Chapter 3.
Project Description
Chapter 3

Project Description

3.1 Project Overview

This Environmental Impact Report (EIR) has been prepared to identify and evaluate potential environmental impacts associated with implementation of the North Sky River Wind Energy Project and Jawbone Wind Energy Project. The proposed project consists of two applications, proposed by separate project proponents that will be collectively addressed in one EIR. The North Sky River Wind Energy Project is proposed by North Sky River Energy, LLC and the Jawbone Wind Energy Project is proposed by Jawbone Wind Energy, LLC. For consistency purposes, this EIR will address these collectively, as the “project.”

As shown in Table 3-1, the project requires approval of multiple zone change requests and a conditional use permit (CUP) that would allow for the commercial production of up to 339 Megawatts (MW) of electricity from wind turbine generators (WTGs).

<table>
<thead>
<tr>
<th>Site</th>
<th>Name</th>
<th>Total Project (Acres)</th>
<th>Proposed WE Zoning (Acres)</th>
<th>Maximum Megawatts</th>
<th>Maximum Turbines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1</td>
<td>North Sky River Wind Energy Project</td>
<td>12,781*</td>
<td>1,205</td>
<td>300</td>
<td>102</td>
</tr>
<tr>
<td>Site 2</td>
<td>Jawbone Wind Energy Project</td>
<td>754</td>
<td>87</td>
<td>39</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13,535</td>
<td>1,292</td>
<td>339</td>
<td>116</td>
</tr>
</tbody>
</table>

* Of this acreage, approximately 510 acres would be disturbed as part of implementation of the North Sky River Project (289-acres temporary disturbance and 221-acres permanent disturbance).

The proposed project site consists of 13,535 acres, consisting of 480 privately owned parcels, located in the southeastern portion of an unincorporated area of Kern County, California (Figure 3-1). The proposed project is primarily located to the south and east of the intersection of Kelso Valley Road and Jawbone Canyon Road. Land ownership in the vicinity of the project site is comprised of interspersed parcels of private land under the jurisdiction of Kern County and federal land managed by the U.S. Bureau of Land Management (BLM). Project WTGs would be located entirely on private land under Kern County jurisdiction, with some access roads, underground transmission collector lines and an overhead generation-tie (gen-tie) line occurring on BLM-managed land. An option for utilizing an access/gen-tie route located entirely on private land is also discussed below in Section 3.4, Environmental Setting, Site Access.

Power generated at the project would be transferred to the California Independent System Operator (CAISO) grid along the existing Wilderness transmission line. Potential transmission line upgrades currently being considered from the Sky River Substation to the CAISO grid are shown in Figure 3-7 and discussed in more detail below. The transmission reinforcement is included as part of the project and analyzed in this EIR because it would be necessary to support the power generated by the project.
3.2 Proposed Project

The proposed project is to construct and operate up to two independent wind energy generation facilities on 13,535 acres. Major components of the proposed project include: up to 116 WTGs, internal roadways, a power collection system, communication cables, a generation interconnection line (gen-tie line) to the existing Sky River Substation and/or existing Pine Tree Substation (a project substation), use of existing temporary meteorological towers, and operations and maintenance (O&M) facilities. Construction of the proposed project would also require the following temporary project facilities: construction access roads and turnaround areas, water storage areas for dust control and other limited construction related needs, laydown/staging areas, construction office trailers, and concrete batch plants.

For the purposes of this EIR, the conceptual site plan uses a combination of the WTGs listed in Tables 3-3 and 3-4 as the basis for analysis, although the final selection and layout of WTGs will be completed in conjunction with final engineering. Proposed project facilities are described in more detail in Section 3.5. Access to the site from the regional transportation network is gained from State Route (SR) 58 located 12 miles to the south of the proposed project boundary and SR 14 located 12 miles to the east. Access to the proposed project from SR 14 is via Jawbone Canyon Road to private roads. Similarly, access from SR 58 is via unnamed dirt roads. Figure 3-2 shows the proposed project site plan. Table 3-1 below provides data on acreage, MW and number of turbines for the proposed project.

The project proponents are requesting a change in zone classification to incorporate the Wind Energy (WE) Combining District to the base district for 1,292 acres of the 13,535-acre project site (shown in Figure 3-3). This rezoning would allow for construction of the WTGs, ancillary facilities and supporting infrastructure. In addition, the applicants are also requesting incorporation of a small portion of FP (Floodplain) Combining District where necessary to address the existing Zone A flood hazard areas as delineated on the Federal Emergency Management Agency’s (FEMA) Digital Flood Insurance Rate Maps (DFIRM).

The purpose of the WE Combining District is to promote the use of 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. The WE Combining District contains specific development standards that apply to the associated construction and siting of WTGs and accessory facilities in the WE Combining District without further discretionary review.

Construction of the proposed project would also require approval of a CUP (CUP 3, Map 13) to allow the use of one temporary mobile concrete batch plant to provide concrete and materials for WTG, substation, and operation and maintenance building foundations. The batch plants would be located onsite during construction only.

In addition, due to military air traffic restrictions, the WTGs would need to conform to the height requirements for the proposed project area as defined by Section 19.64 and Figure 19.08.160 of the Kern County Zoning Ordinance unless the military authority responsible for operations in that flight area first provides the planning director with written concurrence that the height of the proposed structure or building would create no significant military mission impacts. The project site is located across several of the military review zones in Figure 19.08.106, including green (no review requirement), yellow (all structures over 500 feet), and red (wind turbines and communications
Figure 3-1
Regional Location Map
North Sky River Wind Energy Project and Jawbone Wind Energy Project
Draft Environmental Impact Report

Figure 3-2
Project Site Plan

Water Well Location
Water Pipeline
Access Road
230kV Route (BLM Land)
230kV Route (Private Land)
Temporary Reservoir
Proposed WTG
Existing MET Tower
Proposed MET Tower
Temporary MET Tower

BLM
Jawbone Project Boundary
North Sky River Project Boundary

NSR O&M Facility
NSR Laydown Area
Jawbone Laydown Area / O&M Facility
Batch Plant
Area Proposed For Rezoning

County of Kern

May 2011

3-4
3.0 Project Description

towers over 80 feet and all other structures over 100 feet). Without military review, those structures falling within the yellow zone would be limited to 500 feet above ground elevation. Those structures falling within the red zone, which includes 1,337 acres (10.1%) located on the eastern portion of the site, would be limited to 80 feet above ground elevation for wind turbines and communications towers and 100 feet for all other structures. Figure 3-4 shows military review requirements for the proposed project site.

3.3 Project Objectives

North Sky River Energy, LLC has defined seven objectives for the proposed project:

• Make a significant contribution toward achieving the California RPS goal that 33 percent of electricity be generated by renewable energy by 2020;
• Maximize energy production and economic viability by locating the project in an area with optimal wind and solar resources and terrain characteristics;
• Optimize the use of underused and undeveloped land within the Tehachapi Wind Resources Area;
• Increase local short-term and long-term employment opportunities;
• Reduce greenhouse gas emissions by providing a long-term alternative means of energy to conventional fossil fuels;
• Use state-of-the-art WTG technology to achieve increased performance, lower cost, higher reliability, and longer service life; and
• Produce electricity without the need for large amounts of water in relation to conventional means (1/600 as much water per unit of electricity produced compared with nuclear and 1/500 as much as coal).

Jawbone Wind Energy, LLC has identified nine objectives that are important to achieving the proposed project goal:

• Provide a 39-MW project generating 100,000 MWh per year of electricity, in California, through optimization of renewable energy sources;
• Supply renewable energy that will help the State of California meet its goals by reducing reliance on energy generated from fossil fuels;
• Provide property tax revenues to Kern County;
• Assist Kern County in promoting its role as the State’s leading renewable energy producer;
• Provide green jobs to Kern County and the State of California;
• Realize the full potential of the wind resource;
• Result in an economically feasible renewable energy project that would be developed through commercially available financing;
• Supply clean, safe, renewable energy for 9,000 homes; and
• Support California’s goal of 33 percent renewable energy generation by 2020.
Military Review Requirements

- All structures over 500 feet
- No review requirement. County to provide building permit summary
- All wind turbines & communication towers over 80 feet. All other structures over 100 feet

Figure 3-4
Military Review Requirement for the Proposed Project Site
3.4 Environmental Setting

Regional Setting

The proposed project is located in northeastern Kern County at the base of the Tehachapi and Piute mountain ranges within the Sierra Nevada, directly west of the Fremont Valley in the Western Mojave Desert (Figure 3-1). The Tehachapi Mountains are one of California’s largest areas for wind energy development, responsible for about 40% of the State’s total wind-generated power. Elevations range between 2,680 and 5,600 feet above mean sea level. The area is rugged and woodland and desert scrub habitat types are common.

The project area has been heavily impacted by authorized and unauthorized off-highway vehicle (OHV) use and livestock grazing. The BLM’s Jawbone Off-highway Vehicle Open Area is located off Jawbone Canyon Road, to the east of the site. Existing development in the area includes rural access roads, producing and non-producing water wells, cattle ranching and maintenance facilities, and existing meteorological towers (met towers). Water sources include Cottonwood Creek and Butterbredt Springs. The Pacific Crest National Scenic Trail (PCT) is located west of the proposed project site. The distance between the PCT and the project site boundary varies, ranging from 5.5 miles at the northwest corner of the project to 0.8 mile at the southwest corner of the project. The distance from the PCT to the nearest proposed WTG within the project site is 1.7 miles.

Several residences exist near the proposed project site; however, none of these residences are located within the project boundary. Two residences are located in Kelso Valley, within 1/2 mile west of the proposed project site. The closest residence is 3,215 feet west from the nearest WTG. The minimum distance between the proposed regional Wilderness transmission line reinforcement and a residence would be 107 feet. A few residences, which appear to be used for hunting or other recreation, are located in the southern portion of Kelso Valley, 1½ miles northeast of Weldon Peak along Jawbone Canyon Road.

Major transportation corridors in the region include SR 14 (north–south) and SR 58 (east–west), which intersect about 20 miles south of the project area in the community of Mojave. Population centers within 20 miles of the proposed project site include:

- Community of Lake Isabella (20 miles northwest of the proposed project site);
- City of California City (12 miles southeast of the proposed project site);
- City of Tehachapi (12 miles southwest of the proposed project site);
- Community of Mojave (12 miles south of the proposed project site); and
- Community of Twin Oaks (10 miles west of the proposed project site).

The proposed project site is located entirely within the U.S. Geological Survey (USGS) 7.5-Minute Series, Cross Mountain Topographic Quadrangle and the Emerald Mountain Topographic Quadrangle. The proposed project is located within Sections 35 and 36 of Township 29 South, Range 35 East; Section 31 of Township 29 South, Range 36 East; Sections 1, 2, 3, 10-16, 21-23, 25, 27, 28, and 33 of Township 30 South, Range 35 East; Sections 6, 7, and 9 of Township 30 South, Range 36 East.
Based on database searches and site reconnaissance efforts conducted during February 2011, the proposed project site consists of a number of woodland, mixed woodland habitats, scrub communities, and riparian scrub communities, including the following:

- California juniper woodland
- Singleleaf pinyon woodland
- Blue oak woodland
- Gray pine woodland
- Fremont cottonwood forest woodland
- Wright’s buckwheat scrub
- Black brush scrub
- Tucker oak chaparral
- Mojave mixed woody scrub
- Rubber rabbit brush scrub
- Mojave wash riparian scrub
- Southern willow riparian scrub
- Desert olive riparian scrub

There are several existing, permitted, and proposed wind energy and transmission projects in the region. The Los Angeles Department of Water and Power (LADWP) Pine Tree Wind Project, which is now fully online, is located immediately south of the proposed project site (access to the proposed project site is off SR 14 via Jawbone Canyon Road, which also serves the Pine Tree Wind Project). The Alta-Oak Creek Mojave Wind Project, located 14 miles south of the proposed project site, was approved by Kern County in December 2009 and is currently under construction. The 300-MW PdV Wind (recently referred to as Manzanita Wind) Project and the 151-MW Pacific Wind Projects are located 25 miles south of the proposed project site. In addition, NextEra owns and operates the existing 77 MW Sky River wind energy facility located immediately south of the southwest portion of the proposed project site.

