2.0 Project Description

This section provides a description of the Lompoc Wind Energy Project (Project), including its location and setting, components, construction, and operational practices; quality assurance (QA), quality control (QC), and environmental and health and safety compliance practices; and environmental protection measures. Applicant-proposed mitigation measures, which are intended to reduce or avoid environmental impacts resulting from Project implementation, are also provided. Likewise, PG&E Avoidance and Protection Measures for power line construction and operation are presented. This section also includes a discussion of local, state, and federal permits and approvals that could be required prior to implementation of the Project.

2.1 Project Overview

The Project is a commercial wind farm, the first such project in Santa Barbara County. The Applicant is Pacific Renewable Energy Generation LLC (Applicant), a project subsidiary of Acciona Wind Energy USA LLC, formed specifically to develop, construct, and operate the Project.

The Lompoc Wind Energy Facility (LWEF) would be located on approximately 2,950 acres of rural, agriculturally zoned land on coastal ridges southwest of Lompoc. The Applicant has entered into long-term leases with the seven ~~six~~ property owners of the 2,950 acres. The LWEF would have a maximum electrical generating capacity of 97.5 ~~120~~ megawatts (MW), which would supply approximately 5~~6~~0,000 homes with electricity. The Applicant has contracted with Pacific Gas and Electric Company (PG&E) to deliver 82.5 MW of renewable energy and capacity under a long-term power purchase agreement via a direct interconnection with PG&E's transmission grid. The remainder of the planned capacity would be developed under as many as two subsequent phase~~s~~ and installed upon securing additional long-term power purchase agreements with PG&E or others. ~~According to the Project application,~~ The proposed wind farm could generate up to 285 ~~350~~ million kilowatt hours (kWh) of electricity annually. The target date for commercial operations is the end of 2009. ~~October 1, 2008.~~

Following are the major Project components:

- 65 1.5 MW ~~60 to 80~~ wind turbine generators (WTG)
- New access roads and road improvements
- A communication system
- Meteorological towers
- An Operations and Maintenance (O&M) facility
- Onsite electrical collection and distribution lines

- An onsite Project Substation
- A new 8.7 ~~7.85~~-mile, 115-kilovolt (kV) PG&E power line to the Lompoc area to interconnect with the PG&E electric grid
- Upgrades to existing PG&E facilities

The Project requires a Conditional Use Permit (CUP), pursuant to the Santa Barbara County Land Use & Development Code (LUDC) Section 35.82.060 and a variance for reduced setbacks from property lines.

The Project would occur in as many as two ~~three~~ phases. Phase I is proposed for construction starting in the Spring of 2009 ~~from 2007 to 2008~~ and would take approximately 6 to 10 months to complete. Commercial operation of the 82.5 MW of Phase I is estimated to commence at the end of 2009. ~~in the fourth quarter of 2008.~~ Construction of Phase~~s~~ II and III would commence after the completion of Phase I, but no later than 7 years after the approvals for Phase I. Phases II and III would each have a 6-month construction schedule. The anticipated operational life of the Project is approximately 30 years. Future scenarios could include lease renewals and possible repowering of the wind farm with advanced WTGs or decommissioning the Project and restoring the land.

2.2 Location and Setting

This section describes the location and setting for the LWEF, power line, and PG&E interconnection and upgrades necessary to integrate the generation output into the electric grid.

2.2.1 Lompoc Wind Energy Facility

The LWEF would be located in a rural portion of Santa Barbara County on ridges of the Santa Ynez Mountains, approximately 5 miles southwest of the City of Lompoc and 3 miles north of the coast (Figure 2-1). The Project is located entirely within the inland zone of the County, although the southern Project boundary abuts the coastal zone. The LWEF site is bounded by Vandenberg Air Force Base (VAFB) on the south and west sides and private property on the north and east sides. The Project site is accessed via San Miguelito Road, a public road that winds through the Project area and terminates at the VAFB property line at the northwest edge of the Project (Figure 2-2).

The LWEF site comprises 10 privately owned parcels covering approximately 2,950 acres (4.6 square miles). A 0.05-acre undeveloped area within the LWEF site is owned by the federal government, but it is not part of the Project, and no development would occur in this location. The landowners and assessor parcel numbers for property are shown in Table 2-1. The properties are zoned for agriculture (AG-100), and all are under Williamson Act agricultural preserve contracts. Historically, rock quarrying occurred in the area. The principal use of the land is cattle grazing. Single-family residences or mobile homes and agricultural accessory structures are located on 7 of the 10 parcels. The adjacent private properties are also agriculturally zoned.

The nearest private residences on non-Project properties are located more than 1,000 feet outside the Project area perimeter and more than 1,700 feet from the closest WTG. Other structures and uses in the Project vicinity include VAFB's Sudden Peak Tracking Station near the southern perimeter and Frick Springs, a City of Lompoc water facility on San Miguelito Road, adjacent to the west side of the Larsen property.

TABLE 2-1
Project Landowners

Property Owners	Assessor Parcel Numbers
Signorelli Family Trust/Joe and Sylvia Signorelli, Trustees	083-100-008, 083-250-011, and 083-250-019
Gerald and Sandra Scolari Revocable Trust; Rosabel Scolari Cameron; LeRoy Scolari	083-090-001 and 083-090-002
Adam Signorelli Trust/Adam Signorelli, Trustee	083-090-003
Alphonso Scolari Revocable Trust/LeRoy and Gerald Scolari, Trustees	083-080-004
Peter and Etelvina Signorelli Family Trust/Joanna and Larry Signorelli, Trustees	~~083-090-004 and~~ 083-100-007
Larsen Family Trust/John and Marlene Larsen, Trustees	083-100-004
Joseph A. Signorelli and Gus Tom Signorelli	083-090-004

The Project area terrain includes rolling hills and rugged, steep slopes. The site's southern boundary with VAFB follows the ridgeline for much of its length. Prevailing winds from the northwest regularly flow over the ridges. Some of the prime wind sites in the southern Project area are near the VAFB property line. Figure 2-3 presents the prevailing wind speeds within Santa Barbara County, including the project area.

2.2.2 Lompoc Wind Energy Power Line

A new, approximately 8.7 ~~7.85~~-mile-long, 115-kV power line would be constructed by PG&E to interconnect the LWEF with the PG&E transmission grid (Figure 2-~~13~~). Most of the land area along the proposed route is agricultural. However, there are 10 to 20 residences near the route along San Miguelito Road, and the route runs behind a residential subdivision as it enters the City of Lompoc. The power line would also cross the Celite diatomaceous earth mining property. Additional details regarding the power line are included in Sections 2.3.7 and 2.5.

The proposed route would start at the Project Substation, located west of ~~at the intersection of~~ San Miguelito Road ~~and Sudden Road~~ at the upper (southern) end of Miguelito Canyon. Figure 2-~~13~~ shows global positioning system (GPS) points (sequential numbers 1 through 39 ~~30~~) along the route. These points are expected angle points along the power line route. These points are referenced in the power line description and shown on Figure 2-~~13~~. Since the publication of the Draft EIR, the Applicant has submitted an optional power line alignment for the southern portion of the line. As illustrated on Figure 2-4, the GPS points

denoted by an"R-#" depict the optional power line alignment. GPS points not depicted by "R-#" represent the original alignment of the northern portion of the power line.

The power line would exit the substation (GPS Location R-1) and travel approximately 300 feet northeast to San Miguelito Road (GPS Location R-3). The line would then follow San Miguelito Road in a southeasterly direction for 500 feet to GPS Location R-3/R-4 and then turn to a slight northeasterly direction for 900 feet to GPS Location R-6. Still following San Miguelito Road, the line would proceed due northeast to GPS Location R-8, at which point the power line would travel approximately 1.5 miles in a general easterly direction to GPS Location R-16 at all times staying south of San Miguelito Road and within the participating property site boundaries. Just east of GPS Location 15, the power line would leave the Signorelli property and enter the Larsen property. From GPS Location R-16 the power line travels in a general northerly direction for one mile to GPS Location R-20 at which time the power line would turn due east to GPS Location 12. Just east of GPS Location R-20, the line leaves the Larsen property and enters lands of non-participating property owners for the remainder of its alignment to the City of Lompoc.

From ~~GPS Location 11, the power line would continue 1,250 feet in an easterly direction to~~ GPS Location 12, just below San Miguelito Road, the line would then turn back northeast for 3,800 feet to GPS Location 13, traversing two ridges behind Miguelito Canyon Park to avoid causing visual impacts to the park. At GPS Location 13, the line would turn east to travel 1,900 feet back to San Miguelito Road at GPS Location 14. The power line then would follow the west side of San Miguelito Road 1,500 feet to GPS Location 15. It would continue 4,300 feet along the west side of San Miguelito Road to GPS Location 16, which is at the entrance to the Celite mining facilities. Between GPS Locations 14 and 17, the power line would be constructed by overbuilding the existing distribution line either on the west or east side of San Miguelito Road. This portion of San Miguelito Road would not contain three separate power lines. For the 2,300 feet between GPS Locations 16, 17, and 18, the power line may be located on either side of San Miguelito Road, depending on final design.

From GPS Location 18, the power line would follow the existing PG&E distribution line for 1,300 feet to GPS Location 19. The line would then run 8,500 feet northeast and east across the Celite property toward State Route 1 (SR-1), through GPS Locations 20, 21, 22, 23, 24, and 25 to GPS Location 26, located 800 feet west of SR-1. The power line then would turn north-northwest for 2,300 feet to GPS Location 27, which is on top of the ridge, 1,500 feet from the southeast corner of the City of Lompoc. The power line would follow the ridgeline northeast for 700 feet to GPS Location 28, and then descend the ridge 1,000 feet, in a long span crossing SR-1, to an existing power pole at GPS Location 29, on the east side of the highway. It would then run northward 900 feet to its terminus at GPS Location 30, which would be a tie-in to the existing 115-kV line that feeds the Celite facilities.

2.2.3 Pacific Gas and Electric Company System

Upgrades to PG&E's electrical system would be needed to accommodate the proposed LWEF electrical generation. The upgrades would modify existing facilities located in previously disturbed areas, require no new ground disturbance, and not result in environmental impacts; therefore, the impacts of these upgrades are not evaluated further.

PG&E proposes to reconductor (replace wires and possibly poles) ~~the existing Divide~~ along the ~~Cabrillo No. 2~~ Celite 115-kV power line ~~(Celite line)~~ for a distance of 2,000 feet north from the southern terminus of the existing Divide-Cabrillo Number 2 115-kV line located on a pole adjacent to the Cabrillo substation on San Julian Street ~~of the tie-in~~ (Figure 2-~~43~~). This reconductoring would run to an existing pole located along San Julian Street. Any structures that would be replaced would be similar to the existing 115-kV poles which are approximately 65 feet in height; however, the new poles could be 10 to 15 feet taller than the existing structures (new structures would be 75 to 80 feet total height). In addition, reconductoring the portion of the line within the City of Lompoc will not involve relocation of the poles. ~~the existing structures may be replaced.~~

At the Atascadero Substation, located at the corner of Santa Rosa Road and Highway 41 in Atascadero, PG&E would install relays and appropriate communication equipment to trip the circuit breaker. All work at this location would be conducted within the confines of the existing fenced substation area.

At the Divide Substation, located at 6700 Graciosa Canyon Road near Orcutt, PG&E would replace existing protective relays and install a new relay protection scheme that would include transfer trips, reclosing relays, and reclose blocking equipment. All work at this location would be within the confines of the existing fenced substation area.

2.3 Project Components

2.3.1 Wind Turbine Generators

2.3.1.1 Layout and Design

The Project proposes 65 ~~60 to 80~~ WTGs located in designated construction corridors as shown on Figure 2-2, each with a capacity to generate 1.5 ~~to 3.0~~ MW of electricity. The range in number of WTGs proposed for each corridor is listed in Table 2-2.

TABLE 2-2
Estimated Number of WTGs to be Installed in Each Construction Envelope

Construction Envelope	Range of WTGs
West Ridge	7-12
Scolari Ridge	3-5
Signorelli Ridge	4-6
South Ridge	9-18
Middle Ridge	9-15
North Ridge	12-15
Sudden Ridge	12-18
Larsen Ridge	3-7

The WTGs would be ~~315 to 492~~ 389 or 397 feet in total height from foundation to blade tip. Examples of WTGs being considered for the Project are shown on Figure 2-5~~4~~. The Applicant currently plans to install Acciona AW-1500 WTGs. A brochure on this model is posted on the following website: http://www.acciona-energia.com/secciones/0002020601/

En/NEW_AW1500_ENG.pdf. Foundations for WTGs in the Sudden, South, and West Ridge construction envelopes would not be built above 1,800 feet mean sea level to avoid conflicts with VAFB communication systems. WTG spacing would be no less than 1.5 rotor diameters (~~350 to 495~~ 379 to 404 feet); in most cases, the WTGs would be located farther apart for environmental considerations and to prevent wind shadowing (wind blockage by WTG structures). WTGs in a construction envelope would typically be spaced evenly within that envelope, although minor adjustments might be made to account for topography or road access, or to avoid environmental impacts. The final locations of individual WTGs in each corridor would be subject to adjustment in the corridor until the time of construction. This flexibility in WTG layout is needed in the event that the environmental review, pre-construction field surveys (geotechnical, biological, or cultural), or further wind studies indicate that a modified layout is preferable. If future information necessitated the need to place Project components outside of these corridors, these changes would be subject to subsequent environmental review.

The WTG towers would be 80 meters ~~200 to 330~~ (262 feet) tall; be constructed of heavy-duty, epoxy-coated, welded steel; and would form a conical shell. The towers would taper from approximately ~~18~~ 15 feet in diameter at the base to 7 feet at the nacelle (the portion of the WTG where mechanical components are housed), as shown on Figure 2-6~~5~~. No guy wires would be required to hold the towers upright. The fully assembled towers would weigh 80 to 285 tons, for each 1.5 MW WTG depending on model. ~~depending on the size of each WTG (1.5 to 3.0 MW).~~

The WTGs would be of the three-bladed, horizontal axis design, which is the type installed in most modern, commercial wind farms (Figure 2-4). The blades would be approximately ~~115 to 165~~ 126 to 135 feet long and constructed of laminated fiberglass. A rotor hub, to which the blades would be bolted, would be covered by a composite nose-cone structure to streamline the airflow and protect the equipment. The ~~compartment~~ nacelle ~~that houses the mechanical workings of the WTGs~~ would include the drive train, gearbox, generator, and electrical and hydraulic components, as shown on Figure 2-6~~5~~. A transformer would be located either at the base of each tower (Figure 2-7~~6~~, Inset B), or inside the tower or nacelle, depending on the WTG manufacturer and model used, to increase the generation voltage from either 600 volts to ~~or~~ 12 kV up to 34.5 kV.

The WTGs would be set back from private property lines at the Project area perimeter by a distance equal to the total system height, as required by LUDC Section 35.57.050, except as follows. The Project application requests a variance from the setback requirement to allow the WTGs to be located as close as one WTG blade length ~~150~~ (126 or 135 feet) from the VAFB property lines along the south and west Project boundaries and from internal property lines within the Project. The intent is to position the WTGs close to the ridgelines to best capture the wind, avoid placement on steeper slopes to minimize grading, and optimize WTG layout. In some locations this would result in placing the WTGs within the setback area. In no case would any WTG component, including blades, intrude onto VAFB property.

The Applicant is currently planning on using turbines with a noise rating of less than 106 dBA. However, WTGs with a maximum noise level of 112 decibels (dBA) ~~w~~ could be used, except in the Larsen corridor and in a portion of the North Corridor, where a WTG with a maximum noise level of 106 dBA would be used to reduce noise impacts to residences

outside the 2,950-acre Applicant-leased property. In the North Corridor, these WTGs would be located in the eastern portion of the corridor along North East Road, east of the intersection of North East Road and North Ridge Central, to reduce the noise level to the nearest houses on the Bedford and Beattie properties. At present, the WTG in the Larsen corridor would remain isolated from the other WTGs in that corridor.

