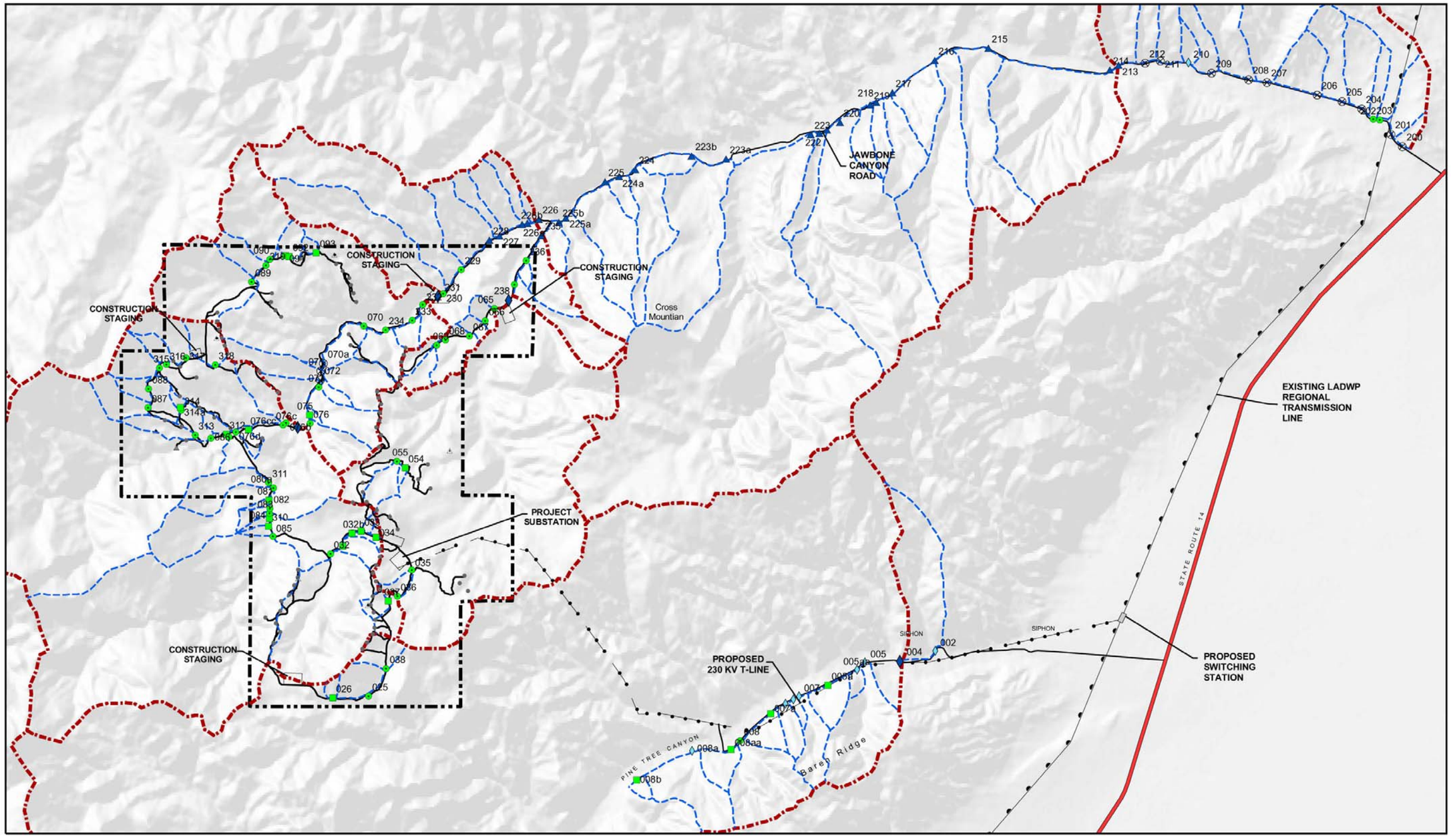

Figure 3.3-1
Stream Crossing Map

Based on present design, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding or otherwise place structures in the floodplain that would impede flood flows. Further, the project would not conflict with Executive Order 11988 – Floodplain Management requiring federal agencies to prepare a floodplain assessment for actions affecting floodplains.

Surface Water Quality

Impact 3.3: Grading for project facilities has the potential to cause soil erosion that could temporarily increase turbidity and total suspended solids in runoff water.

The potential impacts of erosion include caving of side-slopes, landslides, and redirection of natural watercourses, downstream siltation, and pollution of surface waters. However, these impacts are avoided due to the commitment for strict attention to erosion control during grading. Extensive erosion control measures are prescribed in Section 3.2.4 (see MM 2.5-1, 2.5-2, 2.5-3, and 2.6). In addition, careful attention in project design is given to access road stream crossings so as to protect water quality. For instance, disturbance of wildlife in actual wet waterways is kept to a minimum with the use of closed culverts. This allows vehicles to cross the waterway without driving through it and thus stirring up silt and possibly washing oils and lubricants off the vehicle if exposed to water. Providing rock and cobble inverts as proposed would naturalize closed culverts after their construction for extended-term wet crossings with minimal impact to water quality. No additional mitigation measures are required.

Impact 3.4: Use of construction equipment on the site could increase the potential for accidental fuel or lubricant spills or leaks that could degrade water quality.

These potential impacts are avoided by conformance with measures to protect water quality during construction. A SWPPP will be prepared and implemented that outlines measures to be taken to prevent water quality impacts during construction and operations (see project description and MM 2.5-3). All fuels, fluids, and lubricants will be carefully stored, used, and disposed in accordance with applicable laws and regulations. In addition, entrapment of fuel and lubricant spills in equipment service locations would be addressed in the SWPPP. No significant impact would occur.

Groundwater

The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Use of on-site groundwater to support the O&M building and switching station non-potable needs would be minimal and the runoff characteristics will be maintained at the existing conditions as described above. Excavation for the turbine foundations will not reach groundwater depths, which are estimated to be 100 feet or more deep in the non-channel areas where the turbines would be located.

3.3.4 MITIGATION MEASURES

The following mitigation measure would be employed to minimize the potential project impact related to drainage concept and design.

MM. 3.1: All required approvals and permits, including drainage plan approval, shall be obtained from the Kern County Engineering and Survey Services Department prior to construction. For

coordination purposes, materials, studies, and responses from the CDFG and the BLM regarding permitting of crossings or watercourses within the project limits shall be provided to the Kern County Engineering and Survey Services Department.

3.3.5 RESIDUAL IMPACT AFTER MITIGATION

With incorporation of the stated mitigation measures, the impacts to hydrology and water quality would be reduced to less than significant.

3.4 AIR QUALITY

3.4.1 EXISTING AND AFFECTED ENVIRONMENT

CLIMATE

The project site is located in the high desert area. The nearest stations with long-term climate data are Mojave, approximately 12 miles to the south, and Tehachapi, approximately 15 miles southwest. Tehachapi climate is likely more representative of site climate because of a greater similarity in elevation. The warmest months at Tehachapi are July and August, with average maximum and minimum temperatures of approximately 86 and 56 degrees Fahrenheit (°F); the coldest months are December and January, with average maximum and minimum temperatures of approximately 52 and 30 °F (WRCC 2004). Average total precipitation is approximately 11 inches, occurring principally November through March. Average annual snowfall at Tehachapi is 18.6 inches. The principal climatic feature of the site affecting air quality is the wind, with average wind speeds of 14 to 18 miles per hour, with prevailing winds from the west and northwest.

Between 1955 and 1974, climate data was collected at Cantil, California, near Jawbone Canyon and SR-14. During this period, average maximum temperatures during the hottest months of the year were 103.6 ^{0}F in July and 102.4 ^{0}F in August, while average minimum temperatures for the same months were 69.1 and 66.6 ^{0}F, respectively (WRCC 2004). Average total annual precipitation was 4.13 inches per year, including 0.4 inch of snowfall.

EXISTING AIR QUALITY

A state or region is given the status of "attainment" or “unclassified” if ambient air quality standards have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the ambient air quality standard for that pollutant has been exceeded. Once designated nonattainment, the status of attainment may be achieved after three years of data showing nonexceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a maintenance area, indicating the requirement to establish and enforce a plan to maintain attainment with the standard.

The project site is located within the Mojave Desert Air Basin, which is under the jurisdiction of the KCAPCD. The project site is within an area that is in attainment for all federal criteria pollutants except ozone (O_3). On April 15, 2004, the EPA issued the initial designations for the 8-hour O_3 standard, and Eastern Kern County is classified as “basic nonattainment.” Basic is the least severe of the six degrees of O_3 nonattainment. KCAPCD must submit an air quality plan to the EPA to demonstrate how the 8-hour O_3 standard will be attained by June 2009 (USEPA 2004a). Eastern Kern County had been designated a nonattainment area for the federal 1-hour O_3 standard. In April 2004, the EPA approved the East Kern County 1-hour O_3 maintenance plan and motor vehicle emissions budgets as revisions to the East Kern County portion of the California State Implementation Plan (SIP), and redesignated the East Kern County area to attainment for the 1-hour O_3 National Ambient Air Quality Standards (NAAQS) (USEPA 2004b). The designation as an attainment/maintenance area was effective June 21, 2004.

Relative to state standards, Kern County has been classified as a nonattainment area for the state 1-hour O_3 and PM_{10} (particulate matter equal to or less than 10 microns in size) standards (CARB 2004).

3.4.2 REGULATORY FRAMEWORK

AMBIENT AIR QUALITY STANDARDS

The Federal CAA (42 USC Section 7401-7671q; CAA) requires the adoption of NAAQS to protect the public health and welfare from the effects of air pollution. Current standards are set for sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), O_3, PM_{10}, fine particulate matter equal to or less than 2.5 microns in size ($PM_{2.5}$), and lead (Pb). These pollutants are called the criteria pollutants. The State of California Air Resources Board (CARB) has established additional standards for the criteria pollutants that are generally more restrictive than the NAAQS. Federal and state standards are shown in Table 3.4-1.

The newest federal standards, for O_3 averaged over an 8-hour period and for $PM_{2.5}$, became effective on September 15, 1997 and were subsequently challenged and litigated. The U.S. Supreme Court affirmed the standards, and policies and systems to implement these new standards are being developed. On April 15, 2004, the EPA issued a final ruling for the 8-hour O_3 designations and controls (EPA 2004). $PM_{2.5}$ data are still being collected at many sites, and the $PM_{2.5}$ attainment classifications are anticipated in December 2004.

In California, local responsibility for air quality is assigned to air quality management districts and air pollution control districts. The project site is located within the jurisdiction of the KCAPCD, which is the eastern half of Kern County. The mission of KCAPCD is to attain and maintain NAAQS and California Ambient Air Quality Standards (CAAQS), and to ensure air pollutants do not pose a nuisance or significant public health threat (KCAPCD 2004a). Included in KCAPCD's tasks are the monitoring of air pollution and the promulgation of Rules and Regulations. One KCAPCD rule, Rule 402, Fugitive Dust, is noted with respect to the proposed project. KCPACD has issued guidelines for CEQA implementation (KCAPCD 1999).

CLEAN AIR ACT CONFORMITY

The 1990 amendments to federal CAA Section 176 require the USEPA to promulgate rules to ensure that federal actions conform to the appropriate SIP. These rules, known together as the *General Conformity Rule* (40 CFR Section 51.850-.860 and 40 CFR Section 93.150-.160), require any federal agency responsible for an action in a nonattainment or attainment/maintenance area to determine that the action conforms to the applicable SIP or that the action is exempt from the General Conformity Rule requirements. This means that federally supported or funded activities will not (1) cause or contribute to any new air quality standard violation, (2) increase the frequency or severity of any existing standard violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. Actions can be exempt from a conformity determination if an applicability analysis shows that the total direct and indirect emissions from the project construction and operation activities would be less than specified emission rate thresholds, known as *de minimis* limits, and that the emissions would be less than 10 percent of the area emission budget.

Table 3.4-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3]	Secondary[4]	Concentration[5]
Ozone (O_3)[6]	8-Hour	0.08 ppm	Same as Primary Standard	-
	1-Hour	0. 12 ppm (235 µg/m^3)		0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 µg/m^3)	Same as Primary Standard	-
	1-Hour	-		0.25 ppm (470 µg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	80 µg/m^3 (0.03 ppm)	-	-
	24-Hour	365 µg/m^3 (0.14 ppm)	-	0.04 ppm (105 µg/m^3)
	3-Hour	-	1300 µg/m^3 (0.5 ppm)	
	1-Hour	-	-	0.25 ppm (655 µg/m^3)
Suspended Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	Same as Primary Standard	50 µg/m^3
	Annual Arithmetic Mean	50 µg/m^3		20 µg/m^3 note 7
Fine Particulate Matter ($PM_{2.5}$)[6]	24-Hour	65 µg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	15 µg/m^3		12 µg/m^3 note 7
Lead (Pb)[8]	30-Day Average	-	-	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	Same as Primary Standard	-
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards		0.03 ppm (42 µg/m^3)
Sulfates (SO_4)	24-Hour			25 µg/m^3
Visibility Reducing Particles	8-Hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70 percent.
Vinyl chloride[8]	24 Hour			0.01 ppm (26 µg/m^3)

[1] NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

[2] California Ambient Air Quality Standards for O_3, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM_{10}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

[3] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[4] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[5] Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

[6] New federal 8-hour ozone and fine particulate matter standards were promulgated by USEPA on 18 July 1997. The federal 1-hour O_3 standard continues to apply in areas that violated the standard. On April 15, 2004 the USEPA issued attainment designations for the 8-hour standard and described plans for the phase out of the 1-hour standard (USEPA 2004).

[7] On 5 June 2003, the Office of Administrative Law approved the amendments to the regulations for the state ambient air quality standards for particulate matter and sulfates. Those amendments established a new annual average standard for $PM_{2.5}$ of 12 µg/m^3 and reduced the level of the annual average standard for PM_{10} to 20 µg/m^3. The approved amendments were filed with the Secretary of State on 5 June 2003. The regulations became effective on 5 July 2003.

[8] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter
Source: CARB 2004

3.4.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

Air quality impacts associated with the proposed project are related to emissions that would occur during construction and subsequent operation of the proposed facilities. The principal sources of

pollutants during construction would be the earth-moving activities, construction equipment, trucks bringing materials to the wind turbine sites, and construction crew commuting vehicles. An additional source of pollutants would be an on-site concrete batch plant that would be powered by an internal combustion engine.

The sources of pollutants during project operations would be limited to the vehicles and equipment used by maintenance staff. The emissions from these sources would be minor in comparison to the levels of activity that would be required to exceed emissions thresholds; thus, these emissions are not quantified.

Emissions estimates for construction equipment and grading activities have been estimated by use of the air emission modeling software package, URBEMIS 2002. The model contains data specific for each California air basin. Emissions for heavy truck trips and worker commute trips were calculated using emission factors from the CARB EMFAC 2002 emissions factors model. Fugitive dust emissions for vehicles on unpaved and paved roads were calculated using the methods of the USEPA AP-42 (USEPA 2003). URBEMIS 2002 data sheets and emissions calculations data are included in Appendix E.

Use of one or more portable batch plants on private property for making concrete would be a permitted source. That is, the plant would have an operating permit, with emissions limitation, issued most likely by the State of California under the Portable Equipment Registration Program. If the plant did not have a state permit, then a permit issued by KCAPCD would be required. In either case, KCAPCD would be responsible for ensuring that the plant was operated in accordance with the permit. The emissions of the plant are not included in impact calculations because the issuance of the permit presumes operations with less than significant impact.

THRESHOLDS OF SIGNIFICANCE

For purposes of meeting federal requirements, impact significance is related to conformance with the EPA-approved SIP and with NAAQS. Air quality impacts would be significant if they exceed these standards or contribute to non-conformance.

For purposes of meeting state requirements under CEQA, Kern County has published thresholds of significance for air quality in their CEQA implementation document (Kern County 2004). Similarly, KCAPCD has published Environmental Thresholds of Significance as part of their guideline document for the implementation of CEQA (KCAPCD 1999). The significance criteria are applied to projects where KCAPCD is the lead agency and are recommended for use by another agency serving as the lead agency. For the proposed project, thresholds of significance based on the Kern County and KCAPCD documents are as follows:

A proposed project is determined to not have significant (as defined by CEQA, Section 21068) air quality impact on the environment, if operation of the project will:

1. Emit less than 25 tons per year of Reactive Organic Compounds[1] (ROC), less than 25 tons per year of oxides of nitrogen (NO_x), and less than 15 tons per year of PM_{10}, per Kern County requirements.

2. Emit less than 137 pounds per day of NO_x and less than 137 pounds per day of ROC from

[1] Reactive organic compounds are also called volatile organic compounds (VOC) and reactive organic gases (ROG) in various references. For purposes of this EIR, the terms are interchangeable.

motor vehicle trips (indirect sources only), per KCAPCD requirements;

3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard;

4. Not exceed the District health risk public notification thresholds adopted by the KCAPCD Board; and

5. Be consistent with adopted federal and state Air Quality Attainment Plans.

The guidelines include thresholds for stationary sources, but the proposed project would include no stationary sources. The guidelines also indicate that for issue areas for which there are no thresholds, guidance provided in the State CEQA Guidelines shall provide the basis for determining significance.

IMPACT ANALYSIS

Construction Emissions

Construction of the proposed facilities would include the use of diesel engine-powered construction equipment for grading of roads and wind turbine pads, trenching for utilities connections, erection of the wind turbines, installation of substation and switching station equipment and structures, and installation of transmission line. An overall description of the anticipated construction methods, equipment, and truck and employee trips is included in Section 2 of this EIR/EA. Table 3.4-2 shows forecast annual construction emissions for the total project, which would last approximately 10 months, and compares the emissions to federal thresholds. Table 3.4-3 shows the forecast average daily and annual construction emissions and compares them to KCAPCD and Kern County thresholds, respectively. Emission calculations are included in Appendix E.

Table 3.4-2
Forecast Construction Emissions – Total Project

	Pollutant – tons per year			
	CO	**ROC**	**NO_X**	**PM_{10}**
Grading of roads and pads	38	4.6	31	21
Installation of turbines and other equipment	80	9.5	61	3
On-road vehicle emissions	15	0.8	3	166
Total Construction Emissions	**133**	**14.9**	**95**	**190**
General Conformity *de minimis* Thresholds [(1)]	NA	100	100	100
Exceed threshold?	NA	No	No	Yes
KCAPCD emissions for 2003[(2)]	35,515	4,833	13,826	10,289
Exceed 10 percent of KCAPCD emissions?	NA	No	No	NA
Emissions with Dust Control Measures				79
Exceed threshold?	NA	No	No	No

(1) *De minimis* thresholds for Basic $O_{3\ (8\text{-hour})}$ nonattainment area; O_3 precursors ROC and NO_X. KCAPCD is in federal attainment for CO and PM_{10}; *de minimis* threshold for PM_{10} nonattainment is used for NEPA significance determination relative to state standard.

(2) Forecast emissions from CARB 2004. Emissions for 2005 and 2006 would be different than for 2003, but the differences would not be significant when comparing these values to the proposed project emissions.

Table 3.4-3
Forecast Construction Emissions – Average Day and Annual

	Pollutants – pounds per day		Pollutants – tons per year		
	ROG	**NO_X**	**ROG**	**NOx**	**PM_{10}**
Grading of roads and pads	50	342	4.6	31	21
Installation of turbines and other equipment	92	585	9.5	61	3
On-road vehicle emissions	6	27	0.8	3	166
Total Construction Emissions(1)	**148**	**954**	**14.9**	**95**	**190**
KCAPCD CEQA Thresholds (2)	137	137			
Kern County CEQA Thresholds (3)			25	25	15
Exceed threshold?	Yes	Yes	No	Yes	Yes

(1) Emissions from all activities would occur during the overlap period of maximum grading and installation activities, approximately the 4th and 5th month of the schedule.
(2) KCAPCD 1999; see discussion in CEQA section below.
(3) Kern County Board of Supervisors, June 2004.

Operations Emissions

As described in Section 2, Description of the Proposed Project, of this EIR/EA, routine maintenance of the turbines and transmission line components would be necessary to maximize performance and detect potential problems. 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. Approximately 10 to 12 employees would operate and maintain the project on a permanent basis.

Emissions would result from the daily commuting of the employees and the occasional operation of construction equipment and transport vehicles. The emissions would be relatively small compared to the levels of activity that would be needed to exceed thresholds and would not cause an adverse air quality impact.

Relative to operations, the project would offset or defer combustion of fossil fuel emissions needed to generate power for the Southern California area. That is, an increase in the percentage of power produced with wind energy would either eliminate or defer the need to produce an equivalent amount of power using fossil fuels somewhere in the LADWP power generation system. Based on the projected generating capacity of the project, the reduction in the combustion of fossil fuels that would be realized from the proposed project is predicted to lower air emissions of NO_x by at least 8 tons per year and lower emissions of CO by at least 11 tons per year, depending on the type of fossil fuel used in generation. In addition, emissions of carbon dioxide (CO_2), a "greenhouse" gas believed to contribute to global warming, would be reduced by at least 200,000 tons per year.

Conformity Analysis

The following subsections address the application of the General Conformity Rule to the proposed project.

Location in a Nonattainment Area

Specific geographic areas are classified under the federal CAA as either "attainment" or "nonattainment" for each pollutant, based on conformance with or violation of the NAAQS. The General Conformity Rule applies to actions that generate emissions in nonattainment or maintenance areas. The project site is located within eastern Kern County, which has been classified as a Basic nonattainment area for O_3. Therefore, the General Conformity Rule is applicable at the proposed project.

Emission of Criteria Pollutants

The General Conformity Rule requires analysis of emissions of criteria pollutants and their precursors for which an area is designated nonattainment or that are covered by a maintenance plan. The proposed project would include construction equipment and mobile sources that would emit ROC, and NO_X. ROC and NO_X are the precursors of O_3. Therefore, the General Conformity Rule is applicable to the project emissions of ROC and NO_X.

De Minimis Exemption

Per 40 CFR § 51.853(c)(1), § 91.153(c)(1), § 51.853(i), and § 91.153(j) of the General Conformity Rule, conformity requirements shall not apply to actions where the total of all reasonably foreseeable direct and indirect emissions (1) does not equal or exceed prescribed threshold levels, called "*de minimis* levels," that trigger a formal conformity determination and (2) would be less than 10 percent of the area's annual emission budget. The *de minimis* thresholds applicable to a basic O_3 nonattainment area are 100 tons per year each for ROC and NO_x and are shown in Table 3.4-2 above.

As shown in Table 3.4-2, forecast emissions of ROC and NO_x, without mitigation, are 14.9 and 95 tons, respectively, and are less than the 100 tons per year *de minimis* thresholds. The emissions are also less than 10 percent of the KCAPCD area emissions. Therefore, a formal conformity determination is not required, and the proposed project is presumed to conform to the SIP.

Impact Relative to NEPA

A NEPA analysis of potential air quality impacts may be broader than a General Conformity analysis in that the NEPA analysis should evaluate the potential impacts of attainment pollutants, as well as nonattainment pollutants, and whether emissions of such attainment pollutants might significantly impact the human environment. The attainment pollutants for federal standards in the area include PM_{10}, SO_2, CO, and Pb. PM_{10} is a nonattainment pollutant by state standards. For the NEPA analysis, the General Conformity *de minimis* threshold is used to evaluate PM_{10} impacts. This air quality analysis does not directly evaluate SO_2 and Pb because little to no quantifiable and foreseeable emissions of these substances would be generated by the proposed project. While there would be quantifiable CO emissions, as shown in Table 3.4-2, the principal concern for CO emissions is localized concentrations of CO resulting from congested traffic conditions, which is not an issue for the proposed project. Therefore, there would be no adverse CO impact.

As shown in Table 3.4-2, the construction emissions would be less than the applicable *de minimis* thresholds for ROC, and NO_X. Forecast emissions of PM_{10}, without dust control, are 166 tons for the period of construction, which would exceed the 100 tons per year threshold. However, dust control measures consistent with KCAPCD Draft rule 402 have been incorporated into the project and would

reduce forecast emissions to less than 80 tons per year; these measures are described in Section 3.4.4 below. Therefore, with ROC, NO_X, and PM_{10} emissions less than the threshold values, there would be no adverse impact to air quality under NEPA.

Impact Relative to CEQA

Impact 4.1: During construction, local CEQA air quality significance thresholds would be exceeded for ROC, NOx, and PM_{10} emissions.

Table 3.4-3 shows the calculated forecast daily emissions of ROC and NO_x. The emissions from on-road motor vehicles would be less than 20 percent of the 137 pounds per day thresholds. The total daily emissions, which are dominated by construction equipment emissions, slightly exceed the KCAPCD threshold for ROC and substantially exceed the threshold for NO_x. This is a typical result for a project with an intensive period of construction with the use of diesel equipment. Table 3.4-3 also shows that the Kern County significance thresholds for NO_x and PM_{10} would be exceeded. Therefore, air quality impacts during construction, while occurring over a relatively short period of 10 months or less, would be significant.

3.4.4 MITIGATION MEASURES

Mitigation of fugitive dust and PM_{10} is addressed by KCAPCD Rule 402. A Final Draft revision of Rule 402 is currently in process (KCAPCD 2004b) and is attached to this EIR/EA as Appendix E. This rule contains procedures to be followed on large projects and on projects including unpaved roads in order to reduce PM_{10} to an amount sufficient to maintain NAAQS. Rule 402 requires persons to prevent fugitive dust from remaining visible beyond the property lines, excluding unpaved roads. Rule 402 requires the use of PM_{10} sampling or a dust control plan approved by KCAPCD. Accordingly, the following mitigation measure will be implemented.

MM 4.1-1: To mitigate fugitive dust and PM_{10} emissions, all construction operations will be conducted in accordance with KCAPCD Rule 402, either the 2004 Final Draft version or a subsequently approved version, including use of an approved dust control plan. The dust control plan, to be approved by KCAPCD, shall incorporate the appropriate Reasonably Available Control Measures (RACMs) to minimize fugitive dust emissions. The dust control plan shall consider and/or incorporate the use of chemical dust suppressants, application of water, use of wind screens, speed controls on dirt roads, and other applicable methods as provided in Rule 402. Additionally, a method to prevent mud and dirt tracked out onto paved roads shall be provided for the Pine Tree and Jawbone canyons construction area egress points.

Relative to ROC and NO_x emissions, the most effective emissions reductions from diesel engines is a new technology using exhaust gas recirculation (EGR). Emission reductions with EGR are on the order of 40 percent for NO_x and 90 percent for ROC. Other new technologies include exhaust catalysts, which provide 20 percent NOx reduction and no ROC reduction. These technologies have been developed in response to USEPA regulations issued in 2002, requiring manufacturers to provide the cleaner engines beginning in 2004. While some EGR and catalyst equipment is available, it would not be reasonable to require complete use of the newer equipment in the near term. Therefore, the following measures are incorporated into this EIR/EA:

MM 4.1-2: At least 10 percent of the diesel engine-driven construction equipment on site will be equipped with EGR or low NO_x exhaust catalytic equipment. This measure is not mandatory if it is

demonstrated that this quantity of newer technology equipment would be unavailable for the expected construction window (July 2005 to May 2006).

MM 4.1-3: Use of aqueous diesel fuels in diesel-driven construction and long-haul equipment could reduce construction NO_x emission by up to 14 percent. Aqueous diesel fuel will be used in all project diesel engine-driven construction equipment if it is commercially available in the project area.

3.4.5 RESIDUAL IMPACT AFTER MITIGATION

Based on the analysis presented above, the adverse construction impacts would be less than significant under NEPA but significant under CEQA. Implementation of MM 4.1-1, 4.1-2, and 4.1-3 would reduce emissions but would not reduce the emission rates to less than the Kern County and KCAPCD thresholds of significance. Therefore, for the period of construction, which would be 10 months or less, air quality impacts would be significant and unavoidable under CEQA.

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3.5 BIOLOGICAL RESOURCES

General biological reconnaissance surveys as well as various focused, species-specific, protocol-level biological surveys within and adjacent to the proposed project area were conducted by qualified biologists. The purpose of the surveys was to inventory and evaluate the biological resources on-site by delineating existing vegetation communities, assessing the potential for sensitive plant and wildlife species associated with those communities, and conducting focused searches for sensitive plant and wildlife species on-site. In addition, a wetland assessment was conducted to determine the extent of jurisdictional wetland and water resources within the project area. The results of the surveys are summarized below and are presented in detail in Appendix D, Biological Technical Report, of this EIR/EA.

3.5.1 EXISTING AND AFFECTED ENVIRONMENT

The following description of the existing biological conditions within the study area is based on the results of the biological surveys and database queries described in Appendix D along with an analysis of the available documentation for the project study area.

VEGETATION COMMUNITIES AND COVER TYPES

Thirty-two vegetation communities and cover types were identified within the project area during general surveys (see Table 3.5-1 and Appendix D). Six generalized vegetation groupings and cover types are used to characterize and discuss the vegetation communities and land cover observed during the habitat assessments. These include scrubs and chaparrals, wetlands, grasslands and fields, woodlands, ecotones, and developed and disturbed. These vegetation groupings are discussed briefly below and are discussed in detail in Appendix D.

Scrubs and Chaparrals

There are eight vegetation communities found within the project area that can be classified under the generalized category of scrubs and chaparrals, including blackbush scrub, brittlebush scrub, rabbitbrush scrub, disturbed rabbitbrush scrub, big sagebrush scrub, Mojave mixed woody scrub, Mojave creosote bush scrub, and semi-desert chaparral. These communities typically occur along slopes and ridge-tops throughout the lower elevations of the project area. Of the scrubs and chaparral cover types, Mojave mixed woody scrub and rabbitbrush scrub are the most commonly detected communities in the study area.

Wetlands

There are three vegetation communities found within the project area that can be classified under the generalized category of wetlands, including Mojave desert wash scrub, Mojave riparian forest, and southern riparian scrub. Mojave riparian forest and southern riparian scrub only occur on-site along Jawbone Canyon in the northeastern region of the project area. Mojave desert wash scrub occurs in the Jawbone Canyon and Pine Tree Canyon washes.

Grasslands and Fields

There are three vegetation communities found within the project area that can be classified under the generalized category of grasslands and fields, including perennial grassland, annual grassland, and

wildflower field. Annual grassland and wildflower field cover types occur in the northern portion of the project area, which has been affected by intense grazing in the past. Disturbances such as grazing ultimately allows for annual species typical of annual grasslands and wildflower cover types to dominate the landscape. One area dominated by perennial grassland is found in the south-central region of the study area located on a north-facing slope near Falls Creek. This area, however, has not been affected by local disturbances.

Woodlands

There are 14 vegetation communities found within the project area that can be classified under the generalized category of woodlands (see Table 3.5-1 for a listing of the communities). These communities typically occur along slopes and ridge-tops throughout the higher elevations of the project area. Of the woodland cover types, Mojavean juniper woodland and scrub is the most common vegetation community found in the study area.

Ecotones

There are two vegetation communities found within the project area that can be classified under the generalized category of ecotones, including ecotonal Mojavean juniper woodland/Mojave mixed woody scrub and ecotonal Mojavean juniper woodland/blackbush scrub. Ecotone cover types are areas where the landscape is changing from one vegetation community to another and have common associate plant species of both community types. These two ecotonal areas are found in the northern portion of the project site and occur on north- and south-facing slopes.

Developed and Disturbed

Two cover types found within the project area can be classified under the generalized category of developed and disturbed, including developed areas and disturbed habitat. Developed areas are typically areas that support no native vegetation and may be additionally characterized by the presence of man-made structures such as buildings or paved roads. Developed areas within the project are generally restricted to western portions of the project area. Disturbed habitat is described as lands that are permanently altered by previous human activity including grading, repeated clearing, intensive agriculture, vehicular damage, or dirt roads. Graded areas occur near the main gate to Jawbone Canyon. Dirt roads are also found throughout the study area.

Table 3.5-1
Vegetation Communities and Cover Types

Scrubs and Chaparrals
Blackbush scrub
Brittlebush scrub
Rabbitbrush scrub
Disturbed rabbitbrush scrub
Big sagebrush scrub
Mojave mixed woody scrub
Mojave creosote bush scrub
Semi-desert chaparral

Table 3.5-1
Vegetation Communities and Cover Types

Wetlands
Mojave desert wash scrub*
Mojave riparian forest*
Southern riparian scrub*
Grasslands and Fields
Perennial grassland*
Annual grassland
Wildflower field
Woodlands
Mojavean juniper woodland and scrub
Open foothill pine woodland
Blue oak woodland
Foothill pine-oak woodland
Oak-pinyon woodland
Oak-pinyon-juniper woodland
Mojavean pinyon woodland
Juniper-oak woodland
Foothill pine-pinyon-oak woodland
Foothill pine-pinyon-juniper-oak woodland
Oak-foothill pine-juniper woodland
Pinyon-juniper woodland
Joshua tree woodland*
Desert peach woodland
Ecotones
Ecotonal Mojavean juniper woodland/Mojave mixed woody scrub
Ecotonal Mojavean juniper woodland/blackbush scrub
Developed and Disturbed
Developed
Disturbed habitat

*Sensitive vegetation community

The project site does not contain any federally protected wetlands or waters as defined by Section 404 of the CWA. While the majority of the drainages are ephemeral washes, there are approximately four intermittent stretches along Jawbone Creek. Drainages within the project area flow into two large washes (Jawbone Canyon and Pine Tree Canyon), then east into the Mojave Desert and ultimately into Koehn Lake. Koehn Lake is an essentially dry inland lake approximately 12 miles north of California City that has no distributary or other outlet. The Corps was consulted and confirmed that the project does not affect waters used for interstate commerce or meet other requirements for navigability under 33CFR Part 328.3(a)(1). Based on this statute and the Solid Waste Agency of Northern Cook County Supreme Court decision (No. 99-1178), the Corps determined that a Section 404 permit is not required. Therefore, the project would not adversely affect federally protected wetlands.

WILDLIFE SPECIES

Due to the large size of the project area, the diverse assortment of vegetation communities, the variation in topographic relief, and the fact that the habitat is primarily undeveloped, a diverse array of wildlife species would be expected in the project area. A total of 114 wildlife species were identified during the various general and focused wildlife surveys conducted for the proposed project.

Bird, mammal, reptile, amphibian, and insect species were widely distributed. Notable bird species observed in the project area include northern harrier (*Circus cyaneus*), golden eagle (*Aquila chrysaetos*), red-tail hawk (*Buteo jamaicensis*), mountain quail (*Oreortyx pictus*), California quail (*Callipepla californica*), chukar (*Alectoris chukar*), scrub jay (*Aphelocoma californica*), black-throated sparrow (*Amphispiza bilineata*), and sage sparrow (*Amphispiza belli*).

Mammal species were detected by direct observation and by sign (e.g., scat, tracks, burrows). Tracks were the most observed sign, followed by scat, burrows, and, occasionally, kill sites. Some of the more notable mammal species observed include American black bear (*Ursus americanus*), bobcat (*Canis familiaris*), and tule elk (*Cervus elaphus nannodes*). Mule deer (*Odocoileus hemionus*) were observed and detected during every survey period and appear to be very abundant throughout the site.

Throughout the project study area, reptile and amphibian species were varied, with several species relatively abundant. Sandy washes and drainages were typical areas for reptiles, particularly the washes in Jawbone and Pine Tree canyons. Notable reptile species include desert horned lizard (*Phrynosoma platyrhinos*), great basin whiptail (*Cnemidophorus tigris tigris*), and long-nosed leopard lizard (*Gambelia wislizenii*). Of particular importance, a live desert tortoise (*Gopherus agassizii*), along with several tortoise burrows, scat, and eggshells, was observed during habitat assessments in April 2003 east of the Second Los Angeles Aqueduct in Pine Tree Canyon, adjacent to the dirt access road from SR-14 in alluvial areas that support creosote bush scrub. Also, during tortoise surveys through Jawbone Canyon in May 2003, a desert tortoise was observed on the paved road from SR-14, approximately 0.5 mile west of the BLM office (located at SR-14). A single amphibian species, California toad (*Bufoboreas halophilus*), was located during the May 2003 salamander surveys, in Falls Creek in Section 11.

Insects and butterfly species were numerous throughout the project area. Species encountered were noted during all surveys conducted for the project. Notable species include great purple hairstreak (*Atlides halesus*), sagebrush checkerspot (*Chlosyne acastus*), California tortoiseshell (*Nymphalis californica*), striated queen (*Danaus gilippus strigosus*), and red admiral (*Vanessa atalana*). A sphinx moth (*Hiles lineata*) was observed on a single occasion.

SENSITIVE VEGETATION COMMUNITIES

Sensitive vegetation communities are those that are considered rare in the region, support sensitive plant or wildlife species, or receive regulatory protection (e.g., wetlands as defined by the CDFG). In addition, vegetation communities listed on the California Natural Diversity Database (CNDDB) as having the highest inventory priorities are considered sensitive (CDFG 2003). Five vegetation communities within the project area are considered to be of high priority for inventory in the CNDDB, including Mojave desert wash scrub, Mojave riparian forest, southern riparian scrub, native perennial grassland, and Joshua tree woodland. In addition, the CDCA Plan identifies Unique Plant

Assemblages (UPAs) for emphasis in the environmental review process and for special monitoring attention. All riparian systems in the CDCA are classified as UPA. On the project site, this would include all Mohave riparian forest, Mojave desert wash scrub, and southern riparian scrub vegetation communities. These vegetation communities are discussed briefly below and are discussed in detail in Appendix D.

Mojave Desert Wash Scrub

Mojave desert wash scrub is considered "rare" by CDFG and "worthy of consideration" by CNDDB (CDFG 2003). It is described as an open shrubby community with scattered microphyllous trees and shrubs on well-drained sandy soils and is found in most washes, arroyos, and canyons of intermittent streams throughout the Mojave Desert. This community is located in both Jawbone and Pine Tree canyons.

Mojave Riparian Forest

Mojave riparian forest is considered "rare" by CDFG and "worthy of consideration" by CNDDB (CDFG 2003). In addition, CDFG (2000) notes that there are fewer than six known locations and/or fewer than 2,000 acres of this habitat remaining in Southern California. This open wetland plant community is characterized by broadleaved, winter-deciduous cottonwoods and willows and is typically found along large desert rivers and moist washes. Understory associates include saltbush and rubber rabbitbrush. This riparian community occurs in flat, fine-grained alluvium along some river channels and tributaries found in Jawbone Canyon.

Southern Riparian Scrub

Southern riparian scrub communities – an inclusive term used to describe a mixed riparian habitat – are considered "rare" by CDFG and "worthy of consideration" by CNDDB (CDFG 2003). These communities include southern willow scrub, mule fat scrub, and rabbitbrush scrub, which are highly intermixed in dominance in a relatively small area (Sawyer and Keeler-Wolf 1995). Generally, these communities occur along river channels and tributaries throughout the project site where there are relatively fine-grained soils and moist conditions.

Native Perennial Grassland

Native perennial grassland communities are considered sensitive by CDFG (2003). They are characterized by perennial bunchgrass (*Nassella pulchra*) and sparsely covered by shrub species and associated weedy annual species (*Bromus* spp., *Avena* spp., and *Erodium* spp.). Perennial grasslands can also support herbaceous annual and perennial geophytic species. Native perennial grassland is only found in one location, in the northwestern portion of the project area.

Joshua Tree Woodland

Joshua tree woodland is considered "rare" by CDFG and "worthy of consideration" by CNDDB (CDFG 2003). It is described as an open woodland community dominated by Joshua trees and numerous shrubby species (Holland 1986) typically found on well-drained sandy, gravelly, or loamy soils. This community is not common within the project area; however, it occurs in Pine Tree Canyon and in the central part of the project property.

SENSITIVE PLANT AND WILDLIFE SPECIES

Sensitive plant and wildlife species are species that are either legally protected under the federal and/or state ESAs or other regulations or are species considered by the scientific community to be sufficiently rare to qualify for such listing. Sensitive species include those listed or proposed for listing as rare, threatened, or endangered under the federal ESA, the California ESA, or the California Native Plant Protection Act. Also included in this list are species that are of special concern to CDFG, are fully protected in California, are covered under the Migratory Bird Treaty Act (MBTA), are covered under the Bald Eagle Protection Act (BEPA), are considered sensitive by BLM, or are covered under the Draft West Mojave Plan (WMP). Furthermore, it is mandatory that California Native Plant Society (CNPS) list 1A, 1B, and 2 species be fully considered during surveys, as they meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California ESA) during the preparation of environmental documents related to CEQA (CNPS 2001) (see Tables 3.5-2 and 3.5-3).

Below is a brief discussion of sensitive plant and wildlife species that are known to occur or have the potential to occur within the project vicinity. A more detailed discussion of these species is provided in Appendix D.

Plants

Twenty-six sensitive plant species are known to occur within the project vicinity. In addition, the sensitive plant species that have been previously recorded in the project area or that were detected during project surveys are depicted in Figure 3.5-1 (also see Table 3.5-2 for discussion of sensitive plant species).