**General Plan**

The proposed project site is located within the Kern County General Plan (KCGP) (see Figure 3-5 for Map Code Designations). Within the KCGP, project site lands are designated:

- 8.3 (Extensive Agriculture, 20 acre min);
- 8.3/2.4 (Extensive Agriculture, 20 acre min/Steep Slope); and
- 8.3/2.5 (Extensive Agriculture, 20 acre min/Flood Hazard).

The transmission upgrade options could occur on lands designated:

- 1.1 (State or Federal Land);
- 3.1 (Park and Recreation Areas);
- 5.6 (Residential, 2.5 gross acres/unit);
- 5.7 (Residential, 5 gross acres/unit);
- 5.8 (Residential, 20 gross acres/unit);
- 6.2 (General Commercial);
- 8.2 (Resource Agriculture);
- 8.3 (Extensive Agriculture);
- 8.4 (Mineral and Petroleum); and
- 8.5(Resource Management).

**Zoning**

Onsite zoning is comprised of A (Exclusive Agriculture), and A-1 MH (Limited Agriculture, Mobilehome Combining). Existing zoning classifications are shown on Figure 3-5. Approval of a
zone change for the proposed project would combine the existing A zone districts with the WE Combining District overlay, would change the existing A-1 MH zone district to A WE, to A, and to A FP as appropriate. Transmission upgrades are proposed, as further discussed below. Upgrades occur on land zoned as A (Exclusive Agriculture), A-1 (Limited Agriculture), E (Estate), FPP (Flood Plain Primary), M-2 (Medium Industrial), and NR (Natural Resource). The potential transmission upgrades would all occur within zone districts for which transmission lines and substations are permitted uses. No zone changes are associated with the regional transmission upgrade components of the project.

The WE Combining District contains development standards that apply to the construction and siting of WTGs in this combining zone district. The WE Combining District is described in Chapter 19.64 of the Kern County Zoning Ordinance.

The WE Combining District promotes the development of wind energy in Kern County and may be combined with any of the following zoning districts:
- Exclusive Agriculture (A),
- Industrial (M-1, M-2 and M-3), and
- Natural Resource (NR) (with a minimum lot size of twenty acres), Recreation-Forestry (RF) (with a minimum lot size of 20 acres), Limited Agriculture (A-1) (with a minimum lot size of 20 acres), or Estate (E) (with a minimum lot size of 20 acres).

The A-1 and A zone districts are not consistent with the 8.3, 8.3/2.4 and 8.3/2.5 Map Codes that are present on the project site. Therefore; as noted above, those portions of the project zoned A-1 and A require changes to the base district to become consistent and allow for the incorporation of the WE Combining District.

Inclusion of the Flood Plain (FP) Combining District is necessary for a small portion located within the boundaries of a Zone A flood hazard area. The purpose of the FP Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas.

The FP Combining District shall be applied to those areas lying within Zone A on the FIRM or those areas potentially subject to flooding as designated by the Kern County Engineering, Surveying and Permit Services Department pending reclassification of such areas into the Floodplain Primary (FPP) Combining District or Floodplain Secondary (FPS) Combining District. The regulation established by the FP Combining District shall be in addition to the regulations of the base district with which the FP Combining District is combined.

The WE Combining District allows for a variety of wind-energy related uses, including wind-driven electrical generators, accessory administrative and maintenance structures and facilities, electrical substations, transmission lines, and other such facilities and electrical structures related to the main use. Development within a WE Combining District requires approval of a detailed plot plan demonstrating compliance with any mitigation measures incorporated into any environmental documents adopted for the implementation of a WE Combining District for specific parcels. The WE Combining District also regulates the development of wind energy projects in the district. For example, the WE Combining District regulates lot sizes, setbacks, and landscaping. In particular, the WE Combining District establishes 600 feet as the maximum height for WTGs (subject to the height restrictions outlined in Section 19.64 and Figure 19.08.160 of the Kern County Zoning
ZONING DESIGNATIONS

A  - Exclusive Agriculture
A-1 - Limited Agriculture
E(20) - Estate 20 Acres
RF  - Recreation Forestry
WE  - Wind Energy
MH  - Mobile Home

Figure 3-6
Existing Zoning – Kern County Zoning Classifications

North Sky River Wind Energy Project and Jawbone Wind Energy Project
Draft Environmental Impact Report

May 2011
Ordinance), and specifies that the color of turbine blades and towers must be non-reflective and unobtrusive and that each turbine or the total project perimeter must be fenced. The WE Combining District also requires that noise levels associated with turbine operations may not exceed 45 dBA for more than five minutes out of any one hour, measured within 50 feet of any existing residence. However, a waiver may be obtained by the affected property owners acknowledging that they are aware of the noise, but consent to the noise limit in excess of those permitted in the ordinance, not to exceed the maximum of 65dBA as established in the KCGP.

Implementation of the project would require amendments of Zone Maps 110, 111 131, and 132, as shown in Table 3-2, below:

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Zone Map</th>
<th>Zone Change Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>110</td>
<td>A (Exclusive Agriculture District) to A WE (Exclusive Agriculture, Wind Energy Combining District);</td>
</tr>
<tr>
<td>2</td>
<td>111</td>
<td>A-1 MH (Limited Agriculture, Mobilehome Combining) to A WE (Exclusive Agriculture, Wind Energy Combining District), and to A</td>
</tr>
<tr>
<td>8</td>
<td>131</td>
<td>A (Exclusive Agriculture District) to A WE (Exclusive Agriculture, Wind Energy Combining District) and A FP (Exclusive Agriculture, Floodplain Combining)</td>
</tr>
<tr>
<td>9</td>
<td>131</td>
<td>A (Exclusive Agriculture District) to A WE (Exclusive Agriculture, Wind Energy Combining District)</td>
</tr>
<tr>
<td>5</td>
<td>132</td>
<td>A (Exclusive Agriculture District) to A WE (Exclusive Agriculture, Wind Energy Combining District) and A FP (Exclusive Agriculture, Floodplain Combining)</td>
</tr>
</tbody>
</table>

**Existing Land Use**

The proposed project site is essentially undeveloped, but it is currently and has historically been used as grazing land for cattle. Wind data is currently being collected by four met towers installed in accordance with Kern County Building Permits issued in July 2010. The potential transmission upgrades associated with the proposed project would occur along the existing “Wilderness” transmission line. Given the historical use of the proposed project site, there is a relatively extensive system of existing unpaved roads throughout the property.

The proposed project site entails a mix of parcels that have been purchased by the applicants or where leases have been acquired by the project proponents and where authorization has been obtained to include the land with the proposed project and to obtain a change in zoning designation to add the WE Combining District.

**Farmland**

The proposed project site is not located within an area designated by the California Department of Conservation (CDC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The proposed project area is comprised primarily of land classified as “grazing land” according to the California Division of Land Resource Protection Farmland Mapping and Monitoring Program. As such, the proposed project property land is not prime, unique, or important farmland.

**Surrounding Land Use**

The project area has been heavily impacted by authorized and unauthorized OHV use and livestock grazing. The BLM’s Jawbone Off-highway Vehicle Open Area is located off Jawbone Canyon
Road, east of the site. Existing development in the area includes rural access roads, producing and non-producing water wells, cattle ranching and maintenance facilities, and existing met towers. As mentioned above, the PCT is located west of the proposed project site. The distance between the PCT and the project site boundary varies, ranging from 5.5 miles at the northwest corner of the project to 0.8 mile at the southwest corner of the project. The distance from the PCT to the nearest WTG within the project site is 1.7 miles.

Several residences exist near the proposed project site. Two residences are located in Kelso Valley, within 1/2 mile west of the proposed project site. The closest residence is 3,215 feet west from the nearest WTG. The minimum distance between the proposed regional Wilderness transmission line reinforcement and a residence would be 107 feet. A few residences, which appear to be used for hunting or other recreation, are located in the southern portion of Kelso Valley, 1½ miles northeast of Weldon Peak along Jawbone Canyon Road.

The proposed project area is located within an area identified by the California Public Utilities Commission (CPUC) as the TWRA in the EIR for the Tehachapi Renewable Transmission Project (TRTP).

**Site Access**

Access to the project site could be achieved from the north and east using Jawbone Canyon Road and Kelso Valley Road; or from the west utilizing State Route 58 and Caliente Creek Road.

Access from the north and east would be from Jawbone Canyon Road and Kelso Valley Road, a majority of which are paved (Figure 3-2). There is also an existing network of unpaved roads that allow for access throughout the site. Access to and throughout the proposed project site would be established by the use of existing roads and construction of limited access road improvements. In addition to access roads built on private land, the project would require 962 linear feet of new access roads on BLM land. The project proponents will be required to work with the BLM to obtain the appropriate permits to cross BLM lands.

BLM-managed land associated with the proposed ROW for WTG construction and operation access roads include portions of: Sections 20, 22, 27 of Township 30 South, Range 37 East; Section 24 of Township 30 South, Range 36 ½ East; Sections 22, 24, 28, 30 of Township 30 South, Range 36 East; and, Section 26 and 28 of Township 30 South, Range 35 East. The gen-tie/gen-tie access road ROW would include portions of Section 26, 28, and 32 of Township 30 South, Range 35 East.

Access from the west would utilize only private land; thereby avoiding the use of BLM lands for access. Use of this access route would entail improvements on up to 28 miles of existing access roads and construction of 2.5 miles (13,200 linear feet) of new roads through privately-owned land. This route would begin at the intersection of State Route 58 and Caliente Creek Road (via a short frontage road connection) and would follow Caliente Creek Road for 15 miles. Caliente Creek Road is an existing paved road that is narrow and winding and may require improvements to accommodate the delivery of WTG components. The route would then connect to Back Canyon Road where it would proceed west for approximately 13 miles. The route would then follow paved Back Canyon Road for approximately 4 miles and turn into an un-improved dirt road, traverse a mountain pass, and transition from a County road to a private road. The route would then proceed for another 7 miles along the unimproved dirt road. Final connection to the project site would then require construction of up to 2 miles of new road to the project site. A map showing the proposed access from the west is included in Appendix L of this EIR. Roadways will primarily be located
within the previously approved Pine Tree Wind Energy Project and the Sky River Wind Energy Project, which have already been analyzed in accordance with CEQA. The project proponent has not obtained land control of the lands needed to utilize this option.

3.5 Proposed Project Characteristics

The proposed project facilities would include WTGs, service roads, a power collection system, communication cables, a generation interconnection line to the existing Sky River Substation, underground transmission lines, electrical switchyards, project substation, temporary meteorological towers and O&M facilities. The proposed project’s temporary facilities would include construction access roads and turnaround areas, water storage areas for dust control and other limited construction-related needs, laydown/staging areas, construction office trailers, and concrete batch plants. Proposed project elements are shown on Figure 3.2 and include:

- Up to a maximum of 116 WTGs not to exceed 500 feet in height with associated generators, towers, foundations, and pad mounted transformers (each WTG could range from 1 MW to 3 MW), for a total generation capacity not to exceed 339 MW of electricity;
- Four existing and up to four additional unguayed permanent met towers (North Sky River Wind Energy Project);
- Four temporary met towers (Jawbone Wind Energy Project);
- On-site and off-site project access roads, control cables, power collection cables, and transmission lines necessary to serve the proposed project and connect to the California Independent System Operator (CAISO) grid;
- One project substation to step up the voltage generated by the WTG to meet the electrical transmission system’s 230-kV voltage;
- Two O&M facility areas (North Sky River Wind Energy Project – 5 acres; Jawbone Wind Energy Project – 6.5 acres);
- Two remote staging/office trailers; and
- One temporary mobile concrete batch plant.

Infrastructure locations as evaluated in this EIR are depicted in Figure 3-2. The proposed project site plan is not intended to reflect the precise location of proposed WTGs and structures. Prior to the preparation of final engineering plans, the project proponents would ensure that no WTGs or structures are located within the road reservation areas set forth in the Circulation Element of the KCGP. The proposed project facilities are described in detail below.

Project Components

Wind Turbines Generators. Up to 116 WTGs would be installed at the proposed project site. Tables 3-3 and 3-4 show examples of WTGs that may be installed at the proposed project site.