2.3.1.2 Foundations

The WTG foundations would have one of three designs, depending on geotechnical constraints and other factors, including wind patterns at the site, site access, material availability, and the ~~type of~~ WTG manufacturer selected prior to Project installation. The three possible types of WTG foundations are (1) Patrick and Henderson Inc. (P&H) patented post-tensioned foundation, (2) rock anchor, or (3) a modified spread-footing method of construction.

The P&H foundation would be drilled or dug to approximately 15 to 35 feet deep, depending on geotechnical conditions and loadings, and would be approximately ~~18~~ 15 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 P&H foundation. Six to 20 holes, depending on geotechnical data, would be drilled approximately 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.

A spread footing type of foundation also may be used. This foundation may be square or octagonal and formed with reinforcing steel and concrete. Depending on geotechnical data, this type of foundation may be as large as 35 by 35 feet and 6 to 10 feet thick.

Total combined cut and fill volumes for the WTG foundations are estimated at 68,000 cubic yards. For all designs, the exposed concrete pad would be approximately ~~18~~ 15 feet in diameter and extend less than 1 foot above grade.

2.3.1.3 Operation

The WTGs would be equipped with sensors and yaw and pitch controls to adapt to different wind speeds and directions to maximize power output. The yaw drive ensures that the WTG is producing the maximum amount of electrical energy at all times by keeping the turbine blade facing into the wind as the wind direction changes. The pitch is the angle of the turbine blade. The WTGs would be microprocessor controlled and operating data would be transmitted to the O&M facility for system monitoring and control. This control system would measure and automatically control operations, including the following functions:

- Power regulation over a wide range of wind speeds, including startup, shutdown, and generator-grid connection

- Yaw control, including protection against damage due to abnormal operating conditions or extreme environmental conditions
- Safety monitoring, enabling automatic shutdown of the WTGs independent of all other controls, thereby protecting them from unsafe conditions
- Monitoring sensor data for rotor speed, generator current, electrical load, nacelle vibration, yaw error, pitch control, system-hydraulic pressure, temperature, and more

The controller would adjust the blade pitch approximately every minute, using a hydraulic or electric actuator. The actuator would regulate blade pitch to achieve smooth and consistent power curves as air density changes. The actuator would adjust the blades' angle-of-attack with the prevailing wind and air density to optimize performance. The rotor would normally be stopped by either yawing the blades out of the wind or by rotating the blades to increase their aerodynamic drag. A fail-safe hydraulic brake would also be installed on the high-speed shaft, which would be used primarily to prevent rotation during maintenance.

If a control parameter deviated from its normal operating range, the controller would automatically shut down the WTG and notify the operating technician(s) of the fault. In many situations, the controller would analyze the data and restart the WTG if the fault were corrected or the operating conditions returned to normal. If the fault reoccurred, the controller might require a manual start, for which a technician would have to be present to restart the WTG.

Each WTG controller would communicate via fiber-optic cables to the LWEF O&M facility. This configuration would enable the facility to be controlled to maximize output, minimize maintenance costs and downtime, produce operations reports, and ensure compliance under the Project's performance warranties.

In accordance with good utility practice, routine inspections would be performed on all electrical connections periodically, and any faulty cables or damaged insulators would be replaced as needed for the underground/overhead collection system within the Project area.

A possibility exists that severe storms might result in occasional downed power lines or poles. In this case, procedures outlined in the emergency response plan and the standard operating procedures developed for the Project would address problems such as power outages, lightning storms, excessive rains, landslides or mudslides, ice storms, and other weather-related incidents.

2.3.1.4 Additional Safety Features

The WTGs would be equipped with two fully independent braking systems that could stop the rotor by either acting 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 there were a fault with one, the other could still bring the WTG to a halt. Brake pads on the disc brake system would be spring-loaded against the disc, and power would be required to keep the pads away from the disc. 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. If an emergency stop were executed, remote restarting would not be possible. The WTG would need to be inspected in person and the stop-fault reset manually before automatic reactivation. 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.

The safety systems of all WTGs would comply with the codes set forth by European standards as well as those of the Occupational Health and Safety Administration (OSHA) and the American National Standards Institute (ANSI).

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 Supervisory Control and Data Acquisition (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 that could send a page or message to a cell phone of the on-call operators or the local fire district (first responders), as required.

The nacelle would be accessed using a ladder located inside the tower. Internal ladders and maintenance areas inside the tower and nacelle would be equipped with safety provisions for securing lifelines and safety belts and conform to or exceed ANSI 14.3-1974 (Safety Requirements for Ladders).

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. Because the rotor blades would be nonmetallic, they normally would not act as a discharge path for lightning; however, as the highest point of the WTG, the blades sometimes would provide the path of least resistance for a lightning strike. To protect the blades, they would be constructed with an internal copper conductor extending from the blade tip down to the rotor hub, which would be connected to the main shaft and establish a path through the gearbox and nacelle bed frame to the tower base, down to the grounding system embedded underground. An additional lightning rod would extend above the wind vane and anemometer at the rear of the nacelle. Both the rear lightning rod and blades would have conductive paths to the nacelle bed frame, which connects to the tower. The tower base would be connected to the earthing system at diametrically opposed points. The earthing system would consist of a copper ring conductor connected to earthing rods driven into the ground at diametrically opposed points outside of the foundation. The earthing system, with an acceptable resistance (less than 2 ohms), would provide a firm-grounding path to divert harmful stray surge voltages away from the WTG. The controllers and communication interfaces to the LWEF central control system would use fiber-optic cables and optical signal conversion systems, to protect these systems from stray surges.

The Federal Aviation Administration (FAA) may require lights on the WTGs. This analysis assumes that a synchronized, flashing, red light would be mounted on the top of the nacelle of the WTG located at the end of each WTG string; additional WTGs within the string would also have such a light so that the maximum distance between lit WTGs would be no greater than 2,640 feet. If required, these lights would be placed in compliance with FAA guidelines.

The Project is located within VAFB restricted airspace and would conform to VAFB-related aviation requirements; it is not anticipated that additional lighting would be required beyond that identified by the FAA.

The Project site is located entirely within the County's High Fire Hazard Area. Because personnel are onsite during daylight working hours and in frequent communication with central operations, any fires would be noticed immediately and reported to local authorities. Some firefighting equipment would be located at the Project Substation site, maintenance yard, and in vehicles. Fire deterrents within the LWEF would include service and access roads, which could serve as firebreaks, and regular clearing of vegetation from areas around transformers, riser poles, and buildings.

Safety signing 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 safety policy would be developed and would be included as part of the mitigation plan requirements.

2.3.1.5 Wind Turbine Generator Certification

The Project would use only WTGs that have achieved type certification by a reputable and experienced third-party verification institute, such as Germanischer Lloyd, Det Norske Veritas, WindTest, or Risø, and demonstrate a design life of at least 30 years. The factors involved in certifying WTG design include safety and control system concepts, addressing rotating and still turbine states, and foundation weight-bearing confirmation. When approved, specific components, such as blades, drive trains (hubs, gearing, bearings, and generators), safety systems, towers, yaw systems, foundations, and electrical installations, would be reviewed and approved according to minimum standards established by third-party verification institutes. In addition to operating characteristics and design features, the testing groups review construction supervision procedures, including materials testing, quality assurance reports and procedures, corrosion protection, and others. The groups also review and set standards for supervision during the transportation, erection, and commissioning of the WTGs.

Operational testing performed by the laboratories includes measurement of power curves, noise emissions, and loads and stresses, including wind loads imposed on the tower, foundation, drive train, blades, nacelle frame, and power quality. Test data are evaluated for plausibility, and compared with the original calculations and mathematical models used for the design. Neither Germanischer Lloyd, Risø, nor DNV would issue its certification unless the WTG design had met minimum design standards and performance levels, both calculated and measured. The approval process also applies to the manufacturers' processes and procedures through International Organization for Standardization 9001.

2.3.2 Onsite Access Roads

Numerous dirt roads are present throughout the Project area and maintained by the property owners for agricultural operations. To provide access during construction and operations, 8.3 miles of the existing roads would be improved and widened from their existing widths of ~~12~~ 10 to 14 feet, ~~to 16~~ to 24 feet. Some road sections would need to be widened to 40 feet to provide access for the large cranes required for WTG installation. For purposes of disturbance calculations, a 40 foot wide temporary roadway width was used.

~~Because the greatest road width was used to calculate the access road disturbance area, the additional disturbance area to accommodate widening, as much as 40 feet in some areas, has not been added because the road disturbance calculation is considered conservative.~~ The improved existing ~~wider stretches of~~ roadways would be restored to a 24-foot or less width upon completion of WTG installation.

In addition, ~~5.23~~ 5.5 miles of new roads would be constructed. Most of the new roads would be built to access the North Corridor (Figure 2-2). Short sections of roadway would also be built in other parts of the Project area. The road work would include trenching and installing underground electrical distribution lines and communication cables.

The access road serving the Scolari and North corridors would cross Hondo Creek, requiring construction of a bridge to minimize impacts to the stream. The proposed bridge over Hondo Creek would be an engineered steel structure designed by a registered engineer. The bridge would likely consist of three rail cars installed side by side. The bridge would be 16 to 24 feet wide and 60 to 80 feet long, depending on final design work. The footing for the bridge would measure 4 by 16 feet or 4 by 24 feet, depending on the width of the bridge. Headwalls are proposed to be built outside of the stream bed so that there would be no grading in the stream. The area of construction disturbance, which would be outside the riparian area of the creek, would measure 50 by 50 feet on each side of the stream crossing. However, until the exact load weights of the equipment needed to cross this creek are known, only an estimate of the dimensions and type of bridge can be assumed.

Crossings of minor drainage channels would be accomplished with culverts. Portions of the proposed access roads are on relatively steep slopes (greater than 30 percent). According to the preliminary grading plan, total combined cut and fill volumes for the road work are estimated at 401,000 cubic yards. A 20 percent shrinkage factor generally is used in calculating cut versus fill because of shrinkage of the fill and the initial blading of the topsoil prior to the cut. Therefore, of the 401,000 cubic yards of total cut and fill, 219,000 cubic yards are estimated as cut. The total area disturbed by roads is estimated to be ~~27~~ 57 acres, of which ~~23~~ 30 acres would be permanently disturbed. All grading would be subject to a final, approved grading and erosion control plan to minimize erosion and ensure adequate slope stabilization. Disturbed areas would be revegetated following the roadwork.

During construction and O&M, Project-related traffic would be routed to existing roads (subject to improvement) and new roads developed for the Project. The Applicant would instruct Project personnel and contractors to adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to assure safe and efficient traffic flow. Signs would be placed along public roads as directed by the County to identify speed limits, travel restrictions, and other standard traffic control information. In addition, signs will be placed within the Project site in accordance with the Project Safety Plan (Section 2.8.1) and EIR requirements.

For security reasons, the Applicant ~~might~~ may request that the County close either or both of Sudden Road and San Miguelito Canyon Road beyond their intersection to the public. ~~abandon Sudden Road in the O&M facility and Project Substation area in favor of a private road. The private road would serve~~ These roads would continue to provide access to VAFB and the property owners that have access rights off of Sudden Road, all of which are Project participants. This action is not part of the proposed Project and is not within the scope of

this environmental review. ~~considered to be an administrative process and would occur outside of this Environmental Impact Report (EIR) process.~~

2.3.3 Onsite Electrical Lines and Communication System

Each array of WTGs would be interconnected via 34.5-kV electrically insulated cables. These cables would typically run underground. However, if a collection line needed to cross a canyon, a spring, or an archaeological site, for example, or where a line runs down from a hill to the Project Substation, standard overhead line construction methods would be used.

The power collection lines would transmit the power from each array of WTGs to the Project Substation. The underground collector cables would follow roads, where feasible, ~~and in all cases be constructed within the WTG corridors~~ as shown on Figure 2-2. For the purposes of determining ground disturbance, aboveground collection lines would be supported by single wooden poles or H-frame structures. The overhead collection system would be constructed in conformance with good utility practice, the National Electric Safety Code (NESC), ANSI, the United States Fish and Wildlife Service (USFWS), and the Avian Power Line Interaction Committee (APLIC). At the Project Substation, the voltage would be increased to 115 kV for interconnection with the proposed PG&E power line.

Operation of the Project would be controlled by an integrated, automatic control system, SCADA, which would be capable of monitoring all operational parameters and starting and stopping each WTG. The system would also be connected to the fire detection system. The SCADA system would transmit operating parameters and other data from each WTG to the central computer. The system would allow remote control and monitoring of individual WTGs and the entire LWEF from the central host computer or a remote personal computer. The SCADA system could also send signals to a fax, pager, or cell phone to alert operations staff about an operational problem. SCADA cables would be buried in the same trenches used for the electrical collector lines. Overhead communications lines would be installed primarily on the structures used for overhead distribution lines. Either overhead or underground communications lines would be routed to the control room.

2.3.4 Meteorological Towers

As many as 10 meteorological towers would record weather data necessary to determine the most efficient operational strategy for the WTGs (Figure 2-7~~6~~, Inset G). The data collected would include wind speed and direction, temperature, humidity, barometric pressure, and rainfall. The towers are proposed to be free-standing lattice structures, up to 262 feet in height. No guy wires would be required for these types of towers. The estimated construction footprint would be approximately 1,500 square feet during construction, and approximately 900 square feet when constructed. The meteorological towers would be placed within the construction envelopes wherever possible; if a meteorological tower were proposed outside the construction corridors, further environmental and resource survey work might be required. The meteorological towers would not require road construction or foundation grading; they would be accessed by driving four-wheel drive equipment, such as a crane and back-hoe, across the Project-leased property.

Eight 50-60 meter (197 feet) temporary, guyed meteorological towers were installed on the project site for wind resource studies. The applicant plans to increase the height of two of

these existing towers to 80 meters (262 feet)for the interval following project approval to commencement of operations. FAA obstruction lighting would be required on the towers. The towers would be equipped with bird flight diverters. All meteorological towers, except the two 80 meter towers, would be removed within 90 days following final CUP approval. The 80 meter temporary towers would be removed prior to first delivery of power or one year after CUP approval, whichever comes first. Any permanent meteorological tower(s) would be unguyed.

2.3.5 Operations and Maintenance Building

An O&M facility is proposed near the corner of San Miguelito Road and Sudden Road, as shown on Figures 2-2 and 2-8~~7~~. The O&M facility would occupy approximately 2 acres, and would include the following:

- Main building with offices
- Spare parts storage room
- Restroom
- Shop area
- Outdoor storage for large parts (such as spare blade sets)
- Outdoor parking facilities
- Turnaround area for large vehicles
- Outdoor lighting
- Gated access with partial or full perimeter fencing

The O&M facility is proposed to be centrally located (in relation to travel distance along maintenance roads), to minimize the average response time of on-site crews to wind turbines and other appurtenant facilities. In addition, locating the O&M facility close to the project's substation will minimize response time and related down time to power delivery related operations. The O&M facility will also house fire fighting water and suppression equipment. By centrally locating fire fighting water and suppression equipment, fire response to the project site will be optimized.

The O&M facility would be a pre-engineered metal building with a foundation footprint of approximately 50 by 100 feet. During construction, the O&M facility area would be leveled and graded and would serve as a central base of construction operations with as many as eight temporary office trailers.

The proposed water system to support the Project would be installed on O&M facility grounds. 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. Water for the O&M facility operations ~~would~~ will be obtained either from a new shallow ~~an unused~~ well on the property or from an existing spring on the property. ~~trucked in from Lompoc.~~ Less than 500 gallons per day would be needed for the O&M facility.~~, and the water tank would be filled every 2 weeks using a 5,000-gallon water truck.~~ Effluent from the office drains would be disposed of through a proposed leach line system to be installed on the east side of the O&M facility.