Federally Listed Plant Species

No federally listed plant species are known to occur or have the potential to occur within the proposed project area.

State-listed Plant Species

Two state-listed plant species are known to occur within the project vicinity, including the Red Rock tarplant and the Mojave tarplant.

Red Rock Tarplant: Red Rock tarplant is a state-listed rare species, is classified as a CNPS 1B species, and is covered under the Draft WMP. It is found in Mojavean desert scrub in clay, volcanic tuff at elevations between 984 and 3,117 feet. The project site is located approximately 8.5 miles from Red Rock Canyon, the closest known location of the Red Rock tarplant, and is geographically isolated from the canyon. Furthermore, the project site lacks the preferred clay soil washes that the plant typically inhabits. Thus, this species has a low potential to occur within the project boundary based on an analysis of the conditions present on-site, the affinity of the species, and its historic range. It will not be discussed further in the EIR/EA.

CNDDB Accuracy Class 1: Reported occurrence is a point; location considered accurate to within the minimum mappable unit of 80 meters.

CNDDB Accuracy Class 2: Reported location is an area with defined boundaries.

CNDDB Accuracy Class 3: Reported location is a non-specific area; buffer added to represent degree of uncertainty in reported location.

CNDDB Accuracy Classes 4-9: Reported location considered accurate within the radius shown.

Charlotte's phacelia
Charlotte's phacelia
Mohave ground squirrel
Charlotte's phacelia
Charlotte's phacelia
Charlotte's phacelia
Mohave ground squirrel
Mojave tarplant
Jawbone Canyon Rd
Mohave ground squirrel
Mojave tarplant
Red Rock poppy
Mojave tarplant
Charlotte's phacelia
Charlotte's phacelia
Charlotte's phacelia
Charlotte's phacelia
Desert tortoise
Proposed Switching Station
Charlotte's phacelia
Piute Mountains jewel-flower
14

LEGEND
- Project Property Boundary
- 230-kV Line
- Roads
- Kern buckwheat detected by EDAW
- Desert Tortoise Sighting detected by EDAW
- Meteorological Tower

CNDDB
- Accuracy Class 1
- Accuracy Class 2
- Accuracy Class 3
- Accuracy Class 4-9

Source: CNDDB, USGS, Patrick Henderson

5000 2500 0 5000 Feet

Scale: 1:60,000; 1 inch = 5000 feet

EDAW

Figure 3.5-1
Sensitive Species

Table 3.5-2
Potentially Occurring Sensitive Plant Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2001)	Flowering Period	Probability of Occurrence
Spanish needle onion *Allium shevockii*	CNPS: 1B	Pinyon and juniper woodland, upper montane coniferous forest. Grows at elevations of 4,806-8,202 feet.	Geophyte that flowers in June.	Moderate potential of occurrence on-site due to suitable habitat and range in elevation. This species is known from three occurrences at Spanish Needle and Sand Canyon in Kern County. One recent occurrence was detected only 1 mile east of the project site (Harris, pers. comm. 2004). However, no populations were detected on-site during focused surveys, which were conducted within the appropriate blooming period (June).
Palmer's mariposa lily *Calochortus palmeri* var. *palmeri*	CNPS: 1B	Chaparral, lower montane coniferous forest, meadows and seeps, in mesic soils. Grows at elevations of 3,280-7218 feet.	Geophyte that flowers May-July.	Moderate potential of occurrence within the project boundary due to potential habitat. However, no populations found in the proposed project area during the focused survey period (June), which falls within the appropriate flowering period of this species. No known populations occur near the project region (CDFG 2004a).
Alkali mariposa lily *Calochortus striatus*	CNPS: 1B WMP: Covered	Chaparral, cheopod scrub, Mojavean desert scrub, meadows and seeps in alkaline, mesic soils. Grows at elevations of 230-4,940 feet.	Geophyte that flowers April-June.	Low potential of occurrence on-site due to the lack of potential soils. Known populations in Kern County are threatened by development and grazing. No populations found on-site during the focused surveys, which were conducted during the appropriate flowering period of this species. A small population occurs in Red Rock Canyon State Park east of the project area (BLM 2003).
Pygmy poppy *Canbya candida*	CNPS: 4	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland, granitic soils.	Annual herb that flowers March-June.	Moderate potential of occurrence within the project boundary due to potential habitat. However, no populations found in the proposed project area during the focused survey period (June), which falls within the appropriate flowering period of this species. No known populations occur near the project region (CDFG 2004a).
Piute cypress *Cupressus arizonica* ssp. *nevadensis*	CNPS: 1B	Closed-cone coniferous forest, chaparral, cismontane forest, pinyon and juniper woodland. Grows at elevations of 2,362-6,003 feet.	Tree (not applicable)	Moderate potential of occurrence on-site due to suitable habitat. Known populations in Kern County are in decline and no known populations occur close to the project vicinity. No individuals of this conspicuous species were identified on-site during the focused surveys.
Red Rock tarplant *Deinandra arida*	CDFG: Rare CNPS: 1B WMP:	Mojavean desert scrub in clay, volcanic tuff. Grows at elevations of	Annual that blooms April-November.	Low potential of occurrence due to unsuitable soils and high elevations on-site. Less than 10 occurrences are known from the Red Rock Canyon State Park and Last Chance Canyon in Kern County, approximately 8.5 miles northeast of the project site

Table 3.5-2
Potentially Occurring Sensitive Plant Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2001)	Flowering Period	Probability of Occurrence
	Covered	984-3,117 feet.		(CDFG 2004a). No populations observed on-site during the focused survey periods, which coincided with the appropriate flowering period of this species.
Mojave tarplant *Deinandra mohavensis*	CDFG: Endangered CNPS: 1B WMP: Covered	Chaparral (mesic), riparian scrub. Grows at elevations of 2,790-5,250 feet.	Annual that blooms July-October.	Low potential of occurrence on-site due to unsuitable habitat and high elevation. Four known populations occur in natural springs northeast of the project boundary characterized by mesic conditions and suitable elevations (CDFG 2004a). During focused survey periods, this species was not detected in any of the natural springs or riparian habitats on-site, which occur at elevations between 4,000-5,000 feet.
Hoover's woolly star *Eriastrum hooveri*	CNPS: 4	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland. Grows at elevations ranging from 164-3,001 feet.	Annual that flowers March-July.	Low potential of occurrence on-site due to appropriate habitat. However, there are no known locations of this species from the Piute Mountains or the project vicinity (CDFG 2004a). No individuals were observed in the potential habitats on-site during focused survey periods, which coincided with the blooming period of this species.
Breedlove's buckwheat *Eriogonum breedlovei* var. *breedlovei*	CNPS:1B	Pinyon and juniper woodland, upper montane coniferous forest often in carbonate soil. Grows at elevations of 6,200-8,497 feet.	Perennial herb that flowers June-August.	Moderate potential of occurrence on-site due to suitable habitat and range in elevation. Less than 20 occurrences known from the Piute Mountains in Kern County. None of these known populations occur near the project vicinity (CDFG 2004a). During the focused survey periods, which coincided with the appropriate flowering period of this species, no populations were identified on-site.
Reveal's buckwheat *Eriogonum contiguum*	CNPS: 2 WMP: Covered	Mojave mixed woody scrub in sandy soils. Grows at elevations of 100-3,300 feet.	Annual herb that flowers February-June.	Moderate potential of occurrence on-site. One population was recently reported from Jawbone-Butterbredt ACEC adjacent to the project area (BLM 2003). However, no populations were observed within the proposed project area during the spring focused survey periods, which coincided with the appropriate flowering period of this species.
Kern buckwheat *Eriogonum kennedyi* var. *pinicola*	CNPS: 1B WMP: Covered	Chaparral, pinyon and juniper woodland in clay soils. Grows at elevations of 4,396-6,398 feet.	Perennial herb that flowers May-June.	Species observed on-site within project study area but outside the proposed impact area for the project.
Round-leaved filaree *Erodium macrophyllum*	CNPS: 2	Cismontane woodland, valley and foothill grassland in clay soils.	Annual that blooms March-May.	Moderate potential of occurrence due potential habitat present on-site. However, collections to date are historical and current distribution is in question (CNPS 2001). Moreover, no populations were detected on-site during the focused survey periods,

Table 3.5-2
Potentially Occurring Sensitive Plant Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2001)	Flowering Period	Probability of Occurrence
		Grows at elevations of 49-3,937 feet.		which coincided with the appropriate flowering period of this species.
Red Rock poppy *Eschscholzia minutiflora* ssp. *twisselmannii*	CNPS: 1B WMP: Covered	Mojavean desert scrub in volcanic tuff. Grows at elevations of 2,230-4,035 feet.	Annual that flowers March-May.	Low potential of occurrence on-site due to the lack of potential soils. Known populations are located from the Rand and El Paso mountains in Kern County. However, one recent population was located approximately 5.8 miles east of the project site (CDFG 2004a). During the focused survey periods, which coincided with the appropriate flowering period of this species, no individuals were observed on-site.
Greenhorn fritillary *Fritillaria brandegei*	CNPS: 1B	Lower montane coniferous forest in granitic soils. Grows at elevations of 4,921-6,890 feet.	Geophyte that flowers April-June.	Low potential of occurrence on-site due to limited suitable habitat. No known reference population occurs within the project region (CDFG 2004a). No populations located on-site during the focused survey periods, which coincided with the appropriate flowering period of this species.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	CNPS: 1B	Marshes and swamps (coastal salt), playas, and vernal pools. Grows at elevations of 3-4,002 feet.	Annual that blooms February-June.	Low potential of occurrence with the project boundary due to lack of appropriate habitat. No populations were located within the proposed project area during the focused survey periods, which coincided with the appropriate flowering period of this species. In addition, no known populations occur near the project vicinity (CDFG 2004a).
Pale-yellow layia *Layia heterotricha*	CNPS: 1B	Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland in alkaline or clay soils. Grows at elevations of from 984-5,244 feet.	Annual that flowers March- June.	Moderate potential of occurrence on-site due to suitable habitat and substrate on-site. No reported locations of this species within the project region. Also, no populations were identified on-site during the focused survey periods, which coincided with the appropriate flowering period of this species.
Creamy blazing star *Mentzelia tridentata*	CNPS: 1B	Mojavean desert scrub. Grows at elevations of from 2,297-3,806 feet.	Annual that flowers March-May.	Moderate potential of occurrence on-site due to suitable habitat and range in elevation on-site. No known reference population close to the vicinity of the project area (CDFG 2004a). No populations were located on-site during the focused survey periods, which coincided with the appropriate flowering period of this species.
Calico monkeyflower *Mimulus pictus*	CNPS: 1B	Broadleaved upland forest, cismontane woodland in granitic	Annual that blooms	Moderate potential of occurrence within the project boundary due to potential habitat. However, no known local populations occur near the proposed project region (CDFG 2004a). Moreover, during the focused survey periods, which coincided with the

Table 3.5-2
Potentially Occurring Sensitive Plant Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2001)	Flowering Period	Probability of Occurrence
		soils. Grows at elevations of 328-4,265 feet.	March-May.	appropriate flowering period of this species, no populations were detected.
Kelso Creek monkey flower *Mimulus shevockii*	CNPS:1B WMP: Covered	Joshua tree woodland, pinyon and juniper woodland. Grows at elevations of 2,706-4,396 feet.	Annual that flowers March- May.	Low potential of occurrence within the project boundary due to potential habitat and range in elevation. This species is known to occur north of the project region in Kelso Creek (CDFG 2004a). However, there are only seven other known occurrences in Kern County. No populations were observed in the project area during the spring focused survey periods, which coincided with the appropriate flowering period of this species.
Baja navarretia *Navarretia peninsularis*	CNPS: 1B	Chaparral openings, lower montane coniferous forest, in mesic soils. Grows at elevations of 4,921- 7,546 feet.	Annual that flowers June-August.	Low potential of occurrence on-site due to lack of suitable habitat. No known reference populations within the project region (CDFG 2004a). No populations observed on-site during the late spring focused survey period (June), which coincided with the appropriate flowering period of this species.
Piute mountains navarretia *Navarretia setiloba*	CNPS: 1B	Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland in clay or gravelly loam. Grows at elevations of 1,000-6,890 feet.	Annual	Moderate potential of occurrence within the project boundary due to potential habitat and range of elevation on-site. This species is only known from less than 10 occurrences in the Piute Mountains of Kern County. However, no known populations occur near the project region (CDFG 2004a). Moreover, no populations were found within the project boundaries during the spring focused survey periods, which coincided with the appropriate flowering period of this species.
Charlotte's phacelia *Phacelia nashiana*	CNPS: 1B WMP: Covered	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Grows at elevations of 1,969- 7,218 feet.	Annual that blooms March-June.	High potential of occurrence on-site. Known populations occur northeast of the project site in suitable habitat along Jawbone Canyon Road (CDFG 2004a). Several populations also occur south of the project boundaries approximately 2.5 miles away. However, no populations were observed on-site during the spring focused survey periods, which coincided with the appropriate flowering period of this species.
Aromatic canyon gooseberry Ribes mensziesii var. *ixoderme*	CNPS: 1B	Chaparral and cismontane woodland. Grows at elevations of 2,001- 3806 feet.	Deciduous shrub that flowers in June.	Low potential of occurrence on-site due to lack of suitable habitat. No known reference population within project region (CDFG 2004a). No populations found on-site during the spring focused survey period, which coincided with the appropriate flowering period of this conspicuous species.

Table 3.5-2
Potentially Occurring Sensitive Plant Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2001)	Flowering Period	Probability of Occurrence
Piute mountains jewel-flower *Streptanthus cordatus* var. *piutensis*	CNPS: 1B	Broadleaved upland forest, closed-cone coniferous forest, pinyon and juniper woodland in clay or metamorphic soils. Grows at elevations of 3,592-5,692 feet.	Perennial herb that flowers May- July.	High potential of occurrence within the project boundary due to potential habitat and range in elevation. A known population occurs approximately 2.3 miles southwest of the project site (CDFG 2004A). However, no populations were observed within the proposed project area during the spring focused survey periods, which coincided with the appropriate flowering period of this species.
Golden violet *Viola aurea*	CNPS: 2	Great Basin scrub, pinyon and juniper woodland in sandy soils. Grows at elevations of 3,280-5,905 feet.	Perennial herb that blooms April-June.	Moderate potential of occurrence within the project boundary due to potential habitat and range in elevation. However, no known populations occur close to the project region (CDFG 2004A). In addition, no populations were found within the proposed project area during the spring focused survey periods, which coincided with the appropriate flowering period of this species.

[1]**Sensitivity Status Key**
State California Department of Fish and Game (CDFG)
Other California Native Plant Society (CNPS)
1B: Considered rare, threatened, or endangered in California and elsewhere.
2: Considered rare, threatened, or endangered in California, but more common elsewhere.
4: Limited distribution or infrequent throughout a broader area in California.
Draft West Mojave Plan (WMP)
Covered: Species that are covered by the Draft WMP (BLM 2003)

Table 3.5-3
Potentially Occurring Sensitive Wildlife Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurring On-site
Amphibians			
Yellow-blotched salamander *Ensatina eschscholtzii croceator*	CDFG: Special Concern Species BLM: Sensitive	Coniferous and deciduous forests, oak woodland, coastal sage scrub, and chaparral under logs, bark, moss, leaf litter, and talus.	Moderate. Species not observed during surveys in the project area. Species is known from areas to the west within 25 miles in similar habitat to that found on-site (CDFG 2004a).
Tehachapi slender salamander *Batrachoseps stebbinsi*	CDFG: Threatened BLM: Sensitive	Valley foothill riparian habitats, forest areas with leaf litter and rotting wood, and other moist areas between 1,800 and 4,700 feet.	Low. Species not located during focused surveys and suitable habitat on-site is limited.
Reptiles			
Southwestern pond turtle *Clemmys marmorata pallida*	CDFG: Special Concern Species BLM: Sensitive WMP: Covered	Inhabits permanent or nearly permanent bodies of water and requires basking sites such as partially submerged logs, vegetation mats, or open mud banks.	Not expected. Habitat does not occur on-site and site is outside of the distributional range (Stebbins 1985).
Desert tortoise *Gopherus agassizii*	USFWS: Threatened CDFG: Threatened WMP: Covered	Mojave desert scrub and desert washes up to 4,000 feet. Dry, gravelly soils.	Detected. Sign of desert tortoise was observed in December 2002 at the mouth of Pine Tree Canyon, and two individuals were observed adjacent to Pine Tree Canyon Road near SR-14.
Northern sagebrush lizard *Sceloporus graciosus graciosus*	BLM: Sensitive	Prefers sagebrush, manzanita and ceanothus brushland, pinon-juniper woodland, pine and fir forests, and river bottoms. Requires good light, open ground, and scattered low bushes.	Not expected. Outside of species distributional range.
San Diego horned lizard *Phrynosoma coronatum blainvillei*	CDFG: Special Concern Species WMP: Covered	Prefers friable, rocky, or shallow sandy soils in coastal sage scrub and chaparral in arid and semiarid climates.	Moderate. Limited suitable habitat occurs on-site. Species observed approximately 6 miles southwest of the project area.
California horned lizard *Phrynosoma coronatum frontale*	CDFG: Special Concern Species BLM: Sensitive	Similar to the habitat requirements of the San Diego horned lizard.	Moderate. Limited suitable habitat occurs on-site. Species observed approximately 25 miles west of the project area, near Breckenridge.
Birds			
California condor *Gymnogyps californianus*	USFWS: Endangered CDFG: Endangered,	Mountainous country at low to moderate elevations, especially in	Not expected. Species not previously observed in the project area. Appropriate habitat does not occur on-site. Global population number

Table 3.5-3
Potentially Occurring Sensitive Wildlife Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurring On-site
	Fully Protected	rocky and brushy areas with cliffs available for nest sites. Forages in grasslands, oak savanna, mountain plateaus, ridges, and canyons.	remains very low in the wild.
Bald eagle *Haliaeetus leucocephalus*	USFWS: Threatened CDFG: Endangered, Fully Protected	Coniferous woodland or forest areas near water. Rocky cliffs.	Not expected. Habitat necessary to support bald eagles does not occur on-site. Site lacks sufficient water bodies.
Northern harrier *Circus cyaneus*	CDFG: Special Concern Species	Occurs in grasslands and agricultural fields during migration and in winter.	Detected. Species was observed in the project area during habitat assessments in December 2002.
Sharp-shinned hawk *Accipiter stiatus*	CDFG: Special Concern Species	Visitor to woodlands, parks, and residential areas.	Moderate. Project area is within the distributional range of this species. Suitable habitat occurs on-site, particularly at higher elevations. Potentially insufficient prey sources present on-site.
Cooper's hawk *Accipiter cooperii*	CDFG: Special Concern Species	Mature forests, open woodlands, riparian forests, and parks.	Detected. Species was observed in the project area during April 2004 avian surveys.
Swainson's hawk *Buteo swainsoni*	CDFG: Threatened	Savanna, open pine-oak woodland, and cultivated lands with scattered trees.	Not Expected. Project area is outside of distributional range of this species. Suitable habitat occurs on-site, particularly at higher elevations. Potentially insufficient prey sources present on-site.
Ferruginous hawk *Buteo regalis*	CDFG: Special Concern Species WMP: Covered	Typically occurs in arid or dry grassland habitats.	Low. Limited suitable habitat occurs on-site. Potentially insufficient prey sources present on-site.
Golden eagle *Aquila chrysaetos*	CDFG: Special Concern Species, Fully Protected WMP: Covered	Uncommon resident that forages over grassland and broken chaparral or sage scrub. Nests on high cliffs.	Detected. Golden eagle was observed on-site in December 2002 and April 2003. Nesting activity was not observed during either occurrence. Nesting pair has been observed in the past just west of the project area (CDFG 2004a).
American peregrine falcon *Falco peregrinus anatum*	CDFG: Endangered, Fully Protected	Open habitats from tundra, moorlands, steppe, and seacoasts to mountains, and open forested regions, especially where there are suitable nesting cliffs.	Moderate. Suitable habitat occurs on-site. Potentially insufficient prey sources present on-site.
Prairie falcon *Falco mexicanus*	CDFG: Special Concern Species WMP: Covered	Forages in open grasslands, agricultural fields, and desert scrub. Prefers ledges on rocky cliffs for nesting.	High. Though not observed during surveys, project area could support prairie falcon. Several nest sites have been reported in the project area in the past (CDFG 2004a).
Mountain plover	CDFG: Special Concern	Prefers short-grass plains and fields,	Moderate. Distributional range is within project area during the winter.

Table 3.5-3
Potentially Occurring Sensitive Wildlife Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurring On-site
Charadrius montanus	Species	plowed fields and sandy deserts and commercial sod farms. Nests on high plains, shortgrass prairie, and desert tablelands.	Suitable habitat exists on-site.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	USFWS: Candidate for Listing CDFG: Endangered WMP: Covered	Prefers mature willow and alder streamside riparian areas, open woods, and orchards.	Not expected. Habitat on-site is too open and not extensive enough to support this species.
Southwestern willow flycatcher *Empidonax traillii extimus*	USFWS: Endangered WMP: Covered	Dense willow, cottonwood, and tamarisk thickets and woodland along streams and rivers.	Not expected. Habitat on-site is too open and not extensive enough to support this species.
California horned lark *Eremophila alpestris actia*	CDFG: Special Concern Species	Often occurs in fields, grasslands, shores, and tundra habitats.	High. Though not observed during surveys, project area could support California horned lark. Several observations have been reported in and around the project area in the past (CDFG 2004a).
San Joaquin Le Conte's thrasher *Toxostoma lecontei macmillanorum*	CDFG: Special Concern Species WMP: Covered	Inhabits areas with sparse desert scrub and uses cholla cactus for nesting.	Detected. Species was observed in the project area during April 2004 avian surveys.
Loggerhead shrike *Lanius ludovicianus*	CDFG: Special Concern Species	Occurs in semiopen country with utility posts, wires, and trees to perch on.	Detected. Loggerhead shrike was observed during surveys in April 2003 in Jawbone Canyon.
Least Bell's vireo *Vireo bellii pusillus*	USFWS: Endangered CDFG: Endangered	Riparian woodlands, scrub, and thickets.	Not expected. Suitable habitat is not present on-site. Site is located at higher elevations than this species is typically observed.
Yellow-breasted chat *Icteria virens*	CDFG: Special Concern Species	An uncommon and localized summer resident. The breeding population is confined to riparian woodlands. Can be found up to 6,561 feet in elevation in desert riparian habitats.	Moderate. Species not observed during surveys. Suitable habitat may occur within the project area at higher elevations.
California gray-headed junco *Junco hyemalis caniceps*	CDFG: Special Concern Species	Typically found in montane coniferous forests.	Low. Suitable habitat occurs on-site. However, range for this species is closer to the California/ Nevada border with occasional strays noted from locations near the California coast (Sibley 2000).
Tricolored blackbird *Agelaius tricolor*	CDFG: Special Concern Species BLM: Sensitive	Localized residents nest in large, dense colonies in freshwater marsh with open water. Species forages in	Not expected. Tricolored blackbird was not observed during surveys and supporting habitat does not occur on-site.

Table 3.5-3
Potentially Occurring Sensitive Wildlife Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurring On-site
		agricultural areas, lakeshores, and damp lawns.	
Mammals			
Pallid bat *Antrozous pallidus*	CDFG: Special Concern Species BLM: Sensitive WMP: Covered	Found in arid desert and grasslands in rocky, mountainous environments with water. Usually roosts in rock crevices or buildings.	Low. Project site is within the distributional range for this species. Some suitable habitat occurs on-site. No water sources readily available on-site.
Pale big-eared bat *Corynorhinus townsendii pallescens*	CDFG: Special Concern Species BLM: Sensitive	Occurs in a variety of habitats from desert shrub to pinon-juniper and coniferous forests at a wide range of elevations.	Moderate. Project site is within the distributional range for this species. Suitable habitat occurs on-site.
Spotted bat *Euderma maculatum*	CDFG: Special Concern Species BLM: Sensitive WMP: Covered	Found in mountainous regions including arid pine forests and marshlands.	Low. Project site is within the distributional range for this species. Some suitable habitat occurs on-site.
Small-footed myotis *Myotis ciliolabrum*	BLM: Sensitive	Found in desert and semidesert mountainous areas and shortgrass prairie regions.	Moderate. Project site is within the distributional range for this species. Suitable habitat occurs on-site.
Long-eared myotis *Myotis evotis*	BLM: Sensitive	Found predominantly in coniferous forests at elevations of between 7,000 and 8,500 feet. Also found in sage habitats.	Low. Project site is within the distributional range for this species. Some suitable habitat occurs on-site.
Fringed myotis *Myotis thysanodes*	BLM: Sensitive	Occurs in oak, pinyon pine, and juniper woodlands above 5,000 feet.	Low. Project site is within the distributional range for this species. Limited suitable habitat occurs on-site.
Long-legged myotis *Myotis volans*	WMP: Covered	Occurs in oak, pinyon pine, and juniper woodlands above 4,000 feet.	Moderate. Project site is within the distributional range for this species. Suitable habitat occurs on-site.
Yuma myotis *Myotis yumanensis*	BLM: Sensitive	Wide range of habitats includes desert scrub, coniferous forests, and chaparral. Must have a water source.	Low. Project site is within the distributional range for this species. Minimal water sources exist on-site. Otherwise, suitable habitat occurs on-site.
Greater western mastiff bat *Eumops perotis californicus*	CDFG: Special Concern Species BLM: Sensitive WMP: Covered	Found in pinyon pine, juniper, and other coniferous forest environments with rocky cliff and canyon areas.	Moderate. Project site is within the distributional range for this species. Suitable habitat occurs on-site.
Mohave ground squirrel	CDFG: Threatened	Mojave desert scrub, alkali scrub, and	High. Though focused surveys have not been conducted for the Mohave

Table 3.5-3
Potentially Occurring Sensitive Wildlife Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurring On-site
Spermophilus mohavensis	WMP: Covered	Joshua tree woodland between 1,800 and 5,000 feet. Sandy to gravelly soils.	ground squirrel, appropriate habitat occurs in both Pine Tree and Jawbone canyons. The project area is within the species distributional range. Individuals have been captured in Jawbone Canyon and several other locations around the project site (CDFG 2004a), including Cache Creek, Dove Springs Canyon, and Fremont Valley.
Tehachapi pocket mouse *Perognathus alticola inexpectatus*	CDFG: Special Concern Species	Occurs in native and nonnative grasslands, Joshua tree woodland, pinyon, and juniper woodlands. Also known from coastal sage scrub and chaparral habitats.	Low. Suitable habitat occurs on-site. However, project site is outside the species distributional range. Known species occurrences are from south of the Tehachapi Pass (CDFG 2004a).
San Joaquin pocket mouse *Perognathus inornatus inornatus*	BLM: Sensitive	Occurs in dry, open grasslands and desert scrub habitats between 1,100 and 2,000 feet.	Low. Project site may be outside the species distributional range. Chance of occurrence is limited by high elevation of project site (Laudenslayer 1991).
Yellow-eared pocket mouse *Perognathus parvus xanthonotus*	BLM: Sensitive WMP: Covered	Typically found in sandy soils with sparse vegetation. Known from grasslands, desert scrub, Joshua tree woodland, pinyon, and juniper woodland.	Moderate. Suitable habitat occurs on-site and the species is known from Kelso Valley approximately 5 miles to the north of the project area.
Southern grasshopper mouse *Onychomys torridus ramona*	CDFG: Special Concern Species	Occurs in arid regions in a variety of habitats, including desert scrub, wash, and riparian habitats.	Moderate. Suitable habitat occurs on-site. Project area is within the species' distributional range.
Tulare grasshopper mouse *Onychomys torridus tularensis*	CDFG: Special Concern Species BLM: Sensitive	Habitat requirements are similar to the southern grasshopper mouse. Occurs in environments in a variety of habitats.	Moderate. Suitable habitat occurs on-site. Project area is within the species' distributional range.
Pacific fisher *Martes pennanti pacifica*	CDFG: Special Concern Species BLM: Sensitive	Habitat requirements are generally undisturbed late-successional forest.	Not expected. No suitable habitat occurs on-site.
California bighorn sheep *Ovis canadensis californiana*	USFWS: Endangered CDFG: Endangered, Fully Protected WMP: Covered	Typically occurs in steep-walled canyons and ridges bisected by rocky or sandy washes with available water.	Not expected. Population numbers in California are extremely low. Suitable habitat on-site is limited.
Tule elk *Cervus elaphus nonnodes*	CDFG: Harvest species	Occurs in wooded, shrubby, grassland, and riparian habitats.	Detected. Tule elk was observed in Sections 12, 13, 17, and 18 of the project area during the December 2002 and April 2003 general wildlife

Table 3.5-3
Potentially Occurring Sensitive Wildlife Species Relevant to the Pine Tree Wind Development Project

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurring On-site
			surveys.
Mule Deer *Odocoileus hemionus fuliginata*	CDFG: Game Species	Occurs in large, undisturbed tracts of coastal sage scrub, chaparral, mixed grassland/scrub vegetation, riparian and oak woodlands, and coniferous forest.	Detected. Sign of mule deer was observed in the December 2002 and April 2004 general surveys throughout the project site.
Mountain Lion *Felis concolor*	CDFG: Game Species	Occurs in coastal sage scrub, chaparral, riparian and oak woodlands, and coniferous forest.	Detected. Sign of mountain lion was observed in the December 2002 and April 2004 general surveys in the northern portion of the project site.

[1]Sensitivity Status Key
Federal U.S. Fish and Wildlife Service (USFWS)
State California Department of Fish and Game (CDFG)
Other Bureau of Land Management (BLM)
Draft West Mojave Plan (WMP)
Covered: Species that are covered by the Draft WMP (BLM 2003)

Mojave Tarplant: Mojave tarplant is a state-listed endangered species, is classified as a CNPS 1B species, and is covered under the Draft WMP. It is found in mesic chaparral and riparian scrub communities at elevations between 2,790 and 5,250 feet. This species occurs in Jawbone Canyon near Cutterback Spring, outside the project property; however, the species is expected to have a low potential to occur where project activities are proposed based on an analysis of the conditions present on-site and the affinity of the species. It will not be discussed further in the EIR/EA.

BLM Sensitive Plant Species (and other Non-listed Species)

In addition to the two state-listed species discussed above, 23 other sensitive species (including those designated by BLM) have the potential to occur within the proposed project area. Of these 23 species, 8have a low potential for occurrence, 12 have a moderate potential for occurrence, and 3 have a high potential for occurrence (see Table 3.5-2).

Wildlife

Forty-six sensitive wildlife species are known to occur within the project vicinity. These sensitive species are discussed briefly below. In addition, the sensitive wildlife species that have been previously recorded in the project area or that were detected during project surveys are depicted in Figure 3.5-1.

Wildlife Corridors

A wildlife corridor can be defined as a linear landscape feature of sufficient width and buffer to allow animal movement between two patches of comparatively undisturbed habitat or between a patch of habitat and vital resources. Because the project site is located in an area of abundant, contiguous open space, it is not considered a wildlife corridor. Thus, wildlife corridors will not be discussed further in this EIR/EA.

Federally Listed Wildlife Species

Seven federally listed wildlife species are known to occur within the project vicinity, including the desert tortoise, California condor, bald eagle, western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, and California bighorn sheep.

Desert Tortoise: The desert tortoise is a federally and state-listed threatened species and is covered under the Draft WMP. Within the proposed project area, this species inhabits Mojave desert scrub communities and desert washes with dry, gravelly soils at elevations below 4,000 feet. The Draft WMP designates portions of Pine Tree Canyon and Jawbone Canyon as Category III Desert Tortoise Habitat (BLM 2003), which indicates suitable but marginal habitat within the desert tortoise range. This species is known to occur in the area of the proposed project transmission line and switching station (Figure 3.5-2).

California Condor: The California condor is a federally listed endangered and a fully protected, state-listed endangered species. It inhabits mountainous country at low to moderate elevations, especially in rocky and brushy areas with cliffs available for nest sites. This species typically forages in grasslands, oak savanna, mountain plateaus, ridges, and canyons.

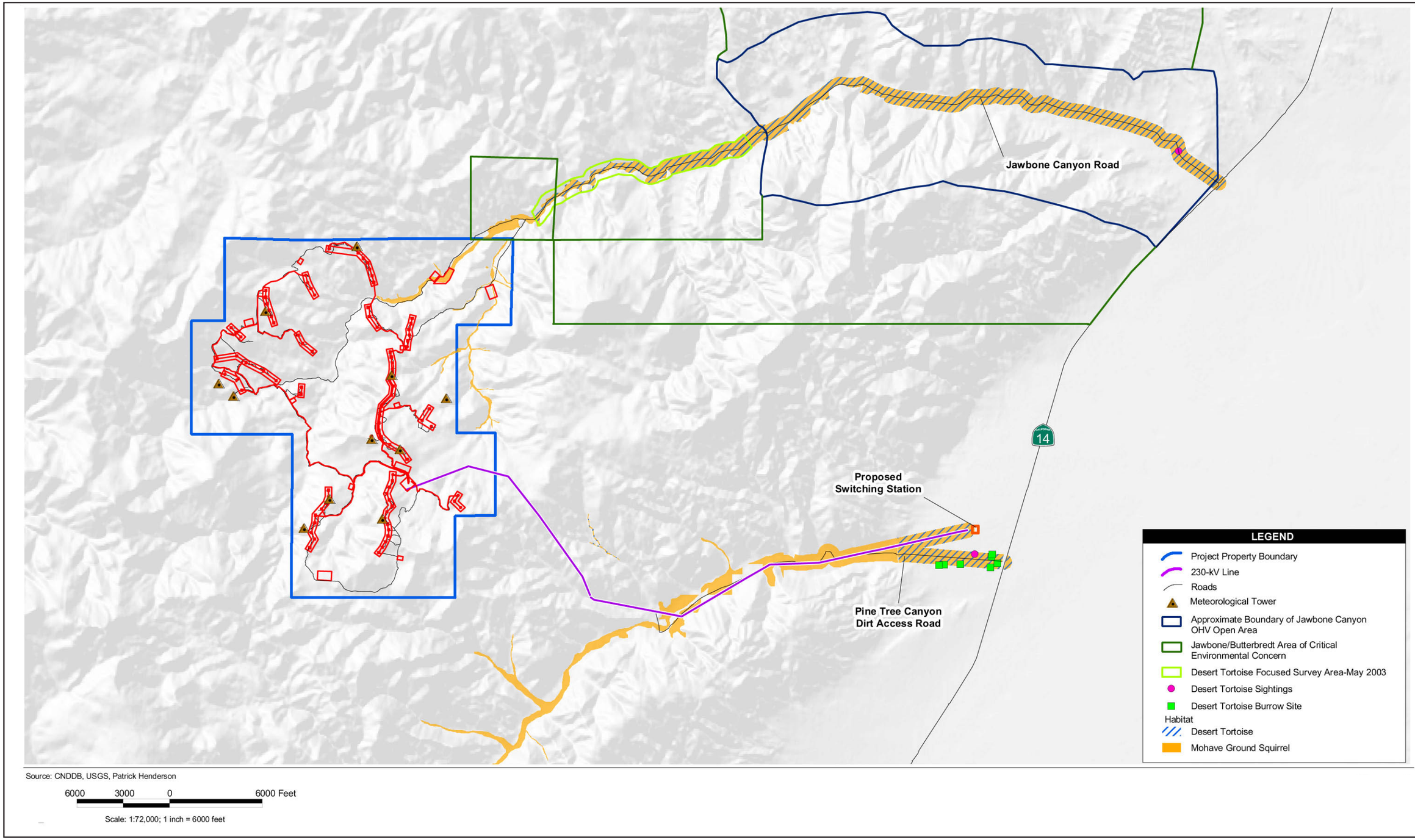

Figure 3.5-2
Desert Tortoise and Mohave Ground Squirrel Resources within the Project Study Area

In February 2003, a California condor was shot and killed by a man who was participating in a pig hunt on the privately owned Tejon Ranch. The Tejon Ranch is located approximately 25 miles southwest of the proposed project site and is roughly bordered to the west by Interstate 5, to the northwest by Highway 223, to the north by Highway 58, to the east by the Tehachapi Mountains, and to the south by Highway 138. Although condors are known to fly up to 150 miles or more per day, they tend to stay within their smaller-sized home ranges. Based on discussions with CDFG, California condors have been observed on the west slope of the Tehachapi Mountains (adjacent to the eastern border of the Tejon Ranch); however, they are not known to cross over to the east slope, most likely due to preference of wind currents. Additionally, habitat on the east slope of the Tehachapi Mountains is considered less suitable to condors. Thus, the California condor is not expected to occur within the project boundary because suitable habitat is not present on-site, the species is not known from the project area, and global population numbers are extremely low in the wild. Because this species is not expected to occur on-site, it will not be discussed further in this EIR/EA.

Bald Eagle: The bald eagle is a federally listed threatened and a fully protected, state-listed endangered species. It inhabits coniferous woodland and forest areas near rocky cliffs and water. This species is not expected to occur within the project boundary because habitat necessary to support this species is not present within the project area. Because the bald eagle is not expected to occur on-site, it will not be discussed further in the EIR/EA.

Western Yellow-billed Cuckoo: The western yellow-billed cuckoo is a federal candidate for listing, a state-listed endangered species, and is covered under the Draft WMP. It inhabits mature willow and alder streamside riparian areas, open woodland, and orchards. This species is not expected to occur within the project boundary because the habitat on-site is too open and not extensive enough to support the western yellow-billed cuckoo. Because this species is not expected to occur on-site, it will not be discussed further in this EIR/EA.

Southwestern Willow Flycatcher: The southwestern willow flycatcher is a federally listed endangered species and is covered under the Draft WMP. It inhabits dense willow, cottonwood, and tamarisk thickets and woodland along streams and rivers. This species is not expected to occur within the project boundary because the habitat on-site is too open and not extensive enough to support the southwestern willow flycatcher. Because this species is not expected to occur on-site, it will not be discussed further in this EIR/EA.

Least Bell's Vireo: The least Bell's vireo is a federally and state-listed endangered species. It inhabits riparian woodlands, scrub, and thickets. This species is not expected to occur within the project boundary because suitable habitat is not present on-site and because the site is located at a higher elevation than this species is typically observed. Because the least Bell's vireo is not expected to occur on-site, it will not be discussed further in this EIR/EA.

California Bighorn Sheep: The California bighorn sheep is a federally listed endangered and a fully protected, state-listed endangered species and is covered under the Draft WMP. It inhabits steep-walled canyons and ridges bisected by sandy or rocky washes with available water. This species is not expected to occur within the project boundary because suitable habitat on-site is limited and because the population numbers in California are extremely low. Because the California bighorn sheep is not expected to occur on-site, it will not be discussed further in this EIR/EA.

State-listed Wildlife Species

Four state-listed wildlife species are known to occur within the project vicinity including the Tehachapi slender salamander, Swainson's hawk, American peregrine falcon, and Mohave ground squirrel.

Tehachapi Slender Salamander: The Tehachapi slender salamander is a state-listed threatened species and is considered sensitive by the BLM. It inhabits valley foothill riparian habitats, forest areas with leaf litter and rotting wood, and other moist areas at elevations between 1,800 and 4,700 feet. This species has a low potential to occur within the project boundary because suitable habitat on-site is limited and because this species was not located during focused surveys performed in spring 2003. It will not be further addressed in the EIR/EA.

Swainson's Hawk: The Swainson's hawk is a state-listed threatened species. It inhabits savanna, open pine-oak woodland, and cultivated lands with scattered trees. This species has a low potential to occur within the project boundary because, although suitable habitat occurs on-site at the higher elevations, the project area is outside of the distributional range for this species and there is limited prey available for this species. It will not be further addressed in the EIR/EA.

American Peregrine Falcon: The American peregrine falcon is a fully protected, state-listed endangered species. It inhabits open habitats from tundra, moorlands, steppe, and seacoasts to mountains and open forested regions, especially where there are cliffs suitable for nesting. This species has a moderate potential to occur within the project boundary because suitable habitat occurs on-site; however, there is limited prey available for this species.

Mohave Ground Squirrel: The Mohave ground squirrel is a state-listed threatened species and is covered under the Draft WMP. It inhabits Mojave desert scrub communities, alkali scrub, and Joshua tree woodland with sandy to gravelly soils at elevations between 1,800 and 5,000 feet. This species has a high potential to occur in the proposed project transmission line and road access areas because suitable habitat is present, the site lies within the distributional range for this species, and because individuals have been captured within Jawbone Canyon and several other areas near to the project area.

BLM Sensitive Wildlife (and Other Non-listed Species)

In addition to the federally and state-listed species discussed above, 36 additional sensitive wildlife species have the potential to occur within the project boundary. Of these 36 species, 4 are not expected to occur on-site; 9 have a low potential for occurrence; 13 have a moderate potential for occurrence; 2 have a high potential for occurrence; and 8 have been detected on-site, including the northern harrier, Cooper's hawk, golden eagle, San Joaquin Le Conte's thrasher, loggerhead shrike, Tule elk, mule deer, and mountain lion.