<table>
<thead>
<tr>
<th>Table 3-3 Proposed Wind Turbine Generator Characteristics for the North Sky River Wind Energy Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GE XLE 1.5 MW</strong></td>
</tr>
<tr>
<td>Tower/Hub Height</td>
</tr>
<tr>
<td>Tower/Hub Height</td>
</tr>
<tr>
<td>Rotor Radius</td>
</tr>
<tr>
<td>Rotor Diameter</td>
</tr>
</tbody>
</table>
Table 3-3 Proposed Wind Turbine Generator Characteristics for the North Sky River Wind Energy Project

<table>
<thead>
<tr>
<th></th>
<th>GE XLE 1.5 MW</th>
<th>GE XL 2.5 MW</th>
<th>GE XL 2.75 MW</th>
<th>Siemens SWT-2.3-93 2.3 MW</th>
<th>Siemens SWT-2.3-101 2.3 MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Clearance</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
</tr>
<tr>
<td>Maximum Overall Height</td>
<td>397.8</td>
<td>492.1</td>
<td>496.9</td>
<td>415</td>
<td>423.2</td>
</tr>
</tbody>
</table>

Table 3-4 Proposed Wind Turbine Generator Characteristics for the Jawbone Wind Energy Project

<table>
<thead>
<tr>
<th></th>
<th>GE SLE 1.5 MW</th>
<th>GE XL 2.5 MW</th>
<th>GE Series 2.75 MW</th>
<th>Siemens SWT-2.3-93 2.3 MW</th>
<th>Siemens SWT-2.3-101 2.3 MW</th>
<th>Gamesa G90 2.0 MW</th>
<th>Goldwind 2.5/90 2.5 MW</th>
<th>Vestas 90 3.0 MW</th>
<th>Vestas 112 3.0 MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tower/Hub Height</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
<td>Feet</td>
</tr>
<tr>
<td>Rotor Radius</td>
<td>262.5</td>
<td>328.1</td>
<td>278.9</td>
<td>262.5</td>
<td>262.5</td>
<td>328.0</td>
<td>262.5</td>
<td>262.5</td>
<td>278.9</td>
</tr>
<tr>
<td>Rotor Diameter</td>
<td>126.3</td>
<td>164</td>
<td>169</td>
<td>147.6</td>
<td>160.8</td>
<td>144.3</td>
<td>147.6</td>
<td>147.6</td>
<td>183.7</td>
</tr>
<tr>
<td>Ground Clearance</td>
<td>252.6</td>
<td>328.1</td>
<td>337.9</td>
<td>305</td>
<td>331.4</td>
<td>295.3</td>
<td>295.3</td>
<td>295.3</td>
<td>367.5</td>
</tr>
<tr>
<td>Maximum Overall Height</td>
<td>136.1</td>
<td>164</td>
<td>109.9</td>
<td>114.8</td>
<td>101.7</td>
<td>183.7</td>
<td>147.6</td>
<td>147.6</td>
<td>95.1</td>
</tr>
</tbody>
</table>

The WTGs would be a three-blade, up-wind design, placed strategically on the sloping topography in rows to maximize output. Due to military air traffic restrictions, the WTGs would also need to conform to the military height requirements at the time of proposed project permitting, as defined by Section 19.64 of the Zoning Ordinance and Figure 19.08.160 of that same document. Presently, the project site is located across several of the military review zones in Figure 19.08.106, including green (no review requirement), yellow (all structures over 500 feet), and red (wind turbines and communications towers over 80 feet and all other structures over 100 feet). Without military review, those structures falling within the yellow zone would be limited to 500 feet above ground elevation, and those structures falling within the red zone, which includes 1,337 acres of the eastern portion of the site, would be limited to 80 feet above ground elevation for wind turbines and communications towers and 100 feet for all other structures. Figure 3-4 shows military review requirements for the proposed project site. The proposed project is designed in conformance with Section 19.08.160 (Height of Structures) of the Zoning Ordinance to avoid military flight test airspace for Edwards Air Force Base.

Depending upon WTG manufacturer(s) and model(s) chosen, the WTGs would range in height from 398 to 497 feet (see Tables 3-3 and 3-4), as measured from the top of the foundation to the blade tip (with the blade in the vertical position). The power output of the WTGs could range from 1.5 to 2.75 MWs. The installed WTGs would be state-of-the-art utility multi-MW class machines, and would be arranged in rows in accordance with applicable industry siting recommendations for optimum energy production and minimum project area land disturbance impact.

**Tower.** The tower portion of each WTG is ranges from 262.5 feet to 328.1 feet tall and extends from the top of its concrete foundation at ground level up to its connection with the nacelle. Tower
types for both GE and Siemens WTGs include smooth, hollow-steel structures divided into three or more (upper, middles, and base) sections. The dimensions of the tower are detailed in Tables 3-3 and 3-4. The towers would be painted a neutral white or off-white color and would have a non-reflective finish.

The Siemens towers are 15 feet in diameter at the base and taper to 8.5 feet at the top of the upper section. A complete Siemens tower weighs 352,740 pounds. The GE towers are also 15 feet in diameter at the base and up 8 feet in diameter at the top of the upper section. Each complete GE tower is expected to weigh 276,239 pounds. The exact dimensions and weight of the towers may vary depending on the manufacturer’s specifications.

A controller cabinet would be located at the base inside each tower. A ladder and/or man elevator would ascend to the nacelle to provide access for turbine maintenance. A lockable door would provide access to the base of the tower.

**Nacelle.** The nacelle is a large aerodynamic structure on top of the tower and is constructed of welded steel and fiberglass coated with corrosion protective paint. The nacelle contains the inner mechanical workings of the turbine, including the power generating components comprising the main drive shaft/generator and the gearbox, electrical components/cabinets, and, depending on the turbine size and make, the power transformer, which steps up the turbine voltage to the voltage level of the internal wind farm electrical distribution network. The nacelle also contains the blade pitch control (a system that controls the angle of the blades), a cooling system, and the yaw drive, which controls the position of the turbine relative to the wind. The outer visible shell of the nacelle is typically an insulated aerodynamic fiberglass cover installed over the bed-frame and serves to protect the equipment, streamline airflow, and absorb mechanical and vibration noise.

**Hub.** The hub attaches the blades to the rotor shaft and is usually made from a large iron casting. It sits on the front side of the nacelle and is covered by a composite nose-cone structure to streamline the airflow and protect the equipment. The hub also contains the mechanisms that allow the blades to pitch in response to wind, temperature, and air density conditions.

**Blades/Rotor.** The WTGs typically would have three large blades bolted to the hub. The blades and hub together as a unit are called the rotor. The blades are long, tapered, small-chord airfoils which resemble airplane wings and vary in thickness from the tip (thinnest portion) and the root (thickest portion) where they attach to the hub. The complete rotor set, blades and nacelle for the Siemens WTG weigh 670,205 pounds. The complete rotor set, blades and nacelle for the GE WTG weigh a 378,091 pounds.

**Controller.** All the candidate WTGs are equipped with a controller, which is a microprocessor that automatically regulates the operation of the WTG. The controller receives wind speed data from anemometers and wind vanes mounted to the top of the nacelle. The controller is responsible for start-up, shut-down, pitch control (angle of blades towards the wind), yaw control (vertical axis movements), and safety monitoring. A central O&M facility for the proposed project would receive communications from each controller via fiber-optic cables or other means of communication such as radio-links. The controller would transmit operational data to the O&M facility to allow permanent supervision of each WTG and optimize its operation. A central Supervisory Control and Data Acquisition (SCADA) System would monitor all WTGs within the proposed project and allow a central operation as well as optimization of maintenance.
Transformer. A step-up transformer would be used at each WTG to boost voltage to the appropriate utility distribution level of 34.5-kV. This is done because the low voltage power generated by the WTG (500-1,000 Volts) is not suitable for power transmission. The transformer would either be contained within the WTG unit itself or would be pad-mounted next to the base of the WTG. The electricity from the transformer is transmitted via underground or overhead collection system electrical cables to the proposed project substation(s).

WTG Foundation/Pad. The WTG foundations would have one of three designs, depending on geotechnical constraints and other factors, including wind patterns at the site, site access, and material availability. The three possible types of WTG foundations are (1) canister post-tensioned foundation, (2) rock anchor, or (3) a modified spread-footing.

The canister foundation would be drilled or dug to 15 to 35 feet deep, depending on geotechnical conditions and loadings, and would be 18 feet in diameter. The foundation would be in the configuration of an annulus—two concentric steel cylinders. The central core of the smaller, inner cylinder would be filled with soil removed during excavation. In the cavity between the rings, bolts would be used to anchor the tower to the foundation, and the cavity would be filled with concrete. Bolting the tower to the foundation would provide post-tensioning to the concrete.

A rock anchor-type foundation is an alternative to the canister foundation. Six to 20 holes, depending on geotechnical data, would be drilled 35 feet into the bedrock, and steel anchors would be epoxy-grouted in place. A reinforced concrete cap containing the anchor bolts would be poured on the top of the steel anchors to support the tower structure.

The modified spread-footing is octagonal in its footprint and 60 feet by 60 feet of reinforced concrete approximately 3 feet thick along the edges and tapering up to 9 feet thick in the middle, where it extends as a cylinder upward to approximately 1 foot above grade with the anchor bolts embedded. The excavated foundation is backfilled with suitable materials from the excavation and compacted, leaving just the concrete base on which to erect the tower base section.

Total combined cut and fill volumes for the WTG foundations would be determined upon site specific geotechnical investigation. For all designs, the exposed concrete pad would be 18 feet in diameter and extend less than one foot above grade.

Safety

Braking System. The WTGs would be equipped with two fully independent braking systems that could stop the rotor by acting either together or independently. The braking system is designed to be fail safe, allowing the rotor to be brought to a halt under all foreseeable conditions. The system consists of aerodynamic braking by the rotor blades and by a separate hydraulic disc brake system. Both braking systems would operate independently so that if one failed, the other could still bring the WTG to a halt. If power were lost, the brakes would immediately be mechanically activated. The aerodynamic braking system would also be configured so that if power were lost, it would be immediately activated. Each WTG also would be equipped with a brake that generally would be used to keep the rotor from moving while maintenance routines or inspections that require a stationary rotor are performed.

Vibration and Fire Protection. Each WTG also would be equipped with vibration, temperature, and fire detection systems in the nacelle and tower. The fire detection system would be connected to the main controller and the central SCADA system. In the event of a fire fault or excess vibration or
temperature, the WTG would be halted immediately, and an alarm condition would be activated in the control system.

Lightning Protection. The WTGs would be equipped with an engineered lightning protection system that connects the blades, nacelle, and tower to the earthing (grounding) system at the base of the tower.

Aviation Safety Lighting. In accordance with Federal Aviation Administration (FAA) rules it is anticipated that some of the towers would be furnished with blinking lights for night-time visibility by aircraft. FAA requirements stipulate that lights generally operate only at night or during poor visibility; the color of the WTGs make them visible to aircraft during the day under normal conditions. The number of wind turbines with lights and the type of lighting would be determined in consultation with the FAA.

It should be noted that the proposed project is located within R-2508 restricted airspace and would conform to R-2508 related aviation requirements; it is not anticipated that additional lighting would be required beyond that identified by the FAA.

Safety Signage. Safety signage would be posted where necessary around WTGs, transformers, and other high-voltage facilities, and along roads, in conformance with applicable state and federal regulations. A Project Site Safety and Security Plan would be developed and included as part of the project requirements.

Electrical Collection System. The proposed project entails installation of a small step-up transformer in or near the base of each WTG to increase the output voltage of the power generated by the WTG to a level suitable for local power collection within the property. For the proposed project, the power collection system voltage is 34.5-kV. Underground cables or overhead wooden poles would be installed throughout the majority of the proposed project and would connect to and between each WTG, connecting each WTG to a feeder circuit; each feeder circuit would in turn be connected to the project substation. Fiber-optic communication wires would also be laid down using the same underground trenching channels, and overhead, in conjunction with the feeder circuits connecting each of the WTGs with the operations, maintenance, and control building to the substation. Overhead circuits could be used to avoid environmentally sensitive areas, or other constraints inherent to the site. The different WTG circuits would gather at the project substation (or switchyard) and then be sent to the overhead electricity lines leading to a grid interconnection point.