The 5,000-gallon fire water tank would run on an electrical pump and would be connected to a fire hydrant and a sprinkler system in the O&M facility. The fire water tank would not be used for anything except for fire water storage. The fire water tank would be refilled only

to replace water used to fight fires. The water tank for O&M facility operations could also be used for fire water. The entire system would be subject to the approval of the Santa Barbara County Fire Department (SBCFD).

2.3.6 Project Substation

Power transmitted by the overhead and underground 34.5-kV collection system would be delivered to the Project Substation located northwest ~~east~~ of the O&M facility (Figure 2-~~7~~6, Inset D). The Project Substation would consist of ~~a main~~ step-up transformers and other facilities to increase the 34.5-kV power from the underground and overhead collection ~~distribution~~ lines to 115 kV ~~high voltage~~ for delivery to PG&E's 115-kV grid. The Project Substation would be approximately 2 acres in size, within a fenced enclosure, and would consist of four components: a low-voltage switchgear rack, two step-up transformers (34.5 kV to 115 kV), 115-kV switch rack, and control building. Electricity would be provided from the existing PG&E distribution lines in the Project area to support the power needs of these components. The main step-up transformers may be equipped with cooling fans to increase the thermal rating and efficiency of the transformers. Fans would be thermostatically controlled and would only run during periods of continuous high generator output. The 115-kV switch rack would consist of a single-line termination, disconnect switches, a power circuit breaker, and a 115-kV takeoff structure (the point at which PG&E would connect the new power line). The control building would house protective relaying, metering, and control equipment for the Project Substation and LWEF. The Project Substation area would be graded to provide for oil containment in the event of equipment failure.

2.3.7 Lompoc Wind Energy Power Line

The power line would be an overhead line designed, constructed, and operated by PG&E in accordance with the California Public Utilities Commission's (CPUC) General Order 95, State of California Rules for Overhead Electric Line Construction. These requirements include design, construction, maintenance, and inspection rules that apply to the various classes of overhead lines. Additional information regarding power line construction is provided in Section 2.5. The guidelines require that electrical supply systems be designed, constructed, and maintained in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of the supply line and equipment. Section 2.8.5 presents additional, specific Avoidance and Protection Measures that would be implemented by PG&E during power line construction and operation. All work on public streets and highways would be performed in a manner that interferes as little as possible with the operations of other utilities and the convenience of the public, and causes no unusually dangerous conditions to workmen, pedestrians, or others at any time.

Operations and maintenance activities for the power line would include frequent inspections to ensure that the system is in good condition and would not create hazards. Ongoing fire management and safety would include maintaining a 10-foot radial clearance of flammable fuels (vegetation) around the base of each wood pole structure[1] during fire season, as required under Public Resources Code, Section 4292; a minimum 15-foot

[1] PRC, Section 4292, states that the 10-foot clearing applies only to poles or towers that support certain equipment (switches, fuses, transformers, lightning arresters, line junctions, or dead-end or corners).

clearance between vegetation and conductors is required for safety and to minimize tree-related outages. PG&E may remove fast-growing trees or trim back vegetation farther than the minimum required to achieve at least 3 to 4 years of clearance before the next trim. In addition, the maintenance program would also include removing dead, rotten, or diseased trees or vegetation that hang over or lean toward the system, creating a falling hazard.

General requirements for tree trimming include minimum radial clearances that should be established at time of trimming, between the vegetation and the energized conductors and associated live parts of the power line where practicable. The ~~typical~~ minimum vertical clearance for 115-kV lines is ~~5 to~~ 10 feet. In addition, the rules indicate that when a utility has actual knowledge of dead, rotten, or diseased trees or portions of tress that hang over or lean toward and might fall into a span, they would be removed. Exceptions to the rules include mature trees whose trunks and major limbs are located more than 6 inches, but less than 18 inches, from primary distribution conductors are exempt from the 18-inch minimum clearance requirement.

The power line would be constructed mostly of single wooden poles and a few double wooden poles. Single steel poles would be needed at a few engineered angle points; the number of steel poles would be determined as part of final power line design. The poles would be up to 75 feet in height and would be placed every 250 to 350 feet; assuming as a worst-case scenario that poles were placed every 250 feet, as many as ~~169~~ 184 poles would be required. In some locations, engineered structures with concrete foundations might be used to support the conductors. The exact number of poles and their sizes, types, and spacing would be determined as part of final design engineering. PG&E anticipates acquiring easements ranging from 50 to 80 feet wide, depending on design, span length, and terrain.

The power line route is described in Section 2.2.2 and shown on Figure 2-~~4~~3. As proposed, where feasible, this new line would allow for the consolidation of the existing power line with the new line (both the proposed and existing power lines would be suspended from the new poles).

2.4 Lompoc Wind Energy Facility Construction

2.4.1 Construction Phasing

The Project may be constructed in as many as three phases. Construction would begin as soon as the requisite Project approvals, including land use, grading, building, and other permits were obtained from the County and other responsible agencies (Section 2.9). The last phase would start no later than 7 years after the issuance of the CUP to allow construction of the first phase. Phase I would be the construction and production of approximately 82.5 MW of wind generation, which would fulfill the Power Purchase Agreement (PPA) between the Applicant and PG&E. The power line, most of the meteorological towers (some towers might be constructed as part of subsequent Project phase~~s~~), the Project Substation, and the O&M facility would be built during this phase. Until the ~~type of~~ WTG manufacturer is selected, the wind regime analysis finalized, and a contractor selected, the Applicant cannot specify which portions of the Project would be developed first, with the exception of these components. Phase I construction would start in

spring 2009 ~~late 2007~~ and continue for 6 to 10 months. ~~into 2008.~~ The commercial operation date is estimated to be ~~the fall~~ late 2009. ~~of 2008.~~ Phase I construction might also include the installation of the additional 10 WTGs to achieve the maximum electrical generating capacity of 97.5 MW.

Construction of the first phase would last approximately 6 to 10 months, with most of the work occurring during a 6-month period. Power line construction would occur within this time frame assuming ~~If~~ no significant environmental issues were identified (see Section 2.5)., ~~PG&E would proceed with power line construction after a public notice period lasting approximately 90 days after certification of the final EIR. However, if the final EIR concludes that PG&E's power line portion of the Project (that is, the power line and grid system upgrades) would cause significant unavoidable environmental impacts, or if protests were filed with the CPUC concerning potential environmental impacts of the power line, PG&E might be required to apply to the CPUC for a Permit to Construct, which would delay construction of the power line and grid system upgrades.~~ Construction of each subsequent phase is estimated to last 6 months.

During any subsequent phase of construction, only the area needed for installation of the WTGs and access roads would be graded or disturbed; thus, Project phasing would likely not involve repeated grading, filling, or disturbance of any given areas, with the possible exception of reusing staging areas and San Miguelito Road. The staging areas at the Larsen property and opposite the O&M facility would be kept active until all Project construction was completed, although the staging area on the Adam Signorelli property would be restored after the WTGs on the western portion of the project were completed. Additional repair work on San Miguelito Road also might be required after each construction phase.

2.4.2 General Procedures

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

- Grading of field construction office and Project Substation (also O&M facility)
- Construction of site roads, turnaround areas, and crane pads at each WTG location
- Construction of the WTG tower foundations and transformer pads
- Installation of the electrical collection system (underground and overhead lines)
- Assembly and erection of the WTGs
- Construction and installation of the Project Substation
- Commissioning and energizing the LWEF

2.4.3 Construction Traffic

All Project materials would be brought to the site via Highway 101 to Highway 246 from the north or via Highway 101 to SR-1 from the south. The Applicant evaluated San Miguelito Road in November 2006 to determine if the road would be passable by large trucks and concluded that road widening, grading, or tree removal would not be required if steerable trailers were used. Because this cannot be established with certainty until the specific characteristics of the transport vehicles have been determined, the analysis assumes that

some road widening, grading, tree removal, and tree trimming would be needed. Similarly, temporary raising of overhead power lines might be required. Entrances to the ranch properties off of San Miguelito Road would have to be widened to allow access by construction equipment. Details would be included in the final grading and other resource protection plans.

The Project would employ 50 to 100 workers at the site during the peak of construction. It is anticipated that a minimum of 80 percent of the workers would live or stay in the Lompoc area. Assuming 100 workers and 1.1 persons per vehicle, approximately 91 worker vehicles, or 182 one-way vehicle trips, would be required per day (standard carpool factor). Table 2-3 shows the estimated construction traffic for the Phase I construction period. The most significant construction activities are expected to occur over a 6-month period, with a few months expected for construction mobilization and demobilization, for an estimated 10-month total construction schedule.

TABLE 2-3
Estimated Phase I Construction Truck Trips

	Month						
Activity	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
WTG Parts Delivery			320	320	320	320	1,280
WTG Foundation Installation	600	1,200	1,200	450			3,450
WTG Water Delivery	500	1,250	1,250				3,000
Access Road Construction	1,323	1,323					2,646
Pole Placement	203	203	203	203	202		1,014
Line Stringing			40	40	40	40	160
Meteorological Tower Installation				60	60		120
Project Substation and O&M Facility Construction				200	200	200	600
Total by Month	**2,926**	**3,976**	**3013**	**1,273**	**822**	**560**	**12,270**
Total by Day (22 Construction Days per Month)*	**119**	**181**	**137**	**58**	**37**	**25**	**93**

*Additional construction days/months may be added in accordance with Mitigation Measure NOI-1.

The estimated numbers and types of construction equipment that would be used during construction are summarized in Table 2-4.

TABLE 2-4
Equipment Requirements

Equipment	Fuel Type	No. of Units	Equipment	Fuel Type	No. of Units
Excavator	Diesel	2	Concrete truck	Diesel	4-6
D-9 bulldozer	Diesel	1	Dump truck	Diesel	2
D-8 bulldozer	Diesel	2	Fork/Manlift	Diesel	1
D-6 bulldozer	Diesel	1	Concrete pump truck	Diesel	1
980 Front-end loader	Diesel	1	Generator	Diesel	1
300-Ton crane	Diesel	1	Pick-up truck	Gasoline	8-14
120-Ton crane	Diesel	1	Welder	Electric	4
90-Ton crane	Diesel	2	Line truck	Diesel	2
14-H load grader/ Gradall	Diesel	1	Scraper	Diesel	2
Water Truck	Diesel	2-3	Trencher/Slurry Trencher	Diesel	1
Compactor	Diesel	2			

2.4.4 Field Survey and Construction Specifications

A civil engineering site survey would be performed to stake out the exact location of the WTGs, site roads, and electrical lines. This survey would be followed by detailed geotechnical studies at each WTG location and the O&M facility site. The studies would involve drilling boreholes (for example, 30 to 40 feet deep) and digging shallow trenches to identify soil and rock types and evaluate their properties. Using the acquired data, including geotechnical information, environmental and climatic conditions, and site topography, the Applicant's engineering group would establish a set of site-specific construction specifications for each WTG and other components of the Project.

2.4.5 Site Preparation and Road Construction

Site activities would begin with construction of site access entryways from San Miguelito Road, rough grading of access roads, leveling of the construction site office parking area, and installation of six to eight temporary site office trailers with temporary power at the intersection of San Miguelito Road and Sudden Road. All excavation and foundation construction work would be done in accordance to a formal Stormwater Pollution Prevention Plan (SWPPP) for the Project.

Access roads would be gravel surfaced unless extremely steep slopes necessitated paving. Road construction would be performed in multiple steps, starting with topsoil salvage and triple-lift soil salvage in areas known to support the endangered plant species, Gaviota tarplant. After the soil salvage, the rough grading and leveling of the roadway areas would occur. When rough grade was 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-compacted to finished grade. The width of construction access roads will vary between 24 to 40 feet to accommodate roadway cut and fill, and necessary equipment turning radius' and turn-outs. At completion of heavy construction, the road would be regraded to a width of ~~20 to~~ 24 feet or less 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. Water bars, similar to speed bumps, would be cut into the roads in areas where needed, to allow for natural drainage of water over the road surface and to prevent road washout. V-ditches and culverts 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.

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 re-used 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, as listed in Table 2-4. Stormwater measures, such as hay bales and diversion ditches, would control stormwater runoff during construction. Access points from public roads would have locked gates, as agreed upon with the landowners.

2.4.6 Equipment and Water Requirements

Heavy equipment would be needed to clear the sites, build roads and WTG foundations, haul and lift materials, and pull power line. After roads were opened and foundations built, cranes and trucks would move in to haul and lift the WTG parts into position for assembly. Approximately 320 truck trips per month (during Months 3 through 6 of the construction period as shown in Table 2-3) would haul WTG parts to the Project site, each with a gross weight ranging between 30,000 and 180,000 pounds. The trucks would have many axles to spread the load on streets and roads. The trucks would enter the area from Lompoc using established truck routes and proceed to designated areas for unloading. Road material, concrete, and water would be hauled from local sources.

Portable concrete batch plants (Figure 2-9~~8~~) would be set up to meet construction needs in the staging areas on the Larsen property, the Joe Signorelli property across from the O&M facility, and the Adam Signorelli property (Figure 2-2). Foundations for each WTG would require up to several hundred yards of concrete, which must generally be placed within 45 minutes of being made or "batched." The onsite batch plant(s) would reduce the travel time for the mixer trucks and the number of trips over public or non-site roads. It is unlikely that the simultaneous operation of two batch plants would be required; however, as a worst-case scenario, the environmental analysis assumes that two batch plants would be in operation at the same time for a short period.

Reclaimed water from the Lompoc Wastewater Plant would be trucked in as needed for dust control during construction. As many as 9,000 gallons of water (five to six truck trips) could be required on days when dust control is needed. Total water usage for dust control and foundation construction would be approximately 38 acre-feet. Additional water would be trucked in for the concrete batch plant(s) and would be obtained from the City of Lompoc just below its storage facility at the north end of San Miguelito Road.

2.4.7 Disturbed Areas

The estimated temporary and permanent land disturbance areas for the Project are shown in Table 2-5 (on the following page).

2.4.8 Foundation Construction

Foundations would be required for each WTG and pad transformer, as shown on Figure 2-7~~6~~, Insets A and B; the Project Substation equipment, as shown on Figure 2-7~~6~~, Insert D; and the O&M facility. 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 approximately 90 cubic yards of 4,000- to 6,000-pound-per-square-inch (psi) test concrete and 80 cubic yards of 1,000-psi slurry mix, totaling approximately 18 to 20 truckloads of concrete per WTG. 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.

TABLE 2-5
Estimated Temporary and Permanent Land Disturbance

Project Component	Area Disturbed per Project Component	Number of Components	Temporary ~~Total~~ Disturbance (acres)	Permanent Disturbance (acres)
WTGs	1.5 acres ~~5,000 square feet~~ (temp.) 3,000 sq.ft (perm.)	65 ~~80~~ (max.)	97.5 ~~9.18~~	4.48 ~~5.51~~
Meteorological Towers	1,500 sq.ft. (temp.) 900 sq.ft. (perm.) ~~0.02 acre~~	10	0.34 ~~0.20~~	0.21 ~~0.20~~
Access Roads – Existing Improved	8.3 ~~8.05~~ miles	N/A	30.0 ~~9.76~~	14.1 ~~9.76~~
Access Roads – New	5.5 ~~4.45~~ miles	N/A	26.6 ~~12.8~~	16.0 ~~12.8~~
Hondo Creek Bridge	0.11 acre	N/A	0.11	0.11
O&M Facility	2.0 acres	N/A	2.0	2.0
Project Substation	2.0 acres	N/A	2.0	2.0
Power Poles	7,850 ~~2,500~~ sq.ft.[1] (temp.) 314 sq.ft.[2] (perm.)	184 ~~169~~	33.16 ~~9.70~~	1.33 ~~1.22~~
Staging Areas:				
Sudden	1.42 ~~2.27~~	N/A ~~1~~	1.42 ~~2.27~~	0
Larsen Property	0[3] ~~2.95~~	N/A ~~1~~	0[3] ~~2.95~~	0
Signorelli Property	2.60	N/A ~~1~~	2.60	0
		Total	**195.7 ~~53.57~~**	**40.2 ~~33.6~~**

Note:
1 Based on 50 foot radius centered on pole (see Section 2.5.1).
2 Based on 10 foot radius vegetation clearance (see Section 2.3.7).
3 Larsen staging area would be located on an existing gravel pad that is part of the old rock quarry.
N/A – not applicable

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 pad transformer foundation; 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 overexcavation 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. An estimated 125 cubic yards of excavated soil would remain from each WTG. 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.