The Tule elk is protected by the Tule Elk Protection Act of 1976 and is considered a "Harvest Species" by the CDFG. Habitat types suitable to support elk species include wooded, shrubby, grassland, and riparian areas, all of which are found on-site. An area near the project site formerly was used by CDFG to raise tule elk as part of a plan to reintroduce the species to the Owens Valley. However, the stock pens were washed out by a storm and the animals escaped to the wild. Observations of Tule elk individuals or signs were made in Sections 12, 13, 17, and 18 of the project area during December 2002 and April 2003 general surveys. Discussions with the BLM and CDFG

also indicated that a small Tule elk population has been observed in Jawbone Canyon and the surrounding area since 1977. Thus, the upper elevations of the project area should be considered wintering grounds for the species, with the greatest use occurring between September and May. This influx of Tule elk during the winter months is expected from the surrounding mountains to the north and west. The Tule elk population present within the project area is most likely small in size and does not use the proposed project area as primary calving grounds, which are further north and west.

Large mammals, including mule deer and mountain lion, can be affected if rows of turbines are placed along migration paths between winter and summer ranges; however, no distinct migration routes have been identified within the project area. Therefore, no large-scale displacement of large mammals would occur. Direct observations of large mammals in proximity to existing turbines near the project site indicate that small-scale displacement has not occurred in the project vicinity. Similar observations of large mammals at Foote Creek Rim in Wyoming also showed that small-scale displacement did not occur in that area (National Wind Coordinating Committee 2002).

AVIAN STUDIES

Tehachapi Wind Resource Area

A study of bird interactions with wind turbines was conducted at the Tehachapi Pass WRA; a report of this study has been drafted (Anderson et al. 2004). The primary objective of that study was to estimate and compare bird utilization, fatality, and collision risk rates among factors such as bird taxonomic groups, turbine types, and turbine locations within the operating wind plant in the Tehachapi Pass WRA, between October 1996 and May 1998. This study is especially relevant because portions of the Tehachapi Pass WRA are immediately adjacent to the proposed Pine Tree Wind Development Project. The Tehachapi Pass WRA, however, contains over 3,000 operating wind turbines, which is an order of magnitude larger than the development proposed for the Pine Tree site. In this section, the methods, results, and conclusions of this study that are relevant to this proposed project are briefly summarized.

There were approximately 3,300 operational wind turbines within the WRA during the study. Anderson et al. conducted a total of 3,318 five-minute bird utilization counts, during which 47 unique species were documented. Additionally, they conducted 829 carcass searches from October 2, 1996 to May 27, 1998.

Twenty-five species were observed during spring (March 1 – April 15), 28 species were observed during summer (April 16 – September 30), 25 species were observed during fall (October 1 - December 15), and 20 species were observed during winter (December 16 – February 28/29). Avian use (mean number of individuals per survey) was highest in the spring (1.61), followed by fall (1.55), winter (1.20), and summer (0.93). Avian richness (mean number of species per survey) was highest in the spring (1.26), followed by fall (1.25), summer (1.20), and winter (1.16). Raptor (birds of prey, including hawks and owls) use was generally higher during fall and winter and slightly lower during spring and summer. Corvid (primarily ravens) abundance was highest during spring and lowest during summer and fall. Passerine (primarily small songbirds) abundance was highest during fall and lowest during summer with similar values for spring and winter.

Red-tailed hawk was the most commonly observed raptor species, comprising over 60 percent of the observations, followed by American kestrel (15 percent). Other raptor species observed included

golden eagle (3 detections), northern harrier (2), sharp-shinned hawk (2), ferruginous hawk (2) and prairie falcon (1).

There were 127 bird fatalities representing 27 species identified during the study period in the Tehachapi Pass WRA. Seventy-five of the fatalities were found on the monitored search plots. In addition, one long-eared bat (*Myotis evotis*) with a fresh wound to the body was found dead. Forty-four of the fatalities (34.6 percent) were raptors. Raptor species with the most fatalities were the red-tailed hawk (14), great horned owl (13), and American kestrel (9). Other raptor fatalities consisted of the common barn owl (2) and one each of the ferruginous hawk, prairie falcon, long-eared owl, and flammulated owl, unidentified buteo, and an unidentified raptor. Only two corvid species suffered fatalities, the common raven (8) and scrub jay (2), representing 7.9 percent of the total. Twenty-seven of the fatalities (21.3 percent) were passerines. Passerine species with the most fatalities were the Western meadowlark (6), horned lark (3), European starling (3), white-crowned sparrow (2), and dark-eyed junco (2). Other passerine fatalities consisted of one each of the chipping sparrow, Brewer's blackbird, hermit thrush, rock wren, yellow-rumped warbler, loggerhead shrike, and unidentified sparrow in addition to four unidentified passerine fatalities. Other birds comprised 46 (36.3 percent) of the fatalities. Other bird species with fatalities included the rock dove (11), mourning dove (6), red-shafted flicker (3), greater roadrunner (2), chukar (2), and California quail (2). Twenty fatalities remained unidentified to taxonomic group and were grouped in the other bird category. These were typically feather spots. The potential for scavenging of bird fatalities is represented in the statistical data provided in the study.

Seventy-five fatalities were observed at 54 (27 percent) of the 201 sites monitored. The largest number of fatalities observed at any one site was four, with three fatalities observed each at 2 sites, two fatalities at 9 sites, one fatality at 39 sites, and no fatalities at the remaining sites. Based on the 75 fatalities observed at these sites, Anderson et al. concluded that approximately 28 percent of the sites would have at least one fatality under a random distribution. This pattern of no distinctive clustering of fatality locations at a particular turbine suggests there appears to be no single turbine or site sampled that has a very high mortality rate compared to the other turbines sampled.

Avian Observations at Pine Tree

During the Avian Risk Assessment, the following avian use characteristics at the proposed project site were noted.

Abundance and Distribution of Birds

The predominate bird species observed during the avian survey was the common raven, which accounted for 36.2 percent of all birds counted. The scrub jay, violet-green swallow, and white-crowned sparrow were the only other species to total greater than 5 percent of the total count. The American kestrel totaled 2.3 percent of the birds counted and the red-tailed hawk totaled 2 percent of the birds counted. Although the turkey vulture totaled 2 percent of the count, all birds counted occurred in a single flock. The golden eagle totaled only 0.3 percent of the birds counted.

American kestrels were observed consistently at three observation points. Red-tailed hawks were observed consistently at only two points. A single golden eagle was observed. Common ravens were observed at all points. Overall, ravens averaged 2.58 birds per point per count, with a range between 0.8 and 10.0 birds per count. The high value (10.0) was due to several flocks of migrating birds observed on April 13. Removing these birds from the calculations lowers the average number

of birds per point per count to about 1.8 (removing migrants from calculations is not meant to imply a lack of relevance of these data, but rather is done to separate the influence of migrants from the remaining data set for purposes of interpretation).

Intensity of Use by Birds

Overall, an average of 2.96 units of raptor activity per point per count was calculated, with a range of 0.4 to 20.0 units. The majority of raptor observations were of birds occurring less than 100 meters above the ground (includes perching). The flocks of migrating ravens observed on April 13 were responsible for the concentration of perching activity for this species at less than 25 meters; removing the migrants lowered the less than 25 meters percentage to about 46 percent.

Analyses indicated that raptors were scarce within the project site during spring 2004. Subsequent to the avian counts, searches for avian nest sites were negative. During spring of 2004, there were no raptors nesting on the wind turbine site. The project site was predominated by a widespread occurrence of common ravens and other passerine birds typical of the Mojavean juniper wood and pinyon pine-foothill pine forest.

Use by Bats

Of the nine species of bats identified as potentially occurring on-site, four have a moderate potential, and five have a low potential to occur on-site. No natural caves were located on the site and the few mine adits present did not harbor bats. Thus, while it is possible that the study area does experience some bat migration, it is unlikely that any large concentrations of bats occur within the project area at any time of the year. During summer, many bat species use rock crevasses, space under bark, buildings, and other structures for roosting; a few bats were observed at several water sources at dusk. Foraging would likely be concentrated over riparian areas, and water troughs and ponds established for cattle would be used for drinking. Based on the lack of locations of concentrated roosting; however, there is no reason to conclude that large numbers of bats would use specific routes to move between roosts and foraging and watering sites. Since there is no indication that substantial concentrations of bats occur in the project area, the spring wildlife survey did not include a formal assessment of bats (via acoustic surveys or observations of potential migratory routes).

3.5.2 REGULATORY FRAMEWORK

FEDERAL

Federal Endangered Species Act (ESA) of 1973, PL 93-205 (16 U.S.C. 1531): Purpose is to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth.

Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712): Implements various treaties and convention between the United States and other countries, including Canada, Japan, Mexico, and the former Soviet Union, for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds or their eggs or nests is unlawful.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Bird: Directs each federal agency that is taking actions having or likely to have a negative impact on migratory bird populations to work with the USFWS to develop an agreement to conserve those birds. The protocols developed by this consultation are intended to guide future agency regulatory actions and policy decisions; renewal of permits, contracts, or other agreements; and the creation of or revisions to land management plans.

Bald Eagle Protection Act (BEPA) (16 U.S.C. 668-668d): Prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions such as for scientific research or for Native American religious purposes. Because a small number of bald eagles reside within foraging distance of the proposed project, some mortality of bald eagles could possibly result.

The Fish and Wildlife Conservation Act of 1980 (16 USC 2901 et seq.) encourages federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the **Fish and Wildlife Coordination Act (16 USC 661 et seq.)** requires federal agencies undertaking projects affecting water resources to consult with the USFWS and the state agency responsible for fish and wildlife resources.

BLM Policy Relative to Candidate Wildlife Species: Under BLM Manual 6840.06(D), the agency must treat all BLM Sensitive Species as Candidate Species. The policy indicates that, "BLM shall carry out management, consistent with the principles of multiple use, for the conservation of candidate species and their habitats and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered."

Executive Order 11990 (Wetlands): Executive Order 11990 is an overall wetlands policy for all agencies managing federal lands, sponsoring federal projects, or providing federal funds to state or local projects. The order requires federal agencies to follow "avoidance-mitigation-preservation" procedures with public input before proposing new construction in wetlands and requires federal agencies to avoid impacts on wetlands where practicable. There are no federal wetlands associated with the proposed project.

STATE

California Endangered Species Act, Fish and Game Code Section 2081, Division 3, Chapter 1.5: Declares that these species of fish, wildlife, and plants are of ecological, educational, historical, recreational, esthetic, economic, and scientific value to the people of this state, and the conservation, protection, and enhancement of these species and their habitat are of statewide concern. Provides for a state list of endangered and threatened species by the Fish and Game Commission and restricts activities that may impact these species.

Streambed Alteration Agreement, CFG Code Section 1602: Because the project will affect state-jurisdictional wetlands and waters, a Streambed Alteration Agreement will need to be approved by CDFG prior to construction of project components affecting streambeds.

The Native Plant Protection Act: The Native Plant Protection Act (California Fish and Game Code Sec. 1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by the CDFG). An exception to this prohibition allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFG and give that state agency at least 10 days to come and retrieve

(and presumably replant) the plants before they are plowed under or otherwise destroyed (Fish and Game Code, § 1913 exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way").

OTHER REGULATORY REQUIREMENTS

Land Use Plans and Area Designations: The project site is located in an area covered under the CDCA Plan. The CDCA Plan serves as the land use guide for management of public lands within the CDCA to protect the natural environment while also balancing various other considerations under a multiple use policy. An amendment to the CDCA Plan, the Draft WMP, is currently under consideration. Once approved, the WMP would serve as the habitat conservation plan applicable to the project site. Included in the Draft WMP is the Jawbone-Butterbredt Area of Critical Environmental Concern (ACEC), which is located near the northeastern corner of the project property. The location of the ACEC boundary in the area of the project site is not shown correctly on the BLM 1998 Surface Management Status Desert Access Guide, Tehachapi map. The approved boundary near the project property is shown in Figure 3.5-2.

This ACEC has been designated by BLM based on the cultural and wildlife resources found within this area. The ACEC is also designated as the "Sierra Mojave-Tehachapi Ecotone Wildlife Habitat Management Area (CA-06-WHA-20)." CDFG shares management responsibility in the ACEC with BLM.

3.5.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

A biological habitat assessment was conducted in December 2002 throughout an approximately 33-square-mile project study area to delineate existing vegetation communities, assess possible sensitive plant and wildlife associations within those communities, and search for sign of sensitive plant and wildlife species on-site. Pine Tree Canyon Road, with associated power line right-of-way from SR-14 into Pine Tree Canyon, was also included in the habitat assessment. Based on the results of the December 2002 habitat assessment, and considering a list of sensitive species with the potential to occur within the project area assembled through literature review, focused surveys were conducted in the spring and summer of 2003 and 2004. Based on continued project refinement and consideration of siting constraints, the project area was reduced to 12.5 square miles in late 2003. Therefore, the biological surveys conducted in 2004 covered 12.5 square miles, including access roads within both Pine Tree and Jawbone canyons.

Prior to initiating fieldwork in 2004, the list of sensitive plant and wildlife species with the potential to occur within the vicinity of the project was refined using the CNDDB (CDFG 2004) and the CNPS Checklist (2002). In addition, USFWS recommended evaluation of the on-site status of several sensitive species in a letter dated April 24, 2003 (included as Appendix A of Appendix D). However, focused surveys were not conducted for all sensitive species recommended for evaluation within the USFWS letter based on lack of appropriate habitat or unsuitable conditions (e.g., elevation) on-site. In the case of Mohave ground squirrel (*Spermophilus mohavensis*), a state-listed species, the assumption that suitable habitat in the project area was occupied by this species negated the requirement for focused surveys. Several existing environmental documents (e.g., Gould 1998; Sapphos Environmental, Inc. 2000) and the Draft WMP (BLM 2003) were also reviewed for relevant information regarding the potential for sensitive species to occur on-site.

Site survey methodologies associated with each survey type are briefly discussed below.

Vegetation Community and Habitat Assessment

Four-wheel drive vehicles were used where dirt roads or jeep trails already existed, and the biologists then conducted a more detailed habitat assessment on foot throughout the proposed area. Vegetation communities encountered in the field were identified and plotted onto 1"=100' scale aerial photographic maps of the survey area.

General Wildlife Surveys

General wildlife surveys were conducted concurrently with vegetation community mapping surveys during December 2002, April and June 2003, and again during March 2004. During these surveys, all wildlife sign was identified as to species, and when appropriate, mapped along with the vegetation communities. Special attention was given to the potential wind turbine locations and access roads during the assessment. Additional informal wildlife surveys were conducted during all subsequent surveys by project biologists in the project area.

Jurisdictional Wetland Determination

A CDFG jurisdictional wetland determination survey was conducted on May 28-30, 2003, in all wetland areas of potential impact within the project area. All areas that would qualify and CDFG jurisdictional wetlands or water that would be impacted by improved or new roads were mapped on a 1:1,750-scale aerial photographic map of the project area for this effort. Subsequently, project engineers completed analysis of where road improvements would be required at stream crossing along all access roads throughout the project area.

Rare Plants

Rare plant surveys were conducted along all roads scheduled for improvement and new road alignments, proposed wind turbine sites (with an appropriate buffer), and all other areas that would be impacted from project construction. Focused surveys were conducted only in areas of potential impact. To accommodate different blooming periods for the majority of plant species with the potential to occur on-site, surveys were conducted in three phases in 2003: early April, late April, and early June. To search for sensitive plants in the newly proposed areas of the project site and to return to high-potential areas previously surveyed in 2003, surveys were also conducted during April and June of 2004.

Raptors

During the general habitat assessment and wildlife surveys in December 2002, several areas suitable for raptor nesting, breeding, and foraging were identified. Because several raptors species were noted during this survey, these areas were subsequently surveyed for nests and raptor occurrences in April 2003. Areas included in the survey were steep rocky cliffs, riparian corridors with mature trees, and all potential turbine string locations that coincided with vegetation communities capable of supporting raptor nests.

Also, focused avian surveys with an emphasis on raptors were conducted in April 2004 by Dr. Michael L. Morrison. After a reconnaissance survey in early March 2004, Dr. Morrison conducted a

series of five point count surveys within the proposed project area to quantify general bird activity and passage near proposed turbine strings. The data were used to assess the potential impacts of the proposed project on avian wildlife species. During these surveys, Dr. Morrison noted not only the bird species that were observed during the point counts but also those identified through incidental observations.

Tehachapi Slender Salamander

The December 2002 habitat assessment identified several locations within the project area that have the potential to support salamander species based on the presence of water and adequate cover (i.e., rocks and leaf litter). Areas included in the habitat assessment coincided with areas of potential impact from the proposed project (i.e., improved roads that cross a stream channel). Each of these areas was surveyed during the focused Tehachapi slender salamander surveys in April 2003. In addition, several other locations that did not have water during December 2002 surveys, but held water during the April 2003 surveys, were also surveyed.

Desert Tortoise

The December 2002 habitat assessment evaluated the project area for desert tortoise habitat and the potential for desert tortoise to occur on-site. Suitable desert tortoise habitat was identified in both Pine Tree and Jawbone canyons. Project biologists determined that the large, alluvial fan at the entrance to Pine Tree Canyon has the potential to support the desert tortoise because it consists of creosote bush scrub, the preferred habitat of desert tortoise. Multiple signs of desert tortoise (burrows, scat, eggshells) were observed within Pine Tree Canyon during habitat assessment surveys. Thus, presence of desert tortoise was assumed in all suitable habitat throughout Pine Tree Canyon, and focused surveys were not conducted in this area. However, focused desert tortoise surveys were conducted in appropriate habitat in Jawbone Canyon west of the Open Area in May 2003 with negative results.

Mohave Ground Squirrel

During habitat assessments in December 2002, the project area was evaluated for Mohave ground squirrel habitat and the potential for this species to occur on-site. Suitable Mohave ground squirrel habitat was identified in both Pine Tree and Jawbone canyons. The project area is within the species' distributional range, and individuals have been captured in Jawbone Canyon and several locations surrounding the project area (CDFG 2004a). Thus, the presence of Mohave ground squirrel was assumed in all suitable habitat throughout the project area, and focused surveys were not conducted.

THRESHOLDS OF SIGNIFICANCE

The significance criteria used in this EIR/EA are defined in the general context of CEQA and NEPA. Significant impacts to biological resources include, but are not restricted to, the following.

- A substantial impact to a sensitive natural community (i.e., community that is especially diverse, regionally uncommon, or of special concern to local, state, and federal agencies) and substantial impacts to plant species considered by the CNPS to be rare, threatened, or endangered in California (CNPS 2001) or with strict habitat requirements and narrow distributions.

- Any impact to wildlife species that are federally or state listed or proposed to be listed and/or their habitats, substantial impact to wildlife species of special concern to CDFG (2002b), candidates for state listing, or animals fully protected in California.

- Substantial impact to habitats that serve as breeding, foraging, nesting, or migrating grounds and are limited in availability, or that serve as core habitats for regional plant and wildlife populations.

- Any impact to important riparian habitats or wetlands and any other "waters of the U.S."

Biological resources may be affected either directly or indirectly by a project. Direct and indirect impacts may furthermore be either permanent or temporary in nature. These impact categories are defined below and are discussed later in this section.

- **Direct:** Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples include clearing vegetation, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species and/or their habitats.

- **Indirect:** As a result of project-related activities, biological resources may also be affected in a manner that is not direct. Examples include elevated noise and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.

- **Permanent:** All impacts that result in the irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.

- **Temporary:** Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction or removing vegetation for underground pipeline trenching activities and either allowing the natural vegetation to recolonize or actively revegetating the impact area.

IMPACT ANALYSIS

Vegetation Communities

The proposed project would result in potentially significant impacts to vegetation communities within the project area as discussed below.

Impact 5.1: Construction of the proposed project would directly and permanently impact approximately 1.23 acres of native perennial grassland considered sensitive by CDFG.

The habitat impacts would occur primarily as a result of road construction activities. The area of impact is relatively small, and comparable areas of perennial grassland occur elsewhere in the approximately 8,000-acre project property that would not be affected by project activities. This impact is considered adverse but less than significant, and no mitigation and/or avoidance measures are needed.

Impact 5.2: Construction of the proposed project would have temporary direct impacts on approximately 17.37 acres of wetland habitat and permanent direct impacts to approximately 1.96 acres of wetland habitat.

The impacts on wetland habitats are caused by improvements at stream and wash crossings to accommodate all weather access by large hauling equipment. Approximately 106 ephemeral drainages would be affected by improvements for vehicle crossings. This construction in the drainages would affect Mohave riparian forest, Mojave desert wash scrub, and southern riparian scrub vegetation communities, which are considered UPAs under the CDCA plan. The impacts to these habitats types are considered adverse and significant, and MM 5.2-1 and MM 5.2-2 are provided below for this impact.

Impact 5.3: Construction of the proposed project would have permanent direct impacts to approximately 1.11 acres of Joshua tree woodland vegetation community.

The impacts to Joshua trees woodland would occur from road construction and are considered adverse and significant. MM 5.3-1 and MM 5.3-2 are provided for this impact (see also Impact 5-6 for impact on individual Joshua trees).

Impact 5.4: Construction of the proposed project would directly and permanently affect approximately 132.28 acres of the various habitat types and directly and temporarily affect an additional 105.60 acres of various habitats.

The vegetation impacts by vegetation community are provided in Table 3.5-4. With the exception of the sensitive habitats and plant species identified separately, the habitats affected, such as pinyon juniper woodlands, pine woodlands, and scrub communities are relatively abundant and contiguous in the area and their loss is not considered significant relative to CEQA and NEPA. However, limiting grading to necessary areas and revegetation of temporarily affected areas would help lessen impacts. Accordingly, the project proponent will limit construction activities as provided in MM 5.4-1 through 5.4-5. Revegetation would reduce erosion potential and discourage invasion by exotic plants. The 105.60-acre difference between temporary and permanent impacts assumes that the areas will be revegetated with native species similar to those removed (see MM 5.4-6 for revegetation conditions).

Impact 5.5: There is a potential for permanent and temporary direct impacts on vegetation communities, including sensitive habitats, that results from the construction of access roads or other facilities outside of the established construction footprint.

Some changes in the location of project components are anticipated during the construction of the project (after final design). These changes would be needed to accommodate unanticipated site conditions encountered during construction and would primarily involve access roads. Biological surveys of access roads included the area within 50 feet on each side of the centerline, and in some cases evaluated up to 100 feet on each side of the centerline. Surveys associated with turbine strings evaluated the entire 400-foot-wide WE District boundary. The transmission line alignment was surveyed at a 150-foot width. Adjustments of the location of project facilities within these survey limits generally would not result in significant adverse impacts. However, construction occurring outside of the established evaluation area could increase the habitat impacts or otherwise affect the wildlife and vegetative species addressed in this report. To avoid significant effects of habitats or species from unanticipated modifications during construction, a protocol will be established to

provide necessary evaluation and review where deviations from the established project footprint are necessary (MM 5.5).

Sensitive Plant Species

As discussed in the affected environment, no federally listed plants have the potential to occur within the project study area; therefore, no direct or indirect impacts to federally listed plants would occur as a result of project construction or operations and maintenance activities. As such, no additional avoidance, minimization, or mitigation measures would be required for such species.

Similarly, no state-listed plant species were detected within the project area during focused surveys; therefore, no direct or indirect impacts to state-listed plants would occur as a result of project construction or operations and maintenance activities. As such no additional avoidance, minimization, or mitigation measures would be required for such species.

No BLM sensitive plant or other non-listed species were detected within the 2004 project footprint during two seasons of surveys; therefore, no impacts would occur. However, both BLM and CDFG consider the loss of Joshua trees as a potentially significant impact.

Impact 5.6: Permanent direct impacts to approximately 150 individual Joshua trees would result from project-related construction activities.

Approximately 150 individual Joshua trees would be removed as a result of proposed construction activities. These include the proposed laydown area in Little Jawbone Canyon, where approximately 80 Joshua trees occur. In addition, the proposed road-widening activities throughout the project site would impact two areas where Joshua trees are scattered along and adjacent to the roads. It is estimated that approximately 70 Joshua trees occur within 50 feet of the roadway and would be directly impacted in these two areas. The impact on Joshua trees would be considered. MM 5.6 is provided below for this impact.

Sensitive Wildlife Species

Federally Listed Wildlife Species

Impact 5.7: Construction of the proposed project would result in direct temporary and permanent impacts to the federally listed desert tortoise.

Direct permanent impacts to the desert tortoise could potentially occur as a result of road-widening activities within suitable habitat; installation of the 230-kV transmission line in Pine Tree Canyon; establishment of laydown areas on-site; and construction activities, including vehicle movement, conducted in habitat areas. Based on habitat assessments, 8.55 acres of suitable habitat will be permanently impacted by the proposed transmission line and access roads in and near the mouth of Pine Tree Canyon.

Direct temporary impacts to the desert tortoise could potentially result from habitat disturbance associated with transmission line construction in and near the mouth of Pine Tree Canyon. Based on habitat assessments, 5.89 acres of habitat at this location would be temporarily impacted by the project. Additionally, about 0.13 acre of tortoise habitat within the County right-of-way at proposed

Jawbone Canyon Road crossing approximately 0.75 miles west of SR-14 would be disturbed during construction.

These impacts have the potential to be significant; however, with implementation of MM 5.7-1 through MM 5.7-4, provided below, the project's impact on desert tortoise would be reduced to a less than significant level. Implementation of the measures mentioned above would be sufficient to protect the low density of desert tortoise populations in the construction areas.

Impact 5.8: During operations, the proposed project would have permanent indirect impacts on the federally listed desert tortoise due to potential vehicle strikes on project access and patrol roads within the habitat areas. The areas of impact include Jawbone Canyon Road in the vicinity of SR-14 (east of the active OHV Open Area) and Pine Tree Canyon Road and the location of the proposed transmission facilities from SR-14 west to the first Los Angeles Aqueduct.

Permanent indirect impacts on the federally listed desert tortoise would occur as a result of vehicular travel on access and maintenance/patrol roads through habitat areas. The estimate of the post-construction, round-trip project traffic on Jawbone Canyon Road would include approximately 2,280 trips per year. Averaged over 6 days per week, the use rate would be 7 round-trips per day. The majority of the annual traffic, 2,184 trips, would be generated primarily from O&M personnel using pickup trucks. Another 60 trips would be other light-duty trucks, while 36 trips would consist of heavy-duty delivery trucks or road maintenance equipment. Pine Tree Canyon O&M travel would be intermittent; at most there could be a few trips per day. The proposed project switching station would not be regularly staffed and standard line inspections would be conducted by helicopter. This indirect impact to the desert tortoise and its habitat would be considered significant (see MM 5.8).

State-Listed Wildlife Species

Impact 5.9: Construction of the proposed project would have direct impacts on the state-listed threatened Tehachapi slender salamander if project activities occur within the suitable habitat.

Protocol surveys for Tehachapi slender salamander determined that it is absent from all proposed construction areas. Because of this finding, and because there is a low probability for this species to occur on-site, take of this species is unlikely. Therefore, no mitigation and/or avoidance measures are needed.

Impact 5.10: Construction of the proposed project would result in direct temporary and permanent impacts to the state-listed Mohave ground squirrel.

Direct permanent impacts to the Mohave ground squirrel could potentially result from road-widening activities within the Jawbone Canyon area, installation of the 230-kV transmission line and transmission line access/patrol roads in Pine Tree Canyon, and establishment of laydown areas on-site. Based on habitat assessments, 9.55 acres of suitable habitat will be permanently impacted by the project.

Direct temporary impacts to the Mohave ground squirrel could potentially result from habitat disturbance associated with transmission line construction in Pine Tree Canyon. Based on habitat assessments, 12.60 acres of suitable habitat will be temporarily impacted by the project.

Table 3.5-4
Vegetation Impacts for the Pine Tree Wind Development Project

Vegetation Communities	Temporary Direct Impacts (acres) [1]	Permanent Direct Impact (acres)				Total Permanent Direct Impacts (acres)	Total Temporary and Permanent Direct Impacts (acres)
		Wind Turbines[2]	Roads	230-kV Transmission Line	Substation/ O&M Building		
Scrubs and Chaparral							
Blackbush scrub	0.19	0.10	0.54			0.64	0.83
Rabbitbrush scrub	1.51	0.49	10.80	0.20		11.49	13.00
Disturbed rabbitbrush scrub		0.05	0.56			0.61	0.61
Mojave mixed woody scrub	34.43	0.95	15.73	3.39	6.95	27.02	61.45
Mojave creosote bush scrub	12.23			5.28		5.28	17.51
Total	**48.36**	**1.59**	**27.63**	**8.87**	**6.95**	**47.04**	**93.40**
Wetlands							
Mojave desert wash scrub*	14.76		1.51	0.17		1.68	16.44
Mojave riparian forest*	2.59		0.28			0.28	2.87
Southern riparian scrub*	0.02						0.02
Total	**17.37**		**1.79**	**0.17**		**1.96**	**19.33**
Grasslands and Fields							
Perennial grassland*			1.23			1.23	1.23
Annual grassland	11.50	0.33	9.05			9.38	20.88
Wildflower field							
Total	**11.50**	**0.33**	**10.28**			**10.61**	**22.11**
Woodlands							
Mojavean juniper woodland and scrub	21.35	2.28	36.09	2.18	14.20	54.75	76.10
Open foothill pine woodland	0.19	0.10	0.80			0.90	1.09
Foothill pine-oak woodland	1.14	0.28	8.51			8.51	9.65
Oak-pinyon woodland			0.18			0.46	0.46
Foothill pine-pinyon-oak woodland	0.01		0.12			0.12	0.13
Oak-foothill pine-juniper woodland			0.64			0.64	0.64
Joshua tree woodland*			1.11			1.11	1.11
Total	**22.69**	**2.66**	**47.45**	**2.18**	**14.20**	**66.49**	**89.18**
Ecotones							
Ecotonal Mojavean juniper woodland/Mojave mixed woody scrub	3.04	0.28	5.02			5.30	8.34
Ecotonal Mojavean juniper woodland/blackbush scrub	2.64	0.18	2.25			2.43	5.07

Table 3.5-4
Vegetation Impacts for the Pine Tree Wind Development Project

Vegetation Communities	Temporary Direct Impacts (acres) [1]	Permanent Direct Impact (acres)				Total Permanent Direct Impacts (acres)	Total Temporary and Permanent Direct Impacts (acres)
		Wind Turbines[2]	Roads	230-kV Transmission Line	Substation/ O&M Building		
Total	**5.68**	**0.46**	**7.27**			**7.73**	**13.41**
Developed and Disturbed							
Disturbed habitat[3]			0.45			0.45	0.45
Total of Vegetation Impacts	**105.60**	**5.04**	**94.87**	**11.22**	**21.15**	**132.28**	**237.88**

* Sensitive vegetation (CDFG 2003)

1 Temporary impacts include the temporary construction road in Section 2, electrical collection systems, spoil areas, crane pads, and laydown areas.

2 Included in this impact analysis is approximately 0.76 acre of impacts derived from seven alternative wind turbine locations.

3 This category does not include approximately 30 acres of existing graded roads that will be used and/or modified to accommodate construction and operations.

Any direct impacts to the Mohave ground squirrel and its habitat would be considered significant by CDFG; however; with implementation of MM 5.10-1 and MM 5.10-2 provided below, the project's effect on Mohave ground squirrel would be reduced to less than significant. With the successful implementation of the measures mentioned above, the Mohave ground squirrel population is not expected to be adversely affected by the project.

Impact 5.11: Project operations would result in indirect permanent impacts to the state-listed Mohave ground squirrel. Indirect permanent impacts on the state-listed Mohave ground squirrel would occur from potential vehicle strikes on project access and patrol roads within the habitat areas. The areas of impact include Jawbone Canyon Road in the vicinity of SR-14 (east of the active off-road vehicle Open Area) and Pine Tree Canyon Road and the location of the proposed transmission facilities from SR-14 west to the first Los Angeles Aqueduct.

Indirect permanent impacts on the state-listed Mohave ground squirrel would occur as a result of vehicular travel on access and maintenance/patrol roads through habitat areas. The estimate of the post-construction, round-trip project traffic on Jawbone Canyon Road would include approximately 2,280 trips per year. Averaged over 6 days per week, the use rate would be 7 to 8 round-trips per day. The majority of the annual traffic, 2,184 trips, would be generated primarily from O&M personnel using pickup trucks. Another 60 trips would be other light-duty trucks, while 36 trips would consist of heavy-duty delivery trucks or road maintenance equipment. Pine Tree Canyon O&M travel would be intermittent; at most there could be a few trips per day. The proposed project switching station would not be regularly staffed and standard line inspections would be conducted by helicopter. This indirect impact to the Mohave ground squirrel and its habitat would be considered significant (see MM 5.11).

Permanent indirect impacts to the Mohave ground squirrel could also occur from increased raptor predation associated with the installation of 230-kV line and the additional raptor perching opportunities that could be provided. However, raptor numbers within the project area are very low, and the Mojave ground squirrel is infrequently on the ground surface. Significant predation is not predicted.

Impact 5.12: Construction of the proposed project would result in indirect temporary impacts to the desert tortoise and Mohave ground squirrel.

Indirect temporary impacts to the desert tortoise and Mohave ground squirrel could occur as a result of sedimentation associated with the creation of new roads and laydown areas and modification to existing roads within the upper, steeper sections of Pine Tree and Jawbone canyons and their tributaries. However, extensive measures are incorporated to ensure that erosion and deposition do not occur (these measures were described in Section 3.2, Geology and Soils). In addition, MM 5.12 is provided below to alleviate this impact.

Impact 5.13: Operation of the proposed project would result in potential direct and permanent impacts to the state-listed American peregrine falcon through potential collisions with wind turbines and potential electrocution associated with operation of the electrical transmission line.

Permanent direct impacts to the American peregrine falcon could result from collision with wind turbines. The avian risk assessment (Appendix F of Appendix D) indicates that the expected avian

mortality rate of 0.047 kills per turbine per year (less than four raptor fatalities per year), is very low and is most likely to involve red-tailed hawks. American peregrine falcons have not been involved in collisions with wind turbines in the Tehachapi WRA, based on previous studies (Anderson et. al 2004), and it is highly unlikely that an American peregrine falcon would be involved in a collision with wind turbines at the proposed project site.

Permanent direct impacts to the American peregrine falcon could potentially result from electrocution while attempting to perch on the transmission line conductors. However, because the transmission line is designed to avoid or minimize the potential for avian electrocutions (i.e., incorporation of perch guards, appropriate separation of conductors, use of line insulators, and monopole towers), electrocution is unlikely. Therefore, no other mitigation and/or avoidance measures are needed.

BLM Sensitive Wildlife (and Other Non-listed Species)

Impact 5.14: Operation of the project would result in potential direct and permanent impacts to BLM and other non-listed sensitive raptors and bats due to collisions with rotating turbine blades.

Direct impacts to sensitive raptors and bats could result from collisions with rotating turbine blades. However, based on the project risk assessment report (Appendix F of Appendix D) the potential mortality rate of 0.047 raptors per turbine per year (less than four raptor fatalities per year) would not significantly affect the local raptor population, in particular, the more abundant red-tailed hawk population. Impacts on bats are predicted to be low due to the lack of evidence of substantial bat populations on-site. While no significant impacts are predicted, the rate of avian and bat mortality associated with the project shall be monitored to ensure that the predicted rates are achieved (see MM 5.14).

Impact 5.15: Permanent direct impacts to BLM and other non-listed, sensitive raptors could also result from electrocution from electrical power transmission and distribution lines in areas where raptors nest or forage.

The presence of distribution lines (69 kV or less) represents more of a danger to raptors than transmission lines (greater than 69 kV), because the spacing between elements in distribution lines is much less than that of transmission lines. This increases the chance of phase-to-phase or phase-to-ground contact because the conductors are closer together than the wingspan of many raptor species, thus allowing the bird species to contact both elements at once causing electrocution (Avian Power Line Interaction Committee 1996). The proposed transmission line would be 230 kV. While increasing the potential for electrocution associated with the installation of distribution and transmission lines in the project area is a potential significant direct impact to raptors, the line incorporates design measures to greatly reduce the chance of electrocution. MM 5.15 incorporates such measures and will be implemented to reduce this impact to less than significant.

Impact 5.16: Permanent and temporary direct impacts to birds listed under the MBTA or BEPA would be considered by the USFWS to be a violation of these federal acts.

Direct impacts to birds listed under the MBTA or BEPA is a significant adverse impact requiring mitigation measures to avoid or minimize adverse effects to these species. However, because avian mortality associated with project-related construction, maintenance, and operation activities would be

an unintended or incidental occurrence, it is unlikely that this would be considered a "take" under either the MBTA or BEPA. MM 5.16 is provided below for this impact.

3.5.4 MITIGATION MEASURES

The following is a list of mitigation measures to avoid or reduce the impacts to biological resources to a less than significant level.

VEGETATION COMMUNITIES

MM 5.2-1: Mitigation requirements for temporary direct impacts to wetland communities are generally met by restoring the wetland habitats in-place. Thus, restoration of 17.37 acres of wetland habitat in-place will be required to mitigate project-related impacts.

Mitigation requirements for permanent direct impacts to wetland communities (1.96 acres) are to be met by a combination of wetland creation, restoration, or enhancement. A mitigation site shall be preserved at a suitable area near the impact area. Mitigation requirements for permanent impacts to wetlands resulting from project-related construction shall be provided at a ratio acceptable to CDFG and shall be finalized as part of a Streambed Alteration Agreement with CDFG.

MM 5.2-2: Mitigation requirements for permanent direct impacts to ephemeral drainages will require habitat creation, enhancement or restoration, and preservation at a location approved by CDFG and other relevant regulatory agencies. Mitigation compensation requirements for these impacts shall be finalized as part of a Streambed Alteration Agreement with CDFG.

MM 5.3-1: Mitigation requirements for permanent direct impacts to Joshua tree woodland (1.11 acres) and individual Joshua trees will be satisfied through either avoidance, salvage, or replacement of the existing habitat or trees at a ratio to be determined through discussions with CDFG and other relevant regulatory agencies. In addition, these agencies shall approve where the mitigation is to occur and whether preservation or restoration is the preferred method to mitigate for project impacts.

MM 5.3-2: The construction crews and contractors shall be responsible for working around all shrubs and trees within the construction zone to the extent feasible. Particular avoidance shall be applied to Joshua trees and riparian trees (i.e., cottonwoods and willows). Shrubs and trees shall be flagged by a qualified botanist or arborist to indicate top priority for avoidance.

MM 5.4-1: The construction crew and any contractor(s) shall be informed of the biological constraints of the project through a contractor education program presented by a project biologist. The construction crews and contractor(s) shall be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas ultimately approved for impacts by the County of Kern and the resource agencies.

MM 5.4-2: The anticipated impact zones, including staging areas, equipment access, and disposal or temporary spoils areas, shall be delineated with stakes and flagging prior to construction to avoid impacts to natural resources where possible. Construction-related activities outside of the impact zone shall be avoided.

MM 5.4-3: Spoils shall be stockpiled in disturbed areas or other designated areas. Stockpile areas shall be marked to define the limits where stockpiling may occur. Topsoil shall be segregated

from the other stockpiled material and shall be reapplied as the topsoil layer to assist revegetation.

MM 5.4-4: BMPs shall be employed to prevent further loss of habitat resulting from erosion caused by project-related impacts (i.e., grading or clearing for new roads). All detected erosion shall be remedied within two days of discovery.

MM 5.4-5: Fueling of equipment shall take place within designated construction areas or other approved parking areas and not within or adjacent to drainages or native habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

MM 5.4-6: Mitigation of potential permanent indirect impacts to vegetation communities will be achieved by applying an approved native seed mix in the bare areas after construction is complete to minimize the potential for exotic species introductions. The native seed mix shall be approved by CDFG and BLM and shall be dispersed in the fall, prior to winter rains.

MM 5.5: To mitigate for the potential permanent and temporary direct impacts on vegetation communities that could occur from changes in the project construction footprint, the following protocol will be implemented.

1. The construction manager and owner's representative (or design engineer) will assess the variance needed to complete the construction task.
2. The owner's representative will review the location and potential resources affected by variance.
3. Should conditions dictate, a qualified environmental monitor would be called to evaluate impacts and supervise construction activity.
4. Conditions warranting evaluation and observation by an environmental monitor include construction that is (a) within desert tortoise and Mojave ground squirrel habitat areas, (b) in a riparian community, streambed, or other sensitive communities such as Joshua tree or oak woodland, (c) within 50 feet of a known archaeological or historical site, and (d) more than 50 feet from the previously surveyed or staked area.
5. A report of the construction deviations shall be provided to the LADWP prior to the completion of construction for use in making any necessary adjustments to mitigation ratios, habitat compensation, and other mitigation requirements.