Operations and Maintenance Facility. Two O&M facilities would be constructed for project operations in locations to be determined. Potential staging areas for both temporary and permanent uses are currently being evaluated. Each facility would include an O&M building on a concrete slab and compacted gravel storage yard and parking area. The O&M building would include a main building with offices, SCADA system, control room, spare parts storage, restroom, and shop area; outdoor parking facilities; laydown and setup area; a turnaround area for larger vehicles; outdoor lighting; and gated access with partial- or full-perimeter fencing as well as a small information center for potential visitors. During construction, it is possible that each O&M facility area would be leveled and graded to temporarily serve as a central base of operations for construction trailers and portable toilets. Fencing would be installed consistent with Kern County’s fencing requirements in Section 19.4.140(c) of the County Zoning Ordinance.

Supervisory Control and Data Acquisition System. The SCADA system is critical to proper operations and maintenance of the proposed project and utilizes proprietary software, a fiber optic
transmission system, a telephone communications network and other means of communication such as radio-links and phase loop communication systems. The SCADA system functions as a monitoring and diagnostic tool that optimizes the proposed project’s operations. It allows for the remote start, stop, reset and tag out for individual WTGs, thus minimizing the manpower and site visits needed to run the proposed project. This system utilizes network interfaces to collect and analyze diagnostic information generated from the WTGs, meteorological towers and substations. The SCADA system would also control the various proposed project substations allowing a fully centralized operation of the proposed project.

**Meteorological Towers.** The proposed project would rely on existing met towers, on private land, and BLM-pending new met tower locations to measure and collect data to support project viability and determine optimum turbine layout. As shown in Figure 3-2, the met towers would be placed on sites intended for installation of WTGs.

It is expected that once the proposed project is constructed, some of the larger existing 196.9 feet (60-meter) met towers would remain to support project operations and some additional towers may be installed to meet reporting obligations, and to maximize operational efficiency. The met towers would be guyed climbable towers. These towers would also support anemometers, wind direction sensors, and temperature and relative humidity gauges at the same height as the WTG rotor hubs to monitor wind and other climate data needed to support operations. The exact number and location of the met towers would be determined based on site terrain and energy purchaser requirements.

Kern County has approved four met towers located on private lands and an application for approval of two met towers on BLM lands is under review. There are also nine existing met towers that were installed by previous developers within the proposed project area, both within and outside of the proposed project boundary. The use or retrofit of the existing met towers is pending resolution by the project proponents and other developers.

**Transmission Lines to Serve the Proposed Project.** The proposed project would interconnect at either the Sky River Substation or the Pine Tree Substation. Interconnection at the Sky River Substation would require construction of 13 miles of 230-kV transmission line from the boundary of the North Sky River Wind Energy project site. Interconnection at the Pine Tree Substation would require the construction of a minimum of six miles of 230-kV transmission line from the boundary of the Jawbone Wind Energy project site. The proposed transmission line route for connection to the Sky River Substation runs through private property, then through 1.74 miles of BLM-managed property, and then through a portion of the existing Sky River Project (Figure 3-2). Any helicopter use associated with transmission line construction would utilize a nearby airport in California City for take-off and landing, as well as fueling of any helicopters that would perform work at the project location. There would be no need for on-site storage of any fuel to be used by a helicopter. Table 3-5 presents key information regarding the system.

**Transmission Reinforcement Option.** The project proponent is currently evaluating a regional reinforcement option for the existing Wilderness transmission line to accommodate added generation from the project. The proposed option is shown in Figure 3-7. This option would include construction of a new 1,000-foot interconnection transmission line from the Highwind substation to a new tap on the existing Wilderness transmission line. No other system upgrades would be required for this option.
Table 3-5 Transmission Line Design Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>230 kV AC</td>
</tr>
<tr>
<td>Permanent right-of-way width</td>
<td>100 feet</td>
</tr>
<tr>
<td>Number of circuits supported by structure</td>
<td>One</td>
</tr>
<tr>
<td>Circuit configuration</td>
<td>Horizontal</td>
</tr>
<tr>
<td>Average height of structures</td>
<td>105 to 115 feet</td>
</tr>
<tr>
<td>Minimum ground clearance beneath conductors</td>
<td>30 feet</td>
</tr>
</tbody>
</table>

Project Substation. The proposed project would construct one 230-kV/34.5-kV onsite collector substation to minimize power losses in the collection and transmission system. Construction of the collector substation and interconnection facilities would involve several stages of work, including grading of the collector substation area; installation of a grounding mat; construction of several foundations for the transformers, power circuit breakers, and structures; erection and placement of the steel work and all outdoor equipment; and electrical work for all of the required terminations. The collector substation is estimated to require five acres of site disturbance and would be graded to control stormwater drainage.

The collector substation would permanently cover an area of five acres and would consist of the following: (1) a control house, (2) electrical breakers, (3) two 34.5-kV/230-kV transformers, (4) an overhead electrical bus connecting the various electrical apparatus, and (5) pole structures to support electrical conductors entering the collector substation and exiting and connecting to the 230-kV generation-tie transmission line. A suitable grounding grid would be installed to protect the substation against lightning and shorts. The collector substation would be built to Kern County requirements and enclosed within a security fence. Following construction, an inspection and commissioning test plan would be executed prior to the collector substation being energized.

Sky River Substation. The North Sky River Wind Energy Project would interconnect at the Sky River Substation, which would require construction of 13 miles of 230-kV transmission line from the boundary of the proposed project site. The proposed transmission line route runs through private property, through 1.74 miles of BLM-managed land, and through a portion of the existing Sky River Project.

Pine Tree Substation. The Jawbone Wind Energy Project would interconnect at either the Sky River Substation or the Pine Tree Substation. Connecting to the Pine Tree Substation would require the construction of a minimum of six miles of 230-kV transmission line from the boundary of the Jawbone Wind Energy project site.

Roads. Within the proposed project site, the new roadway system would use the existing road network to the greatest extent possible, and would be designed to limit disturbance and avoid sensitive resources to the extent possible. The preliminary roadway layout is shown on Figure 3-2. Based on existing topography and required design criteria, the proposed project’s new access roads would be constructed (and existing roadway alignments would be redesigned) to gain access to the WTG locations. Specifically, the proposed project’s interior road system would follow existing roadway alignments where possible, but grade adjustments would be required in most locations to accommodate maximum grades, as required by the turbine manufacturers. The maximum road grade on access roads used during construction would be 10 percent. Existing County roads would be widened to 40 feet from 24 feet and existing dirt roads would be widened to 40 feet from 20 feet.
Transmission Reinforcement Option Associated with the Proposed Project

Source: CH2M HILL, 2011.

Figure 3-7
Transmission Reinforcement Option Associated with the Proposed Project
Road construction would be performed in multiple steps. First, rough grading and leveling of the roadway areas would occur. Temporary construction roads would be graded to accommodate large and heavy component and equipment deliveries to the turbine sites as well as operation of large equipment, including truck- or track mounted cranes. Due to topography, grading of access roads would in some limited cases disturb an area of 150 to 175 feet or more on either side of the centerline to accommodate appropriate cut or fill slopes to allow for the necessary road width and to comply with percent slopes per county grading requirements and manufacturer specifications of construction and installation equipment. These widths have been accounted for in the total area of project disturbance.

Once rough grading is complete, base rock would be trucked in, spread, and compacted to create a road base. Capping rock would then be spread over the road base and roll-compact ed to finished grade. At completion of heavy construction, the road would be regraded as detailed for service as a maintenance road. A final pass would be made with the grading equipment to level the road surfaces, and more capping rock would be spread and compacted in areas where needed. Structural controls to provide conveyance for stormwater runoff could include water bars to prevent road washout and V ditches, culverts and energy dissipation structures. Road work would be performed under final approved grading, erosion control, and stormwater quality management plans.

Temporary passing and turnaround areas would be provided throughout the site to facilitate safe passing of traffic. Turnaround areas would be provided at the end of WTG arrays to facilitate the turning of large transport vehicles following deliveries at the WTG pad locations along the WTG array. Up to 25 percent of the passing and turnaround areas developed during construction would be maintained to support safe passing for subsequent O&M traffic. The remaining turnaround areas would be reclaimed and temporary shoulder areas would be restored. Areas that are temporarily disturbed would be restored in accordance with the project’s restoration plan and in accordance with County and other permit conditions.

Drainage culverts (new or upgrade of existing) may be installed to divert water away from areas where drainage swales intersect with roadways, thus preventing high stormwater flows from crossing road surface. Culverts would be installed in accordance with Kern County standards.

**Staging Areas.** Construction staging/laydown areas, with sizes ranging from 2.3 acres to 14 acres, would be located at convenient points around the proposed project site to permit the staging of construction equipment and job site trailers and the offloading and temporary storage of equipment and materials (Figure 3-2). The areas would be cleared of vegetation and compacted to support heavy equipment. At the end of construction, most of these areas would be reclaimed and revegetated, but one or two of these areas may be retained for long-term parts and equipment storage during operations.

**Office Trailers**

It is anticipated that six to eight temporary office trailers would be installed throughout the proposed project site at temporary staging areas during construction activities (Figure 3-2). Construction staff would use these trailers for daily operations such as plan review, meetings, environmental, health and safety trainings, and other general office activities. The trailers would be 200 square feet (10 by 20 feet) and 10 feet tall and would rest on piers or other temporary foundation structures. Temporary sanitary facilities would be brought in to the trailer sites and routinely maintained by a
licensed sanitary waste hauler and waste would be hauled offsite as needed to an approved disposal facility.

**Parking**

Parking for construction workers would be provided near the temporary office trailers in the temporary staging areas. Permanent parking facilities would be provided at the O&M building. Permanent parking spaces would be provided in accordance with the Kern County Zoning Ordinance.

**Equipment and Chemical Storage**

Equipment would be stored at the construction laydown areas, described previously. It may be necessary to store WTG parts or equipment near turbine arrays or individual WTGs during the installation process. In this case, equipment storage would be contained within the defined area of disturbance associated with the WTG array.

Hazardous and potentially hazardous chemicals used during construction of the proposed project and its associated linear facilities would include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. There are no feasible alternatives to motor fuels and oils for operating construction equipment. The types of paint required are dictated by the types of equipment and structures that must be coated and by the manufacturers’ requirements for coating.

The quantities of hazardous materials that would be onsite during construction are small and similar to the quantities used during operation. Construction personnel would be trained to handle the materials properly. The most likely possible incidents would involve the potential for fuels, oil, and grease dripping from construction equipment. Due to the remote location of the proposed project site, it is expected that one 5,000-gallon temporary diesel storage tank would be installed onsite to serve construction vehicles. The tank would be located within one of the staging areas and would be located within a bermed area. The small quantities of fuel, oil, and grease that might drip from construction equipment would have relatively low toxicity.

Small oil spills may also occur during onsite refueling. The potential environmental effects from fueling operations are expected to be limited to small areas of contaminated soil. If a fuel spill occurs on soil, it would be cleaned up and removed in accordance with applicable regulations.

During construction of the proposed project and linear facilities, regulated substances, as defined in California’s Health and Safety Code, Section 25531, would not be used.

To minimize the potential for harmful releases through spills or contaminated runoff, chemicals would be stored in tanks or drums located within secondary containment areas. Use of extremely hazardous materials is not anticipated. Storage and use of petroleum products and hazardous materials would be subject to a hazardous materials management plan approved by Kern County and a Spill Prevention Control and Countermeasures Plan in accordance with 40 CFR Part 112.

**Fencing/Security.** Fencing would be installed in accordance with Kern County zoning requirements. Based on current Kern County ordinances, the proposed project may fence the exterior boundary of the property or choose to fence each WTG cluster or row independently. All project fencing requirements would be evaluated and the best-fit scenario would be incorporated into the project based upon the final determination by Kern County.
A Site Safety and Security Plan would be developed to include the following: Zero-injury safety policy, responsibilities and roles of personnel, health and safety for subcontractors, worker safety orientation and training, severe weather conditions, accident/incident reporting procedures, and employee safe work programs; safety signage and fencing requirements.

Concrete Batch Plants. Due to the remote nature of the proposed project, the lack of nearby permanent concrete batch plants and concrete curing time, the proposed project would require the use of one onsite temporary mobile concrete batch plant (Figure 3-2). The batch plant facilities would be five to eight acres in size. The batch plant and its ancillary facilities would include silos containing fly ash, lime, and cement; outside storage areas for sand, gravel, mixing equipment; and aboveground storage tanks for water. Designated areas for sand, gravel, and concrete unloading would be identified during the development review process and prior to construction.