2.4.9 Electrical Collection System

After the roads, WTG foundations, and transformer pads were completed for a particular row of WTGs, underground cables would be installed along that road section. Trenches would be cut to the required depth (Figure 2-7~~6~~, Inset C). Cables would be laid in the trenches, surrounded with a cushion of clean fill, inspected, and the trenches backfilled.

Shallower trenches might be required where solid rock is encountered. Cables would be protected with concrete slurry. 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, detailed biological and archaeological surveys would be conducted to confirm that Project impacts would be minimized. 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.

2.4.10 Project Substation

The Project Substation and interconnection facilities construction 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 high- and low-voltage sides of the Project Substation may be separated by a fence and provided with separate control houses, because the high- and low-voltage sides would be under separate control by PG&E and the Project operator, respectively. 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.

2.4.11 Wind Turbine Generators

The WTG components would be delivered to the site via flatbed transport trucks in two to five sections; the main components would be off-loaded 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 (Figure 2-~~7~~6, Inset E). 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.

2.4.12 Hazardous Materials

Potential hazardous materials expected to be used or produced during implementation of the Project include fuels (gasoline and diesel), lubricants and motor oil, and combustion emissions (for example, nitrogen oxides [NO_x], carbon monoxide, and hydrocarbons).

Gearboxes would each contain approximately 70 gallons of oil that would not be routinely renewed. Yaw system bearings and control gears would be greased, and the hydraulic oil checked and renewed approximately every 5 years with 5 gallons of oil. The cooling system would contain water and ethylene glycol that would be tested annually. All testing or replacement would be performed uptower; therefore, all fluids, including those from

accidental spills, would be contained within the nacelle and the tower structures. Additionally, the WTG models that would be installed for the Project would be equipped with leak-proof gaskets.

However, these chemicals would need to be transported to the Project site and some quantities would be stored at the O&M facility. To minimize the potential for harmful effects to people or the environment, stored chemicals would be held in onsite tanks or drums equipped with secondary containment areas to prevent runoff. No extremely hazardous materials are currently anticipated to be produced, used, stored, transported, or disposed of as a result of the Project.

If cleaning chemicals or detergents were used, they would generally be biodegradable and stored in the O&M facility in sealed containers. Oils that might be needed for normal maintenance would be stored in drums or smaller sealed containers at the O&M facility and transported to the WTG when needed.

Construction equipment and O&M trucks would be properly maintained to minimize leaks of motor oils, hydraulic fluids, and fuels. Major vehicle maintenance would be performed offsite at an appropriate facility. Gasoline- and diesel-powered vehicles and equipment would be refueled onsite at designated locations by a mobile fuel service truck. Handling of hazardous liquids would be subject to a Hazardous Materials Management Plan and Fire Protection Plan approved by the SBCFD.

2.4.13 Startup

Each completed WTG would be inspected and checked for mechanical, electrical, and control functions in accordance with the manufacturer's specifications before being released for startup testing. A series of startup procedures would then be performed by the manufacturer's technicians; this process would require approximately 8 to 16 hours per WTG. Final testing would involve mechanical, electrical, control, and communications inspections and tests to ensure that all systems are working properly.

After the WTGs have been commissioned and are producing power, a period of acceptance testing would begin to ensure that the WTGs are performing according to the agreed-upon parameters, including the manufacturer's warranted power curve. During this time, the power produced would be fed into the utility grid. Electrical tests on the transformers, power lines, and Project Substation would be performed by qualified engineers, electricians, and test personnel to ensure that electrical equipment is operating within tolerances and that the equipment has been installed in accordance with design specifications. PG&E would perform inspections and tests on the power lines and interconnection facilities.

2.4.14 Site Restoration and Landscape Plan

Site restoration and cleanup would include reseeding of disturbed areas during the first suitable weather conditions after the heavy construction activities have been completed. The staging area on the Adam Signorelli property would be restored after the WTGs were completed on Tranquillion Ridge. No restoration would be needed for the Larsen staging area because it is a disturbed former rock quarry. The O&M facility staging area would be restored to agricultural grazing land at the end of construction of all phases of the Project. The WTG sites would be reseeded with native grasses to allow the current use of the

property to continue to the maximum extent practicable. The shoulder areas of access roads (new and improved) would also be reseeded. The 2-acre fenced area of the Project Substation would be covered with crushed rock; no landscaping is planned because of this area's interior location at the Project site. The O&M facility access area would be landscaped with decorative rockscape and drought-resistant plants suitable for the region and climate (Figure 2-8~~7~~). Other activities following the main construction phase would include interior finishing of the O&M facility, landscaping around the O&M facility, washing the WTGs, painting over scratches on the WTGs and exposed bolts, and normal construction cleanup.

2.5 Power Line Installation

Approximately 45,936 ~~41,450~~ feet (8.7~~7.85~~ miles) of new power line would be engineered, designed, and built by PG&E, as owner and operator, over a 6-month period. The poles would be installed using standard PG&E line trucks where possible, although helicopters could be used in some remote areas to install poles and conductors, in accordance with an FAA Lift Plan.

The power line route was designed to use existing roads, so that grading would be kept to a minimum; few, if any, new roads would be required. It is estimated that less than 0.5 mile of new road would need to be graded. Vegetation clearing would be kept to a minimum because the power line route could be shifted within the study corridor to avoid impacts to critical vegetation where feasible.

The staging areas at the O&M facility and at Larsen Ranch would be used, and the power line contractor would be able to store temporary construction trailers at the O&M facility staging area. It is anticipated that the lot owned by PG&E, next to the Cabrillo Substation, may be used for construction equipment and materials storage.

The procedures for bringing personnel, materials, and equipment to each power pole site; constructing the supporting structure foundations; erecting the supporting structures; and stringing the conductors would vary along the power line route alignment. It is expected that PG&E generally would construct the power line in the following order, using standard utility practices.

2.5.1 Step 1 – Installing the Supporting Structure Foundations

To install steel poles, PG&E would excavate a foundation hole; install forms, rebar, and anchor bolts; pour concrete; remove the forms; replace soil or gravel around the base; and install a pole at each of the new pole sites. Installation of wood poles would involve excavating, installing the pole, and backfilling the excavation; no foundation would be required for poles placed in straight spans. Wood poles may be embedded to a depth of approximately 7 to 12 feet below grade. Material removed during the process would be placed in a location specified by the landowner and/or disposed of according to applicable laws. Temporary disturbance around each structure site would typically be limited to approximately a 50-foot radius (100-foot diameter) centered on the pole. Areas of temporary disturbance from power line construction are listed in Table 2-5. Temporary disturbance would consist of soil compaction from placement of crane outrigger pads and from vehicle tracks, as well as movement of workers and equipment.

Placement of the pole structures would require the use of a large auger to dig the foundation hole. The foundation hole would be approximately 5 feet in diameter and from 10 to 20 feet deep. In some cases, a cage of reinforced steel and with anchor bolts would be installed and concrete would be placed in the hole. After the concrete curing period of 1 month, workers would remove the concrete forms and restore the ground around the foundations. Each pole would have approximately a 5-foot-diameter foundation (approximately 20 square feet of new foundation per structure); areas of temporary and permanent disturbance are shown in Table 2-5.

2.5.2 Step 2 – Erecting the Supporting Structures

The poles would be installed by conventional methods or by helicopter, as needed. The steel pole shafts may be delivered to the pole site in two or more sections depending on pole design. For safety and ease of construction, the steel poles would be assembled on the ground in the pole laydown area. The sections would be pulled together with a winch and the cross arms bolted to the pole. Insulators would be attached to the cross arms and secured. A crane may be used to ~~would~~ erect the poles and set them in the excavation ~~for wood poles~~, or on the anchor bolts embedded in the concrete foundation for certain ~~angle poles or~~ steel poles. Finally, the securing nuts on the foundation would be tightened.

2.5.3 Step 3 – Stringing the Conductors

Before beginning conductor installation, temporary clearance structures would be installed at road crossings and other locations where the new conductors could accidentally come into contact with electrical or communication facilities and or vehicular traffic during installation. PG&E would use a set of temporary clearance structures at all roads, railroad crossings, and other power line crossings. These temporary clearance structures would be of wood pole construction that resembles an "H" or "Y," depending on the design, and placed on each side of the roadway. These structures would be placed at the edge of the roadway and would not require grading; they would not interfere with traffic. These structures would prevent the conductor from being lowered or falling onto the traffic below.

The conductor stringing operation would begin with the installation of insulators and sheaves or stringing blocks. The sheaves are rollers attached to the lower end of the insulators that are, in turn, attached to the ends of each supporting structure cross arm. The sheaves would allow the individual conductors to be pulled through each structure until the conductors are ready to be pulled up to the final tension position.

When the pull and tension equipment are set in place, a sock line (a small cable used to pull the conductor) would be pulled from pole to pole ~~tower to tower~~, either using a helicopter to place the sock line into the sheaves or using a guide to shoot the sock line from one pole to another. After the sock line is installed, the conductors would be attached to the sock line and pulled in, or strung using the tension stringing method. This method would involve pulling the conductor through each pole ~~tower~~ under controlled tension to keep the conductors elevated above crossing guard structures, roads, and other facilities.

After the conductors are pulled into place, wire or conductor sags would be adjusted to a precalculated level. The conductors would then be clamped to the end of each insulator as the sheaves are removed. The final step of conductor installation would be to install

vibration dampers and other accessories. The temporary crossing guard structures would be removed after the final step.

Packing crates, spare bolts, and construction debris would be picked up and hauled away for recycling or disposal during construction. PG&E would conduct a final survey to ensure that cleanup activities have been completed as required.

2.6 Operation

During the operational phase of the LWEF, a staff of approximately 10 would be employed onsite. 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 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 might not be present at the site 24 hours per day. However, operations would be continuously monitored through the SCADA system from remote locations.

Equipment, supplies, and spare parts would be stored inside the O&M facility, with the exception of Project vehicles and WTG blades; the vehicles and blades would be stored outside the building but within the secured yard. Spare parts might include large components, such as a spare blade set or gearbox. The O&M facility would have equipment needed for routine operations and maintenance (for example, forklift for unloading parts); specialized equipment not needed routinely (for example, cranes) would be brought onsite as needed. Maintenance of some components of onsite infrastructure (for example, roads and electrical lines) may be subcontracted to qualified local firms.

2.6.1 Wind Turbine Generator Maintenance

After the initial startup period, the WTGs would be serviced at regular intervals, taking them offline for 1 day, one WTG at a time. Annual overhaul maintenance service would also be performed. The service program is expected to maintain the WTGs operationally available 98 percent of the time. Most servicing would be performed onsite without using a crane to remove the nacelle or rotor from the tower. Service access would be from inside the tower, via a door in the base. The regular routine would consist of inspecting and testing all safety systems; inspecting wear-and-tear on components, such as seals, bearings, and bushings; lubricating the mechanical systems; performing electronic diagnostics on the control systems; pre-tension verification of mechanical fasteners; and inspecting the overall structural components of the WTGs. Electrical equipment, such as breakers, relays, and transformers, would generally require weekly visual inspections, which would not affect overall availability, and testing or calibrations every 1 to 3 years, which might force outages. Blade cleaning would be required when the 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. Planned maintenance would be coordinated with PG&E and include a detailed schedule of planned outages.

2.6.2 Road Maintenance

Project access roads would be periodically graded and compacted to maintain the design, safety, and environmental requirements during the life of the 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 Applicant would be responsible for cleaning up all construction debris and maintaining the appearance of all Project roads and rights-of-way in cooperation with the Project landowners.

2.6.3 Emergency Situations

In the event that severe storms result in a downed collector line or power line, procedures outlined in the emergency response plan would be applied. Tensioning sites would be located within the overhead distribution line rights-of-way to facilitate line replacements. In the event of a high-voltage grid outage, the WTGs would have internal protective control mechanisms to safely shut them down. The WTGs would require the grid to be energized to generate power when the wind is blowing. A separate low-voltage distribution service feed may be connected to the low-voltage side of the Project Substation as a backup system to provide auxiliary power to Project facilities in case of outages.

Public access to public areas would not be impeded by the Project because the proposed facilities are located on private property (except the section of the power line that follows San Miguelito Road). For safety, the Project Substation would be fenced, locked, and properly signed to prevent access to high-voltage equipment. Safety signing would be posted around WTGs, transformers, other high-voltage facilities, and along roads, as required. The Project site is within the County's High Fire Hazard Area. Vegetation would be cleared and clearance maintained around the Project Substation, transformers, riser poles, and O&M facility.

2.6.4 Public Access

During the construction, and possibly during the operational phases of the Project, the Project operator and landowners using San Miguelito Road and Sudden Road beyond their intersection may request the County to close these roads to public travel. Only the landowners involved in the Project and VAFB would use these roads. A turnaround area would be provided at the end of the public road next to the O&M facility. This option could benefit Project safety and security.

2.6.5 Hazardous Materials Handling

Hazardous and potentially hazardous chemicals (for example, oil, grease, 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 approximately 70 gallons of oil that would not be routinely renewed. The WTGs would be equipped with leak-proof gaskets. Possible leakage or spillage during WTG operation and maintenance would be confined within the towers. A supply of chemicals would be stored onsite at the maintenance yard. 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 the SBCFD.

2.6.6 Safety Procedures

Standard operating procedures and employee training relating to safety, potential emergency situations, and potential malfunctions would address emergency evacuation, emergency response, safety, electrical equipment failures, fire prevention and control, mechanical malfunctions, notification procedures, maintenance activities, and schedules.

Standard operating procedures dictate that WTGs would not be operated at high wind speeds because of the high loads exerted on the equipment. The maximum operating wind speed would be in the range 45 to 60 miles per hour (mph), depending on the specific model chosen. In higher wind speeds, for equipment protection, the blades would feather and a brake would be applied to lock the blades and keep them from rotating.

2.7 Decommissioning

The anticipated life of the Project is 30 years. At the end of its useful life, the Project could be "repowered" (that is, WTGs would be replaced), renovated or upgraded, or decommissioned. The decision to decommission or repower would depend on energy economics at the time, technological options, the landowners' willingness to renew the leases with the Project owner, and other considerations.

If the Project were repowered, full or partial decommissioning would likely be required before repowering. Depending on the new WTG model selected, some of the Project components could be re-used. At the end of the projected life of the Project and expiration of leases, if any leases were not renewed, full decommissioning of that portion of the Project would be required. If a portion of the Project were to remain in operation and some new leases negotiated, some units would have to be decommissioned and collection lines rerouted if renewal of existing rights-of-way could not be negotiated. Any recommissioning beyond the 30-year life of the Project would be subject to additional environmental review to address potential new impacts and possible changes in the baseline conditions.

If or when the Project is decommissioned, all structures and equipment at the site would be dismantled and removed, and the land surface would be restored to as close to the original condition as practical. Reclamation would be conducted on all disturbed areas to comply with County reclamation policy. The short-term goal would be to stabilize disturbed areas as rapidly as possible, thereby protecting sites and adjacent undisturbed areas from degradation. The long-term goal would be to return the land to approximate pre-disturbance conditions.

The leases with local landowners require Pacific Renewable Energy Generation, LLC, to prepare a reclamation plan for the Project. The County would ~~may~~ also require a discretionary permit and a decommissioning and reclamation plan would need to be developed and implemented at the time of facility abandonment.~~reclamation plan.~~ The Applicant proposes that the decommissioning plan would, at a minimum, (1) identify and discuss the proposed decommissioning activities and how they would comply with the applicable regulatory requirements, and (2) describe alternative decommissioning activities.