SENSITIVE PLANT SPECIES

MM 5.6: Mitigation Measure 5.3-1 is applicable to the impact on Joshua trees.

SENSITIVE WILDLIFE SPECIES

MM 5.7-1: Mitigation requirements for temporary direct impacts to desert tortoise habitat are generally met by restoring the habitat in-place and through on-site monitoring of construction activities in all areas with the potential to support the species. Mitigation requirements for permanent direct impacts to habitats occupied or presumed to be occupied by the desert tortoise are met by conservation of in-kind habitat of equal or greater value than that impacted at the site at a ratio determined through consultation with USFWS and CDFG. Funding (as approved by USFWS and CDFG) for the long-term management of the preserved habitat shall also be provided.

MM 5.7-2: Mitigation requirements to avoid or minimize permanent direct impacts to the desert tortoise would include on-site monitoring of construction activities. A qualified biologist with

extensive knowledge and experience with desert tortoise and who has a valid handling permit shall monitor construction activities. Because active tortoise burrows would be avoided to the extent feasible through project design features, the monitoring biologist would only handle a desert tortoise if a tortoise or an active burrow were discovered within the impact area. In this situation, the tortoise would be removed from the burrow and placed into an existing burrow outside of the area of impact. If no existing burrows are located, the monitoring biologist would construct a new burrow and place the tortoise inside. The monitoring biologist's duties shall include:

- Implementation of a preconstruction contractor education program;
- Pre-construction tortoise clearance surveys within the impact area;
- Relocation of any desert tortoise located within the impact area to a location 100 feet from the impact area;
- Burrow construction, if needed; and
- Preparation of construction monitoring and desert tortoise relocation reports.

During construction activities, monthly and final compliance reports shall be provided to USFWS, CDFG, and other relevant regulatory agencies documenting the effectiveness of mitigation measures and the level of take associated with this project.

MM 5.7-3: Mitigation requirements for permanent indirect impacts to the desert tortoise resulting from habitat fragmentation shall include the implementation of a contractor education program, on-site signage, and speed limit restrictions along the access roads in the Pine Tree area. No berms shall be placed along dirt roads to ensure that tortoises are able to move between habitat fragments.

MM 5.7-4: New and existing roads that are planned for either construction or widening shall not extend beyond the planned impact area. All vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

MM 5.8: Indirect impacts from vehicle strikes are minimized by employee education on the proper procedures upon encountering desert tortoises on roads, by maintaining safe speed limits on access/patrol roads, and by prohibiting travel off the established roadways.

MM 5.10-1: Mitigation requirements for temporary direct impacts to Mohave ground squirrel habitat are generally met by restoring the habitat in-place and through on-site monitoring of construction activities in all areas with the potential to support the species. Mitigation requirements for permanent impacts to this species shall be met by conservation of in-kind habitat of equal or greater value than that impacted at a location and ratio approved by CDFG. Funding for the long-term management of the land preserved would also be provided as part of the mitigation measure.

MM 5.10-2: Mitigation requirements to avoid or minimize permanent direct impacts to the Mohave ground squirrel shall include on-site monitoring of construction activities by a qualified biologist in all areas with the potential to support the Mohave ground squirrel. During construction activities, monthly and final compliance reports shall be provided to CDFG and other relevant regulatory agencies documenting the effectiveness of mitigation measures and the level of take associated with this project.

MM 5.11: Indirect impacts from vehicle strikes are minimized by employee education on the

proper procedures for operating vehicles on the site, including using proper vigilance to avoid wildlife, maintaining safe speed limits on access/patrol roads, and by prohibiting travel off the established roadways.

MM 5.12: BMPs shall be employed to prevent further loss of habitat due to erosion caused by project-related impacts (i.e., grading or clearing for new roads). All detected erosion shall be remedied within two days of discovery.

MM 5.14-1: To ensure that the predicted rates of raptor mortality due to collisions with wind turbines remain low and insignificant, avian and bat mortality associated with the proposed project shall be monitored for the life of the project. LADWP 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 and a reporting protocol approved by USFWS.

MM 5.14-2: LADWP will report, by telephone, injuries or mortalities of species listed in Table 3.5-3 as endangered or threatened (and any species listed in the future) to USFWS or CDFG within 24 hours following observation.

MM 5.14-3: If lighting is used for aircraft safety purposes, lights should be placed when practicable on meteorological towers, or lights should be placed on towers with the least potential to attract birds, but consistent with FAA lighting requirements.

MM 5.15: The proposed project includes design features to protect birds from electrocution, including perch guards, adequate separation of conductors, line insulators, and monopole towers.

MM 5.16: To avoid or minimize impacts to birds covered under the MBTA and/or BEPA, project-related construction activities shall not be conducted within 500 feet of an active nest. A preconstruction nest survey shall be performed to ensure that raptors have not inhabited the site.

3.5.5 RESIDUAL IMPACT AFTER MITIGATION

With implementation of the mitigation measures discussed above, impacts resulting from the proposed project would be reduced to less than significant.

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3.6 LAND USE AND RECREATION

3.6.1 EXISTING AND AFFECTED ENVIRONMENT

LAND USE

The proposed wind turbines would be located along selected ridgelines on privately owned land consisting of approximately 8,000 acres (approximately 12.5 square miles). In accordance with the U.S. Public Land Survey System, the project property consists of the follow parcels: Sections 34, 35, and 36 of Township 30 South, Range 35 East; the west one-half of Section 31 of Township 30 South, Range 36 East; Sections 1, 2, 3, 11, 12, 13, and 14, and the east one-quarter of Section 4 of Township 31 South, Range 35 East; and the west one-half of Section 7 of Township 31 South, Range 36 East. This land is composed of holdings of the Hansen Ranch (owned by the Hansen Family Limited Partnership) and GE Wind Energy, LLC. The property included in the project would be leased from these owners under a long-term agreement. While the overall project footprint extends over much of this property, the actual area of new ground disturbance caused by the project (excluding existing roads that would be used by the project) would total approximately 238 acres. This would include approximately 106 acres of temporary disturbance related to construction activities, including temporary roads, spoils areas, materials laydown areas, etc. The area of permanent disturbance related to the project facilities would total approximately 132 acres, including areas for the wind turbines, maintenance access roads, the substation and O&M building, and the transmission line and switching station. Existing on-site roads that would be used by the project would total approximately 30 more acres.

The project site is essentially undeveloped, but it is currently and has historically been used as grazing land for cattle. Because of the relatively small footprint of the wind turbines and other project elements, this grazing use would be essentially unaffected and could continue after project implementation. Given the historical use of the site, there is a relatively extensive system of existing unpaved roads throughout the property. A small ranch headquarters building, which is located in the central portion of the project property, is the only occupied structure within the property. However, it is used only intermittently. There are a few other older, abandoned buildings and ranch facilities also located within the property.

The project site is designated 8.3 Extensive Agriculture (minimum 80- or 20-acre parcel size) and 8.3/2.4 (Extensive Agriculture/Steep Slope) in the Kern County General Plan. The property is currently zoned Estate (20) (Estate – minimum lot size of 20 acres). The project site is not designated as Farmland by the California Department of Conservation; therefore, the project would not convert Farmland to non-agricultural use, nor is the project site currently encumbered by Williamson Act contracts.

SURROUNDING LAND USE

The area surrounding the proposed project property is also essentially undeveloped. The project site is bounded primarily by privately owned land except along a portion of its eastern boundary and a portion of its northern boundary, which adjoin federally owned land administered by the BLM. Much of this adjoining BLM property is located within a closed area that is open to public access by permit only. To the southeast of the project property, the Pine Tree Canyon Road transmission line alignment passes through approximately 7 miles of private land and approximately 1.1 miles of the BLM-administered land.

The extreme northeastern edge of the project property abuts the extreme southwestern boundary of the Jawbone-Butterbredt ACEC. This ACEC, which consists of both public and private property, has been designated by the BLM because of cultural and wildlife values. The Jawbone Canyon Open Area (a designated off-highway vehicle use area) is located within the ACEC boundaries along Jawbone Canyon Road, approximately 3 miles east of the northeastern corner of the project property. Only about 3.5 square miles of the ACEC are located west of the Open Area (between the Open Area and the project property). The Jawbone Canyon Road access to the project property passes through the Jawbone Canyon Open Area and through approximately 4.7 non-contiguous miles of the BLM-administered land.

Approximately 1.5 miles west of the northwestern project property boundary is a patchwork of BLM land surrounded by private property. Approximately 2 miles south of the project property is a relatively large, consolidated parcel of BLM land that encompasses Pine Tree Canyon and Middle Knob peak.

Grazing under federal allotment is provided on federal lands located to the north of the project property. The Rudnick Common Grazing Allotment contains three ranches grazing both sheep and cattle. These ranches own most of the private land within the Jawbone-Butterbredt ACEC boundaries. The area supports approximately 3,200 sheep and 2,000 cattle annually.

The Sky River Ranch wind turbine development, owned by Florida Power and Light, is located on private property along Sweet Ridge, which rises above 5,000 feet in elevation and runs in a north-south direction approximately 1 mile west of the project property. Sweet Ridge is generally the tallest ridgeline in the vicinity of the project property, and it separates the local watershed east and west. The Sky River Ranch wind development consists of 342 approximately 150-foot-tall turbines.

A segment of the Pacific Crest National Scenic Trail is located approximately 1 to 2 miles west of the western boundary of the project property. In the vicinity of the project property, the trail is located on private property and generally parallels the Sky River Ranch wind development primary access road, usually to the west of the ridgeline (i.e., on the opposite side of the ridgeline from the project). However, to the south of the project property, the trail is located to the east of the ridgeline (i.e., on the same side of the ridgeline as the project).

The project property and the surrounding area falls within the boundaries of the CDCA. The WMP, an amendment to the CDCA Plan, has assigned Multiple Use Classes to all BLM property in the area surrounding the project property. These classifications establish guidelines for the management of public lands and resources.

RECREATION

The Jawbone Canyon Open Area is a designated off-highway vehicle use area managed by the BLM. It is located on over 7,000 acres along both sides of Jawbone Canyon Road from SR-14 west approximately 6 miles. There is a BLM visitors' center located on Jawbone Canyon Road at the entry to the Open Area at SR-14. Other than two recently installed portable toilets, there are no developed facilities within the Open Area. The area is used for open camping by recreational vehicles, motor homes, and other vehicles. The predominant use of the Open Area is by off-road motor vehicles. A wide variety of riding opportunities exist in the area, including cross-country rides, trail riding, hill climbs, and advanced four-wheel driving. The "open" area designation permits cross-country travel by vehicles (i.e., off-road vehicles are not limited to designated routes and may

be operated anywhere within the open area boundaries except on Jawbone Canyon Road itself). The fall and winter months, especially on holiday weekends, are high use periods for the Open Area, when several thousand people may visit in a single day.

SPECIAL USES

EAFB is located approximately 20 miles south of the project site and NWSCL is located approximately 35 miles northeast of the project site. NWSCL and EAFB both maintain low-altitude MTRs that overlay portions of the project property to conduct aviation training and testing missions. The property is within the Joint Service Restricted R-2508 airspace complex. MTRs within the R-2508 Complex have an altitude floor of 200 feet above ground level (AGL). Structures taller than 200 feet that penetrate the MTR may represent obstructions to aviation exercises.

3.6.2 REGULATORY FRAMEWORK

COUNTY OF KERN ORDINANCE CODE, TITLE 19, ZONING

A zone change would be needed to construct the proposed project. The property surrounding the turbines would be changed to an Agriculture (A) Wind Energy (WE) Combining District by the County of Kern. According to the Kern County Zoning Ordinance, the intent of the WE designation is to promote the use of wind power as "an alternative to fossil-fuel-generated electrical power in areas of the county which are identified to have suitable wind resources for production of commercial quantities of wind-generated electrical power" and to develop this resource "in a manner that provides a harmonious balance between the suitability of a project site with existing area land use and physical surroundings." According to the Energy Element of the Kern County General Plan, the County "shall allow for the continued development of wind energy in primary wind resources areas." The WE Combining District designations would apply to swaths of property approximately 400 feet wide surrounding the wind turbines. This would involve a total of approximately 425 acres within the boundaries of the project property.

The WE Combining District designation can be applied only in zoning districts designated as Exclusive Agriculture (A), Natural Resource (NR) with a minimum lot size of 20 acres, or Estate (E) with a minimum lot size of 20 acres. Consistent with this provision, the project property is currently zoned E (20) (Estate, 20-acre minimum lots). However, in the Land Use, Open Space, and Conservation Elements of the Kern County General Plan, the property is designated as 8.3 Extensive Agriculture (minimum 80- or 20-acre parcel size) and 8.3/2.4 (Extensive Agriculture/Steep Slope). According to the Kern County General Plan, this designation applies to "large amounts of land with relatively low value-per-acre yields, such as livestock grazing" and that are not under a Williamson Act Contract. To establish zoning consistency with this General Plan designation, as required by the California Government Code, the project property would be changed to an A zone (Exclusive Agriculture) designation prior to the assignment of the WE district designation. This would involve a total of approximately 7,800 acres.

The proposed project would require zone changes on three zone maps (131, 150, and 151). A description of each zone map is provided below:

Zone Map 131 - Approximately 100 acres of the project site is currently zoned as E (20) and is being used for livestock grazing. This site is proposed to be changed to A-WE for 400-foot swaths surrounding turbine strings and to A for remaining acreages within the parcel of land.

Zone Map 150 - Approximately 315 acres of the project site is currently zoned as E (20) and is being used for livestock grazing and vacant land. This site is proposed to be changed to A-WE for 400-foot swaths surrounding turbine strings and to A for remaining acreage within the parcel of land.

Zone Map 151 - Approximately 10 acres of the project site is currently zoned as E (20) and is being used for livestock grazing. This site is proposed to be changed to A-WE for 400-foot swaths surrounding turbine strings and to A for remaining acreage within the parcel of land.

BLM RIGHT-OF-WAY GRANT

A right-of-way grant would be required from the BLM to cross approximately 1.1 mile of the BLM-administered land along Pine Tree Canyon Road for the proposed project transmission line (in Section 13 of Township 31 South, Range 36 ½ East; and Sections 14 and 22 of Township 31 South, Range 36 East). To provide access to the project site for both construction activities and long-term project O&M, a separate right-of-way grant would also be required from the BLM to cross approximately 4.7 miles of the BLM-administered land in Jawbone Canyon (in Sections 20, 22, and 27 of Township 30 South, Range 37 East; Section 24 of Township 30 South, Range 36 ½ East; and Sections 22, 24, 28, and 30 of Township 30 South, Range 36 East).

CDCA PLAN CONFORMANCE

The proposed project would cross BLM property located within the CDCA Plan boundaries. Various Multiple Use Classes have been assigned in the Plan to public lands surrounding the proposed project for the purpose of establishing land and resource management objectives and guidelines. The Jawbone Canyon Open Area is designated as Class I (Intensive Use). The Class I designation provides for concentrated use of land and resources to meet human needs. The management objective of the Jawbone Open Area is to enhance opportunities for off-highway vehicle (OHV) recreation.

Most BLM land located to the south and east of the project property has been designated as Class L (Limited Use). The Class L designation provides for generally lower-intensity, carefully controlled multiple uses that do not significantly diminish resource values. Class L land parcels involved in the proposed project include approximately 1.5 miles in Jawbone Canyon to be used for project construction and operations access and approximately 0.6 mile in Pine Tree Canyon to be used for the project transmission line alignment.

Most BLM land located to the north and west of the project area has no Multiple Use Classification in the CDCA Plan. This land consists primarily of fragmented parcels of BLM property that are almost entirely surrounded by large holdings of private property. Unclassified land parcels involved in the proposed project include approximately 1 mile in Jawbone Canyon to be used for project construction and operations access and 0.5 mile in Pine Tree Canyon to be used for the project transmission line alignment.

3.6.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

To conduct the land use analysis for the proposed action, the Kern County General Plan and zoning maps and the County Code of Building Regulations were reviewed for applicable policies and

existing land use designations. Site visits were conducted several times during 2003 and 2004 to further document current land uses. The County of Kern Planning Department staff participated in the identification of the existing plans, policies, and ordinances relevant to the proposed project.

LADWP, as CEQA lead agency, and BLM, as NEPA lead agency, have worked closely to identify and evaluate issues affecting the federal review and permitting of the project, including right-of-way grants and CDCA Plan conformance. In addition, the Department of Defense R-2508 Complex Sustainability Office was consulted regarding military flight training requirements and potential air space conflicts associated with the proposed project.

THRESHOLDS OF SIGNIFICANCE

For purposes of this report, adverse impacts are considered significant if the proposed project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal programs, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with adopted environmental plans and goals of the community where it is located; and/or
- Conflict with established recreational, educational, religious, or scientific uses of the area.

IMPACT ANALYSIS

Impact 6.1: To construct the proposed project, a zone change on portions of the project site would be required.

As previously mentioned, the Kern County General Plan (2004) has designated the project site as Map Code 8.3 (Extensive Agriculture, 20-acre minimum) and 8.3/2.4 (Extensive Agriculture/Steep Slope), reflecting the current grazing use of the property. Although the project would slightly reduce the amount of land that could be used for grazing, the impact would not be significant since agricultural use could continue, and the project would bring the site zoning into consistency with the underlying agricultural general plan designation. Under the County's Zoning Ordinance, the project site is zoned E (Estate) with a 20-acre Minimum Lot Size. As part of the project, the zoning at the project site would be changed from E (20) to A (Exclusive Agriculture). In addition, the areas surrounding the wind turbines would be designated WE (Wind Energy) Combining Districts. The conformity zone change to Exclusive Agriculture would take place on about 7,800 acres. The WE Combining District would then be applied only to approximately 425 acres of land surrounding the turbines, resulting in a zoning designation in these areas of A-WE. This change would bring the site zoning into consistency with the Kern County General Plan, consistent with the California Government Code. Therefore, no impacts regarding land use designations would occur.

Impact 6.2: The construction and operation of the proposed project would occur on some lands currently used for livestock grazing under federal grazing allotment.

The small footprint of the wind turbines and associated facilities represents a minor reduction in available land for livestock grazing in both the grazing allotment area and the other private lands on the project site. Experience in the Tehachapi WRA and other WRAs shows that cattle grazing is

compatible with wind power. Cattle and sheep would quickly acclimate to wind turbine operation. However, use of access roads in Jawbone Canyon and the project site, particularly during construction, could result in potential conflicts between grazing animals and trucks on roadways, or movement of grazing animals into the Jawbone Canyon Open Area through gates left open by project personnel. However, this potential impact is easily controlled by monitoring of gates or placement of cattle guards at appropriate locations (see MM 6.2-1). With these measures the impacts would be less than significant.

Impact 6.3: Construction of the proposed project would potentially conflict with designated military training routes and flight corridors above the property.

The project site, including the transmission line corridor, is located in an area overlain by military use airspace, and the FAA has designated the airspace over this region as a military operations area. The area is within the Joint Service Restricted R-2508 airspace complex. The designated flight paths over the project site involve numerous MTRs starting at 200 feet AGL and increasing in height up to 10,000 feet above sea level. These MTRs are primarily associated with training at EAFB and NWSCL. The total height of each turbine at the highest point of the rotor blade's rotation is approximately 340 feet. At this height, the wind turbines would extend into the lower elevations of flight corridors above the site, creating a potential navigation hazard related to MTRs.

LADWP has consulted with both EAFB and NWSCL and has developed a configuration of wind turbines that resolves the potential for interference with the MTRs. The military reviewed the site plan and found that the plan as currently proposed would avoid potentially significant impacts on the MTRs. As long as the blade heights of the turbines remain below 400 feet AGL, the project would not compromise the training and testing mission of the affected installations. (See Appendix A for copy of written confirmation of project suitability from the Department of Defense R-2508 Complex Sustainability Office.) However, this limitation places restrictions on moving the location of proposed turbines on site or adding new turbines on the property. The military would need to review and approve such actions to change the location of turbines (see MM 6.3-1), and evidence of any reviews and approvals by the military for project facilities would need to be submitted to Kern County (see MM 6.3-2). In addition, the military requests that the transmission line be limited to 100-foot-tall towers if the towers are located within 1 mile from the centerline of the military training corridor entry point. With these limitations observed, no conflicts with military special use airspace would occur.

Impact 6.4: The proposed project could conflict with CDCA Plan management objectives that have been established for public lands through the designation of Multiple Use Classes for BLM property.

The proposed project would involve minimal use of federal public land. As discussed above, a right-of-way grant would be required to provide vehicular access across approximately 4.7 miles of BLM-administered land in Jawbone Canyon for both project construction and long-term project O&M. This right-of-way would involve a total of approximately 2.2 miles in three separate parcels within the Jawbone Canyon Open Area, which has been designated as Class I (Intensive Use) in the CDCA Plan. The use of Jawbone Canyon Road in the Open Area for the proposed project would generally be consistent with Class I management objectives. However, during project construction, conflicts may arise in relation to project-related traffic and OHV use in the Open Area. For further discussion of traffic-related impacts in the Open Area, see Section 3.7, Transportation, of this EIR/EA. The Jawbone Canyon right-of-way would also involve approximately 1.5 miles of BLM property located

to the west of the Open Area that has been designated Class L (Limited Use). Since this right-of-way would be utilized for vehicular access only, temporarily during project construction and at a low level of use during subsequent project operations, the proposed project is consistent with the Class L management objectives. The remaining 1 mile of the Jawbone Canyon right-of-way would cross BLM property that has not been assigned a Multiple Use Classification in the CDCA Plan. Therefore, vehicular access across this parcel for construction and operations of the proposed project would be consistent with the CDCA management objectives.

A right-of-way grant would also be required for the proposed project transmission line alignment across approximately 1.1 miles of BLM-administered land in Pine Tree Canyon. This right-of-way would involve a total of approximately 0.6 mile of property in three separate parcels that has been designated Class L. The placement of the transmission line within this relatively short length would not significantly diminish the resource values of this land, and would therefore be consistent with the management objectives of the Class L multiple use designation. The remaining 0.5 mile of the Pine Tree Canyon right-of-way would cross BLM property that has not been assigned a Multiple Use Classification in the CDCA Plan. Therefore, the transmission line alignment across this parcel would be consistent with the CDCA management objectives.

3.6.4 MITIGATION MEASURES

MM 6.2-1: During construction, the existing cattle guards shall be maintained and new cattle guards provided if none exist at entry gates on Jawbone Canyon Road to prevent livestock from entering the Jawbone Canyon Open Area. A manned security station would be located at the Jawbone Canyon access road gate during project construction.

MM 6.3-1: All turbines are limited to a height not to exceed 400 feet above ground level. During project planning and construction, LADWP shall consult with representatives at EAFB and NWSCL regarding any changes, if necessary, to proposed wind turbine locations.

MM 6.3-2: Prior to issuance of any permits, including grading, a letter shall be submitted to the Kern County Planning Department from all military authorities responsible for operations in the R-2508 airspace complex that provides written concurrence that the height of the proposed structures would create no significant impacts to military mission. The project shall comply with all provisions of Kern County Ordinance G-7130, if still in effect, and if not in effect, any other ordinances regarding structures under military low-level flight routes, and all provisions of the Zoning Ordinance that apply to the siting and height of wind turbines.

3.6.5 RESIDUAL IMPACT AFTER MITIGATION

With implementation of the proposed mitigation measures, impacts of the proposed project relative to land use would be less than significant.

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3.7 TRANSPORTATION

The technical information in this section was developed by a professionally registered traffic engineer. The transportation analysis is included in this EIR/EA document as Appendix G.

3.7.1 EXISTING AND AFFECTED ENVIRONMENT

State Route 14 is the principal regional access route leading to the project area. It is a two-lane and four-lane north-south state highway that, along with U.S. Highway 395, connects Mojave, California, south of the project site, to the cities of Lone Pine, Big Pine, Bishop, and the Mammoth Mountain Resort areas to the north. According to the Caltrans 2003 Traffic Volume publication, this section of roadway carries approximately 6,500 vehicles per day and about 680 vehicles during the peak hours.

Jawbone Canyon Road is a County-maintained paved road of approximately 25 feet in width that runs west from its intersection with State Route 14. The County road travels westerly through the Jawbone Canyon Open Area for approximately 6 miles west of SR-14, at which point it turns northward. On private property in the Open Area, the County road right-of-way is 60 feet wide. The right-of-way grant on BLM land is 25 feet wide (the width of the road). A dirt road, which is controlled by a gate and on which public access is prohibited, continues from the western edge of the Open Area southwestward to the project property for 4 miles through Jawbone Canyon.

Traffic volumes on this roadway are generally very low. However, use increases considerably on holiday weekends and winter weekends as recreational users visit the Jawbone Canyon Open Area. The roadway and surrounding hills in the Open Area are used by off-road vehicles for recreation. Local recreation groups have commented that typical holiday weekends bring several thousand people to the area.

Pine Tree Canyon Road is a private dirt road located south of Jawbone Canyon Road that runs west from its intersection with State Route 14. This roadway is very lightly traveled. It is maintained by LADWP to provide access to transmission facilities and the two Los Angeles aqueducts.

Primary access to the proposed wind turbine component would be taken from Jawbone Canyon Road at SR-14, and access to the transmission line component would be taken from Pine Tree Canyon Road at SR-14. These intersections are described below.

Intersection No. 1 – State Route 14/Jawbone Canyon Road

The State Route 14/Jawbone Canyon Road intersection is a "T" intersection controlled by a stop sign on Jawbone Canyon Road. At this intersection, State Route 14 is a four-lane roadway that provides a northbound left-turn lane, a southbound right-turn lane, and an acceleration area northbound for eastbound left-turning traffic from Jawbone Canyon Road.

Intersection No. 2 – State Route 14/Pine Tree Canyon Road Intersection

The State Route 14/Pine Tree Canyon Road intersection is controlled by stop signs on Pine Tree Canyon Road. Stops signs are located on either side of State Route 14 and in the median area separating the northbound and southbound lanes. State Route 14 is a four-lane divided highway at this location, with a northbound and southbound left-turn lane. There is a paved shoulder on the highway but it is not striped for an acceleration lane.

3.7.2 REGULATORY FRAMEWORK

The agency with oversight and traffic control authority on state highways is Caltrans. Oversize loads require special traffic control and usually require that permits be obtained from potentially affected jurisdictions. Since loads will be delivered using state highways, permits will be required from Caltrans. Additional permits from and coordination with the California Highway Patrol will also be required.

Following is a list of requirements for legal, un-permitted vehicles to operate in California (Source: Caltrans website).

Width - The maximum allowable vehicle width is 102 inches (some exceptions apply).
Height - The maximum allowable vehicle height is 14 feet.
Length (California Legal) - The maximum allowable lengths for vehicles that can travel throughout California are as follows (some exceptions apply).

- single vehicle length is 40 feet.
- combination length is 65 feet.
- trailer length is not specified.
- KPRA (kingpin-to-rear-axle) is 40 feet maximum.
- Doubles - 75 feet for combination of vehicles consisting of a truck tractor and two trailers, provided neither trailer length exceeds 28 feet 6 inches.
- Doubles - 65 feet for combination of vehicles consisting of a truck tractor and two trailers, if one trailer length exceeds 28 feet 6 inches.

Length (Surface Transportation Assistance Act National Network) - The maximum allowable lengths for vehicles that are limited to the National Network and Terminal Access routes are as follows:

- combination length is unlimited.
- maximum trailer length is 53 feet.
- KPRA is unlimited if trailer is no more than 48 feet.
- KPRA is 40 feet maximum if trailer is more than 48 feet.
- Doubles - unlimited length for combination of vehicles consisting of a truck tractor and two trailers, but *neither* trailer length can exceed 28 feet 6 inches.

Weight: The maximum allowable weights are as follows:

- gross combination weight is 80,000 pounds.
- single-axle weight is 20,000 pounds.
- maximum weight on a tandem axle with a four-foot spread is 34,000 pounds.

Permits are required to operate vehicles in excess of these limits.

The Transportation and Encroachment Permits Division of the Kern County Road Department (KCRD), in accordance with State Law, County Ordinance, issues transportation permits for oversize and overweight vehicle loads. It also issues encroachment permits for any act or encroachment placed in a County-maintained road or road right-of-way. Similar to Caltrans regulations, the permit granted by KCRD may contain several stipulations related to equipment transportation, including route restrictions, time of day restrictions, weekend and holiday prohibitions, and requirements for pilot cars. Applicants seeking permits for oversize loads agree to repair any damage to County roads as a condition of permit approval.

3.7.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

The information in this section describes the existing conditions on the roadways adjacent to and most likely affected by the proposed project. The data used in this section of the report were obtained from field reconnaissance conducted in August 2004. Traffic volumes on highways are from *Caltrans Traffic Volumes, 2003*. These Caltrans traffic volumes are the latest available. Caltrans staff was consulted relative to the safety precautions proposed herein.

THRESHOLDS OF SIGNIFICANCE

The proposed project may be deemed to have a significant transportation/circulation effect if it will:

a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).
b. Result in a safety hazard to pedestrians or motorists.

In addition, Caltrans has established criteria for determining the proper level of traffic analysis for a proposed project. Based on Caltrans traffic study guidelines, the following criteria are a starting point in determining when a traffic impact study is needed. Such a study is necessary when a project:

1. Generates over 100 peak hour trips assigned to a State highway facility
2. Generates 50 to 100 peak hour trips assigned to a State highway facility and affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (Level of Service "C" or "D").
3. Generates 1 to 49 peak hour trips assigned to a State highway facility and any of the following conditions exist:

- Affected State highway facilities experiencing significant delay; unstable or forced traffic flow conditions (Level of Service "E" or "F").
- The potential risk for a traffic incident is significantly increased (i.e., congestion-related collisions, non-standard sight distance considerations, increase in traffic conflict points, etc.).
- Change in local circulation networks that impact a State highway facility (i.e., direct access to State highway facility, a non-standard highway geometric design, etc.).

A traffic study may be as simple as providing a traffic count or as complex as a detailed simulation. The appropriate level of study is determined by the particulars of a project, the prevailing highway conditions, and the forecasted traffic.

IMPACT ANALYSIS

Project Construction Phase Trip Generation

Wind Turbine and Related Components

The estimated truck and other vehicle trips required to deliver materials, employees, and equipment to the project site for the wind turbine component of the project construction are presented in Table 3.7-1.

To derive a daily trip generation rate that can be related to roadway capacity, the large truck traffic must be converted to passenger car equivalents. Using the conversion described in Appendix G, there would be 5,255 equivalent passenger car trips for the wind turbine component of the project. Assuming that 80 percent of these trips would occur over a 6-month period working 6 days a week, this would result in 28 passenger car equivalent truck trips per day. Assuming that these trips occurred over a 10-hour day would result in 3 passenger car equivalent truck trips in the average peak hour.

A maximum of 170 employees would be working at the site at one time. At 2 employees per car, there would be 85 AM peak hour and 85 PM peak hour plus 28 passenger car equivalent truck trips per day. Therefore, the total daily traffic generated by the project would be approximately 198 trips per day. The number of peak hour trips for the wind turbine component of the project construction would be 88 trips.

Table 3.7-1
Wind Turbine Site Construction Traffic Generation

	Trips laden	**Trips unladen**	**Gross wtg/truck (1,000 lbs.) [1]**	**Load wtg (1,000 lbs.)**	**Overall Length [1]**	**Height [1]**	**Width [1]**
Wind Turbine Assemblies							
tower top section	80	80	**87**	46.2	**88' 0"**	**14' 10"**	**9' 10"**
tower mid section	80	80	**110.6**	69.8	**86'0"**	11' 3"	**11' 1"**
tower bottom section	80	80	**136.8**	89.6	**96'8"**	**15' 7"**	**13' 4"**
hub assemblies	80	80	75	34.2	**78' 0"**	**14' 8"**	**10' 5"**
controllers	40	40	60.9	6.7/ea-3/truck	60' 0"	**14' 1"**	7' 8"
nacelle	80	80	**197**	112.5	**111' 2"**	**15' 4"**	**11' 6"**
blades	120	120	75	35ea-/2/truck	**133' 0"**	--	7' 8"
loose parts/tooling	21	21	75	34.2	60' 0"	14' 0"	**11' 0"**
Equipment/Substation							
substation	1	1	**130**	**320**	**123'-7"**	**23'-0"**	**20'-0"**
building (steel/roofing/siding)	40	40	75	34.2	60' 0"	14' 0"	**11' 0"**
mechanical equipment	20	20	75	34.2	60' 0"	14' 0"	**11' 0"**
electrical cable/equipment	100	100	75	34.2	60' 0"	14' 0"	**11' 0"**
Construction Materials/Equip.							
concrete/reinforcing steel	100	100	75	34.2	60' 0"	14' 0"	**11' 0"**
construction consumables/misc	100	100	26	--	--	--	--
large excavation equipment	12	n/a	**200**	115.5	**111' 2"**	**14' 2"**	**14' 0"**
small excavation equipment	30	n/a	75	45	**78' 0"**	14' 0"	**12' 0"**
water trucks	16	n/a	26	53	25' 0"	11' 0"	8' 6"
rock crushers	4	n/a	**120**	90	65' 0"	14' 0"	**14' 0"**
batch plants	2	n/a	**120**	80	65' 0"	14' 0"	**14' 0"**
concrete trucks	20	n/a	20	52	25' 0"	12' 0"	8' 6"
2 large cranes	4	4	**205.6**	132.5	**105' 6"**	12' 2"	**10' 0"**
misc. large flat bed truck	8	8	**86.3**	59.7	54' 5"	10' 3"	8' 0"
large semi trailer	20	20	75	45	60' 0"	14' 0"	**11' 0"**
5 small cranes	5	5	**120**	89.6	--	--	--
construction	30	30	75	34.2	60' 0"	11' 0"	**11' 0"**

Table 3.7-1
Wind Turbine Site Construction Traffic Generation

	Trips laden	Trips unladen	Gross wtg/truck (1,000 lbs.) [1]	Load wtg (1,000 lbs.)	Overall Length [1]	Height [1]	Width [1]
mobilization/demobilization							
employee pickup trucks	13,680	13,680	4	--	--	--	--
Trip Totals	**14,773**	**14,689**					
Non-employee trips	1,093	1,009					

[1] Bold signifies that the load exceeds maximum limits and a permit is required.
Source: WTP 2004

Transmission Line and Related Components

The truck and other vehicle trips required to deliver materials, employees, and equipment to the project site for the transmission line component are presented in Table 3.7-2.

Converting large truck traffic to passenger car equivalents, there would be 1,745 equivalent passenger car trips for the transmission line component of the project construction. Assuming that 80 percent of these trips would occur over a 4-month period working 6 days a week, this would result in 14 passenger car equivalent truck trips per day. Assuming that these trips occurred over a 10-hour day would result in about 2 passenger car equivalent truck trips in the average peak hour.

Approximately 40 employees would be working on the transmission line at one time. At 2 employees per car, there would be 20 AM inbound and 20 PM outbound plus 14 passenger car equivalent truck trips per day. Therefore, the total daily traffic generated by the project would be approximately 54 trips per day. The number of peak hour trips for the transmission line component would be approximately 22 trips.

Table 3.7-2
Transmission Line Construction Traffic Generation

	Trips laden	Trips unladen	Gross wtg/truck (1,000 lbs.) [1]	Load wtg (1,000 lbs.)	Overall Length [1]	Height [1]	Width [1]
Power Poles							
pole sections	90	90	**87**	46.2	**88' 0"**	**14' 10"**	**9' 10"**
insulators	20	20	80	45	65' 0"	14' 0"	8' 6"
tower arm assemblies & hardware	20	20	80	45	65' 0"	14' 0"	8' 6"
wire and pulling equipment	15	15	75	34.2	65' 0"	14' 0"	8' 6"

Switching Station							
substation circuits, CVTs	1	1	**120**	89.6	**96' 0"**	**15' 7"**	**11' 1"**
building (steel/roofing/siding)	20	20	75	34.2	60' 0"	14' 0"	**11' 0"**
mechanical equipment	10	10	75	34.2	60' 0"	14' 0"	**11' 0"**
electrical cable/equipment	50	50	75	34.2	60' 0"	14' 0"	**11' 0"**
concrete	10	n/a	20	52	25' 0"	12' 0"	8' 6"
gravel	50	50	75	34.2	60' 0"	14' 0"	8' 6"

Table 3.7-2
Transmission Line Construction Traffic Generation

	Trips laden	Trips unladen	Gross wtg/truck (1,000 lbs.) [1]	Load wtg (1,000 lbs.)	Overall Length [1]	Height [1]	Width [1]
Construction Materials/Equip.							
concrete/reinforcing steel	15	15	75	34.2	60' 0"	14' 0"	8' 6"
construction consumables/misc	15	15	26	--	--	--	--
large excavation equipment (2)	2	2	**200**	115.5	**111' 2"**	**14'2"**	**14' 0"**
small excavation equipment (3)	3	3	75	45	**78' 0"**	14' 0"	**12' 0"**
water trucks (2)	2	n/a	26	53	25' 0"	11' 0"	8' 6"
concrete trucks	10	n/a	20	52	25' 0"	12' 0"	8' 6"
large cranes (2)	2	2	**120**	80	65' 0"	14' 0"	**14' 0"**
construction mobilization/demobilization	25	25	20	52	25' 0"	12' 0"	8' 6"
pickup trucks and small utility	5,000	5,000	**4**				
Trip Totals	**5,360**	**5,338**					
non-employee trips	360	338					

[1] Bold signifies that the load exceeds maximum limits and a permit is required.
Source: LADWP 2004; EDAW 2004

Project Operational Phase Trip Generation

During the operational phase of the project, 10 to 12 employees would maintain the wind generating equipment. The transmission line would normally be inspected by helicopter and would generate traffic on the order of four trips per day, intermittently. Therefore, the completed project, assuming that each employee drove to and from work alone and that no more than five supporting trips would be required per day, would result in 38 trips per day (12 inbound and 12 outbound employee trips and 5 inbound and 5 outbound delivery trips plus 2 inbound and 2 outbound trips for the transmission line).

This long-term trip generation is not significant and no permanent physical or operational improvements to either intersection would be needed.

Construction Phase Project Impacts

Impact 7.1: During construction, the proposed project will generate additional peak hour trips on State Route 14.

State Route 14 operates at a very good level of service in the project vicinity. State Route 14 in the project vicinity carries less than 7,000 daily trips. Two-lane expressways are designed to carry up to 35,000 vehicles per day. Since each component of the project construction (i.e., the wind turbines and the transmission line) as well as the operational phase of the project is forecast to generate less than 100 peak hour trips and State Route 14 currently operates at a good level of service, no detailed traffic study is required based on Caltrans criteria. Therefore, no capacity-related traffic impacts would occur.

Impact 7.2: The movement of large vehicles from SR-14 onto Jawbone Canyon Road and Pine Tree Canyon Road may result in a safety hazard to motorists.

The movement of large vehicles to deliver supplies and construction equipment can generate impacts in several ways. The size and maneuverability of the vehicles can affect traffic circulation at the project access points. Oversize loads, like those that will be required to deliver turbine nacelles and the substation transformer, can physically affect roadways from the point of origin to the point of delivery. To comply with permit requirements, some of the oversize loads will require special escorts or pilot cars during travel on state and local highways. Transport of oversize loads in this case does not constitute a significant adverse impact, since the pilot cars are adequate warning to other motorists of the oversize condition on state highways.

The intersection of State Route 14 and Jawbone Canyon Road is generally designed to accommodate vehicles that are qualified to operate without permits on the state highway system. Most of the larger vehicles are expected to come from the Los Angeles and Bakersfield metropolitan areas, so northbound left-turn movements from SR-14 and eastbound right-turn movements from Jawbone Canyon could be accommodated (northbound left-turn pocket is available, and shoulder area is available to accelerate southbound). The intersection of State Route 14 and Pine Tree Canyon is similar to State Route 14 and Jawbone Canyon Road with a northbound left-turn lane and some room on the shoulder to merge into southbound and northbound traffic upon exit from the area.

Though light to moderate volumes are characteristic on SR-14, turning movements from the highway onto both Pine Tree Canyon and Jawbone Canyon roads by oversize loads could be difficult at times (due to cross traffic) and could represent a potential adverse impact of the project. (See MM 7.2)

Impact 7.3: Oversize loads, and in particular overweight loads, required to transport equipment to the site during construction can physically damage roadways, which would be a significant adverse impact.

While SR-14 meets the design standard for state highways, Jawbone Canyon Road (a County road) does not appear designed for heavy loads. However, the applicant has agreed, and County road permits require, that any damage done to roadways will be repaired to the satisfaction of the agency with jurisdiction. With the agreement to repair any damage to State or County roadways, which is substantiated through standard permit conditions, the impacts of damage to roads would be less than significant. (See MM 7.3)

Impact 7.4: There is a potential safety hazard from construction traffic and transportation of oversize loads on Jawbone Canyon Road during high recreation use periods of the Jawbone Canyon Open Area.