The temporary mobile batch plant would operate during proposed project construction for four to five months of the construction period. The batch plant would require a standalone generator 250 kW in size. Fuel for the generator would be obtained from an 5,000-gallon aboveground storage tank with secondary containment for spill prevention. It is estimated that the batch plant would consume up to 25,000 gallons of water per day. Three temporary 10,000-gallon water tanks would be placed onsite to replenish the batch plant water as needed.

Stockpiles of sand and aggregate would be located in the vicinity of the batch plants in a manner that would minimize exposure to wind. Cement would be discharged via screw conveyor directly into an elevated storage silo without outdoor storage. The construction managers and crew would use Best Management Practices (BMP) and standard operating procedures to keep the plants, storage, and stockpile areas clean and to minimize the buildup of fine materials.

This application package also includes the request for a CUP for batch plants, in accordance with the Zoning Ordinance.

Portable Rock Crusher. To construct and improve project roads, a rock crusher would be required to provide appropriately sized aggregate for fill and road base. The portable rock crusher would be co-located with batch plants, as needed, and would have an average capacity of 20,000 tons per day. The crusher would operate during proposed project construction hours for four to five months of the construction period. In accordance with BMPs, the rock-crushing area would be sprayed by a water truck to suppress dust. The proposed crusher contains several dust-suppression features, including screens and water spray. Dust-control measures would be used at all emission points during operation, including startup and shutdown periods, as required.

Fueling Stations. Up to eight fueling stations would be located across the wind energy facility to minimize travel distance. Each fueling station would consist of a 500-gallon petroleum fuel tank located within secondary containment. Additionally, a 1,200-gallon diesel storage tank would be temporarily located at the main staging area. Each station would be equipped with a spill kit and would be operated in accordance with an approved Spill Prevention, Control, and Countermeasures (SPCC) Plan. The fueling stations would service light-duty vehicles. They would also be used to fill 100-gallon or smaller mobile tanks mounted on trucks, which would transport fuel to heavy equipment to be refueled in place on the wind energy facility. Fueling stations would be located in areas that would be disturbed for other construction purposes.

Utilities. Due to the remote location of the proposed project area, there is no existing domestic water delivery system, community sewer system, or electrical services.
Construction Water Usage and Source: It is anticipated that approximately 80 million gallons of water will be required for construction related activities, with a peak monthly water use rate of approximately 12 million gallons. On-site construction water requirements are detailed as follows:

<table>
<thead>
<tr>
<th>Use</th>
<th>Water Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Compaction/Earthwork</td>
<td>52.7 Million Gallons</td>
</tr>
<tr>
<td>Onsite Concrete Batch Plant</td>
<td>1.3 Million Gallons</td>
</tr>
<tr>
<td>Dust Abatement</td>
<td>17.5 Million Gallons</td>
</tr>
<tr>
<td>Irrigation for Re-vegetation</td>
<td>0.5 Million Gallons</td>
</tr>
<tr>
<td>Contingency</td>
<td>8.0 Million Gallons</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>72.0 Million Gallons</strong></td>
</tr>
</tbody>
</table>

During construction of the project, water would be obtained from a water well located within the project boundaries or would be trucked from an off-site source, or from a combination of both options as described below:

- Water Well: The first option is an existing well located northwest of the project site (Figure 3-2). Use of the well would include the installation of the following elements:
  - Temporary open water storage reservoir (300 feet x 400 feet) constructed on water supply parcel for use during construction;
  - Permanent open water storage reservoir (100 feet by 100 feet) constructed on water supply parcel for use after construction, to be kept dry when not in use;
  - Main water production well located at northeast corner of water supply parcel;
  - 2 monitoring wells located on water supply parcel;
  - Back-up production well located at southeast corner of water supply parcel;
  - Two underground water pipelines; and
  - Post-construction low-profile partially submerged concrete tank.

An underground water pipeline would connect the main well to the temporary water storage reservoir during the project’s construction period. A second underground water pipeline would connect the back-up well to the temporary water storage reservoir. After the construction of the project, the temporary water reservoir will be decommissioned and replaced with a low-profile partially submerged tank constructed from on-site concrete produced by the project’s batch plant. The tank would be completely closed so that no open water would be present and there is no potential to attract birds and wildlife or be a safety hazard during the post-construction operations period of the proposed project. A smaller 100 feet x 100 feet water storage reservoir would be also constructed, but kept dry. On occasions when the project proponents, U.S. Forest Service, and/or the Kern County Fire Department need to fight local wildfires, the reservoir could be quickly filled from the wells or storage tank for fire protection uses at the Jawbone Wind Energy and North Sky River Wind Energy projects, as well as in Jawbone Canyon, Piute Mountains, Kelso Valley, Walker Basin and the surrounding areas.

- Trucked Water: The second option is the use of water that could be acquired and trucked to the site from the Cal Portland Mojave Plan located at 9350 Oak Creek Road or from the Los Angeles Aqueduct in Jawbone Canyon Road.
Operational Water Source: During project operations, water for the O&M facility personnel and operations would either be obtained from the domestic water well located within the northwest portion of the site (Figure 3-2), or would be secured from a nearby water purveyor and trucked in as bulk water for potable and non-potable uses. Depending on water quality, bottled water may also be delivered to the O&M facility for potable use. The amount of daily water needed during operation would be minimal (e.g., approximately 2,500 gallons per day or less) and would be primarily limited to sanitary uses. A water system to support the project would be installed on O&M facility grounds. Most likely, two 5,000-gallon water storage tanks would be installed: one 5,000 gallon tank for O&M facility operations and one for fire water.

Sewerage Service: The proposed project site is undeveloped and is not presently served by a community sewage system. Therefore, the proposed project would require development of a septic system and leach line for the O&M facility. Discharge from the office sanitary system would be disposed of into an approved septic system near the O&M facility. The septic system and leach field would be constructed to comply with applicable requirements of the Kern County Environmental Health Department.

Electrical Service: Primary electrical service would be provided to both the O&M facility and the collector substation by separate 13.5-kV connections to the substation bus. Service to the O&M facility would come via underground cables from a separate 34.5kV station service transformer. Primary electrical service for the North Sky River switchyard would come from CCVTs connected to the 230kV bus in the switchyard.

Back-up power to operate the collector substation would be provided by backflow on the transmission line if the project is not operating. In addition, the substation would be equipped with a back-up generator to supply substation and turbine needs during emergency periods and during start-up and/or maintenance. It is anticipated that the substation generator would be a 150-kW generator powered by liquid propane (LP) fuel. Liquid propane fuel storage for the generator at the substation would be approximately 1,000 gallons. The substation back-up generator would comply with all applicable State of California and Environmental Protection Agency (EPA) emissions standards for this type of unit and application. The back-up generator and fuel supply would be located within secondary containment, as necessary, to meet all California and EPA requirements for spill prevention and control. Secondary containment design requirements, as well as SPCCs, would be provided in the project’s SPCC Plan.

Back-up power would be provided to the O&M facility by a connection to the collection substation via a 34.5kV station service transformer. In addition, the O&M facility would be equipped with a generator to provide back-up power service during emergency periods and during start-up and/or maintenance. It is anticipated that the generator would be a 150-kW generator powered by LP fuel. Liquid propane fuel storage for the generator at the O&M facility would be approximately 1,000 gallons. The O&M facility back-up generator would comply with all applicable State of California and EPA emissions standards and all design requirements for spill prevention and control, as described above for the substation.

Back-up power would be provided to the Sky River Switchyard Substation by a connection to the local electrical distribution system. In addition, the switchyard would be equipped with a generator to provide back-up power service during emergency periods and during start-up and/or maintenance. It is anticipated that the generator would be a 150-kW generator powered by LP fuel. Liquid propane fuel storage for the generator at the switchyard would be approximately 1,000 gallons. The switchyard back-up generator would comply with all applicable State of California and EPA emissions standards and all design requirements for spill prevention and control, as described above for the substation.
gallons. The switchyard back-up generator would comply with all applicable State of California and EPA emissions standards and all design requirements for spill prevention and control, as described above for the substation.

3.6 Entitlements Required

- Amendment of Zone Maps 110, 111, 131, and 132 to include the WE Combining District
- Approval of a CUP for temporary batch plants
- FAA Determination of No Hazard to Air Navigation
- National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- California Fish and Game Code Section 1600 et seq. permits (Streambed Alteration Agreements)
- Agreements pursuant to the California and federal Endangered Species Acts
- Record of Decision granting ROW for project features occurring on BLM-managed land
- Approvals from the California Public Utilities Commission for any project elements to be constructed by regulated public utilities
- Franchise Route Agreement for transmission lines in County right-of-way, as required

3.7 Construction

Construction Sequence and Equipment (North Sky River Wind Energy Project)

Schedule and Workforce

The proposed project for North Sky River Energy, LLC would last up to one year, including the installation of the roadway/access systems, construction office trailers, construction staging areas, other ancillary facilities required for construction, construction of WTG foundations and installation of the WTGs and interconnection facilities. After the WTGs are installed, the roadways would be reduced in width, and all exposed areas no longer needed for access would be restored to preconstruction conditions. It is expected that it would take up to 1 year to complete construction, including mobilization and restoration activities.

Grading would occur in the dry season to the extent practicable. Normally, construction would occur during daylight hours; however, some activities may require extended hours because of scheduling constraints or other time-sensitive matters, or to maintain structural integrity of concrete placement. Phases of construction would be performed in stages, as follows:

- Grading for construction office trailers, staging areas, project substation, and O&M facilities;
- Constructing site roads, turnaround areas, and crane pads at each WTG location;
- Constructing the WTG tower foundations and transformer pads;
- Installing the electrical collection system (underground and overhead lines);
- Assembling and erecting the WTGs;
- Constructing and installing the project substation; and
• Commissioning and energizing the proposed project.

All stages of construction would be installed in accordance with the information contained herein and would comply with all applicable laws, ordinances, and standards and permit requirements.

Based on data provided for typical wind energy projects of similar size, an average of 120 workers would be employed during construction (with a peak work force of 150). It is anticipated that 80-95 percent of the workers would live or stay in the surrounding communities (Lancaster, Palmdale, Tehachapi, and Mojave) and additional workers would come from the Bakersfield and northern Los Angeles County areas. Workers would arrive at the proposed project site via SR 14 to Jawbone Canyon Road and then proceed to project staging areas. Workers would then take a shuttle to the construction areas. Normal project construction would be between 6:00 a.m. and 9:00 p.m., Monday through Friday, and 8:00 a.m. and 9:00 p.m on Saturday. However, construction scheduling may require activities to occur on Sundays as well as 24 hours shifts.

Materials and Equipment

Construction of the North Sky River Wind Energy Project would involve improvements to existing access roads to the proposed project site, the creation of local access roads to the WTG locations, and WTG and crane pad construction. Other construction-related tasks involved in this process would include the pouring of a concrete base for each WTG and the installation of towers, turbines, rotor hub and blades, and related equipment. In addition, the installation of underground/overhead electricity lines, electrical transformers, substation construction, maintenance facility and laydown yards, and the installation of overhead electricity lines from the proposed project to the electrical interconnection point would be required. Disturbed areas, temporary roadways, and equipment laydown sites that are not required as part of the ongoing operating of the facility would be reclaimed and restored.

Staging areas would be required for material handling, temporary storage, and project staging activities. In addition, concrete batch plants would be temporarily located within the proposed project site during the construction phase.

Table 3-7 lists the types of equipment that would be used during the various stages of construction. Equipment operation for all equipment would be 8 hours per day.