Decommissioned underground buried cables would remain. The following components proposed would be removed:

- WTGs, including foundations, to a level 4 feet below the existing grade
- Overhead poles and electric lines within the Project area
- Project Substation, if Project-owned; if utility-owned, it could remain to be used as part of the utility service to supply other applications
- Project roads, unless the Project landowners wished to retain the improved roads for access throughout their property

If towers were sold for re-use, they would be dismantled at their bolted joints, removed by crane, and trucked off the site in the same way they were delivered. This might require the roads to be widened to the original construction width for crane access. Units sold as scrap would most likely not require widening of the roads for removal.

The impacts of decommissioning and repowering are not addressed in this EIR because it is speculative to project what might occur 30 years in the future given potential changes in technology, regulatory requirements, and the existing conditions in the Project area. The appropriate level of California Environmental Quality Act (CEQA) analysis would be required for actions to be taken at the end of the Project's 30-year lifespan. The environmental impacts that would occur would depend on the specific action taken, but likely would include temporary impacts to air quality, geology and soils (due to ground disturbance and the potential for erosion), noise, transportation and circulation, fire protection, and risk of accidents. The potential impacts, as well as possible changes in baseline environmental setting, would be subject to new environmental review and permitting.

2.8 Protection Measures

Several types of protection measures would be implemented during Project construction and operation. These measures include the following:

- A QA/QC Program would ensure that engineering, procurement, construction, and startup are completed.
- An environmental program would ensure compliance with County permit conditions and applicable environmental regulations.
- A safety program would ensure compliance with health and safety regulations.
- An Applicant-committed mitigation program would implement measures to minimize potential Project impacts to acceptable levels.

These protection measure programs are described in further detail in Section 2.8.4.

2.8.1 Quality Assurance and Quality Control, Environmental, and Health and Safety Compliance

A QA/QC Program would be implemented during all phases of the Project to ensure that the engineering, procurement, construction, and startup of the facility are completed as specified. The Engineering, Procurement, and Construction (EPC) contract would require that a Project construction procedures manual be submitted for review and approval prior to any site construction. The manual would describe how the contractors would implement and maintain QA/QC, environmental compliance programs, and health and safety compliance programs, and integrate their activities with the other contractors during all phases of the work. The EPC contractor and WTG supplier would be responsible for enforcing compliance with the construction procedures program of all of its subcontractors. In the QA/QC Program, the contractor would describe the activities and responsibilities within its organization and the measures to be taken to ensure quality work on the Project. Some topics that would be covered are design control, configuration management, and drawing control. Independent QA/QC personnel would review all documentation (for example, design, engineering, and procurement) and witness field activities as a parallel organization to that of the construction contractors to ensure compliance with the specifications. Field inspectors' acceptance would be required for installation, alignment and commissioning of all major equipment.

2.8.2 Environmental Compliance

An environmental compliance program would ensure that construction activities meet the conditions, limits, and specifications set in environmental standards established in the Project's CUP and other applicable environmental regulations. Copies of all applicable construction permits would be kept onsite. The lead Project construction personnel and construction project managers would be required to read, follow, and be responsible for required compliance activities. A County-designated Project Environmental Monitor would be responsible for ensuring that all construction permit requirements are adhered to, and that any deficiencies are promptly corrected. The EPC Environmental Monitor would ultimately report to the Project Manager and would provide weekly reports both on environmental problems reported or discovered and the corrective actions taken to resolve the problems. The environmental compliance program would cover avoidance of sensitive areas during construction, waste handling and storage, stormwater management, spill prevention and control, and other components required by state and County regulations. Upon identification of an environmental non-compliance issue, the EPC Environmental Monitor would work with the responsible subcontractor or hire workers to correct the violation. If the violation were not corrected in a reasonable time, a "stop work" order would be issued for the portion of the work not in compliance with the Project environmental requirements. The Project's monitors would work closely with the County's environmental compliance monitors.

To avoid potential damage to underground utilities, such as water lines and facilities (for example, in the City of Lompoc near the Frick Springs facilities), an Underground Service Alert survey would be completed before construction activities begin.

2.8.3 Safety Compliance

The EPC contractor and each subcontractor would be responsible for construction health and safety issues. The EPC contractor and each subcontractor would provide a Health and Safety Coordinator, who would ensure that all laws, ordinances, regulations, and standards concerning health and safety are followed and that any identified deficiencies are corrected as quickly as possible. The EPC Health and Safety Coordinator would conduct onsite orientation and safety training for all contract and subcontract employees and would report back to EPC corporate management. The EPC Health and Safety Coordinator would have the authority to stop work when health and safety regulations, including EPC subcontractor safety regulations, are violated and the health or safety of construction personnel are in danger. Under the EPC contract, the EPC Health and Safety Coordinator position would be full time; for the subcontractors, it is assumed that this would be a part-time responsibility. For health and safety stop work orders, the action might affect only the portion of the work that endangers a limited portion of the Project site or activities. The Project construction procedures would clearly define the stop work procedures, which would require a written action request with justification on the part of the EPC Health and Safety Coordinator. Upon identification of a health and safety issue, the EPC Health and Safety Coordinator would work with the responsible subcontractor or direct hire workers to correct the violation; if not corrected in a reasonable period of time, the stop work order could be issued. The stop work authority would also be given to the Project Construction Manager for commercial actions and health and safety issues.

2.8.4 Applicant-proposed Mitigation Measures for Lompoc Wind Energy Facility

A number of Applicant-proposed mitigation measures are included as part of the Project description. These mitigation measures, intended to reduce potential environmental impacts of the Project during construction and operation, are numbered and listed in this section. Each Applicant-proposed mitigation measure is preceded by "A" to distinguish it from other mitigation measures identified in the course of the environmental review, as discussed in Section 3.1.

2.8.4.1 Aesthetics/Visual Resources

Mitigation Measure A-A/VR-1. Store construction materials and excavated materials away from San Miguelito Road whenever possible to reduce impacts on mountain views.

Mitigation Measure A-A/VR-2. Confine construction activities and materials storage to within the WTG right-of-way, or at staging areas, and the Project Substation and O&M facility areas.

2.8.4.2 Air Quality

Mitigation Measure A-AQ-1. Apply water sprays to all disturbed active construction areas a minimum of two times per day, except when soil water content would exceed the level recommended by the soils engineers for compaction or when weather conditions warrant a reduction in water application. Additionally, use adequate dust control to keep fugitive dust from being transmitted outside of the right-of-way. Perform increased dust control watering when wind speeds exceed 15 mph. The amount of additional watering would depend upon soil moisture content.

Mitigation Measure A-AQ-2. Stabilize any disturbed area that would not be covered with base or paving within 14 days after completion of disturbing activities by use of soil-coating mulch, dust palliatives, compaction, reseeding, or other approved methods. Soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucked soil loads shall be covered in transit.

Mitigation Measure A-AQ-3. The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance.

Mitigation Measure A-AQ-4. Reduce traffic speeds on all unpaved roads to 15 mph or less.

Mitigation Measure A-AQ-5. Ensure that catalytic converters are installed on all gasoline-powered equipment.

Mitigation Measure A-AQ-6. Use high-pressure injectors on Caterpillar engine types 3306 and 3406 DITA to reduce NO_x emissions.

Mitigation Measure A-AQ-7. Limit the sulfur content in diesel fuels to 0.05 percent.

Mitigation Measure A-AQ-8. Maintain engines and emission systems in proper operating condition.

2.8.4.3 Biological Resources

Project Design Features to Avoid and/or Minimize Impacts

Mitigation Measure A-BIO-1. Avoid construction in sensitive areas, such as riparian zones, wetlands, forests, etc., where feasible.

Mitigation Measure A-BIO-2. Minimize new road construction by improving and using existing roads and trails instead of constructing new roads.

Mitigation Measure A-BIO-3. Use underground (versus overhead) electrical lines wherever feasible to minimize perching locations and electrocution hazards to birds.

Mitigation Measure A-BIO-4. Use WTGs with low revolutions per minute (RPM) and tubular towers to minimize risk of bird collision with turbine blades and towers.

Mitigation Measure A-BIO-5. Use bird flight diverters on guyed permanent meteorological towers or use freestanding (unguyed) permanent meteorological towers to minimize potential for avian collisions with guy wires.

Mitigation Measure A-BIO-6. Equip all overhead power lines with raptor perch guards to minimize risks to raptors.

Mitigation Measure A-BIO-7. Space all overhead power line conductors to minimize potential for raptor electrocution.

Construction Techniques and General Mitigation Measures to Minimize Impacts

Mitigation Measure A-BIO-8. Minimize construction-related surface water runoff and soil erosion.

Mitigation Measure A-BIO-9. Use certified straw bales during construction to avoid introduction of noxious or invasive weeds.

Mitigation Measure A-BIO-10. Develop and implement a fire control plan, in coordination with the SBCFD, to minimize risk of accidental fire during construction and respond effectively to any fire that does occur.

Mitigation Measure A-BIO-11. Establish and enforce reasonable driving speed limits during construction to minimize potential for road kills.

Mitigation Measure A-BIO-12. Store and manage all wastes generated during construction.

Mitigation Measure A-BIO-13. Require construction personnel to avoid driving over or otherwise disturbing areas outside the designated construction areas.

Mitigation Measure A-BIO-14. Monitor any raptor nests onsite for activity prior to construction and modify construction timing and activities to avoid impacts to nesting raptors.

Mitigation Measure A-BIO-15. Designate an environmental monitor during construction to monitor construction activities and ensure compliance with mitigation measures.

Post-construction Restoration of Temporarily Disturbed Areas

Mitigation Measure A-BIO-16. Reseed all temporarily disturbed areas with an appropriate mix of native plant species as soon as possible after construction is completed to accelerate the revegetation of these areas and to prevent the spread of noxious weeds. Consult with the County of Santa Barbara and California Department of Fish and Game (CDFG) regarding the appropriate seed mixes for the Project area.

Operations

Mitigation Measure A-BIO-17. Implement a fire control plan, in coordination with the SBCFD, to avoid accidental wildfires, and respond to any fire that might occur.

Mitigation Measure A-BIO-18. Establish and enforce reasonable driving speed limits during construction to minimize potential for road kills.

Mitigation Measure A-BIO-19. Minimize stormwater runoff and soil erosion.

The following measures would be developed and implemented by a qualified biologist with previous experience in construction monitoring who is familiar with the sensitive resources of concern for this Project.

General Measures

Mitigation Measure A-BIO-20. The amount of habitat disturbed will be limited to the extent feasible. That will include areas devoted to WTGs; power poles; temporary and permanent

access roads; stockpiles, staging, parking, and laydown areas; areas where spoil is used to control erosion; and areas for associated facilities.

Mitigation Measure A-BIO-21. Vehicles and equipment access will follow marked routes. Indiscriminate cross-country vehicle travel will not be allowed.

Mitigation Measure A-BIO-22. Parking, laydown, storage areas, and other sites of superficial disturbance will be located preferentially in disturbed habitat, or in annual grassland (except in Gaviota tarplant habitat), rather than in other vegetation types.

Mitigation Measure A-BIO-23. Permanent access roads will follow routes used for construction access to reduce the amount of new road construction. That will, in turn, reduce the amount of disturbance to natural vegetation, and potential loss of birds due to collisions with vehicles.

Mitigation Measure A-BIO-24. A worker education program will be developed specific to this Project and will be presented to all individuals involved in the construction and operation and maintenance phases of the Project. The program will include information on sensitive habitats and species.

a. The current status of sensitive species will be described, as well as reasons for decline, and legal protections.

b. Contact points will be provided for workers to report sightings of sensitive biological resources, such as active bird nests, badger dens, and raptors roosting in the vicinity of Project facilities.

c. Workers will be provided with photographs of sensitive biological resources, including sensitive plant and wildlife species, den and burrow entrances, and nest structures.

d. Workers will be informed verbally and in writing of the various Project tasks that require monitoring for resource protection.

e. Workers will be provided with a photograph or description of the markers for salvaged topsoil piles and windrows, or other mitigation areas, so that they will know these are not to be disturbed without a monitor present.

f. Workers will be provided with photographs of invasive weeds and instructed to report to the contact point any new populations observed near Project facilities.

Mitigation Measure A-BIO-25. Appropriately timed surveys shall be conducted for special-status species on all areas added to the Project (including the power line corridor).

California Horned Lizard

Mitigation Measure A-BIO-26. Within 3 days of the start of initial vegetation clearance or ground disturbance, a biologist will survey construction sites, including the sites of footings for WTGs and poles, new access roads, and staging, parking, and laydown areas. The survey can be done in conjunction with surveys for ground-nesting birds. However, the survey for California horned lizards will be done regardless of season of the year.

Mitigation Measure A-BIO-27. If California horned lizards are found, they will be moved to similar habitat at least 300 feet away from the site of construction activity.

Silvery Legless Lizard

Mitigation Measure A-BIO-28. Silvery legless lizards could potentially occur in areas with Central Coast scrub, and annual grassland with a shrub component. A qualified monitor shall work with the equipment operator during initial vegetation clearance to salvage and relocate (when feasible) exposed animals.

a. Following initial vegetation clearance in such areas, grading will be done in two consecutive 6-inch layers.

b. With each lift, the biologist will check the areas for possible relocation of silvery legless lizards. If any are found, they will be moved to similar habitat near shrubs at least 100 feet from the construction sites.

c. Monitoring for legless lizards will be discontinued when grading reaches depths of greater than 12 inches.

San Diego Desert Woodrat

Mitigation Measure A-BIO-29. Prior to construction, the locations of WTGs and access routes, as well as for a distance of 50 feet away will be surveyed for sign of San Diego desert woodrat.

a. If sign of this species is found at or near the facilities (such as a small stick nest within a rock overhang), it will be evaluated for potential impact due to construction activities.

b. If disturbance to a nest will occur, live-trap and relocate the specific woodrat.

American Badger

Mitigation Measure A-BIO-30. The Project area, including areas within 250 feet of all Project facilities, will be surveyed prior to construction for badger dens. This will be done regardless of season of the year.

Mitigation Measure A-BIO-31. If badger dens are found, each will be classified as inactive, potentially active, or definitely active.

a. Inactive dens will be excavated by hand and backfilled to prevent re-use by badgers.

b. Potentially and definitely active dens will monitored for 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den will be excavated and backfilled by hand. If tracks are observed, the den will be progressively blocked with natural materials (dirt, sticks, and vegetation piled in front of the entrance) for the next 3 to 5 nights to discourage the badger from continued use. The den will then be excavated and backfilled by hand to ensure that no badgers are trapped in the den.

Passerines and Other Ground-nesting Birds

Mitigation Measure A-BIO-32. A biologist will conduct a study to assess the density of passerines and other ground-nesting birds in representative habitats in the Project area. Plots will be established in various habitats and checked at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. The focus will be on ground-nesting birds that are sensitive species, including California horned lark, California rufous-crowned sparrow, and grasshopper sparrow. The surveys will be conducted as long as birds are nesting in the Project area between February 1 and August 31. The surveys will be discontinued when it is apparent that nesting has ceased for the season.

Mitigation Measure A-BIO-33. If construction is to occur between February 1 and August 31, all sites to be disturbed will be surveyed for ground-nesting and shrub-nesting birds. The emphasis will be on California horned lark, western burrowing owl, California rufous-crowned sparrow, and grasshopper sparrow. Based on survey results and literature review, burrowing owl nesting in the Project area is unlikely, but the other species are either known or likely.

Mitigation Measure A-BIO-34. Frequent (every few days) disturbance may be initiated in some Project areas just prior to the nesting season to discourage nesting in the construction corridor.

Mitigation Measure A-BIO-35. During both the construction and O&M phases, a reasonable driving speed limit will be established and enforced. The speed limit will reduce the potential for loss of bird species, including passerines, due to collisions with vehicles.