Jawbone Canyon Road through the Open Area is a rural road with little signage or other traffic control features. Off-road vehicle users of all ages frequent the open area. High recreation use periods include holiday weekends as well as most fall and winter weekends. Permits for oversize loads may include limitations to travel on County roads that exclude travel on holidays, such as New Years, Memorial Day, Labor Day, Thanksgiving, and Christmas, and that could exclude Saturday/Sunday travel, and times of darkness. In addition, it is recommended the applicant work with the BLM to consider curtailing or controlling vehicle traffic in the Open Area. These permit conditions would alleviate safety issues for oversize loads, and assuming other provisions such as the use of pilot cars are implemented, no significant adverse impacts will occur. (See MM 7.4)

3.7.4 MITIGATION MEASURES

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

MM 7.2: To mitigate potential safety impacts caused by haul truck movements onto and off of Jawbone Canyon and Pine Tree Canyon roads, the following measures are proposed:

- The contractor shall apply for encroachment permits with Caltrans and County of Kern and post warning signs in state and local road rights-of-way (State Route 14 and Jawbone Canyon Road)
- The contractor shall discuss construction plans for truck movements with State and County transportation officials prior to the start of construction.
- The contractor shall apply for installation of appropriate Caltrans warning signage for Jawbone and Pine Tree intersections. This could include Caltrans Warning Sign SW-40 Truck Crossing and/or Warning Sign SC-5 Special Event Ahead pursuant to State Highway Design Guidelines.
- As required by state or local transportation departments, traffic control flaggers, pilot cars, and signage warning of construction activity shall be employed.

MM 7.3: While the project is under construction, the condition of Jawbone Canyon Road shall be monitored and the roadway shall be kept in a safe operating condition using generally accepted methods of maintenance. At the conclusion of construction, repair of damage to the roadway shall be completed to the satisfaction of the KCRD.

MM 7.4: LADWP will consult with BLM to develop a transportation safety plan for construction traffic transiting the Jawbone Canyon Open Area. The plan will primarily address construction traffic but will also address operations traffic. The plan will include the following specific components:

- Transportation of oversize or overweight loads will be minimized to the extent practicable on certain holidays and high use weekends, to be determined in consultation with BLM.
- Signs shall be posted to warn visitors of potential construction activity and possible temporary facility/road closures.
- On weekends during the fall (peak use seasons), speed limits, pilot cars, warning signs, and flaggers shall be employed.
- Prior to construction, LADWP shall notify the OHV community, off-road groups, BLM Steering Committee, and nearby recreational facilities (such as Red Rock State Park and Jawbone Store) of the start date and anticipated duration of construction activities.
- A copy of the Transportation Safety Plan shall be posted at the Jawbone BLM station and on an information kiosk to be erected near Jawbone Canyon Road in the Open Area.

3.7.5 RESIDUAL IMPACT AFTER MITIGATION

The mitigation measures require that appropriate warning signs, flaggers, and other measures be implemented to prevent accidents during construction. Alleviation of potential impacts also assume that state and local permit conditions for time of travel, pilot cars, and other safety measures that may be imposed would be implemented fully, particularly in areas of the Jawbone Canyon Open Area. With implementation of these standard conditions and mitigation measures, the impacts from construction transportation would be less than significant.

3.8 CULTURAL RESOURCES

In compliance with federal cultural resources laws and regulations, an archaeological inventory was conducted of all proposed project facilities by registered archaeologists in 2002, 2003, and 2004. The Cultural Resources Inventory Report documents previous research conducted within the project area and the results of the project-related investigations. This report is included in this EIR/EA as Appendix F.

3.8.1 EXISTING AND AFFECTED ENVIRONMENT

GENERAL SETTING

The project site is located near upper Pine Tree and Jawbone canyons in the southeastern Piute Mountains of Kern County, north of Mojave. It is situated at the contact between the western Mojave Desert and the southern Sierra Nevada. The Mojave Desert forms part of the large Basin and Range physiographic province (Hunt 1967), which extends south to include the Sonoran and Chihuahuan deserts of Arizona and Mexico. The Basin and Range province is characterized by hundreds of long, narrow, and roughly parallel mountain ranges separated by deep valleys, while the Sierra Nevada is characterized by rugged topography, with jagged crests, steep slopes, and many deep stream channels and valleys.

The site is characterized by deeply incised valleys and steep hillsides. Regional lithologic units consist of intrusive and extrusive igneous rocks, metamorphic rocks, Tertiary sedimentary rocks, and Quaternary alluvium. In general, the igneous and metamorphic rock formations and the Quaternary alluvium are not known to be fossiliferous, and the likelihood of encountering fossils during construction in these formations is low. Construction in Tertiary sedimentary rock formations has moderate potential of encountering fossils. The Tertiary sedimentary formations at the site are not known as unique or significant paleontological resources. Though impact to significant resources is unlikely, the project would provide for, through standard construction specification, the protection of any fossils discovered during construction until the find can be evaluated by a qualified individual.

NATIVE AMERICAN ISSUES

To initiate the Native American consultation process, a letter was sent to the Native American Heritage Commission (NAHC) in February 2003, requesting information on sacred lands, traditional cultural properties, or other concerns within the project area. At that time, the NAHC files did not reveal any specific site information. Also requested was a list of Native American individuals and organizations that might have knowledge of cultural resources within the project area. A list was provided and supplemented with information obtained by WTP. Individuals on this list were contacted via letter and telephone by WTP staff with requests for information about the project area or other concerns. At that time, initial steps were also taken to set up meetings and field trips to the project area.

Subsequent to these initial contacts, three field trips were conducted in March and May 2003, and an additional field trip was conducted in June 2004. These trips were designed to allow representatives of the Kawaiisu Tribe an opportunity to tour the area, review the results of the inventory effort, and share information on traditional uses of the area and traditional cultural places that may be present, as well as to voice any concerns about project impacts or potential mitigation measures. While no specific concerns have yet been voiced, the consultation process is still underway, under the direction

of the BLM.

NATIONAL REGISTER OF HISTORIC PLACES

The cultural resources inventory of the proposed project was conducted to comply with Section 106 of the NHPA of 1966, as amended (1999). Section 106 requires federal agencies, before any action, to identify cultural resources that may qualify as eligible for inclusion in the National Register of Historic Places (National Register). If significant (i.e., National Register eligible) resources are identified, then federal agencies are directed to take prudent and feasible measures to avoid or reduce adverse impacts to the resources.

The National Register serves as the official list of historic properties, including districts, sites, buildings, structures, and objects, significant in American history, architecture, archaeology, engineering, and culture. A historic property may be of national, state, or local significance and is defined as the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of those remains.

ETHNOGRAPHIC OVERVIEW

The ethnographic Kawaiisu people, representing a blend of California and Great Basin cultures (Zigmond 1986), occupied the forest, desert, and grassland environments at the southern end of the Sierra Nevada, and in the Paiute and Tehachapi mountains (see Figure 3.8-1, Ethnographic Territories Map).

The Kawaiisu Indians were relocated by the federal government onto the Tejon reservation years after the signing of an 1851 treaty by local Tejon Indians. When Fort Tejon was built, the Kawaiisu were forced to relocate to a reduced 25,000-acre Tejon reservation. Today, a number of contemporary Kawaiisu descendants are actively involved in preserving their language and interpreting their past, as evidenced by the establishment of Tomo-Kahni State Park in 1996. The Park, which encompasses a Kawaiisu winter village, is dedicated to archaeology and the preservation of Native American culture.

SURVEY RESULTS

In compliance with the federal cultural resources laws and regulations, an archaeological inventory was conducted of all proposed project facilities. The cultural resources inventory and records search conducted for the Pine Tree Wind Development project area resulted in the identification of 101 archaeological sites, including 43 previously recorded and 58 newly identified properties. Of these, 90 sites are within the project area.

The majority are prehistoric resources, defined by flaked and ground stone artifact scatters, some with bedrock milling features or cultural middens. While most prehistoric sites are open-air deposits, 6 rock shelters are present, 5 of which contain an array of pictographs. 6 multiple component sites occur in the project area, defined by prehistoric and historic artifact scatters. 7 sites exhibit only historic-era materials, inclusive of trash scatters, the Upside-Down Mine, a rock house (“The Ship”), and features associated with the Pine Tree Canyon labor camp and construction of the First Los Angeles Aqueduct (1908-1913).

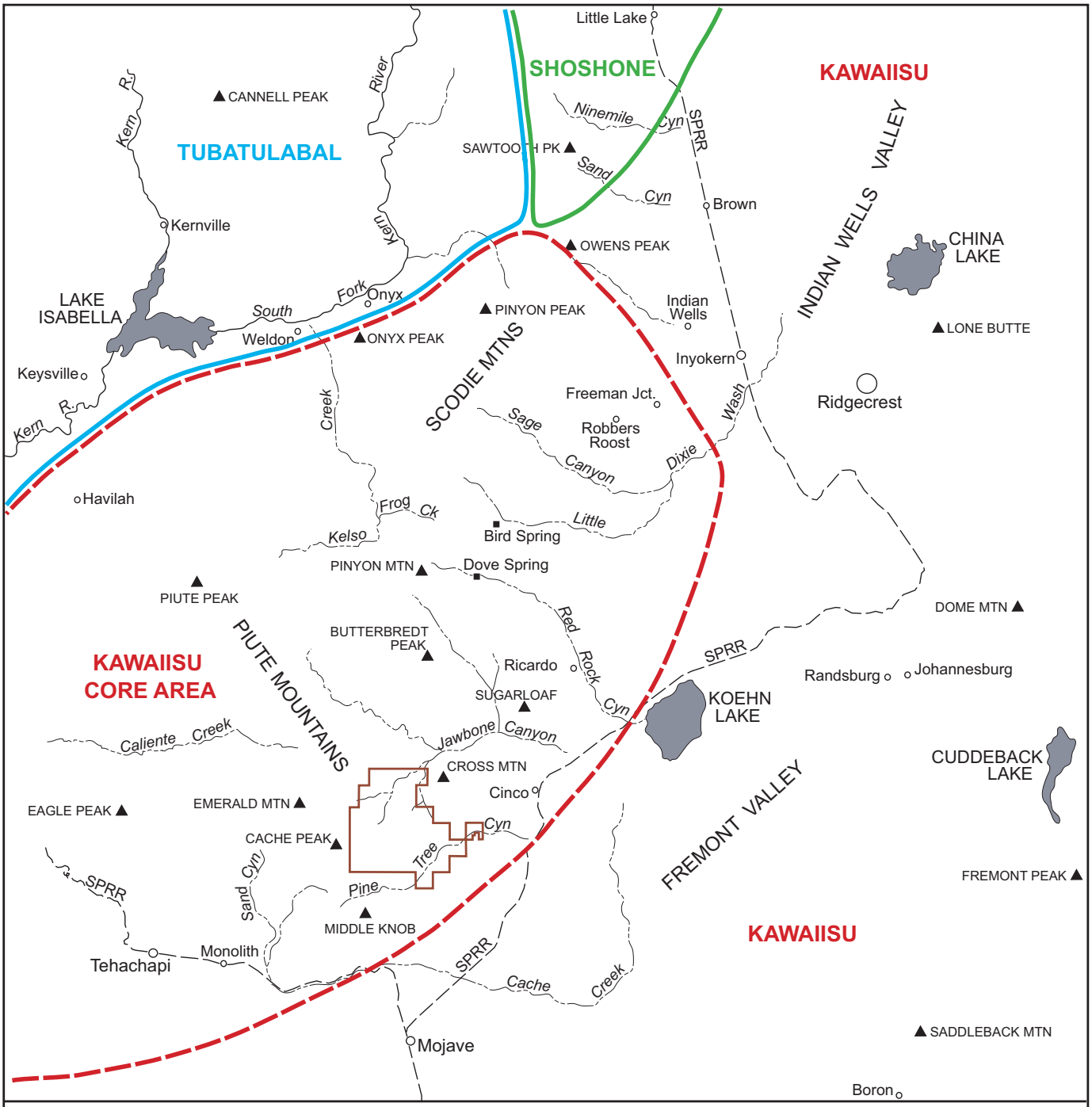


Figure 3.8-1
Ethnographic Territories Map

EDAW

Nineteen sites have the potential to be affected by project activities, depending upon which components (e.g., access roads, 230-kV transmission line, and laydown areas) are selected for use or construction. The remaining 71 sites do not occur within or immediately adjacent to proposed project components. Of the 19 sites with potential project impact, only 7 are considered National Register-eligible properties, the remainder not qualifying due to lack of integrity and/or lack of research potential.

ARCHAEOLOGICAL RESOURCES

Archaeological investigations within the far southern Sierra Nevada region have focused on numerous compliance-related surveys and some excavations, the latter producing data for the development of a local chronological sequence: Lamont Phase (4000 – 1200 B.C.); Canebrake Phase (1200 B.C. – A.D. 600); Sawtooth Phase (A.D. 600-1300); and Chimney Phase (A.D. 1300 – historic period). The chronological sequence for the northeastern Mojave Desert proposed by Warren (1980, 1984) and Warren and Crabtree (1986), divides the prehistoric era into five periods: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Shoshonean.

The northeastern Mojave Desert sequence has been recently expanded by Sutton (1996) to include the following chronology: Lake Mojave period, Pinto period, Gypsum period, Rose Spring period, and Late Prehistoric period, as described below.

Paleoindian Period (ca. 12,000 – 10,000 B.P.)

The earliest, clear evidence for human occupation of the Mojave Desert begins about 12,000 years ago. Paleoindian period sites are characterized by fluted Clovis projectile points and related materials, commonly viewed as representing a big game hunting tradition focused on the exploitation of Pleistocene megafauna (Moratto 1984:79).

Lake Mojave Period (ca. 10,000 - 7000 B.P.)

This phase represents a shift toward a more diversified and generalized economy (Sutton 1996:228). Lake Mojave assemblages, first identified at Lake Mojave (Campbell et al. 1937), include Lake Mojave series projectile points (leaf-shaped, long stemmed points with narrow shoulders), and Silver Lake points (short bladed, stemmed point with distinct shoulders). Other diagnostic items include flaked stone crescents; abundant bifaces; and a variety of large, well-made scrapers, gravers, perforators, and heavy core tools.

Pinto Period (ca. 7000 - 4000 B.P.)

The transition from big game hunting to a more broadly based economy likely continued into the Pinto period (Sutton 1996:231). It is during this time that woodland attained its approximate modern elevation range, and the modernization of desert scrub communities was completed with the immigration of such plant species as creosote bush into the area.

Big game hunting probably continued as an important focus during this time, but the economic return of this activity likely decreased as artiodactyl populations declined in response to increased aridity (Warren and Crabtree 1986). In fact, faunal remains from recorded Pinto period sites are dominated by lagomorph, followed by artiodactyl remains. The remains of rodents, some reptiles, and

freshwater mussel have also been recovered from Pinto period contexts. The exploitation of piñon is also suggested by the recovery of hulls from hearth features at Surprise Spring (Sutton 1996:232).

Gypsum Period (ca. 4000 - 1500 B.P.)

Culturally, the Gypsum period is marked by population increases and broadening economic activities as technological adaptation to the desert environment evolved. Later, the bow and arrow were introduced, increasing hunting efficiency. In addition to open sites, the use of rock shelters appears to have increased at this time. Base camps with extensive midden development are a prominent site type in well-watered valleys and near concentrated subsistence resources (Warren and Crabtree 1986). Additionally, several types of special purpose sites in upland settings begin to appear.

Gypsum period sites are characterized by medium- to large-stemmed and notched projectile points, including Elko series, Humboldt Concave Base, and Gypsum. In addition, rectangular-based knives, flake scrapers, occasional large scraper planes, choppers and hammerstones, and handstones and milling tools become relatively commonplace and the mortar and pestle appear for the first time.

Rose Spring Period (ca. 1500 – 1000 B.P.)

Small projectile points (Eastgate and Rose Spring series) appear to mark the introduction of a bow and arrow technology and the decline of the atlatl and spear weaponry (Sutton 1996:235). This period saw the rise of Basketmaker III and Anasazi cultures in southern Nevada and portions of adjoining Southern California, the influence of which, as evidenced by painted ceramics, extended a good distance to the west. Such influence near the project area appears to have been marginal, however, and sites of this period seem to exhibit general continuity with the Gypsum pattern. Change is most apparent in the reduced size of projectile points (Warren and Crabtree 1986).

At Rose Spring, numerous bedrock milling features, including mortar cups and slicks, are associated with rich midden deposits. Within the eastern Mojave Desert, agriculture was being practiced during the Rose Spring period and into the subsequent Late Prehistoric period. This included the Anasazi populations of the Muddy and Virgin river areas (Sutton 1996:237).

Late Prehistoric Period (1000 B.P. - Contact)

Between 1,000 and 750 years ago, ethnic and linguistic patterns within the Mojave Desert increases in complexity. To the south of the project area, Hakatayan-, and later, Yuman-speaking groups occupied a broad area extending to the Gulf of California (Schroeder 1979).

One of the most important regional developments during the Late Prehistoric period was the apparent expansion of Numic-speakers (or Shoshonean groups) throughout most of the Great Basin. It is apparent that the ethnographic Southern Paiute represents the entry of Numic speakers into southern Nevada sometime during this period. Characteristic artifacts of this period include Desert series projectile points (Desert Side-notched and Cottonwood Triangular), Brownware ceramics, Lower Colorado Buff Ware, unshaped handstones and millingstones, incised stones, mortars, pestles, and shell beads (Warren and Crabtree 1986).

HISTORICAL RESOURCES

During the eighteenth century, a handful of Spanish, Mexican, and American explorers traveled through the region during exploratory trips or missions (Coues 1900; Holliday 1999). Joseph Walker, for whom Walker Pass is named, traveled from the Mojave to the San Joaquin Valley in 1833. The Death Valley forty-niners, led by William Lewis Manly, reportedly traveled through the project area along Indian's Big Trail (Underwood 2000).

With the discovery of gold and silver in northern and western Nevada came a massive influx of prospectors into the West, and later into the deserts of California. Small mining towns and ranching operations mushroomed during the latter decades of the nineteenth century, including the new town of Mojave, established in 1876 (Pracchia 1994; Underwood 2000). By the late 1890s, other mining camps were established in the areas of Jawbone Canyon, Randsburg, and Johannesburg.

The Mojave and Owens Valley regions could not, by themselves, support large quantities of people, and the need developed for transportation of goods, people, livestock, food, and mined ore, between there and Los Angeles. A number of trails and stagecoach lines were introduced during the 1870s that utilized some existing trails known to Native Americans in the area. Indian's Big Trail, also called Owens River Road (Warren and Roske 1981), the Midland Trail, and the Bullion Road (Pracchia 1994), all connected the northern Mojave and Owens Valley area with Los Angeles, via connections with the Tehachapi Pass road and the Walker Pass road. Several of these old roads are known to have passed near or through the current project area; a road from Panamint City constructed by Remi Nadeau in the 1870s connected with the Bullion Road at Freeman Junction, northeast of the current project area (Underwood 2000).

Every few miles, or as a convenience at the intersection of two or more roads, a rest was needed. Some of these temporary camps were later developed by entrepreneurs into stage stops. Indian Wells Station, located along present State Highway 14, was the start of an eastern road towards Searles Lake and Trona. Panamint Station, in operation from the 1870s to 1882, was located between Indian Wells and Coyote Holes/Freeman, adjacent to the First Los Angeles Aqueduct, and is still visible today (Pracchia 1994; Underwood 2000). Coyote Holes, also referred to as Freeman Stage Station, was located just west of the First Los Angeles Aqueduct near its crossing over Freeman Canyon. With the introduction of the motor vehicle came the decreasing need for stage lines and stops. Many of the old stage routes were eventually paved over for modern traffic (Underwood 2000).

The growing ranching and agricultural industries in the desert around the turn of the twentieth century required a larger supply of water than the landscape could easily support. During the early 1900s, farmers began to construct irrigation ditches and canals in an attempt to divert water into their fields. The population boom in Los Angeles created a similar problem, however, and soon plans were developed to construct the First Los Angeles Aqueduct to tap the water supplies of the Sierra Nevada Range and the Owens Valley.

Construction of the First Los Angeles Aqueduct began around 1908, resulting in new roads, ditches, dams, reservoirs, and camps along the route (Bevill et al. 2003). Railroads were improved, and local economies received a well-needed boost. Thousands of workers and animals were employed during the 5-year effort that finally delivered water via gravity flow to Los Angeles in 1913 (LADWP 1996). Subsequent expansions of the First Los Angeles Aqueduct in 1940 extended the system 105 miles north to the Mono Basin. The Second Los Angeles Aqueduct, which further expanded the system's capacity, was completed in 1970 (LADWP 1996).

During the planning process for the First Los Angeles Aqueduct, the City of Los Angeles recognized the potential of water for generating electrical power and, in 1906, commissioned Ezra Scattergood to develop a hydroelectric power system. The first power plant was constructed in the Owens Valley at Division Creek and, by 1916, the first power pole was erected in Los Angeles (LADWP 1996).

3.8.2 REGULATORY FRAMEWORK

The following regulations and guidelines were established as a comprehensive program for the identification, evaluation, and treatment of cultural resources on both the federal and state levels:

- Antiquities Act of 1906
- Historic Sites Act of 1935
- Reservoir Salvage Act of 1960
- National Historic Preservation Act of 1966
- National Environmental Policy Act of 1969
- Executive Order 11593 (Protection and Enhancement of the Cultural Environment)
- Archaeological and Historical Preservation Act of 1974
- American Indian Religious Freedom Joint Resolution of 1978
- Archaeological Resources Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990
- California Environmental Quality Act

3.8.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

The cultural resources inventory conducted at the project property focused on the examination of specific project elements within the larger project area, such as proposed turbine locations, access roads, laydown yards, and sections of proposed underground collection lines linking turbine locations. The inventory was undertaken between December 2002 and May 2004, during which several redesigns were examined. The survey resulted in the identification of 58 new archaeological sites (the site record forms and location maps for these resources have been submitted to BLM as confidential appendices to the cultural resources report). Table 3.8-1 summarizes the results of the previously recorded resources.

Table 3.8-1
Summary of Previously Recorded Cultural Resources

Site P-15-	Site Type	Area in m²	Condition	Comment
001115*	Temporary Camp	2500	Fair	1000's of flakes
001116	Lithic Scatter	30	Poor	10 flakes
001117	Lithic Scatter	>10	Fair	2 cores, 2 scrapers
001118	Lithic Scatter	~150	Fair	10 flakes, 1 core, 1 scraper
001119*	Temporary Camp	7500	Fair	Hearth, scraper, flakes
001120*	Lithic Scatter	7500	Fair	1000's of flakes
001715*				
001718*				
002142	Historic	64200	Fair	Foundations, can & glass scatter
002541*	Lithic Scatter	1120	Fair	Points, cores, flakes
002542*	Temporary Camp	5625	Poor	Mortar, pictograph, flakes
002555*	Lithic Scatter	300	Good	24 flakes
002556*	Rock Shelter	1125	Poor	Pictographs, lithic scatter
002830	Lithic Scatter	600	Poor	~12 flakes
002831	Lithic Scatter	11250	Good	Flakes
002832*	Lithic Scatter	34500	Fair	Flakes, 1 biface
002833	Lithic Scatter	3750	Good	Flakes, 1 core
002834	Lithic Scatter	5625	Good	Flakes
002835	Temporary Camp	90	Fair	Metates, burnt bone, flakes
002836	Quarry/Workshop	135000	Good	Outcrops, flakes
002981	Pictograph		Poor	Pictograph, mortar
002982	Rock Shelter	160	Good	Pictographs, lithics
002983	Milling Station	64	Fair	Bedrock mortars, flakes
003042*	Lithic Scatter	20000	Good	Flakes, mano fragment
003452*				
003549	Historic		Good	First Los Angeles Aqueduct
005133	Habitation Site	15000	Good	Burials, mortars, hearths
005435	Habitation Site	84	Good	Points, scrapers
007195	Lithic Scatter	167	Good	Points, knives, scrapers
007196	Lithic Scatter		Good	Points, scrapers
007197	Milling Station		Good	Manos
007198	Milling/Workshop	84	Good	Bedrock mortars, points
007199	Lithic Scatter	84	Good	Points
007200	Lithic Scatter	84	Good	Points, scrapers
007201	Lithic Scatter	84	Good	Points, scrapers
007202	Lithic Scatter	84	Good	Points, scrapers
007203	Lithic Scatter	84	Good	Points, scrapers
007204	Lithic Scatter	84	Good	Points, scrapers
007205	Rock Shelter		Poor	Pictographs, ceramic, point
007207	Rock Shelter		Good	Ceramic, bone, vegetal
007381	Rock Art		Good	Pictograph
007382	Rock Art		Good	Pictograph
Petroglyph	Petroglyph			

* = denotes sites outside, but immediately adjacent to the defined Project Area
m² = square meter

EDAW Survey

The cultural resources inventory of the project area was initiated by EDAW, using two-person crews under supervision, in December 2002. Survey locations were based on maps provided to EDAW by the proponent. Linear facilities, such as roads and proposed transmission lines, were surveyed by a two-person crew spaced at 15-m (50-foot) intervals, thus covering 100-foot corridors. Proposed turbine locations were surveyed at a radius of approximately 30-m in 15-m intervals. Essentially, all of the flat to gently sloping areas on the tops of ridges where the turbines are proposed to be located were surveyed. Laydown areas were surveyed at 10- to 15-m intervals until the entire area, including a 50-foot buffer, had been walked.

Archaeological sites and isolated finds were recorded on Department of Parks and Recreation (DPR) 523 forms. Site locations were recorded using either Garmin or Magellan 310 handheld Global Positioning System (GPS) units. Photographs were also taken. EDAW field crews identified 38 new archaeological sites.

A small portion of the area surveyed, consisting of an existing access road along Pine Tree Canyon Road, is administered by the BLM and a fieldwork authorization was obtained from the Ridgecrest Field Office. As specified in the permit, the road corridor was surveyed using 10-m-wide transect intervals.

URS Survey

Subsequent inventory of the project area was conducted by URS in April 2003, continuing periodically through July 2003. Following partial redesign of the project, additional inventory was conducted in April and May 2004. URS field methods largely followed those employed by EDAW and included inventory of 100-foot corridors along proposed access roads and 400-foot corridors along turbine strings and proposed and alternate transmission line corridors. Where necessary, particularly at sharp curves, intersections, and areas requiring extensive cutting or filling, access road survey corridors were widened to 200 feet. All survey was conducted utilizing 10- to 15-m transect intervals. Archaeological sites and isolated finds were recorded on DPR 523 forms. Site locations were recorded using Garmin handheld GPS units. URS field crews identified 20 new archaeological sites.

To assist in site evaluation, impact assessment, and avoidance, URS conducted limited shovel probing at sites that might be affected by project activities, including both previously recorded and newly identified properties. Shovel probes measured 50-x-50-cm and were excavated to determine the presence or absence of subsurface materials. Depths of the probes varied depending upon the nature of sediments encountered, but averaged 30-60 cm. Sediments removed from probes were screened through one-eighth-inch hardware cloth screening. Cultural materials encountered during probing were not collected but were tallied and returned to units before backfilling.

Several sections of existing access roads through Jawbone and Little Jawbone canyons surveyed by URS are on lands administered by the BLM. Before survey of these roads, a fieldwork authorization was obtained from the Ridgecrest Field Office.

The URS survey and limited shovel probing was conducted using two- and four-person crews. Field supervision was provided by URS archaeologists.

THRESHOLDS OF SIGNIFICANCE

The significance of a property is best judged and explained when it is evaluated within its historic context – those patterns or trends by which a specific occurrence, property, or site is understood, and its meaning and significance within history or prehistory is made clear (National Register Bulletin 1987:7). There are four criteria of evaluation to be considered to assess significance and they are used as the standards by which every property nominated to the National Register is judged. The criteria recognize associative, design, and information values, as listed in the *Code of Federal Regulations* (CFR), Title 36, Part 60:

> The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and
>
> A. That are associated with events that have made significant contributions to the broad pattern of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in the National Register, a property must be shown to be significant under one or more criteria and must have integrity (National Register Bulletin 1998:44).

For the investigation for the proposed project, National Register evaluation is derived through examination of archaeological materials observed at sites, presence or absence of subsurface deposits, degree of impacts, and discussions of research potential.

IMPACT ANALYSIS

Impact 8.1: Construction of the proposed project would potentially affect archaeological sites; however, the current project configuration would avoid a substantial number of these sites.

Of the 90 archaeological sites that were identified within the project area, 70 sites do not require further management consideration, as planned project activities would avoid these resources (see Table 3.8-2, Sites Not Impacted by the Proposed Project). Therefore, no mitigation measure is necessary. However, any changes to current plans would require reassessment of potential impacts to these resources.

Impact 8.2: Construction of the proposed project would potentially directly affect 20 archaeological sites depending upon which components are selected.

Of the 90 archaeological sites identified, 20 are situated within areas that might be affected by project activities, depending upon which components (e.g., access roads, 230-kV transmission line, laydown areas) are selected for use or construction (see Table 3.8-3, Sites Potentially Impacted by the Proposed Project). Where necessary, limited shovel probing was conducted at these sites to test for the presence of buried deposits, thereby providing preliminary information regarding their data potential and National Register eligibility. Based on the limited shovel probing and/or observed site assemblage characteristics, seven sites were provisionally evaluated as eligible for the National Register. These sites are PT-3, PT-12, PT-30, PT-31, PT-32, PT-34, and WF-18. Current project plans indicate these seven sites cannot feasibly be avoided.

Under the current project plans, sites PT-3, PT-12, and PT-30 would be impacted by installation of the underground electrical collection system within an access road passing through the site. Also sites PT-31, PT-32, and PT-34 would be crossed by access roads. Two of these sites, PT-32 and PT-34, contain both historic and prehistoric components. Because the historic components would not be affected, mitigation measures presented below focus on prehistoric components only. An additional site, WF-18, would be impacted if the alternate turbine proposed for this location were constructed. If this alternate is selected, an access road to that location will pass through site WF-18, and mitigation would be necessary. Consequently, mitigation measures for this site are also included. See MM 8.2.

3.8.4 MITIGATION MEASURES

MM 8.2: Mitigation for the seven identified sites affected by project construction involves preparing and implementing a data recovery program that includes further investigations at each of the seven sites. The recommendations for each site are described in detail in the Cultural Resources Report (see Table 4-1 of Appendix F) and in Table 3.8-4.

The treatment strategy developed for the data recovery program incorporates a flexible program of surface reconnaissance, surface collection, surface transect units, controlled excavation, and laboratory studies to ensure the recovery of sufficient data before the site is affected by project activities.

3.8.5 RESIDUAL IMPACT AFTER MITIGATION

The significant impacts on cultural resources can be mitigated to less than significant with implementation of the mitigation measures (data recovery program) provided herein.

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
CA-Ker-1116	P-15-1116	Prehistoric lithic scatter	1979	Poor	1450 m to access road	No further consideration
CA-Ker-1117	P-15-1117	Prehistoric lithic scatter	1961, 1979	Fair	1550 m to access road	No further consideration
CA-Ker-1118	P-15-1118	Prehistoric lithic scatter	1979	Fair	1800 m to access road	No further consideration
CA-Ker-2142/H	P-15-2142	Prehistoric lithic scatter; historic artifact scatter	1986	Fair	50 m to access road	No further consideration
CA-Ker-2541	P-15-2541	Prehistoric lithic scatter, milling stones	1989	Fair	550 m to access road	No further consideration
CA-Ker-2556	P-15-2556	Prehistoric rock shelter, pictographs, lithic scatter, milling stone	1990	Good	1850 m to access road	No further consideration
CA-Ker-2830	P-15-2830	Prehistoric lithic scatter	1990	Poor	1200 m to access road	No further consideration
CA-Ker-2831	P-15-2831	Prehistoric lithic scatter	1990	Good	1350 m to access road	No further consideration
CA-Ker-2832	P-15-2832	Prehistoric lithic scatter	1990	Fair	1300 m to access road	No further consideration
CA-Ker-2833	P-15-2833	Prehistoric lithic scatter	1990	Good	1350 m to access road	No further consideration
CA-Ker-2834	P-15-2834	Prehistoric lithic scatter	1990	Good	1400 m to access road	No further consideration
CA-Ker-2835	P-15-2835	Prehistoric lithic scatter, ground stone, small midden, bone	1990	Fair	1250 m to access road	No further consideration
CA-Ker-2836	P-15-2836	Prehistoric lithic scatter; quarry, workshop	1990	Good	900 m to access road	No further consideration
CA-Ker-2981	P-15-2981	Prehistoric pictograph, bedrock mortar	1990	Poor	400 m to access road	No further consideration
CA-Ker-2982	P-15-2982	Rock shelter, pictographs, flaked stone, bedrock mortars	1961, 1990	Good	1850 m to access road	No further consideration

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
CA-Ker-2983/4733 (Quail Springs)	P-15-2983 P-5435	Habitation site, bedrock mortars	1961, 1983, 1990, 1996 URS 2003	Fair	Component dropped	Site was probed; depth identified to 70 cm. Elements exist for National Register eligibility. No further consideration due to lack of impacts
CA-Ker-3549H	P-15-3549	First and Second Los Angeles Aqueduct	1992, 2000	Good	Pine Tree Canyon Road crosses aqueduct	No further consideration
CA-Ker-4619	P-15-5133	Habitation site, cemetery, bedrock mortars, burial goods, ceramics, ground stone, flaked stone	1961, 1996	Good	150 m to tower alternate	No further consideration
	P-15-7195	Prehistoric workshop, lithic scatter	1961	Wind-eroded	200 m to access road	No further consideration
	P-15-7196	Prehistoric lithic scatter, workshop	1961	Wind-eroded	700 m to access road	No further consideration
	P-15-7197	Prehistoric bedrock mortars, ground stone	1961	Overgrown	650 m to access road	No further consideration
	P-15-7198	Prehistoric lithic scatter, bedrock mortars	1961	Wind-eroded	100 m to access road	No further consideration
	P-15-7199/ WF-15?	Prehistoric lithic scatter	1961	Wind-eroded	Component dropped	No further consideration
	P-15-7200	Prehistoric lithic scatter	1961	Wind-eroded	200 m to access road	No further consideration
	P-15-7201	Prehistoric lithic scatter	1961	Wind-eroded	200 m to access road	No further consideration
	P-15-7202	Prehistoric lithic scatter	1961	Wind-eroded	30 m to access road	No further consideration

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	P-15-7203	Prehistoric lithic scatter	1961	Wind-eroded	Access road bisects site	Site could not be relocated. No further consideration
	P-15-7204/ WF-6?	Prehistoric lithic scatter	1961	Wind-eroded	Component dropped	No further consideration
	P-15-7205	Prehistoric rock shelter, pictographs, lithic scatter, pottery, bone	1961 EDAW 2003	Poor, rockshelter collapsed	100 m to access road	No further consideration
	P-15-7207	Prehistoric rock shelter, pottery, bone, mats, throwing stick	1961	Vandalized	60 m to access road	No further consideration
CA-Ker-Pro-008	P-15-7381	Prehistoric pictographs	1991	Unknown	400 m to access road	No further consideration
CA-Ker-Pro-009	P-15-7382	Prehistoric rock overhang, pictographs, bedrock mortar	1991	Unknown	350 m to access road	No further consideration
	PT-5	Prehistoric lithic scatter	EDAW 2002	Good	Component dropped	No further consideration
	PT-6	Prehistoric habitation site; flaked stone; ground stone; shell beads	EDAW 2002	Poor	Component dropped	No further consideration
	PT-7	Prehistoric lithic scatter	EDAW 2002	Fair	Component dropped	Site probed, depth to 40 cm identified. Elements exist for National Register eligibility. No further consideration due to lack of impacts.
	PT-8	Prehistoric lithic scatter	EDAW 2002	Fair	Component dropped	Site probed, depth to 40 cm identified. Elements exist for National Register eligibility. No further consideration due to lack of impacts.

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	PT-9	Prehistoric lithic scatter	EDAW 2002	Fair	Component dropped	Site probed, no depth identified. Site recommended as ineligible to National Register due to lack of data potential. No further consideration.
	PT-16	Prehistoric lithic scatter	EDAW 2003	Fair	Component dropped	No further consideration
	PT-17	Prehistoric lithic scatter	EDAW 2003	Good	Component dropped	No further consideration
	PT-18	Prehistoric lithic scatter	EDAW 2003	Fair	Component dropped	No further consideration
	PT-19	Prehistoric lithic scatter; ground stone	EDAW 2003 EDAW 2003	Fair	Component dropped	No further consideration
	PT-20	Prehistoric lithic scatter; ground stone	EDAW 2003	Good	Component dropped	No further consideration.
	PT-21	Prehistoric lithic scatter; ground stone	EDAW 2003	Poor	Component dropped	No further consideration.
	PT-24	Prehistoric lithic scatter	EDAW 2002	Fair	Adjacent to proposed laydown area	Site probed, depth to 20 cm identified. Site is recommended as eligible to the National Register. No further consideration due to lack of impacts.
	PT-25	Prehistoric lithic scatter	EDAW 2002	Good	Component dropped	No further consideration
	PT-28	Prehistoric bedrock milling features; flaked and ground stone artifact scatter.	EDAW 2002	Fair	Component dropped	No further consideration
	PT-33	Prehistoric lithic scatter	EDAW 2002	Undetermined	Component dropped	No further consideration.

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	PT-35	Prehistoric rockshelter with pictographs; historic corral and camp	EDAW 2003	Good	150 m to access road	No further consideration
	PT-CS-1/2	Prehistoric lithic scatter; historic can scatter	EDAW 2003	Good	Component dropped	Site probed, no depth identified. Recommended as eligible to the National Register due to presence of multiple artifact classes. No further consideration due to lack of impacts.
	PT-JU-1	Prehistoric bedrock milling feature	EDAW 2003	Good	17 m west of access road	No further consideration
	PT-JU-2	Prehistoric bedrock milling feature	EDAW 2003	Good	"Up small drainage"; location uncertain	No further consideration
	PT-WF-1	Historic trash scatter	EDAW 2003	Fair	25 m east to Pine Tree Canyon access road	No further consideration
	PT-WF-2	Historic trash scatter and foundation (Los Angeles Aqueduct related)	EDAW 2003	Fair	Pine Tree Canyon Access road bisects site; proposed 230 kV line bisects site	Site is unevaluated. No further consideration due to lack of impacts.
	PT-WF-3	Historic foundations; likely Los Angeles Aqueduct Pine Tree Canyon Labor Camp	EDAW 2003	Fair	50 m north of Pine Tree Canyon access road; proposed 230 kV line may cross northern edge of site	Site is unevaluated. No further consideration due to lack of impacts.
	WF-1	Prehistoric lithic scatter	URS 2003	Good	45 m north of Pine Tree Canyon access road	No further consideration

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	WF-2	Prehistoric lithic scatter, groundstone	URS 2003	Good	Component dropped	Site probed, no depth identified. Recommended as eligible to the National Register due to presence of multiple artifact classes. No further consideration due to lack of impacts.
	WF-3	Prehistoric lithic scatter, ground stone, bedrock milling feature	URS 2003	Good	Component dropped	No further consideration
	WF-4	Historic structure "The Ship"	URS 2003	Fair	Component dropped	Site is unevaluated. No further consideration due to lack of impacts.
	WF-5	Prehistoric lithic scatter, ground stone, midden	URS 2003	Good	Component dropped	No further consideration
	WF-6/ PT-15-7204?	Prehistoric lithic scatter, ground stone	URS 2003	Good	Component dropped	No further consideration
	WF-7	Prehistoric flaked and ground stone artifact scatter	URS 2003	Good	Component dropped	No further consideration
	WF-8	Prehistoric lithic scatter	URS 2003	Good	Component dropped	No further consideration
	WF-10	Prehistoric flaked and ground stone artifact scatter	URS 2003	Good	Component dropped	No further consideration.
	WF-12	Historic mining complex	URS 2003	Fair	Access road is 20 m south	Site is unevaluated. No further consideration due to lack of impacts.
	WF-13	Prehistoric flaked and ground stone artifact scatter	URS 2003	Good	Component dropped	No further consideration

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	WF-14	Prehistoric flaked and ground stone artifact scatter	URS 2003	Good	Component dropped	Site probed, no depth identified. Recommended as eligible to the National Register due to presence of multiple artifact classes. No further consideration due to lack of impacts.
	WF-15/ P-15-7199?	Prehistoric flaked and ground stone artifact scatter, midden	URS 2003	Good	Access road 10 m to north	Site probed, depth to 50 cm identified. Elements exist for National Register eligibility. No further consideration due to lack of impacts.
	WF-16	Prehistoric flaked stone artifact scatter	URS 2003	Good	Alternative 230kV line crosses the site	Site probed, depth to 30 cm identified. Elements exist for National Register eligibility. No further consideration due to lack of impacts.
	WF-17	Prehistoric lithic scatter	URS 2004	Good	Access road crosses the site	Site probed, no depth identified. Site recommended as ineligible to the National Register due to lack of data potential. No further consideration.
	WF-19	Prehistoric lithic scatter	URS 2004	Good	230kv transmission line crosses the site	Elements exist for National Register eligibility. No further consideration due to lack of impacts.