<table>
<thead>
<tr>
<th>Work Activity</th>
<th>Primary Equipment Description</th>
<th>Estimated Horsepower</th>
<th>Probable Fuel Type</th>
<th>Primary Equipment Quantity</th>
<th>Estimated Schedule (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Turbine Removal and Restoration of Turbine Sites</td>
<td>Crane</td>
<td>500</td>
<td>Diesel</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Lowboy/Truck/Trailer</td>
<td>500</td>
<td>Diesel</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Excavator</td>
<td>400</td>
<td>Diesel</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Grader</td>
<td>350</td>
<td>Diesel</td>
<td>1</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Dump Truck</td>
<td>500</td>
<td>Diesel</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td>Road, Pad, and Collector Line Construction</td>
<td>1 Ton Crew Cab 4X4</td>
<td>300</td>
<td>Diesel</td>
<td>2</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Road Grader</td>
<td>350</td>
<td>Diesel</td>
<td>3</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Track Type Dozer</td>
<td>350</td>
<td>Diesel</td>
<td>3</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Drum Type Compactor</td>
<td>250</td>
<td>Diesel</td>
<td>3</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Water Truck</td>
<td>350</td>
<td>Diesel</td>
<td>2</td>
<td>180</td>
</tr>
</tbody>
</table>
### Table 3-7 Construction Equipment Requirements for the North Sky River Wind Energy Project

<table>
<thead>
<tr>
<th>Work Activity</th>
<th>Primary Equipment Description</th>
<th>Estimated Horsepower</th>
<th>Probable Fuel Type</th>
<th>Primary Equipment Quantity</th>
<th>Estimated Schedule (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowboy/Truck/Trailer</td>
<td></td>
<td>500</td>
<td>Diesel</td>
<td>3</td>
<td>180</td>
</tr>
<tr>
<td>Backhoe/Front Loader</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>2</td>
<td>180</td>
</tr>
<tr>
<td>Excavator</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>2</td>
<td>180</td>
</tr>
<tr>
<td>Rock Crusher</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>1</td>
<td>180</td>
</tr>
<tr>
<td>Cement Trucks</td>
<td></td>
<td>335</td>
<td>Diesel</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td><strong>Batch Plant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backhoe/Front Loader</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>1</td>
<td>120</td>
</tr>
<tr>
<td>Generator</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>1</td>
<td>120</td>
</tr>
<tr>
<td><strong>Turbine Installation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crane</td>
<td></td>
<td>500</td>
<td>Diesel</td>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>Lowboy/Truck/Trailer</td>
<td></td>
<td>500</td>
<td>Diesel</td>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>Excavator</td>
<td></td>
<td>400</td>
<td>Diesel</td>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td><strong>Restoration of Existing Roads and Temporary Disturbance Areas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Grader</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>3</td>
<td>90</td>
</tr>
<tr>
<td>Excavator</td>
<td></td>
<td>350</td>
<td>Diesel</td>
<td>3</td>
<td>90</td>
</tr>
</tbody>
</table>

After the proposed project site has been prepared for construction, the raw materials and equipment necessary to build the proposed project would be delivered to the site, including: gravel for roads, concrete, sand, and cement for foundations, and water for mixing concrete, dust control and erosion controls.

The sizes of the WTGs proposed for the North Sky River Wind Energy Project require foundations containing several hundred cubic yards of concrete each. Best construction management practices dictate that the concrete must be batched within an hour after mixing is complete. Thus, temporary concrete batch plants would be used during construction in five locations to reduce travel time between the location of the concrete mixers and the foundations. Concrete needed for substation foundations would also be delivered from the batch plants.

Electrical materials and equipment, including but not limited to conductor, disconnect switches, transformers, and switch gear would begin arriving on site as construction progresses. These materials would be delivered to prepare set up yards to assure proper inventory control and security.

### Site Preparation

Preparation of the proposed project site for construction would involve land clearing and grading by removing topsoil and vegetation for roads, WTG foundations and substations. Land clearing and grading would be performed according to the Soil Erosion and Sedimentation Mitigation Plan as required by Section 19.64.140.K (WE Combining District - Development Standards and Conditions) of the Zoning Ordinance, the proposed North Sky River Wind Energy Project’s State-approved Storm Water and Pollution Prevention Plan (SWPPP), and any grading and building permits issued by Kern County.

### Roads

Transportation of WTGs requires equipment transport and crane specifications that dictate road width and turning radii. To allow safe passage of the large transport equipment used in construction, all-weather gravel roads would be built with adequate drainage and compaction to accommodate
equipment transport vehicles. The proposed road construction described below is designed to minimize disturbance, avoid sensitive resources and maximize transportation efficiency.

After sensitive areas have been identified and marked, initial road grading would commence. Project roads would include project access roads and interior project roads. Road construction would be performed in multiple steps. First, rough grading and roadway leveling would occur. Then, when rough grade is achieved, base rock would be trucked in, spread, and compacted to create a road base. Capping rock would then be spread over the road base and roll-compact to finished grade. Cut materials would be used as fill onsite during the construction process, and no material would be disposed of offsite. The final location of the road and the cut-and-fill volumes would be based on grading, construction and environmental permitting requirements, topography, and sound engineering principles. At completion of heavy construction, the road would be regraded for service as a maintenance road. A final pass would be made with the grading equipment to level the road surfaces, and more capping rock would be spread and compacted in areas where needed. In some very steep areas, the road might be paved. Culverts and V ditches would be installed, where necessary, to handle excess drainage water. All road work would be performed under final approved grading, erosion control, and stormwater quality management plans.

Following road construction, all roads would be inspected to determine if and where any additional grading or additional gravel would be necessary to meet Kern County standards. Additionally, final road shaping would be completed to ensure proper water flow away from cut-and-fill slopes and into ditches and culverts. Erosion-control devices also would be installed or completed, and disturbed areas adjoining the roads would be restored and the appropriate erosion-control devices would be installed.

When construction has been completed, roads that would be left in place to provide access for O&M would be inspected and graded where low spots and ruts have occurred. Culverts would be left in place and the road edges would be restored.

Excess excavated soil and rock would be disposed of onsite at approved disposal areas, such as eroded gullies and ravines. Larger excavated rocks also would be disposed of at approved sites or crushed and reused onsite as backfill or roadway material. Project road construction would involve the use of several pieces of heavy machinery, including bulldozers, track-hoe excavators, front-end loaders, dump trucks, motor graders, water trucks, and rollers for compaction. Stormwater measures, consistent with agency standards, such as hay bales and diversion ditches, would control stormwater runoff during construction. Access points from public roads would have locked gates.

**Turbine Pad and Foundation Construction**

Once the roads are installed, turbine foundations would be constructed. When the roads are completed for a particular group of WTGs, construction of the foundations for these WTGs would commence. Depending on the foundation type used, each WTG foundation could require up to 500 cubic yards of reinforced concrete. Temporary concrete batch plants would be erected at various locations to deliver required concrete/slurry mixes and avoid long concrete truck trips from offsite facilities. Anchor bolts would be embedded in the concrete, and the foundation would be allowed to cure prior to tower erection. Foundation pads and crane pads would be left in their graded condition and revegetated after WTG installation.

Foundation construction would include the following stages: drilling, blasting (if required), and hole excavation; outer form setting; rebar and bolt cage assembly; concrete casting and finishing;
removal of the forms; backfilling and compaction; construction of the transformer foundation pad; and foundation site area restoration. Excavation and foundation construction would be conducted in a manner that would minimize the size and duration of excavated areas required to install foundations. Portions of the work might require over-excavating or shoring.

Backfilling would be completed immediately after approval by the engineer’s field inspectors. Onsite excavated materials would be used for backfill where possible. The excess soil not used as backfill for the foundations would be used to level out low spots on the crane pads and roads to make them consistent with the surrounding grade, and exposed soil would be reseeded with a designated mix of grasses around the edges of the disturbed areas. Larger rocks would be disposed of offsite or crushed into smaller rocks for use as backfill or road material. Excess soil not used around the WTG sites would be disposed of in eroded areas onsite.

**Power Collection System and Communication Lines**

After the roads, WTG foundations, and transformer pads are completed for a particular row of WTGs, underground cables would be installed along that road section. Trenches would be cut to the required depth. Cables would be laid in the trenches, surrounded with a cushion of clean fill, and inspected, and the trenches would be backfilled. Shallower trenches might be required where solid rock is encountered. Cables would be protected with concrete slurry. In locations where two or more sets of underground lines run in parallel trenches, a horizontal separation of approximately 10 feet would be used (exact separation based on specific soil resistivity). The 34.5-kV cables would be connected to the WTG pad-mounted transformers, and low-voltage wiring between the transformers and the bus cabinet inside the WTG towers would be completed, inspected, and tested.

As part of the final design engineering for the power line, a field survey would be conducted to determine the exact power pole locations for overhead collector lines. When exact pole locations have been determined, pre-construction biological and archaeological surveys would be conducted to minimize proposed project impacts. Holes would be drilled and the poles erected with a small crane or boom truck. The poles would be set in place using concrete or compacted clean fill, according to the engineer’s specifications. The overhead lines would be connected to the underground cables at each end through a fused disconnect switch, which would ensure personnel safety by breaking the electrical connection in the event of a power surge.

**Project Substation**

Construction of the project substation and interconnection facilities would involve several stages of work, including grading of the project substation area; installation of a grounding mat; construction of several foundations for the transformers, power circuit breakers, and structures; erection and placement of the steel work and all outdoor equipment; and electrical work for all of the required terminations. The switchyard substation would be located offsite and adjacent to the Sky River Collection Substation to support the protection and reliability of joining the Sky River Wind Generation facility with the North Sky River Wind Generation facility. The entire project substation would be enclosed with a chain-link security fence. Following construction, an inspection and commissioning test plan would be executed prior to the project substation being energized.

**Wind Turbine Generators**

The WTG components would be delivered to the site via flatbed transport trucks; the main components would be offloaded at the individual WTG sites or possibly staged at the site before
transport to the final location. After setting the WTG electrical bus cabinet and ground control panels on the foundation, the tower would be erected by crane in sections. Tower construction would be followed by hoisting and installation of the nacelle; assembly, hoisting, and installation of the rotor; connection and termination of internal cables; and inspection and testing of the electrical system.

**Start-up and Restoration**

After a major electrical system component (including interconnection, high voltage transmission, substation(s), electrical collection system, and the WTGs) is completed, each system would be thoroughly inspected and tested to ensure it is ready to carry energy. The system would then be energized and additional testing would be done to ensure safe operation. By the time the WTGs are installed, the completed electrical system would have been tested and would be ready to receive the power generated by the WTGs.

Start-up refers to commissioning activities that occur after (1) mechanical completion of the WTGs and (2) commissioning of the electrical system.

After construction of the proposed North Sky River Wind Energy Project is complete, the proposed project site would be cleaned up and restored to facilitate operational activities. All waste, debris, and construction equipment would be removed from the proposed project site. During construction, the site would be kept as clean as possible on a daily basis. After construction, any visible waste on the proposed North Sky River Wind Energy Project site would be removed. Site restoration requirements would be set forth in the proposed North Sky River Wind Energy Project’s construction and operation permits and the proposed North Sky River Wind Energy Project’s restoration plan. The majority of the staging and laydown areas would be revegetated, although the proposed North Sky River Wind Energy Project would likely keep a few sites available for long-term maintenance and replacement parts storage. The overall footprint of the proposed North Sky River Wind Energy Project’s road system would also be reduced, which would include eliminating some roads and reducing the width of the majority of others used during construction. Any land that was disturbed during construction and not retained for operations would be revegetated.

**Construction Sequence and Equipment (Jawbone Wind Energy Project)**

**Schedule and Workforce**

The construction of the proposed Jawbone Wind Energy Project would last six to 10 months and would be comparable to other wind energy projects. The construction process is similar to the process described above for the North Sky River Wind Energy Project and can be divided into the following phases:

- Roads and pads,
- Foundations,
- Electrical infrastructure,
- WTG assembly and installation,
- Substation interconnection,
- Electrical system upgrades,
- WTG commissioning,
• Project finalization. The various project elements would be constructed concurrently on the property.

Construction employees would be expected to carpool from respective population centers such as Tehachapi or California City, California, and report to the designated construction staging yards prior to the beginning of each workday. It is anticipated that the employees would utilize Jawbone Canyon Road as a point of ingress/egress to the proposed project property, and once on site, they would access various sections via the existing and improved network of dirt roads. The proposed project would be constructed by several, specialized construction contractors with a peak workforce of 30 employees. Project construction would occur between 5:30 a.m. and 9:00 p.m., Monday through Saturday. In addition, when required, in order to meet specific critical schedules, construction would occur between 7:00 a.m. and 6:00 p.m. on Sundays.

**Materials and Equipment**

Similar to the North Sky River Wind Energy Project, construction of the proposed Jawbone Wind Energy Project would involve improvements to existing access roads to the proposed project property, the creation of local access roads to the WTG locations, and turbine and crane pad construction. Other construction-related tasks involved in this process would include the pouring of a concrete base for each WTG and the installation of towers, turbines, rotor hub and blades, and related equipment. Additionally, the installation of underground/overhead electricity lines, electrical transformers, maintenance facility and laydown yard, and the installation of overhead electricity lines from the project to the electrical interconnection point would be required. Restoration of disturbed areas, temporary roadways, and equipment laydown sites that is not required as part of the ongoing operating of the facility would be reclaimed.