Raptors and Bats

Mitigation Measure A-BIO-36. To minimize the likelihood of collisions with WTGs, power lines, poles, and guy wires, design features should include the following:

a. Underground (rather than overhead) power lines should be used wherever feasible to minimize perching locations and electrocution hazards to birds.

b. WTGs with low RPM and tubular towers should be used.

c. Permanent meteorological towers should be either (1) guyed and equipped with bird flight diverters, or (2) unguyed.

d. All overhead power lines should be equipped with raptor perch guards.

e. All overhead power lines should be spaced to minimize the potential of raptor electrocution.

~~Mitigation Measure A-BIO-37. A biologist will conduct a study to collect more detailed information on nesting and foraging raptors in the Project area. Areas of mixed evergreen forest within 300 feet of Project facilities will be surveyed at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. Information will also be collected on the use of perches and the relative amount of foraging by raptors in the Project area. Count locations will also be established in areas of representative habitat to characterize the prey base for raptors. Counts will be made of~~

~~California ground squirrels, brush rabbits, black-tailed jackrabbits, and other small mammals observed during each visit.~~

Mitigation Measure A-BIO-38. If construction activities (including removal or trimming of trees and shrubs) are to take place between February 1 and August 31, a biologist will survey for raptors nests prior to the start of construction. The survey will occur at the sites of construction activity, as well as up to 300 feet away. Those species most likely to nest in the Project area include red-tailed hawk, red-shouldered hawk, American kestrel, and golden eagle.

Mitigation Measure A-BIO-39. If an active raptor nest is found, no construction activity will occur within 300 feet of construction, and the nest will be monitored. Construction activities and timing may be modified to avoid impacts to nesting raptors.

Mitigation Measure A-BIO-40. An avian and bat mortality study will be prepared prior to the start of construction, and then continued for at least the first 2 years of operation. The study will primarily document mortality of raptors and bats, but will also generate data on mortality of all bird species in the Project area. It will generally follow the guidelines developed by the National Wind Coordinating Committee (Anderson et al., 1999). The study will include periodic searches for bird and bat carcasses at and near WTGs and poles. Information to be collected will include descriptions of bird carcasses found relative to Project facilities and ongoing monitoring of nearby perching/nesting sites, as well as prey availability. Bat carcasses found will also be described. Quarterly and annual reports will be prepared that include presentation of data and analysis of Project design characteristics that may affect avian and bat mortality.

Mitigation Measure A-BIO-41. A program to reduce the density of California ground squirrels in the Project area will be initiated during the construction phase and will continue into the operation and maintenance phase. Limiting the number of ground squirrels will reduce the attraction of raptors to the Project area, and thus lower the potential for loss due to collisions with WTGs and power lines. Additional measures to control ground squirrels may include:

a. Monitoring WTG and tower pad locations for ground squirrel activity. If ground squirrels construct burrows at the pads, those holes will be filled. Pad overhangs will be filled with soil. Gravel will be placed in a perimeter at least 5 feet out from the edges of the pad to discourage ground squirrels from burrowing.

b. Removal of accumulated material under and near WTGs and poles, such as piles of rocks from construction and extra equipment or parts. Such accumulated material may attract prey for raptors, such as California ground squirrels and brush rabbits.

c. Removal of meteorological towers that may not be necessary during the operation phase. If meteorological towers must remain, to the extent practicable, use a tower design that does not require guy wires.

d. Prevent turbine blades from moving when the WTG is not in operation.

e. Implementation of new protective measures that may be developed based on results of the post-construction study of raptor mortality.

Seep, Spring, and Creek Protection

Mitigation Measure A-BIO-42. Where Project facilities impact a wetland, every effort will be made to minimize the area and degree of impact to the wetland. A wetland hydrologist will be consulted to design construction so that the hydrological conditions supporting the wetland will be conserved and/or restored to minimize wetland loss.

Mitigation Measure A-BIO-43. Wetland (if any) that is permanently lost shall be mitigated by creation of the same type of wetland in the Project area at an areal ratio of 2:1. Site-specific wetland creation plans will be developed in consultation with the CDFG and County of Santa Barbara biologists.

Mitigation Measure A-BIO-44. Wetland (if any) that is temporarily disturbed shall be restored to its former condition at an areal ratio of 1:1. Specific goals and a timeline shall be developed in consultation with the CDFG and County of Santa Barbara biologists.

Mitigation Measure A-BIO-45. No fueling of vehicles or equipment shall occur within 50 feet of the top of any creek bank or within 50 feet of any seep or spring.

Mitigation Measure A-BIO-46. In the event that petroleum products escape into a creek, seep, or spring, every effort will be made to immediately remove the material using plastic sheets, absorbent blankets, or other materials, as necessary.

Mitigation Measure A-BIO-47. Runoff from concrete shall be directed away from the top of any creek bank and from any seep or spring into a plastic-lined hollow. Dried concrete scraps will be removed.

Mitigation Measure A-BIO-48. All trash and litter will be picked up and removed from the construction sites at the end of each day.

Gaviota Tarplant

Mitigation Measure A-BIO-49. A qualified botanist approved by CDFG and the County to work with Gaviota tarplant shall oversee flagging of the perimeter of all approved work areas in Gaviota tarplant habitat prior to ground disturbance.

Mitigation Measure A-BIO-50. Continue to refine Project design to minimize habitat disturbance, the size of temporary excavation areas, and the size of areas where permanent loss will occur. Determine the total areas of (1) permanent habitat loss, (2) temporary excavations, and (3) surface disturbance for construction Project.

Mitigation Measure A-BIO-51. Develop mitigation measures to minimize the extent of habitat disruption and to minimize potential "take" of individuals in consultation with the CDFG botanists. Measures and procedures will be developed that address potential future impacts during the operations phase of the Project. Areas of temporary disturbance will be mitigated at a 1:1 ratio using the measures described below.

Mitigation Measure A-BIO-52. Where construction may impact occupied habitat during the growing season (between the first rain and the middle of September), collect standing drying plants that still have ripening seeds during the late fall of the year preceding construction. Plants may be collected by hand or in a basket mounted behind a mower. The

collected material must be dried immediately and stored dry to preserve the seeds. The salvaged plant material shall be spread on restored habitat prior to final soil stabilization.

Mitigation Measure A-BIO-53. Employ "triple-lift topsoil salvage" procedures to conserve the soil profile and soil seed bank. All topsoil handling in Gaviota tarplant habitat shall be monitored by a qualified biologist approved by the County and CDFG to work with Gaviota tarplant.

a. Clear all woody vegetation and stockpile separately in a location where it will be out of the way during construction.

b. Scrape a 3- to 6-inch lift of soil from the area of Gaviota tarplant habitat where soil will be excavated. Stockpile this seedbank life in a location where it will be out of the way during construction. Clearly mark the seedbank stockpile for identification and avoidance.

c. Scrape off a second 6-to 8-inch lift of the sandy soil horizon (shallower if bedrock or other soil type is encountered, such as clay). Stockpile this topsoil lift in a location where it will not be disturbed during construction, and clearly mark it for identification and avoidance. Shape the piles to maximize water runoff.

d. Keep stockpiled seedbank dry and protected from wind erosion and disturbance per the measures for topsoil conservation throughout construction and until it will be replaced on the restored sites. Water should be sprayed on the stockpiles to crust the soil and reduce loss to wind erosion, but the spray should not be heavy enough to soak into the pile (to avoid soaking seeds and triggering seed germination).

e. Salvaged seedbank that is being eroded by the wind may be stabilized by spraying with an organic soil binder used for hydroseeding.

Mitigation Measure A-BIO-54. Following excavating and other types of temporary ground disturbance in Gaviota tarplant habitat, rebuild the soil profile using salvaged and stockpiled materials, replacing them in reverse order. Spread salvaged and dried Gaviota tarplants on top.

a. Layers beneath the final, seedbank layer should be well compacted.

b. The seedbank layer should be more loosely compacted by spreading it dry or with minimal water. Tracking, rather than spraying, should be used to pack the seedbank layer into place.

c. Soil stabilization should follow immediately.

d. Replacement of seedbank and topsoil stockpiles must be monitored by a biologist acceptable to CDFG and the County for work with Gaviota tarplant.

Mitigation Measure A-BIO-55. Stabilize restored sites with a hydraulically applied mixture of biodegradable soil binder and wood fiber. Minimize the mulch so that light will not be blocked from the tarplant seeds in the salvaged and replaced seed bank. No seed will be required because the top layer on the restored site will be composed of salvaged seed bank.

Mitigation Measure A-BIO-56. Mitigate for permanent habitat loss by continuing to contribute toward the understanding of the taxonomy and ecology of this species:

a. Contribute to the accumulation of additional data on range and size of subpopulations.

b. Contribute to taxonomic research to clarify limits and relationships of Gaviota tarplant populations versus close relatives.

c. Request CDFG review of the status of this species in light of recent discoveries of extensive populations.

d. Contribute to baseline ecological research, such as germination or pollinator studies, that will be useful for future management decisions.

Kellogg's and Mesa Horkelia

Mitigation Measure A-BIO-57. Where the terrain will safely allow it, track over habitat rather than widening roads beyond the permanent road width to minimize plant removal.

Mitigation Measure A-BIO-58. Salvage and stockpile seedbank separately from other spoil along roads and adjacent to other facilities constructed in Horkelia habitat as described for Gaviota tarplant (Mitigation Measure A-BIO-53). Salvaged stockpiles will be sprayed with water to crust the surface to minimize soil loss to wind erosion. Salvaged seedbank will be re-spread over restored areas as described for Gaviota tarplant (Mitigation Measure A-BIO-54), except that a normal mixture of mulch and binder may be used. (If the area also is within Gaviota tarplant habitat, methods for the latter shall be used).

Sensitive Native Plant Species Protection

Mitigation Measure A-BIO-59. Appropriately timed pre-construction surveys will be conducted by a qualified botanist after Project impact areas have been finalized.

Mitigation Measure A-BIO-60. A qualified native botanist shall survey planned locations for power line poles.

Mitigation Measure A-BIO-61. If a "stand" of California Native Plant Society-listed or locally rare species will be removed for the Project, the loss shall be mitigated by collection of seeds or other propagules from the plants, which will be utilized for restoration in the immediate area (if suitable habitat continues to be present) or on a nearby, suitable location.

Mitigation Measure A-BIO-62. The upper few (3 to 6) inches of soil (topsoil and seedbank) shall be salvaged in all areas where the terrain will allow it. Topsoil shall be windrowed and marked to keep it separated from other spoil. Topsoil piles shall be stabilized by crusting with sprayed water to protect the soil from wind erosion. Salvaged topsoil shall be respread over all restored areas as a top dressing.

Native Perennial Bunchgrass Grassland

Mitigation Measure A-BIO-63. Determine the total area with at least 10 percent cover by native perennial grasses that will be permanently removed for the Project and the total area of native perennial grasses within the Project area. If the total area of permanent removal of native grassland is less than 10 percent of the total area of native grassland within the

Project area, loss of native grasses shall be mitigated by seedbank salvage and replacement as described for Horkelia (Mitigation Measure A-BIO-58).

Mitigation Measure A-BIO-64. If the total area with at least 10 percent cover by native perennial grasses that will be permanently removed for the Project exceeds 10 percent of the total area of native grassland within the Project area, seeds will be collected from the populations of native grasses on the Project sites prior to the start of construction. The seed shall be stored dry and included in the seed mixture applied to the restored areas where this criterion was met. Drill seeding is recommended for mixtures that include native grass seed.

Coastal Scrub Restoration

Mitigation Measure A-BIO-65. Augment erosion control seed mixture with native shrub seed collected from the Project region. Species may include goldenbush, California sagebrush, black sage, coyote brush, small-leaved buckwheat, Lompoc monkey flower, and perennials Horkelia and Agoseris.

Topsoil Conservation

Mitigation Measure A-BIO-66. Topsoil and the seed bank it contains shall be conserved on areas where soil is excavated (WTG sites). Salvage shall be accomplished by:

a. Remove all woody material from the soil surface and pile it in an area that will be out of the way during construction. Scrape off the upper 6 to 8 inches of soil from the disturbance footprint and pile the scraped topsoil into a windrow in an area that will not be disturbed during construction.

b. Topsoil stockpiles shall be clearly marked for avoidance.

c. Immediately, spray the windrow with water to set up a crust that will protect the pile from wind erosion. Renew wind erosion protection as needed.

d. Respread salvaged topsoil on areas that will be revegetated following construction. Use salvaged topsoil instead of subsoil for this purpose unless the location was very weedy (for example, WTG Site 266, which was dominated by mustard and thistle).

Supplemental Measures for Erosion Control

These measures shall be implemented, where warranted, in addition to erosion control measures required by the Project engineers. None of these measures may be substituted for more stringent erosion control measures required or recommended by the Project engineers.

Mitigation Measure A-BIO-67. All wetland areas within 50 feet of ground disturbance will be protected from siltation by silt fence, straw bales (composed of certified, weed-free straw), or other barriers. Barriers will be in place prior to ground disturbance.

Mitigation Measure A-BIO-68. Seed application shall occur between October 1 and mid-November.

Mitigation Measure A-BIO-69. Appropriate seed mixtures for use on grassland and coastal scrub areas shall be developed in consultation with CDFG and County biologists using seeds native to the area between the Santa Ynez River and Hollister Ranch, and inland as far

as SR-1. Commercially grown seed may be used if sterile or previously introduced to the Project area by the landowners, the County of Santa Barbara, the California Department of Transportation (Caltrans), VAFB, or others.

Native Trees

Mitigation Measure A-BIO-70. All native trees within 25 feet of proposed ground disturbance will be fenced about 3 feet outside the edge of the canopy with plastic mesh fencing. Fencing shall be in place prior to ground disturbance, and shall remain until all ground disturbance is completed within 25 feet of the tree.

Mitigation Measure A-BIO-71. Access routes for equipment shall be checked for clearance prior to bringing any equipment onsite. All trees and shrubs that require limbing or pruning shall be prepared at least 2 days prior to the arrival of the equipment.

a. All limbing shall be done under the supervision of a licensed arborist or qualified biologist.

b. Any inadvertently broken limbs shall be cleanly cut under the direction of a licensed arborist or qualified biologist.

c. In the event that damage to a native tree is so severe that its survival in good health is compromised, the tree will be replaced in kind and from native stock at a ratio of 10:1 for upland trees and 5:1 for riparian trees, with 80 percent survival to establishment (6 feet in height and minimum 2-inch basal diameter) following at least 1 year with no supplemental water or other maintenance.

Mitigation Measure A-BIO-72. No equipment staging or materials storage shall be allowed beneath the canopy of any oak tree.

Mitigation Measure A-BIO-73. No parking shall be permitted beneath the canopy of any oak tree.

Mitigation Measure A-BIO-74. The area around oak tree trunks shall be kept clear. If any soil or other debris piles up against an oak tree trunk, it shall be removed within 24 hours using hand tools.

General Habitat Restoration Measures

Mitigation Measure A-BIO-75. Implement topsoil conservation measures described in Mitigation Measure A-BIO-66, unless the site was weed dominated.

Mitigation Measure A-BIO-76. Do not compact the final few inches when finishing grading to more than about 75 percent to facilitate penetration by plant roots.

Mitigation Measure A-BIO-77. Spread salvaged topsoil as a topdressing over finished site. Do not smooth completely; leave small ridges to provide wind protection for seedlings and hollows to collect moisture from rain and fog. Ensure that lines follow the contour to avoid initiating rilling.

Mitigation Measure A-BIO-78. Spray with water to crust soil and reduce loss to wind erosion.

Mitigation Measure A-BIO-79. Hydroseed with approved with soil-stabilization seed mixture between October 1 and mid-November. Native plant seeds may be added to the hydroseed mixture or may be hand broadcast onto the site just prior to hydroseeding.

Mitigation Measure A-BIO-80. Monitor all restoration areas for a minimum of 3 years. Weed control shall be started within 3 months of planting, or earlier if weeds have begun to flower. Weeding shall proceed as frequently as necessary to prevent weeds from spreading off the Project sites into the adjacent area, and to prevent seed set. Cut mustard shall be hauled off the site and disposed of where the toxins in the stems will not affect other plants.