Table 3.8-2
Sites Not Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	WF-20	Prehistoric flaked stone and ground stone scatter; one historic artifact	URS 2004	Good	230kV transmission line	Elements exist for National Register eligibility. No further consideration due to lack of impacts.

Table 3.8-3
Sites Potentially Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	PT-1/27	Prehistoric lithic scatter	EDAW 2002	Good	5 m to access road	Site probed, no depth identified. Site recommended as ineligible to National Register due to lack of data potential. No further consideration.
	PT-2	Prehistoric lithic scatter; ground stone	EDAW 2002	Poor	Access road bisects site	Site probed, depth to 40 cm. Site recommended as ineligible to National Register due to lack of integrity and data potential. No further consideration.
	PT-3	Prehistoric lithic scatter	EDAW 2002	Fair	Underground electrical system will bisect site	Site probed, depth to 40 cm identified. Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations.
	PT-11	Prehistoric lithic scatter	EDAW 2002	Fair	On access road	Site probed, no depth identified. Site recommended as ineligible to National Register due to lack of data potential. No further consideration.

Table 3.8-3
Sites Potentially Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	PT-12	Prehistoric lithic scatter	EDAW 2002	Fair	Underground electrical system will bisect site	Site probed, depth to 40 cm identified. Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations.
	PT-13	Prehistoric lithic scatter	EDAW 2002	Fair	Access road at south edge of site	Site probed, no depth identified. Site recommended as ineligible to National Register due to lack of data potential. No further consideration.
	PT-14	Prehistoric bedrock milling feature	EDAW 2002	Fair	2 m west of access road	Site probed, no depth identified. Site recommended as ineligible to National Register due to lack of data potential. No further consideration.
	PT-15	Prehistoric bedrock milling feature; lithic flake	EDAW 2002	Fair	10 m southwest of access road	Site probed, no depth identified. Site recommended as ineligible to the National Register due to lack of data potential. No further consideration.
	PT-22	Prehistoric bedrock milling feature; lithic scatter	EDAW 2003	Good	Proposed access road bisects site	Site probed, no depth identified. Site recommended as ineligible to the National Register due to lack of data potential. No further consideration.

Table 3.8-3
Sites Potentially Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	PT-23	Prehistoric lithic scatter	EDAW 2002	Poor	Site is within proposed laydown area	Site probed, no depth identified. Site recommended as ineligible to the National Register due to lack of integrity and data potential. No further consideration.
	PT-26	Prehistoric bedrock milling feature; lithic scatter	EDAW 2002	Fair	Proposed access road	Site probed, no depth identified. Site recommended as ineligible to the National Register due to lack of data potential. No further consideration.
	PT-29	Prehistoric lithic scatter	EDAW 2002	Fair	Access road bisects site	Site probed, no depth identified. Site recommended as ineligible to the National Register due to lack of data potential. No further consideration.
	PT-30	Prehistoric flaked and ground stone artifact scatter	EDAW 2003	Fair	Underground electrical system will bisect site	Site probed, depth to 60 cm identified. Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations.

Table 3.8-3
Sites Potentially Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	PT-31	Prehistoric bedrock milling feature, flaked and ground stone artifact scatter	EDAW 2002	Fair	Access road bisects site	Site probed, depth to 60 cm identified. Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations.
	PT-32; Sky River Ranch	Prehistoric – flaked and ground stone artifact scatter; Historic – Sky River Ranch	URS 2003	Good	Access road along eastern and northern site boundaries	No probing conducted. Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations. If historic structures cannot be avoided, architectural evaluation and possibly mitigation would be required.
	PT-34, Elmer Lunquist House	Prehistoric bedrock milling feature, flaked and groundstone artifact scatter; historic homestead	EDAW 2003	Good	Access road bisects site	Site probed, depth to 60 cm identified. Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations. If historic structure cannot be avoided, architectural evaluation and possibly mitigation will be required.

Table 3.8-3
Sites Potentially Impacted by the Proposed Project

State Trinomial	Primary (P-) or Temporary Number	Site Type	Date Recorded	Site Condition	Distance to Project Component (m)	Consideration
	WF-9	Prehistoric lithic scatter	URS 2003	Good	Access roads, O&M building	Site probed to 20 cm. No depth identified. Site recommended as ineligible to National Register due to lack of data potential. No further consideration.
	WF-11	Historic trash scatter	URS 2003	Good	Access road bisects site	No research potential beyond recordation; no further consideration.
	WF-18	Prehistoric lithic scatter	URS 2004	Good	Access road crosses the site	Elements exist for National Register eligibility. If access road is selected as part of project component and site cannot be avoided, site will require data recovery investigations.

Table 3.8-4.
Proposed Level of Effort for Data Recovery Investigations by Site

Site No.	Site Type	Site Size (m^2)	Impact Type	Area of Potential Impact (m^2) (length x width of road widening)	Shovel Transect Units (1-x-0.5-m)		Excavation Units (1-x-2-m/1-x-1-m)		Total Excavation Volume
					No.	Est. Volume (m^3)	No.	Est. Volume (m^3)	
PT-3	SAS	632	Access Road	120 (60 x 2)	6	0.9	1 / 0	0.8 (40 cm)	1.7
PT-12	SAS	217	Access Road	20 (10 x 2)	2	0.3	1 / 0	0.8 (40 cm)	1.1
PT-30	SAS-H	16,956	Access Road	640 (320 x 2)	32	4.8	4 / 0	4.8 (60 cm)	9.6
PT-31	IAS	20,724	Access Road	600 (300 x2)	30	4.5	2 / 1	3.0 (60 cm)	7.5
PT-32	CAS-H	10,598	Access Road	350 (175 x 2)	17	2.5	1 / 1	1.8 (60 cm)	4.3
PT-34	IAS-H	5,102	Access Road	100 (50 x 2)	6	1.2*	2 / 1	3.0 (60 cm)	4.2
WF-18	SAS	3,500	Access Road	100 (50 x 2)	4	0.4	2 / 1	1.8 (60 cm)	2.2
TOTALS					97	14.6	13/4	16.0	30.6

SAS = Simple Assemblage Site; IAS = Intermediate Assemblage Sites; CAS = Complex Assemblage Site; H – Historic Component
* STU depth estimated at 40 cm average

3.9 VISUAL RESOURCES

3.9.1 EXISTING AND AFFECTED ENVIRONMENT

The proposed project wind turbines, substation, and other related facilities would be located in the southern Sierra Nevada Mountains approximately 7 miles west of SR-14. The vegetative cover within the project site consists of a mix of pinyon-juniper woodland, oak woodland, scrub, and grassland. Terrain within the proposed project site ranges from rolling hills to moderately steep ridges. A number of rocky outcroppings are present on the property. Elevations range from approximately 3,000 feet above MSL in the northeastern corner of the project property to approximately 5,000 feet above MSL in the southwestern corner of the property.

The project property is located entirely on privately owned land that is essentially undeveloped. The property is currently and has historically been used as grazing land for cattle. Given this use of the site, there is an extensive system of existing unpaved roads throughout the property. The area surrounding the project property is also essentially undeveloped. The property is entirely bounded by privately owned land except along a portion of its eastern boundary and a portion of its northern boundary, which adjoin federally owned land administered by the BLM. Much of this adjoining BLM property is located within a closed area that is open to public access by permit only. Most of the property located immediately north of the project property is privately owned land used primarily for cattle grazing. Along the western, southern, and southeastern boundary, the project property abuts land owned by the Hansen Family Limited Partnership and GE Wind Energy, LLC, the owners of the property involved in the Pine Tree Wind Development Project.

The extreme northeastern edge of the project property abuts the boundary of the Jawbone-Butterbredt ACEC, which consists of both public (BLM) and private property. The Jawbone Canyon Open Area (a designated off-highway vehicle use area) is located within the ACEC boundaries along Jawbone Canyon Road, approximately 3 miles east of the northeastern corner of the project property. Approximately 1.5 miles west of the northwestern project property boundary is a patchwork of BLM land surrounded by private property. Approximately 2 miles south of the project property is a relatively large, consolidated parcel of BLM land that encompasses Pine Tree Canyon and Middle Knob peak.

The Sky River Ranch wind turbine development is located on private property along the Sweet Ridge ridgeline, which rises between approximately 5,500 and 6,000 feet in elevation and runs in a north-south direction approximately 1 to 2 miles west of the project property. Sweet Ridge is generally the tallest ridgeline in the vicinity of the project. The Sky River Ranch wind development consists of 342 approximately 100- to 150-foot-tall turbines sited along an approximate 6-mile length of the ridgeline. The Sky River Ranch wind turbines are visible from various locations within the project property and the surrounding area.

A segment of the Pacific Crest National Scenic Trail is also located approximately 1 to 2 miles west of the western boundary of the project property. In the vicinity of the project property, the trail generally parallels the Sky River Ranch wind development primary access road, usually to the west of the Sweet Ridge ridgeline (i.e., on the opposite side of the ridgeline from the proposed project). However, to the southwest of the project property, the trail is located to the east of the ridgeline (i.e., on the same side of the ridgeline as the project). The trail is situated on private property for nearly the entire segment that is located to the west of the project.

3.9.2 REGULATORY FRAMEWORK

The regulatory framework that guides the analysis of visual resources and the assessment of potential impacts to visual resources is found in several policy plans and regulatory acts of various agencies that have jurisdiction in the vicinity of the proposed project. These include the Visual Resource Management (VRM) Classes of the BLM; the Light and Glare/Esthetics Element of the Kern County General Plan; the National Trails System Act as it pertains to the Pacific Crest National Scenic Trail; and the CEQA Guidelines for determining impacts to aesthetics.

BLM VRM CLASSES

As part of its resource planning efforts, the BLM conducts an inventory of scenic values on the public lands it administers to establish objectives for the management of activities that may impact visual resources located on those lands. Only activities that occur on BLM-administered property are subject to the management objectives related to designated Visual Resource Inventory Classes. A Visual Resource Inventory has not yet been conducted for the BLM property within the CDCA, which includes the areas involved in the proposed project. However, based on previous BLM Resource Management Plans that have been superseded by the CDCA Plan, much of the BLM-administered property located in the area of the proposed project may have been classified as Class II on a scale ranging from I to IV, where Class I generally provides for the preservation of the natural character of the landscape and Class IV allows for the greatest degree of modification of the landscape. The objective of Class II is to retain the existing character of the landscape. The level of change should be low. Management activities may be seen, but they should not attract the attention of the casual observer.

KERN COUNTY LIGHT AND GLARE/AESTHETICS GENERAL PLAN ELEMENT

This element addresses primarily commercial development and scenic route corridors as they pertain to the issues of light, glare, and aesthetics. There is no formal Scenic Highways Element in the Kern County General Plan, but SR-14 from Mojave north to its intersection with U.S. Highway 395 is designated in the California Scenic Highways Master Plan as an Eligible State Scenic Highway. While the County has not undertaken the preparation of a formal scenic route corridor plan necessary for SR-14 and other highways to be officially designated as State Scenic Highways, SR-14 is identified as a scenic route in the Light and Glare/Aesthetics Element of the General Plan. The county has adopted as its Level of Significance Criteria to determine significant impacts to visual resources, such as SR-14, the CEQA guidelines related to aesthetics.

NATIONAL TRAILS SYSTEM ACT

The Pacific Crest National Scenic Trail was created under the 1968 National Trails System Act to provide for outdoor recreation opportunities and the conservation of significant scenic, historic, natural, or cultural qualities. The Pacific Crest Trail stretches 2,650 miles from Mexico to Canada through California, Oregon, and Washington. The National Trails System Act assigned management responsibility for the trail to various federal resource agencies, depending on which agency holds jurisdiction over the land on which the trail is located in a given area. In the vicinity of the proposed project, the Ridgecrest field office of the BLM has management responsibility for the trail. Although the majority of the Pacific Crest Trail is located on public land, over 300 miles are located on easements granted on privately owned land. While the National Trails System Act seeks to preserve scenic and natural qualities along the trail, it recognizes the rights of private landowners and provides

that "full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation" in the development and use of the trail. The Pacific Crest Trail is, however, identified as a scenic feature in the Light and Glare/Aesthetics Element of the Kern County General Plan, and the County's Level of Significance Criteria regarding aesthetics can be applied to determine the significance of visual impacts from the proposed project to the trail where it is located on private land.

CEQA

Aesthetics is one of the required environmental factors that must be considered under CEQA when evaluating whether a project may have a significant adverse effect on the environment. The CEQA Initial Study Checklist (Appendix G of the CEQA Guidelines) has been adopted by LADWP, as a CEQA agency, and it includes criteria to establish thresholds to determine the significance of project impacts related to the visual environment. These criteria are the same as those that have been adopted by the County of Kern as its Level of Significance Criteria for aesthetics.

3.9.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

The methodology for visual resource analysis involved a sequence of steps that entailed establishing sensitive viewpoints from which the project may be visible, determining the expected visibility and simulating the appearance of the project from those viewpoints, and assessing the level of impact to visual resources based on that visibility and appearance.

Establishing Viewpoints

Potentially sensitive viewpoints in the area of the proposed project were established based on several factors, including the number of viewers, the frequency and duration of the view, and the type of viewer or viewing experience. All other factors being equal, a viewpoint from which a greater number people have a viewing opportunity has a higher sensitivity than a viewpoint from which fewer people have a viewing opportunity; a viewpoint from which views of an area may be more frequent or of longer duration has a higher sensitivity than a viewpoint from which views are less frequent or of shorter duration; and a viewpoint from which view is a significant aspect of the experience has a higher sensitivity than a viewpoint from which view is a less significant aspect of the experience. While individually important, these factors are interrelated and must be considered concurrently when evaluating viewpoint sensitivity. For example, from a given viewpoint, numerous workers might have frequent and long duration views of an industrial facility that might be considered visually negative from other viewpoints. However, the workers' perception of visual character of the facility is such that the sensitivity of the viewpoint may be considered low. Conversely, relatively few people may experience the view from a particular viewpoint, but the scenic qualities of the view are such that the sensitivity of the viewpoint may still be considered high.

Determining Expected Project Visibility

After establishing sensitive viewpoints in the project area, a viewshed analysis was conducted to determine which, if any, project facilities would be visible from the various viewpoints. This analysis was conducted using terrain modeling, which, based on the location and height of project components, the location and elevation of viewpoints, and the intervening topography, established

line-of-sight access between the viewpoint and the facilities. This modeling method was particularly useful in determining lines-of-sight from non-static viewpoints, such as SR-14 or the Pacific Crest Trail, where because viewers are in motion, the relative location and height of the viewpoint, the project facilities, and the intervening topography are constantly changing. The line-of-sight visibility was then verified through field reconnaissance, and photos of potential project view areas were taken.

Simulating Project Appearance

After identifying sensitive viewpoints where there was line-of-sight access to the proposed project, computer simulations were prepared of the wind turbines and other project components from selected key viewpoints. These simulations were prepared using visual simulation software, including the accurate placement of terrain features and project components within photographs of the existing site using GIS (geographic information system) data sets and USGS digital elevation models. The simulations accurately depict the location, distance, scale, and appearance of the project components within the landscape setting of the proposed project as they would be seen from the selected viewpoints.

Assessing Level of Impact

Based on the visual simulations of the project components (or the visibility analysis in cases where no project facilities would be seen from a particular viewpoint), the level of impact to visual resources was determined. This impact determination was based on the visual character of the project as it would be perceived from the selected viewpoints in relation to the sensitivity of the viewpoints and the thresholds of significance established in the regulatory framework discussed above.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance for determining the level of visual impact associated with the proposed project vary depending on the location of project components and the location of potential viewpoints to the components. For project activities that occur on federal land managed by the BLM, the thresholds of significance are established in the objectives for BLM Visual Resource Inventory Class II areas. As described above, the objective of Class II is to retain the existing character of the landscape. The level of change should be low. Management activities may be seen, but they should not attract the attention of the casual observer. Activities that do not conform to these objectives would be considered to have a significant impact to visual resources.

For areas of the project not located on federal land, the thresholds of significance are established in the Level of Significance Criteria adopted by the County of Kern to determine significant impacts to visual resources. This would apply to viewpoints in public areas, such as SR-14 and California City, and along the Pacific Crest Trail where it is located on private land, since the trail has been identified as a scenic feature in the Light and Glare/Aesthetics Element of the Kern County General Plan. These criteria are the same as those established in the CEQA Guidelines for determining impacts to aesthetics. Accordingly, the proposed project would be considered to have a significant adverse impact if it would:

- Have a substantial adverse effect on a scenic vista;

- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

IMPACT ANALYSIS

Project elements that possess the potential to create significant visual impacts include the wind turbines, the substation, the O&M facilities, the overhead electrical transmission line that interconnects the project substation to the existing LADWP transmission line near SR-14, and the switching station and maintenance facilities located at the transmission interconnection point. In addition, clearing and grading required for project access/maintenance roads and level pads for project facilities could be visually apparent because of the removal of vegetation and the creation of cut and fill slopes.

Because of their size and configuration, these various elements would be clearly evident and would significantly alter the landscape from viewpoints within the project property. However, since the project is located entirely on private land, access to which is currently and would remain controlled by locked gates, views from within the project site itself would be available only to the property owners, who have agreed to the proposed project, and LADWP operations and maintenance personnel. Based on the level of sensitivity of these viewers relative to the project elements, impacts to visual resources from within the project property would be considered less than significant.

However, a more important consideration in determining the significance of impacts to visual resources is in relation to views of the proposed project elements from outside the project property. Primary factors that would contribute to the level of visual impact from locations outside the project property include viewpoint sensitivity, the intervening terrain between the viewpoints and the project elements, and the distance between the viewpoints and the project elements.

Potentially sensitive viewpoints within the area surrounding the proposed project include SR-14 as it passes to the east of the project site; the Jawbone Canyon Open Area, located northeast of the project site; and the Pacific Crest Trail as it passes to the west of the project site. More distant but potentially sensitive viewpoints include California City, located approximately 10 miles southeast of the project site, and Red Rock Canyon State Park, located approximately 10 miles to the northeast.

Impact 9.1: The proposed wind turbines could result in potential visual impacts when viewed from SR-14.

SR-14 is a primary route connecting the Los Angeles metropolitan area with the southern Sierra Nevada Mountains. In the region of the proposed project, north of the town of Mojave, it generally experiences relatively light, although constant, traffic volumes. Traffic during certain weekend and holiday periods can be relatively heavy.

Due to SR-14's potential as a designated scenic corridor and due to the number of public users, the highway could be considered a sensitive viewpoint when evaluating potential visual impacts from the proposed project. However, the intervening terrain between SR-14 and the project site would virtually obstruct views from the highway to the proposed wind turbines, which, based on their height, would be the most visually apparent element located within the project property.

Although situated in the mountains, the proposed turbines would be sited at relatively low elevations in relation to much of the surrounding terrain. The ground elevation of the turbines would range from approximately 4,850 feet in the southern end of the project site to approximately 3,600 feet near Jawbone Canyon in the northern portion of the project site. Therefore, the elevation of the turbines at the top of the rotor blade rotation would range from approximately 5,200 feet to approximately 3,950 feet. As it passes in the vicinity of the project, SR-14 is located on relatively flat terrain ranging in elevation from approximately 2,600 feet in the south to 2,100 feet in the north. Intervening terrain, including Barren Ridge, Chuckwalla Mountain, Cross Mountain, and other peaks, ranges between 5,200 feet and 4,200 feet and would effectively block views to nearly all the turbines from the highway.

Based on a computer-generated terrain model, Figure 3.9-1 illustrates a viewshed analysis of the turbines from the surrounding area. This analysis indicates that five or fewer turbines would be visible for a length of less than 1 mile along the highway as it passes the proposed project. Based on the speed of vehicles as they travel on the highway, the duration of this view would be brief. The closest project turbines to the highway at this point would be over 6.5 miles away, placing them in the background distance zone according to BLM guidelines for visual resource inventory. Figure 3.9-2 illustrates that only the upper portions of the rotor blade sweep of three turbines would be visible from the highway because of intervening terrain. Furthermore, the visible turbines would be located at alternate turbines sites that would likely not be developed under the proposed project. Based on the small number of turbines potentially visible from the highway, their distance from the highway, the short duration of view, and the motion and general direction of view of potential viewers on the highway, the thresholds of significance for adverse impacts to visual resources would not be exceeded. Therefore, the visual impacts from the proposed project wind turbines from viewpoints along SR-14 would be considered less than significant.

Impact 9.2: The proposed transmission line could result in potential visual impacts when viewed from SR-14.

Pine Tree Canyon Road is an unpaved road that provides access to the project property from the southeast. It also provides maintenance access to the second Los Angeles aqueduct (located approximately 1.3 miles west of SR-14) and the first Los Angeles aqueduct (located approximately 2.2 miles west of the highway). Access on Pine Tree Canyon Road is controlled by a locked gate located approximately 0.8 mile west of the first aqueduct, so the road receives little public use. Therefore, virtually all public viewpoints of the proposed project transmission line, which would generally parallel Pine Tree Canyon Road, would be located along SR-14.

West of approximately 3 miles west of SR-14, the transmission line would be obscured from view from the highway by the terrain in Pine Tree Canyon, but within 3 miles of the highway, there would generally be line-of-sight access to the transmission line. Between approximately 2.7 and 1.7 miles west of the highway, the transmission line would cross through land administered by the BLM. Under BLM guidelines for visual resource inventory, this would generally be considered in the middleground distance zone. The transmission line would be set against a backdrop of more distant mountains located along the north side of Pine Tree Canyon. Because of the distance of the transmission line from the highway as well as its backdrop setting, and because the transmission towers and conductors would be relatively narrow structures consisting of non-reflective materials, the level of change to the visual environment of the BLM property as seen from the highway would be low, as indicated in Figure 3.9-2.

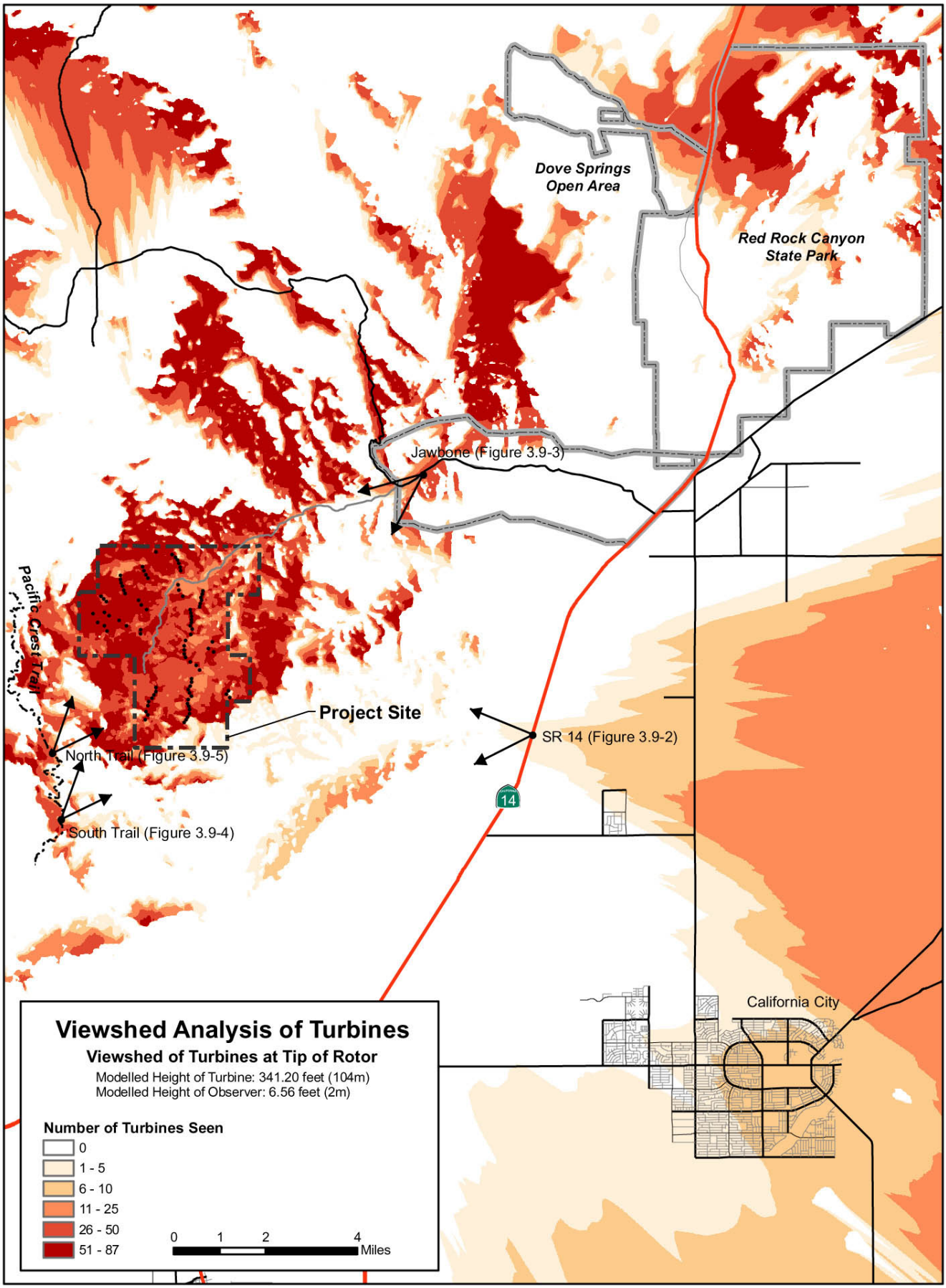


Figure 3.9-1
Viewshed Analysis of Turbines

Existing Condition

Visual Simulation

Figure 3.9-2
Wind Turbines and Transmission Line from SR-14

The transmission line would not attract the attention of casual observers traveling on the highway. This would be consistent with the management objectives for activities occurring within BLM Visual Resource Inventory Class II areas. Therefore, the visual impacts from the proposed project transmission line located on BLM land would be considered less than significant.

East of the BLM property, the proposed transmission line would be located on private property (except where it crosses a narrow 0.1-mile-wide strip of BLM property) up to its terminus at the existing LADWP Inyo-Rinaldi 230-kV transmission line, approximately 0.6 mile west of SR-14. This would generally be considered in the middleground distance zone from viewpoints along the highway. A switching station, which would also include small maintenance buildings and a yard, would provide the interconnection to the Inyo-Rinaldi line. Throughout this length, the proposed transmission line would remain against a backdrop of more distant mountains. This backdrop, along with the distance and relatively narrow structure and non-reflective materials of the transmission line, would make the line generally inconspicuous from viewpoints along SR-14, as depicted in Figure 3.9-2. This would be especially true for views from moving vehicles. Because it would be relatively inconspicuous, the transmission line would not create adverse impacts to visual resources that would exceed the thresholds of significance. Therefore, the visual impacts from the proposed project transmission line located west of SR-14 would be considered less than significant.

Impact 9.3: The proposed wind turbines could result in potential visual impacts when viewed from Jawbone Canyon Open Area.

The Jawbone Canyon Open Area is one of two designated OHV areas within the Jawbone/Butterbredt ACEC. It provides over 7,000 acres of publicly accessible land for all types of off-rode activities. It consists of both public (BLM) and private land. The "open" area designation permits cross-country travel by vehicles (i.e., motorized vehicles are not limited to designated routes and may be operated anywhere within the open area boundaries). Because of its relative proximity to population centers of Southern California and because of the hill climbing opportunities it provides, the Jawbone Canyon Open Area is one of the most popular and intensively used OHV areas in the region.

The western boundary of the Jawbone Canyon Open Area, west of which access is allowed by permit only and travel is limited to designated roads, is located approximately 3 miles from the northeastern project property boundary. From the western end of the Open Area along Jawbone Canyon Road, partial views would be available of approximately 20 turbines located in the northern portion of project site. Based on a computer-generated terrain model, Figure 3.9-1 illustrates a viewshed analysis of the proposed turbines from the surrounding area, including the Open Area. The visible turbines would range from approximately 5 miles to 6 miles in distance from the western boundary of the Open Area. Under BLM guidelines for visual resource inventory, this would be considered in the background distance zone.

Because of the large number of recreational users that utilize the Jawbone Canyon Open Area at given times, the area could be considered a sensitive viewpoint when evaluating potential visual impacts from the proposed project. However, the type of use must be considered when determining viewer sensitivity in relation to visual resources. In general, the type of recreational experience sought by off-road vehicle users in Jawbone Canyon would not be diminished by a view of the proposed turbines in the background zone. From Jawbone Canyon Road at the western end of the Open Area, the wind turbine structures would be only partially visible, the lower portions hidden behind intervening terrain, as depicted in Figure 3.9-3. The turbines would be set against the

backdrop of Sweet Ridge, avoiding "silhouetting" along a ridgeline. This would help further reduce any visual intrusion of the turbines from viewpoints within the Open Area.

Based on the distance of the proposed turbines from potential viewers, the backdrop setting of the turbines, and the generally low visual sensitivity of the Jawbone Canyon Open area, the proposed project would not exceed the thresholds of significance for adverse effects to visual resources. Therefore, the visual impacts from the proposed project from viewpoints within the Jawbone Canyon Open Area would be considered less than significant.

Impact 9.4: The proposed wind turbines could result in potential visual impacts when viewed from the Pacific Crest National Scenic Trail.

As discussed above, as the Pacific Crest Trail parallels the proposed project site, it is located almost totally on private land, much of it belonging to the landowners involved in the Pine Tree Wind Development Project. The trail in the area of the project property is relatively lightly traveled. It is inaccessible by public road between State Highway 58, south of the project site in Tehachapi Pass, and Jawbone Canyon Road, north of the project site in the Piute Mountains, a distance of approximately 35 miles. Water is available at only one location in this segment, at Golden Oaks Spring, located on private land approximately 2 miles west of the project property. The relatively light use of the trail in this area would tend to reduce the visual impacts of development compared to more heavily used segments of the trail. However, given the general purpose and nature of the Pacific Crest Trail, this segment could still be considered a sensitive viewpoint area when evaluating potential visual impacts from the proposed project.

The Pacific Crest Trail travels in a generally northerly direction as it passes the project property. Adjacent to the project property, the trail closely parallels the Sky River Ranch wind development for a distance of approximately 6 miles, often immediately adjacent to the development and never more than 0.5 mile away. The wind turbines from Sky River Ranch are frequently within the view of the trail in this segment. The trail crosses Sky River Ranch access roads in two locations. The trail approaches the project area from the south along the west slope of the Sweet Ridge ridgeline. Approximately 2.5 miles southwest of the project property, the trail crosses to the east side of Sweet Ridge. Approximately 2.5 miles farther north, roughly parallel with the southern end of the project property, the trail crosses back to the west side of Sweet Ridge and generally remains along the west slope of the ridgeline as it travels away from the project property to the north. Where the trail is located along the west side of Sweet Ridge, views from the trail to the project elements would be effectively blocked. However, where the trail is located along the east side of the ridgeline, to the southwest and west of the project site, intermittent views of project wind turbines would be available from the trail.

As it travels along the eastern slope of Sweet Ridge, the trail follows a path that is generally between 5,200 and 5,800 feet in elevation. Terrain that intervenes between the trail and the proposed wind turbine sites ranges up to approximately 5,800 feet and generally obstructs views to the turbines from the trail. However, because the total turbine heights can range up to 5,200 feet in elevation at the top of the rotor blade rotation, some turbines would be visible from certain locations along the trail on the eastern slope of Sweet Ridge.

Where the trail approaching from the south first crosses the Sky River Ranch access road, approximately 2.5 miles southwest of the project property, partial views would be available of about

Existing Condition

Visual Simulation

Figure 3.9-3
Wind Turbines from Jawbone Canyon Open Area

20 turbines located in the southern and eastern portions of the project site. Based on a computer-generated terrain model, Figure 3.9-1 illustrates a viewshed analysis for the proposed turbines from the surrounding area, including this location on the trail. The visible turbines range from 3 miles to 5.5 miles in distance from this section of the trail. Under BLM guidelines for visual resource inventory, this would be considered in the transition zone between the middleground and background distance zones.

From this viewpoint, most of the wind turbine structures would be only partially visible, the lower portions hidden behind the intervening terrain, as depicted in Figure 3.9-4. Few if any roads or other graded or cleared areas associated with the turbines would be visible because of intervening terrain. The turbines would be set against the backdrop of more distant mountains, avoiding "silhouetting" along a ridgeline. This would help further reduce any visual intrusion of the turbines from this viewpoint.

In this area, the trail passes within approximately 0.3 mile of Sky River Ranch wind turbines to the west and within approximately 0.1 mile of turbines to the east. These turbines are clearly visible from numerous locations along the trail. Relatively distant views of the project turbines would not generally further detract from the quality of the views in this area. The view of the proposed wind turbines would be intermittent, based on the changing conditions as the viewer moves along the trail, primarily related to the relative locations of the viewer, the turbines, and the intervening terrain and vegetation.

Based on the distance of the proposed turbines from potential viewers, the backdrop setting of the turbines, the intervening terrain, the intermittent nature of the view, and the trail's context within an existing wind turbine development, the proposed project would not exceed the thresholds of significance for adverse effects to visual resources. Therefore, the visual impacts from the proposed project from viewpoints along this section of the Pacific Crest Trail would be considered less than significant.

At other locations farther north along the trail, intermittent views of the uppermost portions of some turbines may be visible behind intervening terrain. These views would be essentially non-intrusive in the overall visual experience of the trail. However, as the trail approaches Golden Oaks Spring from the south and moves away from Golden Oaks Spring to the north, approximately 1.5 to 2 miles west of the southwestern corner of the project property, up to approximately 25 turbines located in the southern and eastern portions of the project property would be visible in views looking down upper Jawbone Canyon. Based on a computer-generated terrain model, Figure 3.9-1 illustrates a viewshed analysis for the proposed turbines from the surrounding area, including this location on the trail. The visible turbines range from 2.5 miles to 5 miles in distance from this section of the trail. Under BLM guidelines for visual resource inventory, this would be considered in the transition zone between the middleground and background distance zones.

From this viewpoint, looking down Jawbone Canyon from above, a number of the wind turbine structures would be totally visible, while others would be partially hidden by the intervening terrain, as depicted in Figure 3.9-5. Some project roads or other graded or cleared areas associated with the turbines may also be visible. The turbines would be set against the backdrop of more distant mountains, avoiding "silhouetting" along a ridgeline. This would help reduce any visual intrusion of the turbines from this viewpoint.

In this area, the trail passes within approximately 0.1 mile of Sky River Ranch wind turbines in several places. These turbines are clearly visible from numerous locations along the trail. Relatively distant views of the project turbines would not generally further detract from the quality of the views in this area. The view of the proposed wind turbines would once again be intermittent, based on the changing conditions as the viewer moves along the trail. Based on the distance of the proposed turbines from potential viewers, the backdrop setting of the turbines, the intervening terrain, the intermittent nature of the view, and the trail's context within an existing wind turbine development, the proposed project would not exceed the thresholds of significance for adverse effects to visual resources. Therefore, the visual impacts from the proposed project from viewpoints along this section of the Pacific Crest Trail would be considered less than significant.

Impact 9.5: The proposed wind turbines could result in potential visual impacts when viewed from California City.

California City is located in the Fremont Valley, approximately 10 miles southeast of the project property. Because California City is a population center with possible views of the proposed project, it could be considered a sensitive viewpoint when evaluating potential visual impacts. California City is located on the desert floor, approximately 7 miles east of Barren Ridge, so intervening terrain is therefore less effective in obstructing views to proposed project elements than from viewpoints along SR-14, which is located only about 2 to 3 miles east of Barren Ridge. Although most turbines would not be visible from California City because they would be sited at relatively low elevations in relation to much of the surrounding terrain, up to ten turbines would still have line-of-sight access from certain viewpoints within the city. Because of intervening terrain, only the upper portions of these turbines (often only the rotor blades) would be visible. Based on a computer-generated terrain model, Figure 3.9-1 illustrates a viewshed analysis for the proposed turbines from the surrounding area, including California City.

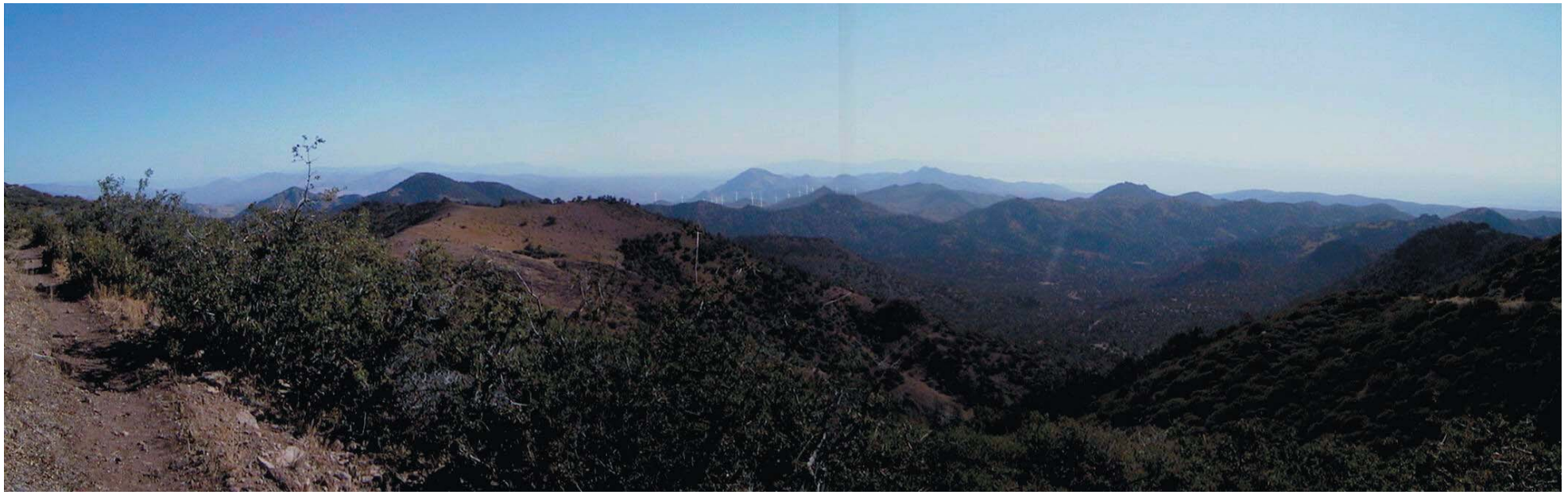
These turbines would be located approximately 12 miles from the western edge of the city. This would place them well within the background distance zone under the BLM guidelines for visual resource management. The proposed project turbines that would have line-of-sight access from the city would be set against the backdrop of Sweet Ridge, avoiding "silhouetting" along a ridgeline and making them less discernible. Due to distance, background setting, and the numerous obstructions to long distance views that might occur within a developed area, the proposed project turbines would not exceed the thresholds of significance for adverse effects to visual resources. Therefore, the visual impacts from the proposed project from viewpoints within California City would be considered less than significant.

Impact 9.6: The proposed wind turbines could result in potential visual impacts when viewed from Red Rock Canyon State Park.

Red Rock Canyon State Park is located along both sides of SR-14, north of Randsburg Road, about 10 miles northeast of the project property. The park is characterized by spectacular geologic formations, including colorful cliffs, buttes, and rock outcroppings that were formed by uplifting and erosion. The park is also a popular night sky viewing area because of favorable atmospheric conditions. Because of its character and recreation function, Red Rock Canyon State Park could be considered a sensitive viewpoint when evaluating potential visual impacts from the project.

Because of the rugged terrain within much of the park, vistas to areas outside the park are often obstructed, and intervening terrain outside the park boundaries would also block most views from the park to the proposed project facilities. There would be line-of-sight access to some project turbines

Existing Condition



Visual Simulation

Figure 3.9-4
Wind Turbines from Pacific Crest Trail (South)

Existing Condition

Visual Simulation

Figure 3.9-5
Wind Turbines from Pacific Crest Trail (North)

only from the highest elevations in the northwestern, northeastern, and central parts of the park. Based on a computer-generated terrain model, Figure 3.9-1 illustrates a viewshed analysis for the proposed turbines from the surrounding area, including Red Rock Canyon State Park.