Staging areas may be required for material handling, temporary storage, and project staging activities. In addition, a concrete batch plant would be temporarily located within the property during the construction phase.

A list of the type and quantity of equipment that would potentially be used in construction of the proposed Jawbone Wind Energy Project is included in Table 3-8.

| Table 3-8 Construction Equipment Requirements for the Jawbone Wind Energy Project |
|---|---|---|
| **Quantity** | **Equipment/Vehicle Type** | **Round Trips per Vehicle per Construction Phase * ** |
| 1 | Large cranes | 1 |
| 1 | Medium cranes | 1 |
| 2 | Small cranes | 40 |
| 1 | Bulldozers | 1 |
| 2 | Excavators | 1 |
| 3 | Dump trucks | 1 |
| 1 | Motor grader | 1 |
| 2 | Compactor / roller | 1 |
| 1 | Pneumatic roller | 1 |
| 1 | Asphalt paver | 1 |
| 1 | Water trucks | 780 |
| 4 | Cement trucks | 480 |
| 4 | Delivery trucks | 500 |
| Misc. | Tractors / other equipment | 80 |

*Trip assumptions based upon the number of trips for an approximate 50 MW project.*
Construction activities include excavation and grading of the proposed Jawbone Wind Energy Project property. Site preparation and construction of the proposed Jawbone Wind Energy Project would be in accordance with all federal, state, and county codes and requirements. Noise-generating construction activities would be limited to the construction hours noted above.

All stationary equipment and machines with the potential to generate a significant increase in noise or vibration levels would be located away from noise receptors to the extent practicable. The contractor shall conduct construction activities in such a manner that the maximum noise levels at the affected buildings would not exceed established noise levels. All applicable local, state, and federal requirements and best management practices (BMPs) would be incorporated into the construction activities for the proposed Jawbone Wind Energy Project.

Construction equipment would be turned off when not in use. The construction contractor would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.

**Site Preparation**

Site preparation activities would be the same as described above for the North Sky River Wind Energy Project.

**Start-up and Restoration**

Start-up and restoration activities would be the same as described above for the North Sky River Wind Energy Project.

**Regional Transmission System Reinforcement**

The transmission line reinforcement would involve a 230 kV transmission line tap from the existing Highwind substation to the adjacent Wilderness Transmission Line (Figure 3-7), requiring two new pole locations and 1,000 feet of new ROW.

New transmission line construction would consist of two components:

- Tower work, including creation of tower pads, footing construction and steel work.
- Wire installation, including all activities associated with the installation of conductors onto the transmission towers.

**3.8 Operation and Maintenance Activities**

Upon completion of all construction activities, up to 32 full- and part-time wind turbine technicians, operations personnel, administrative personnel, and managers would be employed to operate and maintain the proposed project. Not all staff would be working at the same time. The O&M staff would monitor WTG and system operation, perform routine maintenance, troubleshoot malfunctions, shut down and restart WTGs (when necessary), and provide security. They would be headquartered at the O&M facility and travel around the proposed project site as needed. Normal operations could involve deployment of up to three crews of two technicians around the site and two to three personnel in the office. Staff may not be present at the site 24 hours per day. However, operations would be continuously monitored through the SCADA system from a project proponent-
operated remote location. All O&M staff would be regularly trained to provide best practice health, safety, and environmental protection services.

After the initial startup period, the WTGs would be serviced at regular intervals. Annual overhaul maintenance service would also be performed. Most servicing would be performed onsite. The regular routine typically consists of inspecting and testing safety systems; inspecting wear and tear on components; lubricating the mechanical systems; performing electronic diagnostics on the control systems; and inspecting the overall structural components of the WTGs. Blade cleaning may also be performed and could be required if accumulation of debris on the lead edge reduced aerodynamic performance. The blades would be spray-washed with water, using a high pressure sprayer with extension nozzles, from a standard boom manlift.

During operation, hazardous and potentially hazardous chemicals (for example, oil, grease, and ethylene glycol) would be used to lubricate and cool the WTGs and ancillary facilities; a radiator would dissipate heat and would contain a water and ethylene mixture that would be tested annually. The gearbox would contain 70 gallons of oil that would not be routinely renewed. The WTGs would be equipped with leak-proof gaskets. Possible leakage or spillage during operations and/or maintenance of the WTGs would be confined within the towers. A supply of chemicals would be stored on site in the maintenance yard. Due to the remote location of the site, it is expected that two 500-gallon diesel storage tanks would be installed on site to serve O&M vehicles. To minimize the potential for harmful releases through spills or contaminated runoff, chemicals would be stored in tanks or drums located within secondary containment areas. Use of extremely hazardous materials is not anticipated. Storage and use of hazardous materials would be subject to a hazardous materials management plan approved by Kern County.

Routine O&M work would be performed by the O&M staff and would be conducted at the proposed project site. When specialized equipment or expertise is required (that is, cranes for major repairs, power line or substation repairs, etc.), the project proponents would subcontract with the appropriate contractors. Additionally, each WTG supplier would have personnel on the proposed project site as necessary to perform warranty maintenance and operations services during the warranty period on the WTGs. These personnel may work out of an offsite office building in one of the local communities.

Project access roads would be periodically graded and compacted to maintain the design, safety, and environmental requirements during the life of the proposed project. Maintenance on cut and-fill slopes, culverts, grade separations, and drainage areas would be performed as necessary to minimize erosion problems and maintain functional drainage structures. The project proponents would be responsible for cleaning up all construction debris and maintaining the appearance of all proposed project roads and rights-of-way (ROWs) in cooperation with applicable parties.

### 3.9 Decommissioning and Repowering

Several factors would determine the life expectancy of the proposed project, the most critical of which are land rights, demand for the electricity generated, and proper maintenance. The proposed project has a life expectancy of 30 years, based on landowner lease arrangements and permit approval timeframes. If there is continued demand for the electricity generated by the proposed project, outdated or worn facility components, especially the WTGs, would be replaced or upgraded in order to repower the proposed project and keep it operational.
If the proposed project is decommissioned, all facilities which make up the proposed project would be dismantled and removed in accordance with all applicable County, State and federal laws; however, underground distribution cables, foundations and structures would remain in place. WTG foundations would be dismantled two feet below grade and underground cable risers would be cut off three feet below grade before being abandoned in place. Infrastructure facilities, including the proposed O&M facilities, switchyards, substations and overhead transmission lines would also be removed.

If the project proponent decides to re-power the project, the project proponent would have to apply for all required permits.

### 3.10 Related Projects

The project proponents have not filed any applications for additional wind projects in the general vicinity of the project. However, it is likely that additional similar projects will be developed within the TWRA and these future additional facilities are considered as part of the cumulative impacts discussion in this EIR. Discretionary action and permits from Kern County would likely be required, in addition to CUPs for temporary batch plants.

Southern California Edison (SCE) is currently constructing the TRTP, which is scheduled for overall completion of all segments in 2013. The TRTP would involve new and upgraded transmission infrastructure along 173 miles of new and existing ROWs in southern Kern County, portions of Los Angeles County, including the Angeles National Forest (ANF), and the southwestern portion of San Bernardino County, California. SCE’s stated objectives for the proposed project are to provide the electrical facilities necessary to integrate levels of new wind generation in excess of 700 MW and up to 4,500 MW in the TWRA (SCE, 2007). The TRTP would consist of Segments 4 through 11 (Segments 4 and 10 traverse the proposed project site), and related facilities. Segments 2 and 3 are discussed in Section 3.11.1, below. Projects involving upgrades to electrical transmission lines owned and operated by public utilities are within the exclusive jurisdiction of the California Public Utilities Commission. As required by CEQA, this EIR analyzes potential environmental impacts of the future transmission lines in the discussion of cumulative projects.

### 3.11 Cumulative Projects

CEQA requires that an EIR evaluate a project’s cumulative impacts. Cumulative impacts are the project’s impacts combined with the impacts of other related past, present and reasonably foreseeable future projects. As set forth in the State CEQA Guidelines, the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. As stated in CEQA, Title 14, Section 21083(b), “a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable.”

According to the State CEQA Guidelines:

Cumulative impacts refer to two or more individual effects which, when considered together, are considerable and which compound or increase other environmental impacts.
(a) The individual effects may be changes resulting from a single project or a number of separate projects.

(b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, §15355).

In addition, as stated in CEQA Guidelines, it should be noted that:

The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable (CCR, Title 14, Division 6, Chapter 3, Section 15064[I][5]).

Cumulative impact discussions for each environmental topic area are provided at the end of each technical analysis contained within Chapter 4, under “Impacts and Mitigation Measures.” As previously stated, and as set forth in the State CEQA Guidelines, related projects consist of “closely related past, present, and reasonable foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area” (CCR, Title 14, Division 6, Chapter 3, Section 15355).

**Other Energy Projects**

The Tehachapi Wind Resource Area (TWRA) is located within eastern Kern County and is the State’s largest wind energy resource area and currently responsible for over 40% of California’s wind energy generation. The TWRA currently consists of 3,822 WTGs that produce 907 MW of power. Wind plants in this area produce more power than any other wind development in the United States. Most of the TWRA’s existing turbines were installed between 1981 and 1986. Between 1986 and 1989, about another 100 MW worth of turbines were developed. Between 1990 and 2000 very few additional WTGs were installed. During the late 1990s, wind power plant owners started repowering their existing turbines by removing the older turbines and replacing them with newer models.

The most relevant projects to the cumulative analysis for the proposed project are other wind energy projects. Several new wind energy developments are currently proposed in Kern County and are listed below in Table 3-9 and shown in Figure 3-8. This EIR generally considers cumulative impacts of projects within six miles; however the nature of impacts under certain issue areas requires consideration of projects outside this range. Additional wind energy projects are being planned, but applications have not yet been submitted to permitting agencies. One reason that there are many wind energy developments in various stages of development in Kern County (in addition to the demand for renewable energy and favorable regional conditions) is that new transmission line upgrades are being proposed, as discussed in Section 3.10. In planning for additional future wind projects, the CAISO is forecasting a need for up to 4,500 MW of power.
Table 3-9 Proposed Wind Projects Identified by Kern County Planning and Community Development Department

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Location</th>
<th>Case Type</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alta East Wind Project</td>
<td>North and south sides of SR 58; three miles northwest of community of Mojave</td>
<td>Zone change to allow WTGs</td>
<td>3,660</td>
</tr>
<tr>
<td>Pahnamid Wind Energy Project</td>
<td>One mile south of the intersection of Highline Road and Tucker Road</td>
<td>Zone change to allow WTGs</td>
<td>2,760</td>
</tr>
<tr>
<td>Catalina Renewable Energy Project</td>
<td>Two miles west of the intersection of Backus Road and Tehachapi Willow Springs Road</td>
<td>Zone change to allow WTGs</td>
<td>7,400</td>
</tr>
<tr>
<td>Avalon Wind Energy Project</td>
<td>Two miles west of the intersection of Backus Road and Tehachapi Willow Springs Road</td>
<td>Zone change to allow WTGs</td>
<td>6,658</td>
</tr>
<tr>
<td>Morgan Hills Energy Project</td>
<td>Half mile south of Oak Creek Road and two miles west of Tehachapi-Willow Springs Road</td>
<td>Zone change to allow WTGs</td>
<td>3,773</td>
</tr>
<tr>
<td>Rising Tree Wind Energy Project</td>
<td>One quarter mile north of Oak Creek Road and five miles east of Tehachapi-Willow Springs Road</td>
<td>Zone change to allow WTGs</td>
<td>2,746</td>
</tr>
</tbody>
</table>

Future Applications

Alta-Oak Creek Mojave Project and Additional Facilities

The Alta-Oak Creek Mojave Project, and subsequent addendum, would generate up to 1,071 MW of electricity from up to 386 WTGs on an 13,730-acre site in unincorporated Kern County. The project would generate wind energy to be transferred to SCEs 220-kV transmission system and sold to California investor-owned utilities, municipalities, or other purchasers in furtherance of the goals of the California RPS. The original EIR was approved by the Board of Supervisors on December 15, 2009 and construction began in early 2010 and is expected to end in late 2011.