Mitigation Measure A-BIO-81. Any new weed species not present in the Project area prior to construction of the Project shall be eradicated.

2.8.4.4 Cultural Resources

Mitigation Measure A-CULT-1. Conduct a Phase I Archaeological Survey in areas of construction impacts. Give special care to the areas previously identified as existing sites. If initial Phase I work discovers any cultural materials in areas that would be impacted by Project construction, conduct a Phase II survey. The Phase II Study will ascertain which sites have the potential to produce important archaeological information pursuant to California Historic Preservation Guidelines.

Mitigation Measure A-CULT-2. A County-approved archaeologist and Native American monitor shall monitor ground disturbances in all areas containing archaeological materials to ensure that any outstanding resources previously unidentified are recorded. If these types of resources are encountered, temporarily redirect construction until the find can be evaluated and recorded, pursuant to the Archaeological Element of the Santa Barbara County Heritage Management Plan Cultural Resource Guidelines (1993).

Mitigation Measure A-CULT-3. The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers/personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance.

Avoidance of Archaeological Sites and Isolates

Preferably, all access roads, power transmission poles, WTGs, and other facilities should be located at least 100 feet (30 meters) from the mapped boundaries of archaeological sites. If this is not possible or feasible, one or more of the following options should be pursued.

Mitigation Measure A-CULT-4. If ground disturbance is proposed within 100 feet of a site boundary, then an Extended Phase 1 investigation should be conducted by employing a small number of shovel test units (STU). These tests would be used to determine the actual subsurface boundary of archaeological site relative to the proposed disturbance, and therefore should indicate whether or not a site would be impacted by the disturbance. The STUs should be 50 centimeters in diameter and excavated in arbitrary 20-centimeter levels.

Mitigation Measure A-CULT-5. In the case of access roads, existing graded ranch roads passing through archaeological sites may be utilized and widened through the site area by simply surfacing them with a 6-inch layer of imported gravel or soil that is free of cultural materials and recognizably different from the site soils. Surfacing of the road with gravel

should also occur for a distance of 100 feet beyond the mapped boundary of a site, except in cases where the boundary has been established through subsurface testing. Gravel from LWF-11, the quarry site referred to in Section 3.6, should not be used, because it contains archaeological (cultural) material.

Phase 2 Testing of Sites where Avoidance of Resources Is Not Possible

In cases where WTGs, road realignment, road widening, or other Project-related ground disturbance are proposed inside the boundaries of archaeological sites, or within 30 feet (10 meters) of certain archaeological isolates, one or more of the following options should be pursued.

Mitigation Measure A-CULT-6. In the case where ground disturbance is proposed within 30 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU should be excavated within 3 feet of the isolate in order to determine if there are subsurface deposits present. If the isolate cannot be relocated, the STU should be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they should be assessed and characterized in accordance with Mitigation Measure A-CULT-7.

Mitigation Measure A-CULT-7. When ground-disturbing activities are proposed within the established boundaries of an archaeological site, a program of limited Phase 2 Archaeological Testing must be completed to assess the importance of the site by characterizing the cultural deposit. Site boundaries would be defined through surface observation and excavation of a limited number of STUs. Testing would focus on the areas of primary impact (for example, pads for the wind generators and access roads) and would employ a combination of standard 1- by 1-meter or 1- by 0.5-meter excavation units (EU) and 50-centimeter-diameter STUs. The information derived from such testing would then be used to determine the necessity and cost of conducting Phase 3 Data Recovery to mitigate Project impacts, if any, to an acceptable level. Phase 2 Investigation should be somewhat limited for the current Project because impacts to any given site are themselves likely to be mostly limited to the area of a 20- by 20-foot foundation for a single WTG, or in some cases, the road corridor.

Mitigation Measure A-CULT-8. Because Chumash Indians and later historic peoples appear to have intensively utilized the Project area, there is a high probability that undetected artifacts or features could be present within the Project boundaries. Therefore, should human remains, significant historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the proposed development of the Project area, work in the immediate vicinity of the discovery must be suspended until the find is investigated by a professional archaeologist and, as appropriate, a representative of the Santa Ynez Chumash Elders Council. In the event that suspected human remains are discovered, the County Coroner must be contacted in accordance with state law.

2.8.4.5 Geology/Soils

Mitigation Measure A-GEO-1. Submit a final Grading and Drainage Plan, designed to minimize erosion, to the County of Santa Barbara Planning and Development Department for review and approval.

Mitigation Measure A-GEO-2. Use diversion structures and spot grading to reduce siltation into adjacent streams during grading and construction activities.

Mitigation Measure A-GEO-3. Design grading on slopes steeper than 3:1 to minimize surface water runoff.

Mitigation Measure A-GEO-4. Designate a place for temporary storage of construction equipment.

Mitigation Measure A-GEO-5. Limit grading during construction to the dry season to the extent practicable. If grading needs to be done outside of the dry season, the Applicant will coordinate grading work with the County and will follow all applicable guidelines.

Mitigation Measure A-GEO-6. Soil shall be kept damp during grading activities to reduce the effects of dust generation.

Mitigation Measure A-GEO-7. All exposed graded surfaces shall be reseeded with native ground cover to minimize erosion.

Mitigation Measure A-GEO-8. Excess topsoil to be stockpiled onsite will be segregated from other soils to facilitate future land restoration.

Mitigation Measure A-GEO-9. Erosion control structures shall be installed where appropriate. Final grading plans, which include detailed plans for any proposed temporary or permanent erosion control structures, shall be submitted to Planning and Development and the Flood Control District. These plans shall be approved prior to issuance of permits for construction. Emphasis shall be given to consideration of temporary erosion control structures, such as trench plugs and water bars, on moderately steep slopes.

Mitigation Measure A-GEO-10. If slope stabilization impacts cannot be avoided, detailed plans of the excavation (with limits of cut and fill and the slope restoration method) shall be submitted prior to construction for review and approval.

Mitigation Measure A-GEO-11. All exposed graded surfaces shall be reseeded with native ground cover to minimize erosion. Graded surfaces shall be reseeded within 60 days of grading completion.

Mitigation Measure A-GEO-12. Soil elevation/topography shall be restored consistent with the approved grading and erosion control plans.

Mitigation Measure A-GEO-13. Cut slopes shall be constructed no steeper than 1.5:1 unless topographic constraints prevent this possibility; then, special design features shall be incorporated to prevent slope failure.

Mitigation Measure A-GEO-14. Fill slopes shall be constructed no steeper than 2:1 unless topographic constraints prevent this possibility; then, special design features shall be incorporated to prevent slope failure.

Mitigation Measure A-GEO-15. Areas to receive fill shall be stripped of vegetation, organic topsoil, debris, and other unsuitable material. Engineered fill shall be placed in layers not exceeding 12 inches in loose thickness, properly moistened and compacted, and tested for 90 percent compaction.

Mitigation Measure A-GEO-16. Where fill is placed upon a natural or excavated slope steeper than about 5:1 (20 percent), a base key shall be constructed at the toe of the fill and the fill shall be benched into the existing slopes. The base key shall be embedded at least 2 feet into competent inorganic soils. The fill shall then be benched horizontally into the existing slope at least 2 feet normal to the slope as the fill is brought up in layers.

Mitigation Measure A-GEO-17. Soil analyses shall be completed for expansion potential. Once Project design has been developed and the criteria for the facility performance have been established, the soils engineer shall review the mitigation measures and modify them as appropriate. If further measures are considered necessary to mitigate problems posed by expansive soils, the following alternatives shall be considered:

- Overexcavation of expansive soils and replacement with nonexpansive fill
- Support of structures on drilled shaft foundations
- Lime treatment of expansive subgrades

Mitigation Measure A-GEO-18. Project support facilities such as bridge foundations shall be sited on cut pads to provide relatively uniform foundation support and reduce differential settlement. Alternatively, structure foundations shall be designed to tolerate potential differential settlement.

Mitigation Measure A-GEO-19. Project grading and earthwork shall be observed and tested by a geotechnical engineer or his representative to verify compliance with these mitigation measures.

Mitigation Measure A-GEO-20. Project facilities shall be designed to Seismic Zone 4 standards.

2.8.4.6 Noise

Mitigation Measure A-NOI-1. The Applicant shall maintain all WTGs in excellent working order to minimize operational noise impacts.

2.8.4.7 Risk of Accidents/Hazardous Materials/Safety

Mitigation Measure A-RISK-1. The Applicant shall prepare a Hazardous Materials Management Plan for approval by the SBCFD prior to introducing any such materials onto the site.

Mitigation Measure A-RISK-2. The Applicant shall prepare a Fire Protection Plan for approval by the SBCFD prior to starting construction on the site.

Mitigation Measure A-RISK-3. Refueling vehicles will have a sign listing pertinent contacts to notify in the event of a spill.

Mitigation Measure A-RISK-4. Smoking and burning will be prohibited.

Mitigation Measure A-RISK-5. All equipment will be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.

Mitigation Measure A-RISK-6. Construction fueling will be designated so that sensitive areas are avoided.

2.8.4.8 Transportation/Circulation

Mitigation Measure A-TRANS-1. The Applicant shall prepare a Traffic Management Plan (TMP) that addresses truck access to the Project site. The TMP shall be submitted to the California Highway Patrol, County of Santa Barbara, and City of Lompoc for review and approval. The TMP will incorporate measures such as the use of escort vehicles, informational signs, flagmen when equipment may result in blockages of throughways, and traffic cones to identify any necessary changes in temporary lane configuration.

Mitigation Measure A-TRANS-2. The Applicant shall pay the appropriate traffic mitigation fees to the County of Santa Barbara.

2.8.4.9 Water Resources

Mitigation Measure A-WAT-1. An erosion control plan for Project construction shall be developed by a registered engineer to minimize potential impacts to surface water quality during construction activities.

Mitigation Measure A-WAT-2. Identify all potential erosion causes and minimize the resultant soil loss. (See mitigation measures in Section 3.9 for further detail.)

Mitigation Measure A-WAT-3. Minimize the size of the disturbed area associated with grading and construction.

Mitigation Measure A-WAT-4. Stockpile all excavated soils and protect them from wind and water erosion.

Mitigation Measure A-WAT-5. Revegetate disturbed areas.

Mitigation Measure A-WAT-6. Grading during construction will be limited to the dry season to the extent practicable. If grading needs to be done outside of the dry season, the Applicant will coordinate grading work with the County and will follow all applicable guidelines. Rainy season erosion control measures shall be utilized to control runoff and erosion in the event that revegetation is not completed prior to the rainy season.

~~2.8.4.10 Potential Mitigation Measures for the Power Line~~

~~The following were identified as potential mitigation measures for the power line by the Applicant:~~

~~Mitigation Measure A-PL-1. Where possible, the power line will follow the existing distribution lines where the opportunity will exist to under build the distribution line below the power line, where feasible, thus consolidating facilities. On the George Bedford property, every attempt will be made to consolidate the existing distribution lines that cross the property.~~

~~Mitigation Measure A-PL-2. At the southeast corner of the City of Lompoc where the power line would traverse the ridge, design concepts are being evaluated that would lessen the visual impacts. These include moving the pole location down the hill to the east, and or using multiple poles that would reduce the overall height of the poles. A connection from GPS Location 27 to the existing Celite line immediately to the southwest may also reduce~~

~~visual impacts by eliminating the proposed power line location from GPS Location 27 to GPS Location 28 and beyond.~~

2.8.5 Avoidance and Protection Measures for the Lompoc Wind Energy Power Line

In order to avoid any significant impacts on the environment, the Lompoc Wind Energy Power Line Project incorporates the Avoidance and Protection Measures listed below as part of its project design and construction. PG&E will coordinate with the County and provide site access during preconstruction and construction activities to verify that the project is constructed in accordance with the Project Description, including the following measures. If the County monitor observes the construction to be out of compliance, the County shall contact PG&E as soon as possible to resolve the issue and ensure compliance. Enforcement of compliance with these measures is in the jurisdiction of CPUC.

GENERAL

PL-1: Construction Crew Training: Construction crews will be trained on avoidance and protection of environmentally sensitive resources along the power line right-of-way including biological, archaeological, and paleontological resources. Continuing tailgate environmental training sessions will be held as new crew members are added.

PL-2: Materials Storage. All construction materials and excavated materials will be stored away from San Miguelito Road, whenever possible, to reduce impacts on mountain views. Materials storage will be confined to within the power line right-of-way and staging areas.

PL-3: Location of Construction Activities. Construction activities will be confined to within the power line right-of-way and staging areas, where feasible. Lands adjacent to the power line right-of-way may be used if deemed necessary for construction.

PL-4: Power Line Alignment. In accordance with the California Public Utility Commission's standards set forth in General Order 95 (GO 95), and where feasible, particularly on nonparticipating ranches, the power line will follow the existing distribution lines. Also in accordance with GO 95, and where feasible, existing distribution and power lines will be built below the proposed power line to consolidate facilities.

PL-5: Power Line Relocation/Pole Height. Where the power line route would be visible from SR-1, the following measures will be used, where technically feasible, to minimize visual impacts: longer spans between the poles; shorter poles; and straddle ridgeline with two poles instead of a single pole on the ridge line.

PL-6: Road Construction / Water Quality. The grading, construction, and drainage of roads will be carried out to maintain any downstream water quality.

PL-7: Electromagnetic Field Effect Reduction. The design of the power line shall conform to EMF reduction measures described in the California Public Utilities Guidelines (2006a [EMF Design Guidelines for Electrical Facilities]).

PL-8: Minimize Grading. Grading and disturbance of vegetation will be minimized to the greatest extent feasible. Consistent with the Project Description, grading and disturbance for new access roads will be limited to approximately ½ mile of new roads. Grading and disturbance for installation of power poles will be in accordance with the Project Description, including Section 2.5 and Table 2-5.

EMISSIONS AND DUST REDUCTION

PL-9: Reduction of Construction Equipment Emissions. Construction impact mitigation measures for equipment exhaust will be implemented as summarized in the SBCAPCD guide (SBCAPCD, 2007).

PL-10: Dust Control. Dust control measures will be implemented including 1) Application of water sprays to all disturbed active construction areas to keep fugitive dust from being transmitted outside of the power line right-of-way. 2) Soil stockpiled for more than 2 days will be covered, kept moist, or treated with soil binders to prevent dust generation. 3) Trucks transporting soil will be covered in transit. 4) Traffic speeds on all unpaved roads will be 15 miles per hour or less. 5) The contractor or builder will designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite.

BIOLOGICAL RESOURCES

PL-11. Avian Protection. Space all overhead power line conductors to minimize potential for raptor electrocution using the latest APLIC (2006) guidelines for line spacing. PG&E's construction and work procedures shall also be consistent with the APLIC guidelines *"Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006."* (http://www.aplic.org/ suggested practices2006(LR).pdf). Any raptor fatalities shall be reported to the County and additional protective measures identified and implemented in coordination with the County.

PL-12. Pre-project surveys. Pre-project surveys will be conducted for special status species at the appropriate season at all proposed power pole locations.

PL-13. Avoid Sensitive Resources. The power line design will avoid placement of poles or other construction within the dripline of oak trees and in sensitive species habitat (including habitat of Gaviota tarplant, CNPS List 1B Plant Species, and El Segundo blue butterfly). If such placement is unavoidable, mitigation and compensation measures will be implemented consistent with CPUC and Santa Barbara County standards.

PL-14. Minimize habitat disturbance. The power line design will minimize habitat disturbance by using existing access roads wherever possible and construction of new poles using helicopters if feasible where creation of new access roads would necessitate grading in steep terrain or removal of woodland vegetation.

ARCHAEOLOGICAL RESOURCES

PL-15: Archaeological Resources. The power line design will avoid placement of poles in any known recorded archaeological sites. If a recorded archaeological site can not be avoided through power line design, then regulatory mandated Phase 1 and 2 subsurface testing will be conducted to evaluate the nature, extent, and significance of the cultural resources, and appropriate monitoring by a qualified archaeologist and Native American monitor will be conducted during excavation activities.