The areas of the park that would have line-of-sight access to the proposed project would be located between 13 and 20 miles from the closest project wind turbines. Under the BLM guidelines for visual resource management, this would place the turbines at the far edge of the background distance zone or beyond the background in the "seldom seen" distance zone. The proposed project turbines that would have line-of-sight access from the park would also be set against the backdrop of more distant mountains, avoiding "silhouetting" along a ridgeline. Due to these factors, the proposed turbines would be virtually indiscernible from the park. Any aviation warning lights that may need to be installed on project turbines to meet FAA safety requirements would be located below the horizon when seen from the higher elevations in the park and would be distant enough so as not to interfere with night sky viewing. Due primarily to distance, the proposed project turbines would not exceed the thresholds of significance for adverse effects to visual resources. Therefore, the visual impacts from the proposed project from viewpoints within Red Rock Canyon State Park would be considered less than significant.

3.9.4 MITIGATION MEASURES

Because there would be no significant impacts to visual resources caused by the proposed project, no mitigation measures are required.

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3.10 SOCIOECONOMICS

Under NEPA, "economic" and "social" effects are environmental consequences to be examined (40 CFR § 1502.16 and 40 CFR § 1508.8). Economic and social effects are not considered to be environmental consequences (impacts) under CEQA unless they directly or indirectly result in a physical environmental effect.

General socioeconomic impacts resulting from a proposed project can lead to an economic gain or loss for affected communities or surrounding area and can stem from the nature and duration of construction and operational activities, the duration and extent of displacement or modification of existing activities, and any diversion or temporary suspension of access associated with a proposed project. Other potential impacts can be related to the displacement of populations, residences, or businesses; impacts to the availability of housing or accommodation; and the inducement of growth.

3.10.1 EXISTING AND AFFECTED ENVIRONMENT

The project site covers approximately 8,000 acres of privately owned land located in the southern Sierra Nevada Mountains in the southwest corner of Kern County, California. The property is located approximately 6 miles west of California SR-14 and about 12 miles north of the town of Mojave, 15 miles northeast of the city of Tehachapi. The property is essentially undeveloped, but it is currently used for cattle grazing.

The areas surrounding the project site are predominantly sparsely populated, unincorporated areas of Kern County, with population concentrations within the abovementioned cities and numerous smaller communities. For the purposes of demographic and economic analysis, the project study area encompasses a total of eight census tracts including and surrounding the project site (52.02, 55.03, 55.05, 59, 60.03, 60.04, 60.05, and 61, see Figure 3.10-1). The study area also includes the cities of Tehachapi and California City, and the unincorporated community of Mojave. Although within the study area, census tract 60.02 was not utilized for the purposes of this analysis as the entire census tract represents the Tehachapi State Prison.

DEMOGRAPHICS

This section presents information on local and regional demographics and income as it relates to the project site and surrounding area. The information relating to population, housing, race/ethnicity, and income for local jurisdictions and the region as a whole is primarily derived from the 2000 Census, the most recent comprehensive source of data.

Population and Housing

As shown in Table 3.10-1, the large, unincorporated areas surrounding the project site are sparsely populated with population concentrations in California City and Tehachapi, as well as in the smaller community of Mojave. As of 2000, the census tracts within the project study area showed a total population of 48,128 persons, representing 7.3 percent of the total population of Kern County.

Table 3.10-1
Population and Housing, 1990-2000

Geographic Area	Pop 2000	Change 1990-2000	Housing units 2000	Change 1990-2000	Vacant housing units
Census Tract 52.02	9,917	-0.35%	6,299	1.5%	28.9%
Census Tract 55.03	2,621	-16.5%	1,395	-0.6%	27.4%
Census Tract 55.05	8,248	39.2%	3,520	48.8%	13.8%
Census Tract 59.00	3,284	-13.4%	1,572	1.8%	22.3%
Census Tract 60.03*	4,862	} 24.8%	1,796	} 30.1%	8.9%
Census Tract 60.04*	1,302		733		25.9%
Census Tract 60.05*	11,596		5,419		21.7%
Census Tract 61.00	6,298	2.7%	2,774	8.7%	13.0%
City of Tehachapi	10,957	89.2%	2,914	19.9%	13.1%
City of California City	8,385	40.8%	3,560	49.3%	13.8%
Mohave	3,836	1.9%	1,806	18.0%	22.0%
Kern County	**661,645**	**21.7%**	**231,564**	**16.6%**	**9.9%**

Sources: U.S. Bureau of the Census 1990 (STF1a) 2001 (Table DP-1);
*A number of significant census redistricting changes are evident in relation to the above census tracts. As of 2000, census tract 60.01 was divided into three separate tracts - 60.03, .60.04, and 60.05. If the totals for the newly delineated census tracts are compared with the total for tract 60.01 as of 1990, population and housing unit increases of 24.8 percent, and 30.1 percent, respectively, are shown.

Between 1990 and 2000, growth rates within the study area ranged substantially, from as high as 89 percent and as low as -16.5 percent. The communities of Tehachapi and California City as well as census tract 55.05 (which generally corresponds with the delineation of California City) showed the highest growth rates, at 89.2 percent, 40.8 percent, and 39.2 percent, respectively, while several sparsely populated census tracts lost population over the decade. All of the census tracts and communities exhibited growth rates either much larger or much smaller than that of Kern County.

Housing unit growth within the study area varied dramatically over the decade, with Tehachapi, California City, and Mohave showing higher levels of housing growth than the county average. However, several census tracts proportionally added very few additional housing units over the decade, with census tract 55.03 even suffering a slight decrease between 1990 and 2000.

A comparison of population and housing unit change shows that the proportion of additional housing units within all the census tracts either kept pace with, or exceeded, the corresponding relative population growth between 1990 and 2000. Although housing growth within both California City and Mojave exceeded the corresponding population growth rates, housing growth within Tehachapi, at 19.9 percent over the decade, was substantially less than the population growth experienced (89.2 percent).

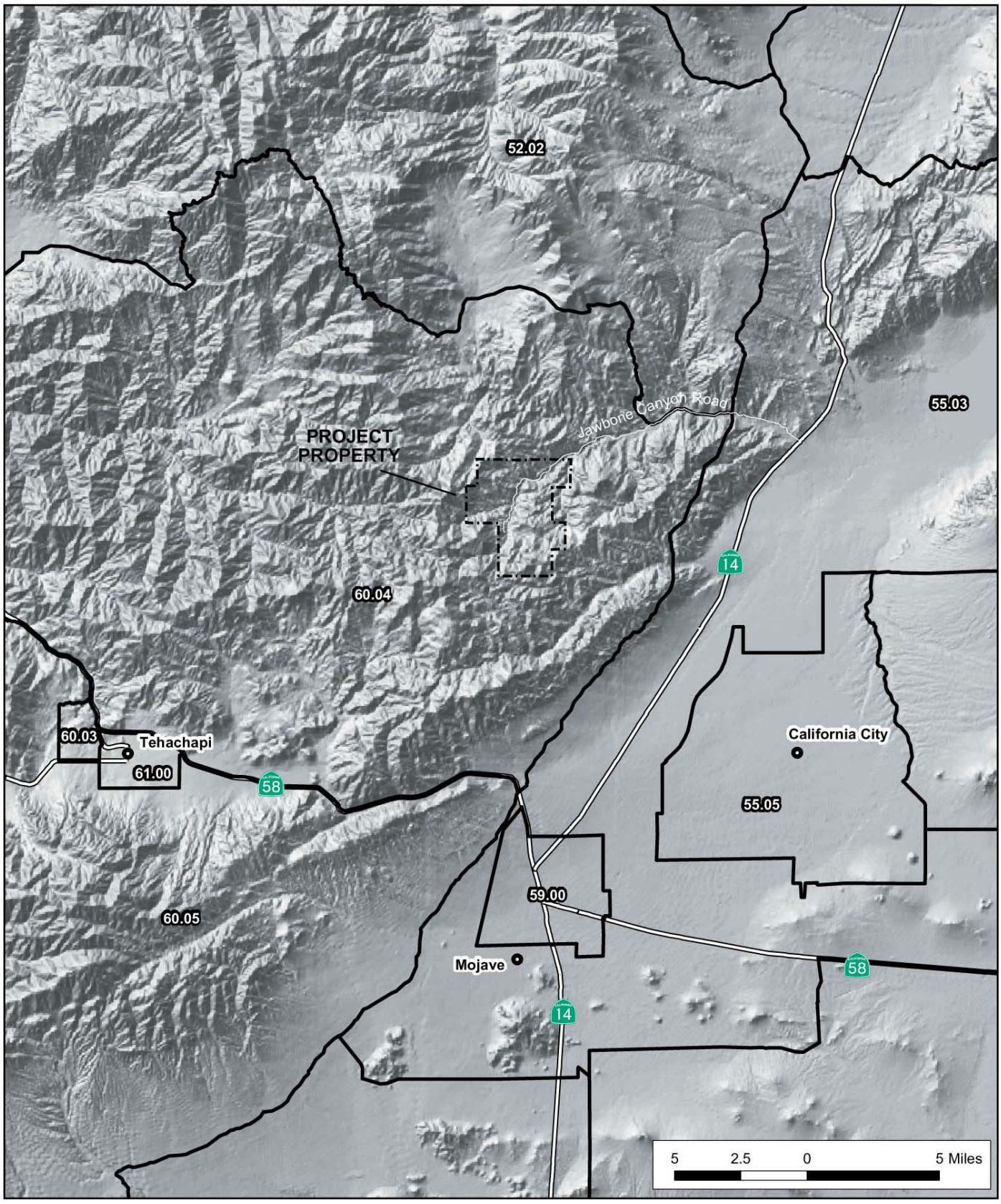

Figure 3.10-1
Project Area Census Tracts

Housing vacancy rates across the study area were generally higher than the county average with only one census tract (60.03) showing a marginally lower vacancy rate than that of Kern County. Additionally, the community of Tehachapi, while experiencing a substantial rate of population growth over the decade and a correspondingly smaller expansion of housing, still showed an overall housing vacancy rate, at 13.1 percent, that was marginally higher than the county average of 9.9 percent. Temporary accommodation within the study area includes numerous motels, of which a total of seven are located within Mojave.

Race/Ethnicity

The Council on Environmental Quality (CEQ) defines the term "minority" as persons from any of the following groups: Black/African American; Hispanic, regardless of race; Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native. Additionally, for the purposes of this analysis, "minority" also includes all other nonwhite racial categories such as "some other race" and "two or more races."

As shown in Table 3.10-2, the study area shows a markedly lower level of racial and ethnic diversity than Kern County as a whole. With regard to race, all of the census tracts, cities, and communities within the study area were predominantly white (several census tracts showed white populations in excess of 80 percent), and apart from slightly elevated American Indian/Alaskan Native and Asian populations within several census tracts, exhibited proportionally much lower levels of racial minority populations than that of Kern County. While all areas remained below county averages with regard to ethnicity, several showed significant Hispanic populations. For example, Tehachapi, Mojave, and census tracts 59 and 61 are characterized by Hispanic population rates of 32.7 percent, 28.3 percent, 29.7 percent, and 26.2 percent, respectively.

Income and Economy

Recent census data on per capita income, median household income, and poverty levels are presented in Table 3.10-3 along with recent unemployment levels in Tehachapi, California City, Mojave, and Kern County.

As of 2000, per capita income levels within the majority of census tracts and communities within the study area were above the county average, with census tracts 55.05 and 60.05 markedly so (33.9 percent and 46.2 percent, respectively). While census tract 52.02 showed a marginally lower per capita income level (-7.6 percent), only the community of Mojave and the adjacent census tract 59 showed levels significantly below the county average at -20.8 percent and -24.8 percent, respectively.

As of 2000, the majority of the study area showed median household income levels above the county average, with census tracts 60.03 and 60.05, (at 36.4 and 63.1 percent, respectively) and California City (at 32.8 percent), significantly so. Of the census tracts and communities that remained below that of Kern County, incomes ranged from 13.1 percent to 35.1 percent below the county average. With the exception of Mojave and the adjacent census tract 59, as of 2000 the entire study area remained below county average in the percent of population living at or below poverty levels, sometimes significantly so. Finally, unemployment levels within Tehachapi, California City, and Mojave, at 10.4 percent, 11.2 percent, and 7.2 percent, respectively, remained below that of the county as a whole (12.3 percent) during 2003.

Table 3.10-2
Race and Ethnicity, 2000

	Census Tracts (1)								Tehachapi	California City	Mojave	Kern County
	52.02	**55.03**	**55.05**	**59**	**60.03**	**60.04**	**60.05**	**61**				
White	90.8	83.7	68.4	65.5	80.1	82.6	88.1	79.2	57.2	68.2	67.5	23.9
Black/African American	0.4	1.8	12.9	6.2	1.8	2.1	1.0	1.8	13.8	12.8	5.6	31.9
Am. Indian, Alaskan Native	2.5	2.5	1.6	1.3	0.9	3.1	0.7	1.7	1.4	1.6	1.3	0.9
Asian	0.6	1.4	3.6	2.2	1.6	0.7	1.0	1.1	0.7	3.7	2.0	0.1
Native Hawaiian, Pacific Islander	0.1	0.6	0.3	0.0	0.1	0.0	0.1	0.2	0.2	0.3	0.1	0.0
Some Other Race	1.9	5.4	7.2	19.4	10.4	6.4	3.8	11.5	23.8	7.4	18.1	43.1
Two or more races	3.7	4.6	6.0	5.4	5.1	5.2	5.3	4.5	3.0	5.9	5.3	0.1
Hispanic (any race)	6.1	11.1	16.7	29.7	20.2	12.1	11.1	26.2	32.7	17.0	28.3	43.2
Total minority population	**12.8**	**20.9**	**38.5**	**42.3**	**27.7**	**21.9**	**17.8**	**32.6**	**49.8**	**38.7**	**40.3**	**76.2**

Source: U.S. Bureau of the Census 2001 (Table DP-1)
(1) It should be noted that the numbers in the census tract columns and the area columns may add to more than 100 percent because individuals may report more than one race.

Table 3.10-3
Income, Poverty, and Unemployment

	Census Tracts								Tehachapi	California City	Mojave	Kern County
	52.02	**55.03**	**55.05**	**59**	**60.03**	**60.04**	**60.05**	**61**				
Per Capita Income ($)	14,550	18,343	21,103	11,856	17,644	18,797	23,040	16,219	18,220	19,902	12,477	15,760
Median Household Income ($)	22,368	39,297	45,284	23,218	46,979	36,750	56,188	29,917	29,208	45,735	24,761	34,446
Unemployment (%) (2003 annual average)	---	---	---	---	---	---	---	---	10.4%	11.2%	7.2%	12.3%
Below poverty level (%)	19.2%	13.0%	17.4%	37.2%	10.4%	18.9%	8.7%	20.4%	20.4%	17.3%	36.2%	20.8

Source: U.S. Bureau of the Census, 2001 (Table DP-3), California Employment Development Department, 2004

To summarize, the demographic and economic information presented above shows a generally sparsely populated area with concentrations of population within several smaller cities and communities. Although Kern County as a whole and portions of the project study region experienced relatively rapid population growth over the last decade, the project study region has, with the exception of Tehachapi, more than matched this growth with additional housing unit growth. While a number of census tracts within the study area show higher proportional populations of certain racial minorities, in general, populations within the study area remain markedly below county racial and ethnic averages. Although income levels within the majority of census tracts and communities within the study area were generally above the county average, a limited number of areas in the study area reported incomes significantly below that of the county average. The study area generally remained below county average in percent of population living at or below poverty levels, and recent unemployment levels within Tehachapi, California City, and Mojave remained below that of Kern County as a whole.

3.10.2 REGULATORY FRAMEWORK

There is no formal regulatory framework for socioeconomics. For purposes of NEPA compliance, the primary regulatory obligations are to address the Executive Orders regarding impacts to minority, low-income populations, and children. Consistency with these Executive Orders is addressed in Section 3.10.3. Information provided in this section on the socioeconomics of the project area is used as the basis of the consistency analysis required by the Executive Orders.

3.10.3 ENVIRONMENTAL IMPACTS

METHODOLOGY

Information sources for this socioeconomic analysis include:

- U.S. Bureau of the Census, 1990 California, Profiles of General Demographic Characteristics 1990, 1990 Census of Population and Housing
- U.S. Bureau of the Census, 2001 Profiles of General Demographic Characteristics 2000, 2000 Census of Population and Housing
- California Employment Development Department, 2004 Labor Force Data for Sub-County Areas, Kern County. Labor Market Information Division

THRESHOLDS OF SIGNIFICANCE

For the purposes of this report, adverse impacts are considered significant if the project would:

1. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
2. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;
3. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere; and/or
4. Conflict with adopted plans and programs, and result in substantial population increase.

IMPACT ANALYSIS

Construction Impacts

Construction of the proposed project is expected to take approximately 10 months for the wind turbine component and approximately 5 months for the transmission line and switching station component (scheduled to occur concurrently) and would affect the local economy in a number of positive ways.

Of the $155 million estimated total cost of the wind farm component, it is estimated that labor costs would total approximately $25 million, with manpower ranging from 30 to 170 persons at peak construction. Approximately 60 percent of the labor to be used for this component is expected to be based within the project study area. The wind turbine nacelle assemblies, a primary component of each turbine containing all of the working mechanisms for power generation, are to be produced by GE Wind Energy's existing manufacturing facility in the city of Tehachapi. Although no estimated project costs were available, construction of the transmission line and switching station component would employ approximately 40 persons at peak construction, although the entire workforce would be taken from the existing LADWP employee base (LADWP 2004).

The use of local labor and the local procurement of some of the primary project components and materials, as well as numerous other related goods and services for the duration of project construction activities, are expected to have a significant, though temporary, positive effect on local employment and business activity. During the construction phase of the proposed project, the majority of out-of-area labor would reside within the numerous motels or other temporary accommodations within the surrounding communities. These existing housing venues would adequately fulfill the temporary housing needs of the out-of-area workers. No populations, residences, or businesses would be temporarily or permanently displaced as a result of construction activities associated with the proposed project. No temporary negative impacts to surrounding employment or economic patterns are anticipated to result from the construction of the proposed project. No permanent population increase would occur as a result of the construction of the proposed project.

Operation Impacts

Permanent population and employment impacts related to the proposed project, while positive, would be minimal and limited to 10 to 12 full-time additional employees during the operational phase of the wind project, estimated to be a minimum of 20 years. No additional full-time employees would be needed for operations related to the transmission line and switching station. Given the very limited extent of additional employment directly related to the proposed project and the existing housing vacancy rates within the surrounding communities, no housing-related impacts are anticipated.

The proposed project is designed to accommodate existing and projected energy demands within the Southern California region rather than to provide excess capacity for future growth, and any direct and indirect project-related population growth is anticipated to be minimal and limited to the additional employees and their families. The proposed project would not open up an area for growth, increase the housing supply, or lead to an increase in local or regional migration patterns. The proposed project is not anticipated to alter any local or regional forecasted patterns of growth.

The Kern County Housing Element (2002-2007) forms part of the General Plan and provides an assessment of both current and future housing needs within the county. The element primarily aims to plan effectively for the development of adequate and affordable housing for all income segments. Goals of the element include conserving the existing supply of housing, assisting in the provision of housing, providing adequate residential sites, removing constraints to housing production, and promoting equal housing opportunity. Current vacancy rates would not be significantly affected by the very limited extent of additional employment related to the operations of the proposed project. The proposed project would not displace any existing residences or populations or prevent the construction of any proposed housing developments and would not constrict supply leading to an elevation of house prices. No housing-related impacts are anticipated and the proposed project would not conflict with the goals or programs of the Kern County Housing Element.

No businesses would be displaced or removed as a result of the proposed project. Given the limited footprint of the wind turbines and other project elements, existing grazing activities on the project site would continue relatively unimpeded after the proposed project becomes operational. There would be an additional incremental economic benefit to the local economy through project-related payments made to the property owners under a long-term agreement. The limited permanent increase in employment from the proposed project would lead to a consequential incremental increase in income and business activity within the surrounding areas. No permanent adverse impacts to employment or commerce are anticipated to result from the proposed project.

Consistency with Executive Orders

This section contains analyses required under Executive Order 12898, Environmental Justice (59 CFR §7629), and Executive Order 13045, Environmental Health and Safety Risk to Children (62 CFR §19885). Under the first Executive Order, demographic information is utilized to determine whether minority or low-income populations are present in the area affected by the proposed action. If so, a determination must be made as to whether the implementation of the proposed project may cause disproportionately high and adverse human health or environmental impacts on those populations. Under the second Executive Order, a determination is made as to whether the proposed project may cause disproportionately high and adverse effects on the health and safety of children.

Executive Order 12898 Environmental Justice: This Executive Order requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies are required to provide opportunities for input in the NEPA process by affected communities and to evaluate significant and adverse effects of proposed federal actions on minority and low-income communities during the preparation of NEPA documents. If a proposed federal action will not result in significant adverse impacts on minority and low-income populations, the environmental document must describe how Executive Order 12898 was addressed during the NEPA process.

The CEQ defines the term “minority” as persons from any of the following groups: Black/African American; Hispanic, regardless of race; Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native. Additionally, for the purposes of this analysis, “minority” also includes all other nonwhite racial categories such as “some other race” and “two or more races.” The Interagency Federal Working Group on Environmental Justice guidance states that a “minority population” may be present in an area if the minority population percentage in the area of interest is “meaningfully greater” than the minority population in the general population. CEQ defined "low-income populations" as those identified with the annual statistical poverty thresholds from the

Bureau of the Census. The accepted rationale in determining what constitutes a low-income "population" is similar to minority populations, in that a low-income population may be present when the low-income population percentage within the area of interest is "meaningfully greater" than the low-income population in the general population.

Data contained in Table 3.10-2 was extrapolated from the 2000 Census. The statistics show that minority population levels and income distribution vary to some degree within the study area. Within all of the census tracts and communities, there were in many cases significantly lower populations of specific racial minorities than Kern County as a whole. For example, African American populations ranged from 0.4 percent to 13.8 percent within the study area, compared with 31.9 percent countywide. Similarly, the "some other race" category ranged from 1.9 percent to 23.8 percent within the study area compared with 43.1 percent countywide. While proportionally small, there were also instances of significantly higher populations of specific racial minorities than Kern County as a whole, including Asian (ranging from 0.6 percent to 3.7 percent compared with 0.1 percent countywide) and Native American and Alaskan Native populations (ranging from 0.7 percent to 3.1 percent compared with 0.9 percent countywide). Within all of the census tracts and communities, Hispanic populations were also significantly lower than Kern County as a whole (ranging from 6.1 percent to 32.7 percent compared with 43.2 percent countywide).

Total minority levels within the study area remained significantly below the county average. Some census tracts (52.02, 55.03, and 60.05) showed relatively low minority levels, whereas others (55.05, and 59) along with the communities showed comparatively elevated minority populations, due in large part to the size of the Hispanic population component. The consequent total minority population levels were all considerably lower than that of the county average. The project study area is not considered to contain minority populations as defined by the CEQ for Executive Order 12898.

As shown in Table 3.10-3, poverty levels varied widely within the study area ranging from as low as 8.7 percent to as high as 37.2 percent, while the majority of the census tracts and communities within the study area showed poverty levels below that of the Kern County average of 20.8 percent. The community of Mojave and the adjacent census tract, 59, showed poverty levels of 36.2 percent and 37.2 percent, respectively, significantly in excess of the County average. These areas are therefore considered to contain low-income populations as defined by the CEQ for Executive Order 12898.

No adverse long-term impacts would occur from the proposed project, although incremental long-term positive local and regional economic impacts are expected with its implementation. Some of the anticipated positive economic impacts related to project construction activities, including the utilization of local area motels and the subsequent increase in the use of related goods and services, are expected to be felt primarily within the Mojave and Tehachapi areas, given the presence of several motels and numerous service businesses and the communities' geographic proximity to the proposed project site.

Although there are low-income populations present within the study area, there is no indication that either the construction or operation of the proposed project would negatively impact a low-income population component to any greater degree than the general population of the surrounding area or region. As such, disproportionately high and adverse human health or environmental impacts on low-income populations are not expected, and no Environmental Justice impacts are anticipated.

Executive Order 13045 Protection of Children From Environmental Health Risks and Safety Risks: This Executive Order requires each agency to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

The potential sources of environmental health and safety risks to children resulting from the proposed project relate to exposure to hazardous materials, air pollutants, and noise. The analysis has concluded that none of these issue areas would result in significant long-term adverse impacts. Since there are no children inhabiting the project site or immediate surrounding areas, no specific risks to children stemming from the proposed project activities would occur. No schools are located within or adjacent to the project site, and no significant noise impacts are expected to result from the proposed project. It is concluded that there are no disproportionate risks to the health and safety of children involved with construction or operation of the proposed project.

3.10.4 MITIGATION MEASURES

No mitigation measures are required as there would be no adverse socioeconomic effects.

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3.11 CUMULATIVE IMPACTS

3.11.1 INTRODUCTION

Cumulative impacts are those impacts on the environment that may result from the incremental effects of the proposed project when they are added to the effects from other past, present, and reasonably foreseeable future projects, regardless of what agency or entity undertakes these other projects. State CEQA Guidelines and NEPA regulations require that the potential cumulative impacts of the proposed project be evaluated. Cumulative impacts can result from actions that are individually less than significant but collectively significant when considered along with other actions within a region, even if those actions occur over time.

According to the CEQA Guidelines, the cumulative impacts discussion "should be guided by the standards of practicality and reasonableness." The CEQA Guidelines require that a cumulative impacts analysis identifies related projects in the area of the proposed project, summarizes the expected environmental effects of those related projects, and analyzes the cumulative impacts of the proposed and related projects.

When evaluating potential cumulative impacts to which the proposed project may make an incremental contribution, both temporary impacts, associated with the construction activities of the proposed and related projects, and long-term impacts, associated with the permanent effects and continued operations of the proposed and related projects, must be considered.

3.11.2 TEMPORARY CUMULATIVE IMPACTS

IMPACTS TO AIR QUALITY

Based on thresholds of significance related to air pollutant emissions recently enacted by the County of Kern, the proposed project would result in a temporary but unavoidable significant impact to air quality during the construction phase of the project. According to the County guidelines, any project that exceeds these thresholds would create an impact that would be considered not only individually significant but also cumulatively considerable. Therefore, in relation to the County guidelines (but not federal air quality guidelines), the proposed project would create, in and of itself, a temporary but cumulatively significant impact to air quality during project construction. (See Section 3.4, Air Quality, of this EIR/EA for more detailed discussion of this air quality impact.)

RELATED PROJECTS

In addition to the cumulatively significant impact to air quality created by the proposed project, the project may also contribute to other temporary impacts that could be considered individually insignificant but cumulative considerable. The following projects located in the vicinity of the proposed project may have concurrent construction schedules with the proposed project and could create, when considered in conjunction with the proposed project, temporary but cumulatively significant impacts.

LADWP Facilities Maintenance

LADWP currently owns and operates several facilities in the vicinity of the proposed project. These include the First and Second Los Angeles Aqueducts, the Inyo-Rinaldi 230-kV AC transmission line, and the Sylmar-Oregon 500-kV DC transmission line. All of these facilities are located west of and run roughly parallel to SR-14 in the vicinity of the proposed project. They all cross Jawbone and Pine Tree canyons. Periodic maintenance activities for these facilities may occur in the area of the proposed project during the project construction period. Included among these activities is an ongoing program to structurally reinforce the First Aqueduct with a cement lining. To the extent that any of these activities occurs during the proposed project construction period, they could create temporary impacts that may be considered cumulatively significant, including those related to traffic and biological resources. However, because these LADWP maintenance activities are generally short term and isolated in nature and involve a relatively small number of personnel and equipment, the proposed project is not expected to create any individually insignificant impacts that would be regarded as cumulatively significant when considered in conjunction with the maintenance activities.

SR-14 Improvement Project

Caltrans is planning to widen SR-14 from two to four lanes from its junction with Business Route 58 in Mojave to about 2.5 miles south of Pine Tree Canyon Road, for a distance of approximately 9 miles. Construction for this project is currently scheduled to begin in December 2005 and is expected to continue well into 2006. Approximately the first 4 months of the road improvement project construction would coincide with approximately the final 4 months of the proposed project construction. Based on the type of construction activities that would be involved in the SR-14 improvement project, it could, in conjunction with the proposed project, create cumulatively significant impacts, including those related to traffic and biological resources.

During the road-widening project, construction activities, including momentary lane closures, may result in relatively brief delays to traffic on SR-14. As discussed in Section 3.7, Transportation, of this EIR/EA, the construction of the proposed project, including both the turbine and transmission line components, would generate about 250 trips per day on SR-14, including approximately 110 peak hour trips. Within the context of the total daily traffic on SR-14 in this vicinity (approximately 6,500 trips per day), the current peak hour trips (approximately 680 trips), and the carrying capacity of the highway (approximately 35,000 trips per day), this additional traffic generated during the construction of the proposed project is not expected to contribute to an impact that would be considered cumulatively significant, even taking into account the SR-14 widening.

The proposed SR-14 road-widening project is located within the range of the endangered desert tortoise and Mohave ground squirrel, and it may create impacts to these species from the direct effects of construction activities or the disturbance of habitat during construction. Similar to the tortoise and ground squirrel habitat located along the access to the proposed Pine Tree Wind Development Project, the habitat adjacent to SR-14 is not considered critical to the continued maintenance of viable populations of these species in the region. Furthermore, any potential impacts to these species or their habitat would need to be avoided or mitigated to a less than significant level for the highway improvements to be implemented. Because the proposed highway project could not proceed if it was found to put these species at risk, the effects of this project, when considered in conjunction with the proposed Pine Tree Wind Development Project, would not create an impact that would be considered cumulatively significant.

Tehachapi WRA Projects

In addition to the proposed Pine Tree Wind Development Project, several other wind energy projects are currently under construction or proposed in the Tehachapi WRA. To the extent that the construction of these projects occurs during the proposed project construction period, they could, in conjunction with the proposed project, create temporary impacts that may be considered cumulatively significant, including those impacts related to traffic and biological resources.

Most of these projects are repowering efforts that involve the installation of a total of approximately six new wind turbines. When considered along side the construction of the proposed project, the construction of these relatively small-scale repowering projects is not expected to contribute to temporary impacts that would be cumulatively significant.

As well as these repowering projects, a new 60-MW wind energy development is proposed for the Tehachapi Pass area. However, construction of this project is scheduled to be completed in the first half of 2005, before construction of the proposed Pine Tree Wind Development Project begins. Therefore, the proposed project would not create any temporary construction-related impacts that would be regarded as cumulatively significant when considered in conjunction with the new 60-MW project in Tehachapi Pass.

3.11.3 LONG-TERM CUMULATIVE IMPACTS

In terms of annual energy output, the Tehachapi WRA produces significantly more power (approximately 1,200 GWh) than any other wind energy development in the nation. To provide this power, the Tehachapi WRA includes over 3,600 individual wind turbines that represent about 600 MW of capacity. Most of these turbines are located in the Tehachapi Pass area, approximately 8 miles southwest of the proposed project property. The Sky River Ranch wind project, which includes 342 turbines, is located about 1 to 2 miles west of the project property. As discussed above, several new wind energy projects in addition to the proposed project are currently planned in the Tehachapi WRA. These new projects include several repowering efforts as well as new construction. The repowering projects are relatively small-scale and represent a replacement of existing generation capacity. The new construction is projected to provide 60 MW of additional generation capacity in the Tehachapi Pass area.

While the operation of the proposed project, with the application of appropriate mitigation measures as specified in this EIR/EA, would not result in long-term environmental impacts that are individually significant, the incremental effect of these impacts must be evaluated to determine if they contribute to long-term impacts that may be cumulatively significant when considered in the context of the entire Tehachapi WRA, including both existing and planned wind energy projects. Such cumulative impacts would result from the collective effects from the operation of numerous individual wind projects located throughout the WRA. Impacts of particular concern to which the proposed project could make an incremental contribution to a cumulatively significant impact are those that may occur to visual resources and avian wildlife.

Cumulatively significant impacts to visual resources could result from the additive effect of individually small wind turbine projects that together cover a larger and widely visible contiguous area or that are located in separate areas but can be seen simultaneously from certain viewpoints. As discussed in Section 3.9, Visual Resources, of this EIR/EA, there would be very limited visibility of the proposed project from the surrounding area. It essentially would not be visible from locations

where the vast majority of Tehachapi WRA wind turbines, located in the Tehachapi Pass area, can be seen. From these locations, the proposed project would not contribute incrementally to a potentially significant cumulative impact to visual resources.

There would be a few locations in the surrounding area from which the proposed project and the existing Sky River Ranch wind project would both be visible. These include certain viewpoints located within the Jawbone Canyon Open Area. However, from these viewpoints only portions of a relatively small number of proposed project and Sky River Ranch turbines would be visible in the background distance zone. Therefore, the proposed project would not contribute incrementally to a potentially significant cumulative impact to visual resources from these viewpoints. Both the proposed project turbines and the Sky River Ranch turbines would also be visible from certain viewpoints along the Pacific Crest Trail, to the southwest of the proposed project property. However, as was discussed in Section 3.9, Visual Resources, of this EIR/EA, from these locations on the trail, only a relatively small number of the project turbines would be visible at between 2.5 to 5.5 miles away. Seen within the context of foreground views of the existing Sky River Ranch turbines, which are located between 0.1 and 0.3 mile from the trail in these locations, the proposed project would not generally further detract from the quality of the views in this area and therefore would not contribute incrementally to a cumulatively significant impact to visual resources.

Cumulatively significant impacts to avian wildlife could result from the combined total fatalities of sensitive bird species caused by numerous separate wind projects. Such a cumulative impact could occur even if each separate project created an impact that was individually less than significant. While an actual empirical tally of the total number of raptor fatalities attributed to wind turbines in the Tehachapi WRA is unknown, a rate of 0.047 fatalities per turbine per year has been estimated based on a risk assessment of the WRA (Anderson, "Avian Monitoring"). As discussed in Section 3.5, Biological Resources, based on this previous analysis of wind turbine bird strike fatalities in the WRA and on field surveys to correlate the bird populations at the project property with the known populations in the Tehachapi WRA, it is estimated that the proposed project would result in an average of less than four raptor fatalities per year. While this number of fatalities alone would not significantly adversely affect the overall population of raptors in the area, it would make an incremental contribution to the total yearly raptor fatalities within the Tehachapi WRA. However, in proportion to the entire WRA, the fatalities that would be caused by the proposed project would represent a *de minimus* contribution to a cumulative impact on avian wildlife. That is, the environmental conditions in the WRA would be essentially the same whether or not the proposed project was implemented. Therefore, the proposed project impacts to avian wildlife are not considered cumulatively significant when considered in the context of the entire Tehachapi WRA.

As the demand for renewable energy rises in California and as improved technologies increase the efficiency and effectiveness of wind power generation, additional wind energy projects may be developed within the Tehachapi WRA in the future. Depending on the size, location, and nature of any future projects, the proposed Pine Tree Wind Development Project could create individually insignificant impacts that may be regarded as cumulatively significant when considered in conjunction with these future projects and the existing Tehachapi WRA. However, other than those projects discussed above, no other wind energy projects are currently proposed in the area of the Pine Tree project. If additional projects were to be proposed in the future, further analysis would need to be conducted at that time to evaluate potential cumulative impacts.

3.12 IRRETRIEVABLE AND IRREVERSIBLE RESOURCE COMMITMENTS

The President's CEQ NEPA Regulations, Section 102 and 40 CFR 1502.16, require the environmental document to include a discussion of "any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented." Additionally, Section 15126.2(c) of the *CEQA Guidelines* requires a discussion of significant irreversible environmental changes that would be involved in the proposed project. For example, the guidelines state:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements which provide access to a previous inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The proposed project would include the use of various metallic compounds, gravel, wood, petroleum products, and other nonrenewable material to construct the wind turbines, access roads, electrical power line, O&M building, and substation. Materials would come largely from outside the project region and would be manufactured in other geographic areas, with the exception of the wind turbine nacelles, which would be manufactured in Tehachapi. Earth resources for construction, such as gravel and cement, would originate from areawide sources or from excess material from the construction project. Petroleum-based fuels for vehicles and equipment would also be required, and energy used to manufacture project components would be expended.

These resource commitments are not completely irretrievable or irreversible. Some of these resource commitments can be reversed in the future through recycling and reuse at decommissioning. Also, the commitment to generate electricity with clean wind energy would decrease the expenditure of fossil fuels (which are a nonrenewable resource) for electrical generation and reduce emissions of green house gases. Overall, the proposed project would not result in the irretrievable and/or irreversible commitment of nonrenewable resources.

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3.13 ALTERNATIVES TO THE PROPOSED PROJECT

3.13.1 INTRODUCTION

The plan for the proposed project was developed based on a comprehensive planning process that considered numerous factors within a broader study area than is currently reflected by the boundaries of the project property. This study area consisted of approximately 21,500 acres, which encompass the approximately 8,000-acre project property and include additional land located to the southwest, south, and southeast of the property. This additional land consists of private property owned by the Hansen Family Limited Partnership and GE Wind Energy, LLC, the two major landholders involved in the proposed project.

Within the study area (and including the proposed project access and transmission line routes), extensive surveys and data gathering were conducted to establish a framework for analysis and decision making relative to the proposed project facility siting and construction. These surveys included:

- Biological resource surveys, including database research for rare, threatened, and endangered species (including avian use patterns and regional wind turbine bird strike data); field surveys to ascertain and accurately map plant communities throughout the study area; protocol surveys for rare, threatened, and endangered plants and wildlife; and avian and bat field surveys. The analysis also included coordination and site visits with the federal and state agencies with jurisdiction over biological resources.
- Cultural resource surveys, including records searches for previously recorded finds within the study area boundaries and field surveys to identify any cultural sites within potential areas of project disturbance. The analysis also included coordination and site visits with federal agencies with jurisdiction over cultural resources and with representatives of local Native American tribes.
- Wind resource surveys, including the installation of anemometers at key locations throughout the study area to determine potential wind energy generation capacity at various locations.
- Land use analysis, including zoning requirements, public land use issues, and extensive coordination with local U.S. military installations regarding the limitations imposed by Special Use Airspace associated with military training and testing missions.
- Visual resource surveys, including terrain modeling and viewshed analysis as well as field surveys to verify and record significant viewpoints.
- Topographic and geologic analysis to identify potential challenges related to project constructibility and impacts to geologic and hydrologic resources.

The data and analyses related to these factors established a framework of opportunities and constraints that was used to develop the proposed project as outlined in the project description. A primary consideration in the siting of the proposed project facilities was the avoidance or minimization of impacts to several resources and uses located in the southwestern, southern, and southeastern portions of the broader project study area. These included designated military aviation routes used in critical training and testing missions; potentially significant biological resources, including raptor nesting areas and more developed forest communities; potentially significant archaeological resources, including habitation sites and temporary camps; steep terrain that would have entailed significant grading to provide road access and structural pads for project facilities; and the Pacific Crest National Scenic Trail, which traverses the southwestern corner of the study area.

Based on avoidance of impacts to these resources and uses, the boundaries of the project property were narrowed to their present configuration, encompassing approximately 8,000 acres located in the north-central part of the study area. Within these narrowed boundaries, the intent of the project plan, while continuing to minimize or mitigate significant environmental impacts, was to optimize wind energy production to achieve the project objectives based on a cost-benefit analysis that balanced construction, operations, and maintenance considerations with the anticipated output of each turbine. A primary factor in this analysis was the quality of the wind resource at particular locations within the property.

This comprehensive planning process established the characteristics of the proposed project, which serves as a basis for the identification and analysis of project alternatives. In accordance with the State CEQA Guidelines, alternatives to the proposed project have been considered to foster informed decision making and public participation. Section 15126.6 (a) of the State CEQA Guidelines requires that "an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

The following alternatives were developed to provide a range of reasonable options to the proposed project that might address project impacts. The discussion of each alternative provides:

- A brief description of the alternative;
- A determination of whether the alternative is feasible and should therefore be considered for further analysis;
- A determination of which project objectives, as discussed in the Section 1.2, Objectives and Need, of this EIR/EA, would be attained by the alternative;
- An analysis of each alternative that was determined to be feasible and that would meet the project objectives relative to any reduction in impacts that would be created by the proposed project; and
- An identification of any additional impacts from the alternative that would not be created by the proposed project.

The alternatives to the proposed project discussed below include:

- One that proposes that no project be implemented (Alternative 1);
- One that considers the development of alternative energy sources to replace the project's power generation capacity (Alternative 2);
- One that considers resiting the project turbines within the project study area (Alternative 3);
- Two that consider the use of different turbines than those proposed for the project (Alternatives 4A and 4B);
- One that considers relocating the project outside the current project study area (Alternative 5);
- One that considers repowering of an existing wind project versus new construction (Alternative 6);
- Three that consider alternative routes for the project access road and transmission line (Alternatives 7A, 7B, and 7C); and
- One that considers roadless construction for the project (Alternative 8).

Table 3.13-1 is provided at the end of this section, summarizing the discussed alternatives to the proposed project.