At this time, the Alta project proponent is in the early planning stages for construction of additional wind energy facilities that would be located within the TWRA and would generate 700-900 MW of electricity. Applications have been filed for these additional wind projects and are described below.

Pending Applications

Alta East Wind Project

The Alta East Wind Project would generate up to 300 MW of electricity from up to 120 WTGs on an 3,660-acre site in unincorporated Kern County. The proposed project includes a 12-mile long, a 8-mile long , or an 8 ½-mile long 230-kV generation-tie transmission line, security fencing, access and service roads, an O&M facility, and up to four construction staging areas. An EIR for this proposed project is expected to begin in early 2011.
3.0 Project Description

North Sky River Wind Energy Project and Jawbone Wind Energy Project
Draft Environmental Impact Report
May 2011
Pahnamid Wind Energy Project

The Pahnamid Wind Energy Project would generate 240 MW of electricity from up to 80 WTGs on 2,760 acres in unincorporated Kern County. The facility includes a substation, above and below-ground transmission lines, dirt access roads, and concrete batch plants. The project proposes a 230-kV generation-tie transmission line to connect to SCE’s Windhub Substation. An EIR for this proposed project is expected to begin in early 2011.

Catalina Renewable Energy Project

The Catalina Renewable Energy Project would generate 250 MW of electricity from up to 120 WTGs and up to 150 MW of solar energy from photovoltaic solar arrays co-located on 5,723 acres of a 7,400-acre area in unincorporated Kern County. The facilities would consist of wind turbines, solar arrays, substations, an O&M facility, above and below-ground transmission lines, dirt access roads, and concrete batch plants. The project proposes a 230-kV generation-tie transmission line to connect to SCE’s Whirlwind Substation. An EIR for this proposed project is expected to begin in early 2011.

Avalon Wind Energy Project

The Avalon Wind Energy Project would generate 255 MW of electricity from up to 170 WTGs on 6,658 acres in unincorporated Kern County. The facility includes a substation, above and below-ground transmission lines, dirt access roads, and concrete batch plants. The project proposes a 230-kV generation-tie transmission line to connect to SCE’s Whirlwind Substation. An EIR for this proposed project is expected to begin in early 2011.

Morgan Hills Energy Project

The Morgan Hills Energy Project would generate 230 MW of electricity from up to 230 WTGs on 700 acres of a 3,773-acre area in unincorporated Kern County. The facility includes wind turbine generators with foundation pads, crane pads, permanent access roads, switch yard and substation, temporary construction lay-down yards, parking areas, an O&M building, one temporary concrete batch plant, transmission lines, and an underground power collection system. An EIR for this proposed project is expected to begin in early 2011.

Rising Tree Wind Energy Project

The Rising Tree Wind Energy Project would generate 234 MW of electricity from up to 78 WTGs on 2,746 acres in unincorporated Kern County. The facility includes wind turbine generators with foundation pads, crane pads, permanent access roads, switch yard and substation, temporary construction lay-down yards, parking areas, a 10,000 square foot O&M building, one temporary concrete batch plant, transmission lines, and an underground power collection system. An EIR for this proposed project is expected to begin in early 2011.

Existing and Recently Approved Projects

Pine Tree Wind Development Project

The Pine Tree Wind Development Project is an approved project that would result in construction of a wind energy development with a generating capacity of 120 MW. The project would be located in Kern County six miles west of SR-14, 12 miles north of the community of Mojave, and 15 miles
northeast of the City of Tehachapi. Primary access to the project property is from SR-14 via Jawbone Canyon Road. A Final EIR was completed for this project in April 2005 and the facility is currently in operation. The Pine Tree Wind Development Project site is located immediately south of the proposed project site. Access to the proposed project site is off SR 14 via Jawbone Canyon Road, which also serves as access to the Pine Tree Wind Development Project.

**Pine Canyon Wind Project**

The Pine Canyon Wind Project is expected to be constructed on 12,000 acres of land adjacent to the Pine Tree Wind Development Project and is proposed to produce 150 MW of wind energy. To date no CEQA documentation is publicly available for the Pine Canyon Wind Project.

**PdV Wind Energy Project (recently referred to as Manzana Wind Project)**

The PdV Wind Project is an approved project located at the southern end of the TWRA, just north of the proposed Whirlwind Substation. The project is situated on 5,820 acres of land and entails up to 300 WTGs to produce up to 300 MW of wind energy. The project would also include a substation to increase the voltage generated by the turbines to meet the electrical system’s 220-kV or 500-kV voltage. The Final EIR for this project was completed in February 2008 and was certified by the Board of Supervisors on July 29, 2008. Construction of this project began in December 2010.

**PdV Infill Project**

The PdV Infill Project is an approved project and is considered an infill project that is adjacent to, and surrounded by, the PdV Wind Project. The infill project is situated on 2,422 acres of land and entails the relocation of turbines to private lands adjacent to the approved PdV Wind Project to achieve more efficient development of the 300 MW wind farm and maximize wind output and efficiency. The infill expanded the approved PdV Wind Project boundary and reconfigured the location of the WTGs, but did not include any increase in the number of WTGs or the size of the wind farm in terms of its MW capacity. The Final EIR for the PdV Wind Project was amended for this project and was approved by the Board of Supervisors on March 2, 2010. Construction of this project is expected to be completed in 2012.

**Pacific Wind Energy Project**

The Pacific Wind Energy Project is an approved project located at the southern end of the TWRA, immediately south of the PdV Wind Project. The project is situated on 8,300 acres of land and entails up to 151 WTGs to produce up to 151 MW of wind energy. The project would also include a substation to increase the voltage generated by the turbines to meet the electrical system’s 220-kV voltage. The Final EIR for this project was completed in August 2010 and was certified by the Kern County Board of Supervisors on October 26, 2010. Construction of this project is scheduled to begin in late 2011.

**Sky River Wind Energy Facility**

NextEra owns and operates the existing 77-MW Sky River wind energy facility, located immediately south of the southwest portion of the proposed project site. The wind farm began commercial operation in 1991 and operates with 342 225-kW Vestas V27 WTGs.
Antelope Transmission Project Segments 1-3

Construction of SCE’s Antelope Transmission Project is currently underway, and would occur in three sequential segments: Segment 1, Antelope-Pardee 500-kV Transmission Line; Segment 2, Antelope-Vincent 500-kV Transmission Line; and Segment 3, Antelope-Tehachapi Transmission Line.

Segment 1 of the Antelope Transmission Project involves the construction of a new 25.6-mile 500-kV transmission line between SCE’s existing Antelope and Pardee Substations, located in the City of Lancaster and the City of Santa Clarita, respectively. This project includes modifications to Antelope and Pardee Substations and the expansion of Antelope Substation. Segment 1 is a 500-kV single-circuit transmission line within an existing SCE 66-kV transmission line ROW for 22.8 miles and establishes a new 500-kV ROW for three miles. The line would initially be energized at 220-kV to serve the existing transmission needs determined by SCE and, as energy demand increases, it would be upgraded to 500-kV. Implementation of Segment 1 would facilitate and accommodate the construction of Segment 2 and Segment 3. Segment 1 was completed in winter 2009.

Segment 2 (Antelope-Vincent 500-kV T/L) consists of a new 17.8-mile 500-kV transmission line connecting SCE’s existing Antelope Substation with the Vincent Substation, located near Acton, California. This line would be constructed to deliver electricity from new wind farms to communities in southern California. Similarly to Segment 1, this segment would initially be energized at 220-kV. Segment 2 was completed in 2010.

Segment 3 (Antelope-Tehachapi T/L) consists of two phases. The first phase includes construction of a new 26.1-mile, 500-kV transmission line connecting SCE’s existing Antelope Substation to a proposed substation (Substation 1) in the Mojave Area. This transmission line would initially be energized at 220-kV. The second phase would consist of a new 9.4-mile, 220-kV transmission line from the proposed Substation 1 to a proposed substation in the Monolith Area (Substation 2). The transmission line and proposed Substation 2 would be constructed to transmit electricity from the wind farms to communities in southern California. The first portion of Segment 3 has been completed. Construction of the second portion of Segment 3 has not begun and no schedule for completion has been developed yet.

Tehachapi Renewable Transmission Project Segments 4-11

The TRTP, as proposed by SCE, would involve the construction, operation, and maintenance of new and upgraded transmission infrastructure along 173 miles of new and existing ROW in southern Kern County, portions of Los Angeles County, including the ANF and U.S. Army Corps of Engineers lands, and southwestern San Bernardino County, California. The description of major components for the TRTP begins with Segment 4. Segments 4 through 8, as well as Segments 10 and 11 of the TRTP are transmission facilities, while Segment 9 addresses the addition and upgrade of substation facilities. The proposed transmission lines would be constructed primarily within existing ROWs. The major components would consist of the following:

- Building a new single-circuit 500-kV Transmission Line (T/L) traveling 17 miles over new ROW between the Windhub Substation and the proposed new Whirlwind Substation (Segment 10);
- Two new single-circuit 220-kV T/Ls traveling four miles along new ROW from a private Substation to the proposed new Whirlwind Substation (Segment 4 - 220-kV);
• A new single-circuit 500-kV T/L, traveling 16 miles along new ROW from the proposed new Whirlwind Substation to the existing Antelope Substation (Segment 4 - 500-kV);

• Rebuilding 18 miles of the existing Antelope-Vincent 220-kV T/L and the existing Antelope-Mesa 220-kV T/L to 500-kV standards along existing ROW between the existing Antelope and Vincent Substations (Segment 5);

• Rebuilding 19 miles of existing 220-kV T/L to 500-kV standards between the existing Vincent and Gould Substations. Also adding a new 220-kV circuit on the vacant side of the existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L, between the existing Gould and Mesa Substations (Segment 11);

• Rebuilding of 32 miles of existing 220-kV T/L to 500-kV standards from the existing Vincent Substation to the southern boundary of the ANF, including 27 miles of the existing Antelope-Mesa 220-kV T/L and five miles of the existing Rio Hondo-Vincent 220-kV No. 2 T/L (Segment 6);

• Rebuilding 16 miles of the existing Antelope-Mesa 220-kV T/L to 500-kV standards from the southern boundary of the ANF to the existing Mesa Substation. This segment would replace the existing Antelope-Mesa 220-kV T/L (Segment 7);

• Rebuilding 33 miles of existing Chino-Mesa 220-kV T/L to 500-kV standards from a point two miles east of the existing Mesa Substation (the “San Gabriel Junction”) to the existing Mira Loma Substation. Also rebuilding seven miles of the existing Chino-Mira Loma No. 1 line from single-circuit to double-circuit 220-kV structures (Segment 8);

• Building the new Whirlwind Substation, a 500/220-kV substation located near the intersection of 170th Street and Holiday Avenue in Kern County near the TWRA (Segment 9);

• Upgrading the existing Antelope, Vincent, Mesa, Gould, and Mira Loma Substations to accommodate new T/L construction and system compensation elements (Segment 9); and

• Installation of associated telecommunications infrastructure.

• The Final EIR for the TRTP was approved on December 17, 2009. Construction of the project began in Fall of 2010 and is expected to end in 2015.

Other Cumulative Projects

Table 3-10 lists nearby residential, commercial, natural resource and solar energy projects. The Kern County Planning and Community Development Department reviewed all known projects within a six-mile radius of the project site. There are no new known residential projects located, within a 6 mile radius of the project site.

<table>
<thead>
<tr>
<th>Kern County Case ID</th>
<th>Zone Map</th>
<th>Project Name</th>
<th>Project Location</th>
<th>Case Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>8310</td>
<td>149</td>
<td>Jefferson</td>
<td>Portion of Section 36 in PM 7178</td>
<td>ZCC to from E (5) CL to A</td>
</tr>
<tr>
<td>8311</td>
<td>149</td>
<td>Jefferson</td>
<td>Portion of Section 36 in PM 7178</td>
<td>Variance to Reduce Parcel Size</td>
</tr>
<tr>
<td>13222</td>
<td>150</td>
<td>LA Department of Power and Water</td>
<td>Section 13 and 14 in PM 7178</td>
<td>CUP for 10 MW Solar Facility in an A zone.</td>
</tr>
<tr>
<td>13433</td>
<td>149</td>
<td>Mesonika Piecuch</td>
<td>Black Oak Drive, Sand Canyon</td>
<td>Vacate Public Access easements</td>
</tr>
</tbody>
</table>