3.13.2 ALTERNATIVE 1: NO PROJECT

An evaluation of a No Project Alternative is required under CEQA and NEPA. According to the CEQA Guidelines, the No Project Alternative is intended to "allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." Under this alternative, the proposed project would not be implemented. No wind turbines or associated facilities as outlined in the project description would be constructed. The proposed project property would remain in its current state.

The No Project Alternative is technically feasible, but it would attain none of the objectives of the proposed project related to producing electrical power from clean and renewable energy sources and helping to meet the electrical energy demands of the Southern California region.

This alternative would avoid the site-specific impacts associated with the proposed project since no construction activities or long-term operations would occur at the project site.

Because it would not provide any renewable energy sources for the production of electrical power, the No Project Alternative would result in a continued dependence on fossil fuels to generate the power that would have been realized from the proposed wind turbines. Likewise, there would be a continuation in the air pollutant emissions and greenhouse gases associated with the sustained use of these fossil fuels.

The No Project Alternative is technically feasible, but it would not attain any of the project objectives. It would eliminate site-specific environmental impacts of the proposed project but would result in greater long-term impacts related to continued dependence on fossil fuels and the resultant air pollutant and greenhouse gas emissions.

3.13.3 ALTERNATIVE 2: DEVELOP ALTERNATIVE ENERGY SOURCES

Under Alternative 2, the proposed wind turbine development as outlined in the project description would not be constructed. Instead, the generation capacity expected from the project would be met through the development of other alternative energy sources, which could reduce dependence on fossil fuels and achieve reductions in air pollutant and greenhouse gas emissions. These alternative sources would include both conservation programs and non-traditional generation methods. LADWP is currently involved in an aggressive program of alternative energy sources, which includes the following.

Demand side management (DSM) programs are aimed at both a reduction in energy consumption and load management (a shifting of load to off-peak hours). To implement these programs, LADWP has divided its customer base into four sectors (large commercial, industrial, governmental, and residential/small commercial), based on the energy use characteristics and market potential of each sector. The program includes incentives, technical assistance, and regulatory actions and focuses on major energy uses, such as lighting, ventilation and air conditioning, refrigeration, process loads, and swimming pool filter motors. The DSM program includes a project to retrofit over 600 City of Los Angeles facilities with energy efficient equipment. According to the LADWP IRP, it is estimated

that the DSM programs will generate energy savings of approximately 120 MW by 2005 and 245 MW by 2010.

Distributed generation (DG) places small electric generators of various types at or near the point of demand. This provides energy to customers with reduced losses when compared to traditional central generation stations and distribution systems. DG systems include fuel cells, photovoltaics, and microturbines and other engines. Currently, DG technology is more expensive than central station generation, but it is anticipated that costs will decline in the future. According to the LADWP IRP, it is estimated that the DG programs will generate energy savings of approximately 17 MW by 2005 and 70 MW by 2010.

Repowering refers to the modernization of LADWP's large gas-fired generating stations located in the Los Angeles basin. This modernization entails the replacement of 10 aging and inefficient conventional steam boiler generating units with combined cycle generating systems (CCGSs), in which the exhaust heat from natural gas-fired turbines is recaptured and used to produce steam that in turn drives a steam turbine to produce additional electrical energy. The CCGSs are significantly more efficient than the traditional steam boiler generator units they will replace, resulting in an approximate 30 percent reduction in fuel consumption per unit of energy produced. This increased efficiency along with modern air pollution control systems installed as a component of the CCGSs will in turn lead to significant reductions in air pollutant and carbon dioxide emissions when compared to the existing generating stations. In accordance with the LADWP IRP, four existing in-basin generating units have been replaced with CCGSs, the replacement of two units is currently underway, and the replacement of another two units is in the planning stages.

LADWP has proposed a Renewable Portfolio Standard (RPS) intended to increase the amount of energy it produces from renewable energy sources. The goal of the RPS is to improve air quality and provide a sustainable energy resource by reducing dependence on fossil fuels to generate power. The RPS has established an objective for LADWP to increase the amount of energy it generates from renewable power sources to 13 percent of its energy sales to retail customers by 2010 and to 20 percent by 2017. The 20 percent objective, although self-imposed by LADWP and the City of Los Angeles, is the same as that required of investor-owned utilities under state legislated mandates. Renewable resources under development or consideration by LADWP include small hydroelectric (30 MW or less), biomass, digester gas, waste gas, landfill gas, solar thermal, geothermal, photovoltaics, fuel cells with renewable fuels, ocean wave technologies, wind, and other sources. These may include both capital improvement projects to develop renewable resources and procurement of renewable energy on the open market.

Although such programs as described above are technically feasible and represent a means of achieving objectives similar to those of the proposed project, they do not represent a feasible alternative to the project because their implementation has already been accounted for in the assessment of the need for the project. Programs such as DSM, DG, and repowering are complementary to the proposed project and will continue as planned whether or not the project is implemented. The proposed wind turbine development is in fact a component of, not supplemental to, the renewable energy resources program discussed above. The development of additional renewable resources of all types will be required to meet the renewable power generation objectives established in the RPS. The proposed project would represent approximately 1.5 percent of LADWP's total electrical energy generation and about 7.5 percent of the RPS objective of 20 percent power generation from renewable resources.

Because Alternative 2 is not considered a feasible alternative to the proposed project, it has not been further analyzed relative to potential environmental impacts.

3.13.4 ALTERNATIVE 3: RESITE TURBINES WITHIN PROJECT STUDY AREA

Under Alternative 3, the wind turbines and associated facilities would be resited to other locations within the broader project study area to reduce or eliminate any impacts associated with the currently proposed facility sitings. As discussed above, the approximately 21,500-acre study area encompasses the 8,000-acre proposed project property and includes additional land located to the southeast, east, and southwest of the property. This additional land consists of private property owned by the Hansen Family Limited Partnership and GE Wind Energy, LLC, the two major landholders involved in the proposed project.

As discussed in the project description, the proposed project is located within the Joint Service Restricted R-2508 airspace complex, and both EAFB and NWSCL maintain numerous MTRs that overlay the vicinity. During the planning process related to resource assessment and turbine siting, the proposed project was closely coordinated with EAFB and NWSCL. Large portions of the project study area were eliminated from further consideration for turbine siting because of potentially significant impacts to critical military training and testing missions. Based on determinations by EAFB and NWSCL, the proposed project turbines could not be sited within the broader study area beyond the boundaries of the currently proposed project property. Under provisions of the Kern County zoning ordinance related to the height of structures, the WE zoning designation required for the wind turbine development will not be granted beneath Special Use airspace unless project approval has been given by the military indicating that the development is compatible with aviation training and testing missions. Therefore, the resiting of the proposed wind turbines to other locations within the broader study area is not feasible.

In addition, during project planning and resource assessment, it was determined that potential impacts to biological (including avian), cultural, visual, and geologic resources could be minimized by avoiding sites in the southeastern, southern, and southwestern portions of the study area and locating the turbines and other project facilities within the currently proposed project property boundaries in the north-central part of the study area.

Alternative 3 is not feasible because of limitations on turbine siting imposed by the Joint Service Restricted R-2508 airspace complex associated with operations at EAFB and NWSCL. This alternative has therefore not been further analyzed relative to potential environmental effects.

3.13.5 ALTERNATIVE 4: INSTALL SMALLER TURBINES

Under Alternative 4, smaller turbines would be utilized to meet the wind energy generation objectives of the proposed project. Such turbines would require narrower roads for the delivery of components and smaller crane pad areas for the installation of the turbines, thereby reducing impacts associated with project grading.

ALTERNATIVE 4A: MAXIMIZE TURBINE OUTPUT

The intent of Alternative 4A is to narrow the width of the roads required for project installation while at the same time maximizing the energy output of the individual turbines. In this manner, impacts related to road construction could be reduced, while the number of turbines necessary to still meet the

project energy production goals could also be minimized. Commercially available turbines with a nameplate capacity of 950 kilowatts (kW) could meet both the objectives of reducing road widths and providing relatively high energy output per turbine. These turbines would have a hub height of approximately 180 feet and a rotor diameter of approximately 177 feet. The total height of the turbines at the top of the rotor blade rotation would be approximately 269 feet, about 70 feet lower than the proposed project turbines. Because of their size, these 950-kW turbines would require only 16-foot-wide roads for the delivery and installation of components. This could reduce the impacts associated with the grading of project roads.

Based on the wind resources at the project site and the characteristics of these alternative turbines, approximately 170 turbines would need to be installed to provide the total annual generating capacity of the proposed project (330 GWh). Because of limitations imposed by the MTRs associated with the Joint Service Restricted R-2508 airspace complex, the total height of the alternative turbines (269 feet) would be taller than that allowed within the broader project study area beyond the boundaries of the currently proposed project property. Therefore, the alternative turbines would need to be sited within the proposed project property. Based on the siting requirements for these turbines, only about 130 could be adequately located within the project property, significantly fewer than the 170 turbines required to meet the basic energy production objectives of the project.

Based on their smaller rotor diameter, the alternative turbines could be spaced approximately 30 percent closer together than the proposed project 1.5-MW turbines. Generally, this would allow for approximately 40 percent more of the alternative turbines to be sited along a given length of road. However, even though the roads required for the alternative turbines would be narrower than those required for the proposed project, additional road length and pads would be necessary to accommodate approximately 18 of the turbines. In addition, because a substation would still be required on site under Alternative 4A and due to the size of some substation components, certain roads within the project site required to deliver these components could not be narrowed.

Alternative 4A is technically feasible, but it would not attain the basic project objectives in relation to the amount of renewable energy provided. Alternative 4A would reduce the width of roads required for turbine construction, but it would involve the installation of significantly more turbines and some additional roads than would be necessary under the proposed project. Furthermore, roads required for the delivery of components to the substation site would not be narrower than those required for the proposed project.

ALTERNATIVE 4B: INSTALL TURBINES SHORTER THAN 200 FEET AGL

Under Alternative 4B, turbines shorter than 200 feet to the top of the rotor blade rotation would be installed at the project site. At this height, the turbines would be below the maximum altitude permitted for structures located within the Joint Services Restricted R-2508 airspace complex. This would provide flexibility for turbines to be sited within the broader 21,500-acre project study area beyond the currently proposed project property boundaries if necessary. This added flexibility in siting would allow enough alternative turbines to be installed to meet the proposed project's basic energy production objectives.

Generally, the maximum nameplate capacity for turbines below 200 feet in height is approximately 600-kW. These turbines would have a hub height of approximately 133 feet and a rotor diameter of approximately 128 feet. The total height of the turbines at the top of the rotor blade rotation would be approximately 197 feet, about 143 feet lower than the proposed project turbines. Because of their

size, these 600 kW turbines would require only 16-foot-wide roads for the delivery and installation of components. This could reduce the impacts associated with the grading of project roads.

Based on the wind resources at the project site and the characteristics of these alternative turbines, approximately 250 turbines would need to be installed to provide the total annual generating capacity of the proposed project (330 GWh). Based on their smaller rotor diameter, the alternative turbines could be spaced approximately 50 percent closer together than the proposed project 1.5-MW turbines. Generally, this would allow for approximately twice the number of the alternative turbines to be sited along a given length of road. However, even though the roads required for the alternative turbines would be narrower than those required for the proposed project, additional road length and pads would be necessary to accommodate approximately 90 of the turbines.

Because of space limitations, these 90 turbines would need to be accommodated within the broader project study area outside the boundaries of the currently proposed project property. While any such siting outside the proposed project boundaries would still require approval by local military authorities under provisions of the Kern County zoning ordinance related to the height of structures, it could potentially be accomplished because the turbines would be below the height limitations imposed by the R-2508 complex MTRs. However, this would increase the overall project footprint and may also place the turbines in areas of sensitive resources located in the southwestern, southern, and southeastern portions of the project study area that would be avoided by the proposed project. These include potentially significant biological resources and cultural resources. While the alternative turbines would require narrower roads and smaller construction pads than the proposed project turbines, by moving beyond the currently proposed project boundaries into steeper areas in the southwestern and southern parts of the project study area, increased grading impacts may result. Siting the alternative turbines in the southwestern and southern part of the project study area would also place them closer to the Pacific Crest Trail than the proposed project turbines, potentially increasing visual impacts. In addition, because a substation would still be required on site under Alternative 4B and due to the size of some substation components, certain roads within the project site required to deliver these components could not be narrowed.

Alternative 4B is technically feasible, and it would attain the basic project objectives in relation to the amount of renewable energy provided. Alternative 4B would reduce the width of roads required for turbine construction, but it would involve the installation of significantly more turbines and a considerably greater length of roads than would be necessary under the proposed project. Alternative 4A may also increase the impacts to potentially significant biological, cultural, and visual resources located in the broader project study area that would be avoided by the proposed project.

3.13.6 ALTERNATIVE 5: RELOCATE THE PROPOSED PROJECT

Under Alternative 5, the project would not be constructed at the proposed project property. However, it would be implemented with all the components as outlined in the project description at an alternative location. Under CEQA, analysis of alternative locations is intended to determine if development of the project at a different site could reduce the significant impacts associated with development at the proposed project site. This differs from alternative development scenarios at the proposed project site in that it focuses on issues that may be related to the character of the site and its surroundings rather than the character of the project per se.

According to the California Energy Commission, there are several areas of high wind resource potential located throughout Southern California. In addition to offshore areas around the Channel

Islands, relatively large areas have been identified in the southwestern corner of Imperial County, along the border with Mexico; in the Cajon Pass area in southwestern San Bernardino County; west of the cities of Palmdale and Lancaster in northern Los Angeles County; in the San Gorgonio Pass area near Palm Springs in Riverside County; and in the Tehachapi WRA, within which the proposed project is located. San Gorgonio and Tehachapi are the most highly rated of these resource areas in terms of wind energy production capability. This is evidenced by the fact that virtually all wind energy development in Southern California has occurred within these WRAs, representing approximately 2,000 GWh of annual energy output. As the demand for renewable energy rises and as improved technologies increase the efficiency and effectiveness of wind power generation, it is likely that additional wind energy projects may be developed in many or all of the resource areas identified above.

An analysis to determine the capability for wind energy generation, the availability of electrical transmission capacity, and the extent of potential environmental impacts related to wind energy development in these various areas located throughout the Southern California region is beyond the scope of this EIR/EA, which is project specific in nature. Such a broad analysis would more appropriately be accomplished in a Programmatic EIR/EA conducted by a lead agency with jurisdiction over energy and development policy at a regional or state level. Such a comprehensive analysis may require the formation of a Joint Powers Authority consisting of numerous agencies and local governments with an interest in wind development in Southern California. LADWP is proposing the Pine Tree Wind Development Project to help meet its stated goals for renewable energy development, and the department will continue to develop renewable energy sources of all types, potentially including other specific wind energy projects in the region.

However, although a region-wide analysis of potential alternative locations for the proposed project is not feasible within the scope of this EIR/EA, consideration of alternative locations within the vicinity of the proposed project is appropriate relative to an evaluation of potential environmental impacts. Such alternative locations should possess similar characteristics as the proposed project property relative to wind resources, size, consolidated private property holdings, and proximity to electrical transmission lines with available capacity. Based on these characteristics, under Alternative 5, the proposed project would be relocated to private property north of and adjacent to the project property. While none of the project wind turbines, substation, maintenance buildings, or ancillary facilities would be constructed on the proposed project property, construction and O&M vehicle access to the alternative project site would still be provided via Jawbone Canyon Road from SR-14, as in the proposed project. The project transmission line would be relocated from Pine Tree Canyon to Jawbone Canyon, where it would be routed to a switching station near SR-14 at the mouth of the canyon.

The property identified for this alternative is similar in character to the proposed project property in terms of terrain, soils, and vegetation. It has generally similar biological and cultural resources as those found at the proposed project property. This area includes many non-contiguous BLM parcels, which are closed to entry by the public except by permit. However, large consolidated blocks of private property would be available to accommodate the wind turbine development.

Portions of this alternative project site have been studied in the past for their potential for wind energy generation. The site has similar wind resources as those found at the proposed project property. Based on these studies, the development of the project at this alternative site would be feasible. Alternative 5 could attain all the proposed project objectives related to producing electrical

power from clean and renewable energy sources and helping to meet the electrical energy demands of the Southern California region.

However, because this alternative site has similar terrain, vegetation, and resources as the proposed project site, potential environmental impacts related to project construction and operations would generally be expected to be comparable to those generated by the proposed project. Since the transmission line would be relocated to Jawbone Canyon, all impacts in Pine Tree Canyon would be eliminated; however, additional impacts related to the line would be expected in Jawbone Canyon. Depending on actual turbine siting, Alternative 5 may create additional impacts that would not be created by the proposed project. Some project components may be located relatively close to a publicly accessible road (Jawbone Canyon Road, to the north), which may increase the visual impacts caused by project components. Turbines in the Jawbone/Butterbredt alternative site may also be located relatively close to the Bendire's Thrasher Conservation Area identified in the CDAC Plan WMP amendment (located north of Jawbone Canyon Road), which may increase impacts to avian species.

Alternative 5 is technically feasible, and it would attain all the objectives of the proposed project. However, it would not eliminate or substantially lessen any of the impacts of the proposed project.

3.13.7 ALTERNATIVE 6: REPOWER EXISTING WIND TURBINE SITE

Under Alternative 6, the proposed project would be developed at an existing wind turbine site or sites in the Tehachapi Pass area. The intent of this alternative would be to reduce environmental effects associated with the construction and operations of the proposed project by "repowering" a site or sites already impacted by existing wind turbine development as opposed to new construction in a currently undeveloped area. This repowering would entail replacing aging, inefficient, and/or inoperable turbines with the proposed project turbines, which would be more reliable, efficient, and productive.

The Tehachapi WRA consists of approximately 30 separate wind turbine projects, with a total capacity of about 600 MW and an estimated annual energy output of 1,200 GWh. Excluding the Sky River Ranch project, which is located on Sweet Ridge to the west of the proposed project property, the Tehachapi WRA includes approximately 3,300 individual turbines, located primarily in the Tehachapi Pass area. The Tehachapi WRA projects are under the ownership of approximately 12 different entities.

To implement Alternative 6, existing wind turbines would need to be demolished, potentially including below-grade elements, such as foundations and electrical collection systems. The grading of some new roads and foundations pads would also be necessary because the proposed project turbines have different area and spacing requirements than existing turbines in Tehachapi Pass. A new underground electrical collection system would be required. Since limited capacity is currently available to transmit power generated in the Tehachapi WRA, this alternative would include the construction of a new transmission line that would connect to the existing LADWP Inyo-Rinaldi line, which runs roughly parallel to and west of SR-14. The exact alignment and length of this new line would be dependent on the location of the turbine repowering site. Alternative 6 would also include a new substation to convert the voltage of the electrical energy generated by the wind turbines so that it could be transmitted over the Inyo-Rinaldi line.

To accomplish Alternative 6 and achieve the power generation objectives of the project in an efficient and cost-effective manner, relatively consolidated property large enough to accommodate the proposed number of turbines would be required to avoid segregating the project into potentially widely separated areas. The existing wind energy projects in the vicinity of Tehachapi Pass extend over a total area of approximately 20 square miles. The proposed project property consists of approximately 12.5 square miles, and while the project facilities themselves do not actually cover this entire area, based on the wind resource and terrain characteristics of the site and the requirements of the proposed turbines, the overall footprint of the project extends over the majority of the project property. Even assuming that significantly greater efficiency in wind turbine configuration could be achieved in the Tehachapi Pass area than at the proposed project site, a repowering project would still require the acquisition of a large proportion of the existing wind turbine developments, under the ownership of several entities. Furthermore, although the proposed project turbines would be more productive than numerous turbines they would replace, many existing turbines in the Tehachapi Pass WRA that are not considered inefficient or unreliable would also need to be removed to accommodate the project. Alternative 6 would actually involve removing from service existing renewable energy generation, which would be contrary to the overall goals of the proposed project.

Along with the acquisition of large portions of existing Tehachapi WRA wind projects, energy contracts associated with these projects would hinder implementation of a repowering project alternative. Southern California Edison currently has purchase agreements for all the power produced in the Tehachapi WRA. These agreements are generally long-term (up to 30 years), which limits the availability of the existing wind developments for repowering to meet LADWP's project objectives. Because of the limitations imposed by these contracts, the acquisition of a relatively consolidated area that would be large enough to accommodate the proposed project is essentially infeasible, and Alternative 6 has therefore not been further analyzed relative to potential environmental effects.

3.13.8 ALTERNATIVE 7: USE ALTERNATE ACCESS ROUTES

Alternative 7 focuses on impacts associated with access to the proposed project property, including both the route for access roads used for project construction and long-term O&M and the route used for the project electrical transmission line. Except for relatively minor modifications directly related to alternative access routes, other aspects of the proposed project, including the siting of the turbines, substation, and ancillary project facilities, would not change under any of the Alternative 7 options.

ALTERNATIVE 7A: USE PINE TREE CANYON ROAD AS PRIMARY PROJECT ACCESS

Under Alternative 7A, Pine Tree Canyon Road would serve as the access road for both construction of the project and long-term O&M of the project. Jawbone Canyon Road would not be utilized for project construction or operations. Based on this alternative access, some relatively minor changes to other project roads and the location of construction laydown areas might also occur. All other aspects of the proposed project, including the transmission line alignment through Pine Tree Canyon, would remain the same.

Alternative 7A is technically feasible, and because it would only alter the project access road, it would attain all the objectives of the proposed project.

Alternative 7A would eliminate any project impacts associated with the use of Jawbone Canyon Road for project access. These impacts would primarily involve potential conflicts between project-

related construction traffic and the off-road vehicle recreation use in the Jawbone Canyon Open Area. Some stream crossings near SR-14 and in Big and Little Jawbone canyons, in the northeast part of the project property, might also be avoided.

Alternative 7A would cause additional significant impacts to archaeological resources that would not be created by the proposed project. The existing Pine Tree Canyon Road, at approximately 15 feet wide as it enters the project property from the southeast, crosses over a relatively large site of significant prehistoric cultural remains, including bedrock milling sites and lithic scatter, indicating a potential habitation site or temporary camp. Because of the width and vertical alignment required for the project access roads and the topography surrounding Pine Tree Canyon Road in the area of these archaeological resources, substantial ground disturbance related to cutting and filling may occur and significant impacts to the resources might not be avoidable. Improvements to Pine Tree Canyon Road and the use of the road by construction vehicles would also increase potential impacts related to the endangered desert tortoise and Mohave ground squirrel and the disturbance of their habitat and impacts to sensitive Joshua Tree woodland plant communities located in the lower reaches of the canyon. In addition, because of the relative steepness and narrowness of Pine Tree Canyon Road as it approaches the project property when compared to Jawbone Canyon Road, Alternative 7A may result in additional impacts from grading of the project access road, including impacts related to erosion, runoff, and stream crossings.

Alternative 7A is technically feasible, and it would attain all the objectives of the proposed project. It would eliminate those project impacts related to conflicts between project construction traffic and OHV recreation use in the Jawbone Canyon Open Area. However, Alternative 7A would result in additional significant impacts to cultural and biological resources in Pine Tree Canyon, and it may increase impacts related to erosion and runoff.

ALTERNATIVE 7B: USE SKY RIVER RANCH AS PRIMARY PROJECT ACCESS

Under Alternative 7B, the Sky River Ranch wind turbine project property would be used to provide access for both construction and long-term O&M of the project. Jawbone Canyon Road would not be utilized for project construction or operations. Based on this alternative access, some relatively minor changes to other project roads and the location of construction laydown areas might also occur. All other aspects of the proposed project, including the transmission line alignment through Pine Tree Canyon, would remain the same.

Alternative 7B is technically feasible, and because it would only alter the project access road, it would attain all the objectives of the proposed project.

Alternative 7B would eliminate any project impacts associated with the use of Jawbone Canyon Road for project access. These impacts would primarily involve potential conflicts between project-related construction traffic and the off-road vehicle recreation use in the Jawbone Canyon Open Area. Some stream crossings near SR-14 and in Big and Little Jawbone Canyons, in the northeast part of the project property, might also be avoided.

However, Alternative 7B would also cause impacts from project construction traffic and traffic-related noise and dust. To utilize this alternative access route to the proposed project site, construction traffic would need to reach the Sky River Ranch property from Highway 58 at Tehachapi Pass to the south. This would route construction traffic through the rural residential areas located in Sand Canyon and Horse Canyon, to the southwest of the project property, creating

potentially significant conflicts. The access route would also need to cross private property before reaching the Sky River Ranch development. Access to the project site from the Sky River Ranch property would require the grading of roads in steep areas to the west of the project property, which may result in additional impacts, including those related to erosion, runoff, and stream crossings. In addition, utilizing the Sky River Ranch property for project access may create unacceptable conflicts with the O&M of the Sky River Ranch wind development.

Alternative 7B is technically feasible, and it would attain all the objectives of the proposed project. It would eliminate those project impacts related to conflicts between project construction traffic and off-road vehicle recreation use in the Jawbone Canyon Open Area. However, Alternative 7B would result in other impacts related to construction traffic in Sand Canyon and Horse Canyon, and it may increase impacts related to erosion, runoff, and stream crossings.

ALTERNATIVE 7C: USE JAWBONE CANYON AS PROJECT TRANSMISSION LINE ALIGNMENT

Under Alternative 7C, Jawbone Canyon would be used as the alignment for the project transmission line as well as for project vehicular access. The switching station and associated maintenance facilities at the transmission interconnection point with the Inyo-Rinaldi transmission line would be located at the mouth of Jawbone Canyon, about 0.5 mile west of SR-14. Pine Tree Canyon would not be used for any aspect of project construction or operations. All other aspects of the proposed project would remain the same.

Alternative 7C is technically feasible, and because it would only alter the project transmission line alignment, it would attain all the objectives of the proposed project.

Alternative 7C would eliminate any project impacts related to the use of Pine Tree Canyon for the project transmission line. These impacts would primarily be related to the potential direct harm to the endangered desert tortoise and Mohave ground squirrel and the disturbance of their habitat from construction and operations activities associated with the transmission line in the lower reaches of Pine Tree Canyon.

However, similar impacts to the tortoise and ground squirrel from transmission line construction and operations would be expected in Jawbone Canyon. Alternative 7C would also cause additional impacts related to potential conflicts between the transmission line siting and the OHV recreation use in the Jawbone Canyon Open Area. This would be most pronounced during the construction phase of the transmission line, when activities involving the assembly and installation of large transmission line components using large equipment and vehicles would create direct safety and use conflicts. After the installation is complete, the presence of the transmission towers and switching station facilities within the Open Area would continue to create safety, use, and operations and maintenance conflicts. Since the Jawbone Canyon Open Area is heavily used by the public, close-up views of the transmission line within the Open Area may be considered a potentially significant visual impact. In addition, a transmission line alignment through Jawbone Canyon would be approximately 12 miles in length, about 4 miles longer than the Pine Tree Canyon alignment included in the proposed project. In this regard, ground disturbance impacts related to the transmission line could be greater under Alternative 7C than under the proposed project. Furthermore, a transmission line located in Jawbone Canyon would require a right-of-way to traverse approximately 4.7 miles of BLM-administered public property versus approximately 1.1 mile of right-of-way required in Pine Tree Canyon under the proposed project.

Alternative 7C is technically feasible, and it would attain all the objectives of the proposed project. It would eliminate those project impacts related to the disturbance of desert tortoise and Mohave ground squirrel habitat in Pine Tree Canyon under the proposed project, but similar impacts would be expected in Jawbone Canyon. Alternative 7C would also result in additional impacts related to safety and use conflicts with the OHV recreation function in the Jawbone Canyon Open Area, and it would require additional rights-of-way on public land as compared to the proposed project.

3.13.9 ALTERNATIVE 8: ROADLESS CONSTRUCTION

Under Alternative 8, non-traditional construction methods involving the airlifting of project components, construction equipment, and personnel would be utilized to minimize impacts related to access road construction and use. The location of the primary project components (the wind turbines, substation, and maintenance facilities) would remain as described in the proposed project. Materials laydown and equipment storage areas would also still be required. The construction of new roads and the widening of existing roads would be minimized because components and equipment would be delivered via air rather than by truck, as in the propose project. A network of narrower (16-foot-wide) roads would be required for long-term project operations, and some new construction and improvements to existing roads would still be necessary to provide this network.

Roadless construction utilizing heavy lift helicopters to deliver equipment, components, and materials, and actually participate in the facility assembly and erection process has been employed on projects in remote, inaccessible, and/or rugged areas. The erection of electrical transmission lines through mountainous terrain has been a common use of this construction technique. However, because of payload weight and size limitations, heavy lift helicopters are not capable of transporting many of the proposed project components. The largest external load that can be carried by generally commercially available heavy lift helicopters is approximately 44,000 pounds. The mid and bottom sections of the turbine towers weigh approximately 70,000 pounds and 90,000 pounds, respectively. The turbine nacelle alone weighs approximately 112,000 pounds, and the main power transformer weighs approximately 320,000 pounds. These are well beyond the capability of available heavy lift helicopters. In addition, each turbine rotor blade is approximately 126 feet in length and may represent an unsafe load because of stability issues. The size and weight of these components were the primary factors in determining the necessary width of project access roads, crane maneuvering areas, and materials laydown areas. While it may be possible to deliver smaller project components and materials by heavy lift helicopters, this would not reduce the overall road and facility pad construction requirements as described in the proposed project.

Alternative 8 is not feasible because the size of many project components far exceeds the load limits of commercially available heavy lift helicopters. This alternative has therefore not been further analyzed relative to potential environmental effects.

Table 3.13-1
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
1	**No Project**	Feasible	• Would not provide electrical power from clean and renewable energy sources • Would not help meet the electrical energy demands • Would ensure federal regulatory compliance and management plan conformance since no actions would occur on BLM land • Would not promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would avoid site-specific impacts associated with the proposed project since no construction activities or long-term operations would occur at the project site	• Would result in a continued dependence on fossil fuels to generate the power that would have been realized from proposed project • Would result in continued air pollutant emissions and greenhouse gases associated with the sustained use of these fossil fuels
2	**Develop Alternative Energy Sources**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative
3	**Resite Turbines within Project Study Area**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative
4A	**Install Smaller Turbines: Maximize Turbine Output**	Feasible	• Would not attain basic project objectives for production of electrical power from clean and renewable energy sources • Would not attain basic project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would reduce the width of some roads required for project construction, which would reduce impacts related to site grading	• Would increase the number of project wind turbines and the length of roads required for project construction and maintenance, which would require additional site grading

Table 3.13-1
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
4B	**Install Smaller Turbines: Install Turbines Shorter than 200 Feet AGL**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would reduce the width of some roads required for project construction, which would reduce impacts related to site grading	• Would substantially increase the number of project wind turbines and the length of roads required for project construction and maintenance, which would require additional site grading • Would locate wind turbines in areas avoided by the proposed project, which may result in increased impacts to potentially significant biological, cultural, and visual resources
5	**Relocate Proposed Project**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would not eliminate or reduce any impacts associated with the proposed project	• May result in additional impacts to visual resources and avian wildlife
6	**Repower Existing Wind Turbine Site (in Tehachapi Pass area)**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative

Table 3.13-1
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
7A	**Use Pine Tree Canyon Road as Primary Project Access**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would eliminate impacts related to conflicts between project construction traffic and off-road vehicle recreation use in the Jawbone Canyon Open Area	• Would result in additional significant impacts to cultural and biological resources in Pine Tree Canyon and may increase impacts related to erosion and runoff
7B	**Use Sky River Ranch as Primary Project Access**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would eliminate impacts related to conflicts between project construction traffic and off-road vehicle recreation use in the Jawbone Canyon Open Area	• Would result in other impacts related to construction traffic in Sand Canyon and Horse Canyon and may increase impacts related to erosion, runoff, and stream crossings

Table 3.13-1
Summary of Alternatives to the Proposed Project

Alt.	Description	Feasibility	Attainment of Proposed Project Objectives	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts not Created by Proposed Project
7C	**Use Jawbone Canyon as Project Transmission Line Alignment**	Feasible	• Would attain project objectives for production of electrical power from clean and renewable energy sources • Would attain project objectives for meeting electrical energy demands • Would locate the primary project facilities on private property and relatively close to existing LADWP transmission lines with available capacity • Would ensure federal regulatory compliance and management plan conformance on BLM land • Would promote development of wind energy in accordance with the BLM's Interim Wind Energy Development Policy	• Would eliminate impacts related to the disturbance of desert tortoise and Mohave ground squirrel habitat in Pine Tree Canyon	• Would increase impacts related to the disturbance of desert tortoise and Mohave ground squirrel habitat in Jawbone Canyon • Would result in additional impacts related to safety and use conflicts with off-road vehicle recreation function in the Jawbone Canyon Open Area
8	**Roadless Construction**	Infeasible	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative	Not applicable due to infeasibility of alternative

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3.14 GROWTH INDUCING IMPACTS

3.14.1INTRODUCTION

This section evaluates the potential for growth that could be induced by implementing the proposed project and assesses the level of significance of any expected growth inducement. CEQA requires a discussion of the ways in which a proposed project could induce growth. According to the *CEQA Guidelines* [Section 15126.2 (d)], "…a project is identified as growth inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment." New employees hired for proposed projects and population growth resulting from residential development represents direct forms of growth. Other examples of projects that are growth inducing are the expansion of urban services into a previously unserved or under-served area, the creation or extension of transportation links, or the removal of major obstacles to growth. It is important to note that these direct forms of growth have secondary effects of expanding the size of local markets and attracting additional economic activity to the area.

Growth itself is not assumed to be beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth inducing, an evaluation is made to determine if significant impacts on the environment would result from that growth.

Further, it cannot be assumed that the creation of growth-inducing potential automatically leads to growth. Growth occurs through capital investment in new economic opportunities by the private or public sectors. These investment patterns reflect, in turn, the desires of investors to mobilize and allocate their resources to development in particular localities and regions. These investments often lead to direct and indirect employment; generation of income and tax revenues; and demand for housing, utilities, and goods and services. Often these results of growth are managed by local politics and the local jurisdiction's posture on growth management and land use policy. These factors, combined with the regulatory authority of local governments in California in relation to land use, serve to mediate the growth-inducing potential or growth pressure created by a project.

For this analysis, the potential growth-inducing impacts of the proposed project could, in theory, be manifested in two ways:

- Growth resulting from the direct and indirect employment needed to construct and operate the proposed project.

- Growth resulting from the electric power that would be generated by the proposed project.

3.14.2 GROWTH CAUSED BY DIRECT AND INDIRECT EMPLOYMENT

As described in Section 3.10, Socioeconomics, the construction and operation of the project itself would not significantly affect the employment patterns in the area. Construction of the proposed project is expected to take approximately 10 months, with manpower ranging from 30 to 170 persons at peak construction. Approximately 60 percent of the labor to be used for the wind farm component is expected to be based within the general Mojave and Tehachapi areas. Construction of the transmission line and switching station component would employ approximately 40 persons at peak construction; the entire workforce would be taken from the existing LADWP employee base (LADWP 2004).

During the construction phase of the proposed project, it is anticipated that the majority of out-of-area labor would temporarily reside in local motels or other appropriate temporary accommodations and would not impact current vacancy rates among the local or regional housing stock.

Permanent population employment impacts related to the proposed project would be minimal and limited to 10 to 12 full-time additional employees during the operational phase of the wind project, estimated to be a minimum of 20 years. No additional full-time employees would be needed for operations related to the transmission line and switching station. Given the very limited extent of additional employment directly related to the proposed project and the existing housing vacancy rates within the surrounding communities, no housing-related impacts are anticipated.

The limited permanent increase in employment from the proposed project would lead to an inconsequential incremental increase in income and business activity within the surrounding areas. No permanent adverse impacts to employment or commerce are anticipated to result from the proposed project.

3.14.3 GROWTH RELATED TO PROVISION OF ADDITIONAL ELECTRIC POWER

Based on a total potential annual production of approximately 330 GWh per year and considering the estimated annual average residential usage for the LADWP service area of 5,900 kilowatt hours (Brown and Koomey 2002), the annual electrical production from the project would provide power for approximately 56,000 homes. Using a factor of approximately three persons per home in Los Angeles County (U.S. Census Bureau), the proposed project would meet the residential energy needs of approximately 168,000 people in Southern California.

An express purpose and objective of this project is to make progress toward meeting the commitment of the City of Los Angeles to supply an increased share of its electrical generation capacity from clean and renewable energy sources. This purpose is substantiated by City of Los Angeles City Council approval of a June 29, 2004, resolution supporting the concept of increasing the amount of energy LADWP generates from renewable power sources to 13 percent of its energy sales to retail customers by 2010 and to 20 percent by 2017.

According to the LADWP IRP, as amended and adopted by the Board of Water and Power Commissioners and the Los Angeles City Council (August 15, 2000), annual growth in demand in Los Angeles is expected to average about 1.5 percent, or an average of about 80 MW per year, over the next 16 years. It is estimated that between the years 2004 and 2010, the net peak demand for electricity in the city will grow by 450 MW, or approximately 7.5 percent (from 5,920 MW to 6,370 MW). The proposed project would provide approximately 27 percent of the demand for new energy in the next 5 years, or looking at it another way, the project would offset the need to produce 120 MW of power from other energy sources that would include fossil fuels.

The proposed project is not viewed as either inducing or limiting urban growth in the LADWP service area. Electrical energy is just one of several factors that contribute to urban growth, including provision of water and wastewater supply and capacity, transportation capacity, growing economic base, housing supply, and growing employment. In addition, all new growth and development are tacitly approved by local agencies through discretionary actions to build more homes; schools; and commercial, industrial, and infrastructure projects.

Further, the proposed project is not viewed as inducing additional wind development in the local area. With the considerable and ongoing interest in the phenomenon of global warming, with state and local renewable energy goals of 20 percent of commercial energy production derived from renewable sources, and with a rich wind resource, the Tehachapi area is an attractive wind power development area, with or without the Pine Tree Wind Development Project.

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SECTION 4.0 REPORT PREPARATION RESOURCES

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The co-lead agencies for this Draft EA/EIR are the BLM (under NEPA) and LADWP (under CEQA). The primary cooperating (NEPA), responsible, and trustee (CEQA) agencies include:

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6.0 LIST OF ACRONYMS AND ABBREVIATIONS

ACEC	Areas of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACOE/Corps	U.S. Army Corps of Engineers
A.D.	anno Domini ("in the year of the Lord")
ADPA	Archaeological Data Preservation Act
AGL	Above Ground Level
ARB	State of California Air Resources Board
ARPA	Archaeological Resource Preservation Act
BA	Biological Assessment
B.C.	before Christ
BEPA	Bald Eagle Protection Act
BLM	Bureau of Land Management
BMPs	Best Management Practices
BO	Biological Opinion
B.P.	before present
BRSS	Barren Ridge Switching Station
BTR	Biological Technical Report
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCGSs	Combined Cycle Generating Systems
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CELSOC	Consulting Engineers and Land Surveyors of California
Census	U.S. Bureau of the Census
CEQ	Council of Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CUP	Conditional Use Permit
CWA	Clean Water Act
DG	Distributed Generation
DOI	U.S. Department of the Interior
DOT	Department of Transportation
DPR	Department of Parks and Recreation

DSM	Demand Side Management
EAFB	Edwards Air Force Base
EDM	Electronic Distance Machine
EGR	Exhaust Gas Recirculation
EIR/EA	Environmental Impact Report/Environmental Assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EUs	Excavation units
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
GPS	Global Positioning System
GWh	Gigawatt Hour
IRP	Integrated Resource Plan
IS	Initial Study
KCAPCD	Kern County Air Pollution Control District
KCRD	Kern County Road Department
KCWA	Kern County Water Agency
KPRA	Kingpin-to-rear-axle
kV	kilovolt
kW	kilowatt
LADWP	City of Los Angeles Department of Water and Power
MBTA	Migratory Bird Treaty Act
msl	mean sea level
MTR	Military Training Route
MW	megawatt
NAAQS	National Ambient Air Quality Standard
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOI/P	Notice of Intent/Preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
National Register	National Register of Historic Places
NRCS	National Resources Conservation Service

NWSCC	Naval Weapons Station China Lake
O_3	ozone
O&M	operation and maintenance
OHV	off-highway vehicle
Pb	lead
PCBs	polychlorinated biphenyls
P.L.	Public law
$PM_{2.5}$	fine particulates
PM_{10}	particulate matter less than 10 microns / coarse particulates
RACM	Reasonably Available Control Measures
RCRA	Resource Conservation and Recovery Act
ROC	Reactive Organic Compounds
ROWD	Report of Waste Discharge
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure Plan
SR	State Route
STU	Surface Transect Unit
SWPPP	Storm Water Pollution Prevention Plan
UPA	Unique Plant Assemblage
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS/Service	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWA	Unique Watershed Assessment
VRM	Visual Resource Management
WE	Wind Energy
WMP	West Mojave Plan
WRA	Wind Resource Area
WRCC	Western Regional Climate Center
WTP	Wind Turbine Prometheus, LLC

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