PL-16: Temporary Fencing. Known unevaluated or determined significant archaeological sites and 50-foot buffer areas will be temporarily fenced.

PL-17: Unanticipated Discoveries. Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the power line, work in the immediate vicinity of the discovery will be suspended until the find is evaluated by a qualified archaeologist in coordination with the County.

FIRE PREVENTION

PL-18: Fire Prevention during Construction. All construction equipment will be equipped with appropriate spark arrestors and carry fire extinguishers. Further, a fire watch with appropriate fire-fighting equipment will be available at the power line site at all times when welding activities are taking place. Welding will not occur when sustained winds exceed that set forth by the SBCFD unless a SBCFD-approved wind shield is onsite.

PL-19: Emergency Services Communications PG&E will coordinate with SBCFD and other local emergency responders regarding the use of dedicated repeaters for emergency services given the limited cell reception in San Miguelito Canyon.

PL-20: Fire Prevention during Operation. Vegetation clearance within the power line right-of-way will be conducted on a regularly scheduled basis in accordance with PG&E fire abatement procedures.

PL-21: Smoking and Open Fires. Smoking and open fires will be prohibited within the power line right-of-way during construction and operations.

GEOLOGY AND SOILS

PL-22: Seismicity. Power line facilities will be designed to the California Public Utility Commission's standards set forth in General Order 95. [PG&E NOTE: These standards are more stringent than the Uniform Building Code Seismic Zone 4 requirements.]

PL-23: Erosion Control. BMPs will be implemented for erosion control. Erosion control structures will be placed between disturbed soil and drainage structures or areas prior to the start of the rainy season.

PL-24: Soil Stability. Power line foundations will be designed to tolerate potential differential settlement and expansive soils.

NOISE AND RESIDENT NOTIFICATION

PL-25: Construction Hours / Noise. Work hours for all construction activities involving motorized equipment will be restricted to 7:00 a.m. to 6:00 p.m., Monday through Saturday to the greatest extent feasible. [PG&E NOTE: When existing lines must be taken out of service for construction, work must proceed during the clearance times provided by the California Independent Systems Operator (ISO), which may include a night or a Sunday when electric loads are generally lower. Also, there are certain construction activities that cannot safely be interrupted once begun.]

PL-26: Resident Notification. PG&E will issue a Notice of Construction to all residents within 300 feet of the power line right-of-way of construction related activities, including potential lane closures, prior to the commencement of construction activities. PG&E will post signs along San Miguelito Road in advance of specific lane closures or ingress/egress restrictions. Signs will be legible from bypassing cars.

PL-27: Noise Reduction. Construction equipment will be well tuned and maintained according to the manufacturer's specifications, and the standard noise reduction devices on the equipment will be in good working order. Stationary equipment such as compressors and welding machines will be located away from sensitive receptors to the extent practicable. An exhaust muffler will be installed on the compressed air exhaust of pneumatic tools to be used within 1,500 feet of a residence and this requirement will be included in the construction specifications.

PL-28: Noise Complaints. PG&E will provide a phone number for noise complaints on their Notice of Construction to be sent to residents within 300 feet of the power line right-of-way. PG&E will notify the County of all complaints received regarding power line construction.

PALEONTOLOGICAL RESOURCES

PL-29: Paleontological Monitoring. PG&E will provide a qualified paleontological monitor for excavation of power line facilities in areas with a "High" paleontological sensitivity. If fossils are discovered, PG&E will immediately notify the County and consult with the County on fossil assessment and curation activities.

HAZARDOUS MATERIALS

PL-30: Hazardous Materials. BMPs for the storage and handling of all hazardous materials and wastes will be implemented during power line construction.

PL-31: Refueling. Fueling of construction vehicles and equipment will be conducted in areas that are located a minimum of 100 feet from sensitive areas. Refueling vehicles will have a sign listing pertinent contacts to notify in the event of a spill.

PL-32: Equipment Leaks. All equipment will be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.

TRAFFIC

PL-33: Traffic. Flaggers will be used when power line related construction vehicles ingress/egress San Miguelito Road and when lane closures are required.

2.9 Project Approvals

A variety of permits and approvals could be required for the Project, as described in this section.

2.9.1 County of Santa Barbara

The County of Santa Barbara would need to authorize or approve the following quasi-adjudicative items:

- Conditional Use Permit (CUP), pursuant to LUDC Section 35.82.060. It is anticipated that the County would issue separate zoning clearances for each phase of the Project.
- Approve the variance from the setback requirement, as specified in LUDC Section 35.57.050, to allow the WTGs to be located as close as 150 feet from the VAFB property lines along the south and west Project boundaries and from internal property lines within the Project.

The County Planning Commission would consider each of these actions. Approval would not be required by the Board of Supervisors unless the CUP or variance were appealed. After approval of the CUP and variance, the County would issue zoning clearances for each development phase after the necessary permit conditions were satisfied.

Other permits or approvals may that may be needed from individual County agencies are as follows:

- Planning and Development Department
  - Approval of all environmental mitigation plans and future review and approval of the Decommissioning and Site Restoration Plan
- Public Works Department
  - Stormwater Quality Management Plan incorporating Best Management Practices
- Flood Control District
  - Plan approval for any road or bridge crossings at creeks or grading for structures within 50 feet from the top of creek banks.
- Environmental Health Services
  - Septic and water system permits
- Air Pollution Control District
  - None required because the Project would use electric pumps and would be conditioned to require that all construction equipment use ultra-low-sulfur diesel fuel. No permanent stationary sources would occur. Portable or temporary equipment if present onsite for more than 12 months, including concrete batch plants and associated engines, and gasoline storage tanks of 250 gallons or more would require permits from the Air Pollution Control District.

- Public Works Department/Roads Division
  - Encroachment permits
  - Detailed traffic control plan
  - Fees for increases in peak hour trips, if required
  - Haul permits
  - Bonds
  - Photo documentation of pre- and post-construction road condition of San Miguelito Road beyond the Celite mine and payment for resulting road damage
- Santa Barbara County Fire Department (SBCFD)
  - Annual permits for the use and storage of hazardous and flammable materials/wastes
  - Hazardous Materials Business Plan
  - Fire Protection Plan
- Building and Safety Division
  - Grading and drainage plan and permit
  - Erosion control plan and permit
  - Building and electrical permits

2.9.2 Other Permits and Approvals

Additional permits, approvals, and consultations may be needed from the following:

- City of Lompoc
  - Encroachment permits for work within the City's right-of-way
  - Approval of the Traffic Control Plan
- Central Coast Regional Water Quality Control Board
  - Regional Water Quality Certification (401 permit)
  - Industrial National Pollutant Discharge Elimination System permit
  - General Construction Stormwater permit (requirements include preparation of an SWPPP)
- California Public Utilities Commission (CPUC)
  - Pursuant to General Order (GO) 131D, if the EIR concludes that the PG&E power line segment of the Project will result in significant unavoidable impacts to the environment, the CPUC would exercise its discretionary authority by requiring

PG&E to obtain a Permit to Construct the project. Alternatively, if the DEIR identifies a power line alternative that avoids significant unavoidable impacts, and that alternative is selected for construction, GO 131D exempts the project from CPUC certification and permitting requirements. ~~Permit to Construct (for PG&E) if the final EIR concludes that PG&E's part of the Project (that is, power line and grid system upgrades) would cause significant unavoidable environmental impacts, or if protests were filed with the CPUC concerning potential environmental impacts of the power line~~

- California Department of Fish and Game (CDFG)
  - Possible Streambed Alteration Agreement (pursuant to Section 1601 of the California Fish and Game Code)
  - Section 2081 permit (for impacts to state-listed endangered species)
- California Department of Transportation (Caltrans)
  - Encroachment permit (for any portions of the power line that extend into or across the SR-1 right-of-way)
  - Hauling truck and overload permits
  - Approve road closures
- United States Army Corps of Engineers (USACE)
  - Possible Section 404 permit (assess after wetland surveys)
- United States Fish and Wildlife Service (USFWS)
  - Consultation for impacts to federally listed species
- Federal Aviation Administration (FAA)
  - Review Notice of Proposed Construction or Alteration and make determination regarding the Project's impact to air navigation
  - Review and approve Lift Plan and WTG Lighting Plan

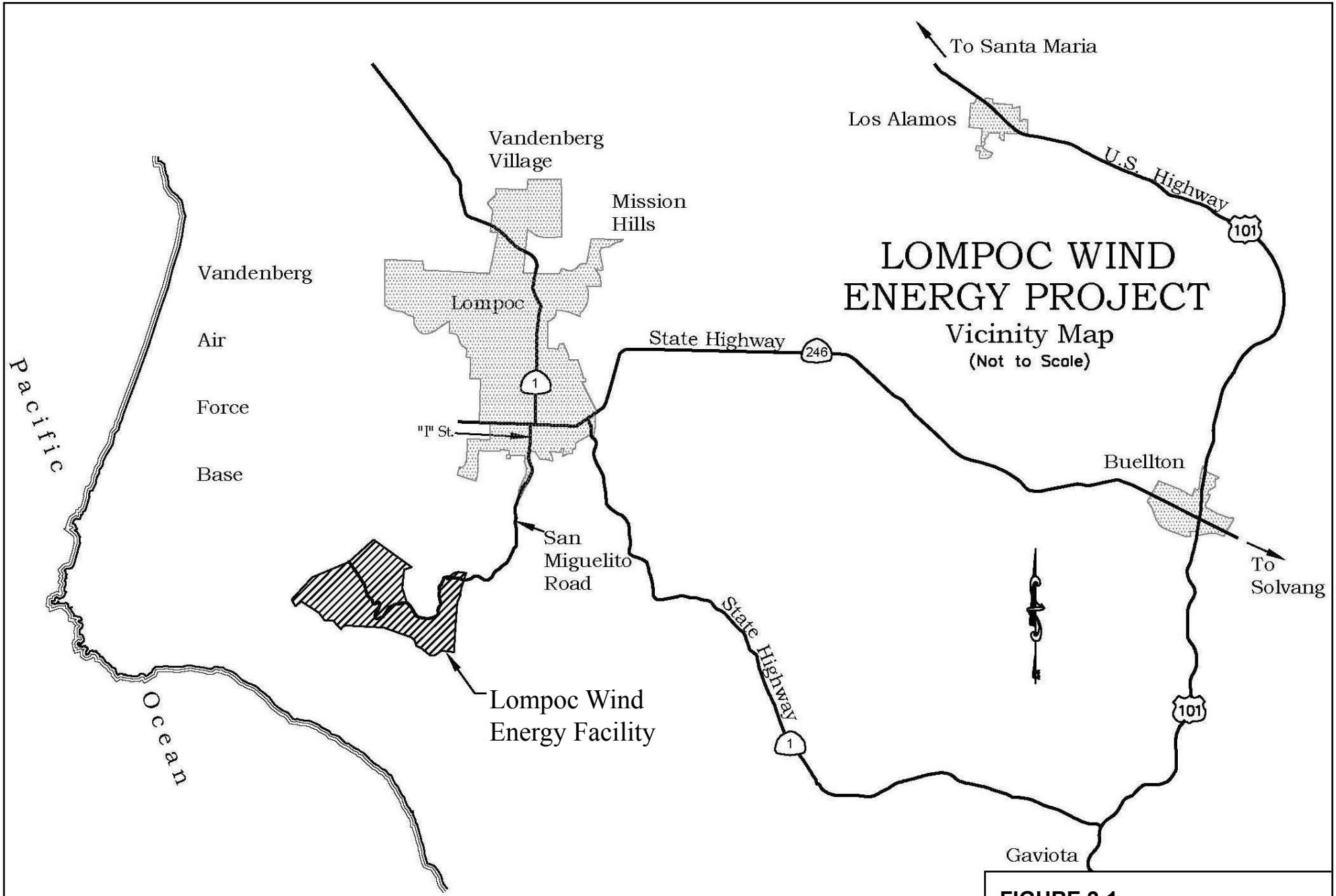

FIGURE 2-1
REGIONAL LOCATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

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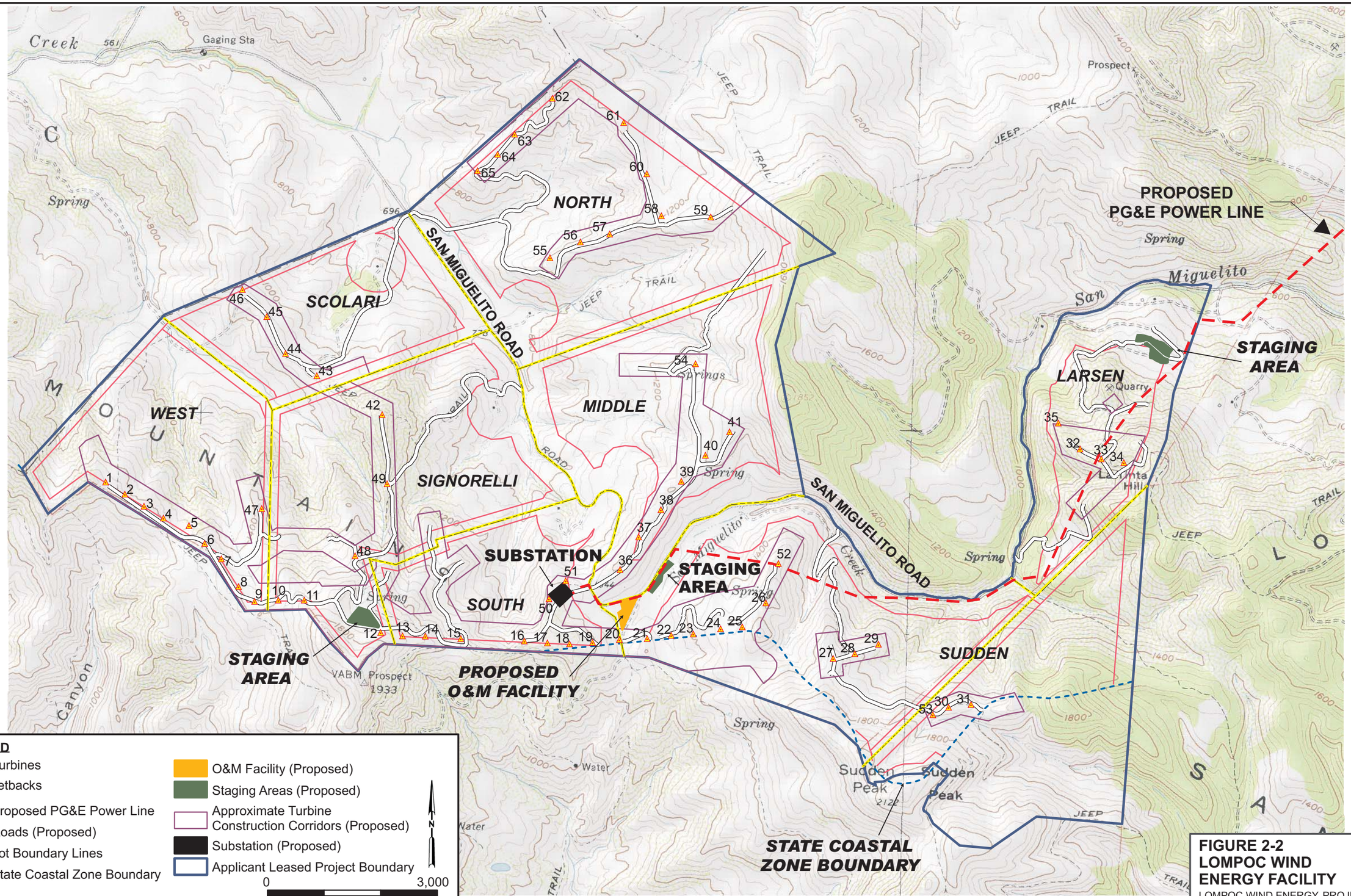


FIGURE 2-2
LOMPOC WIND ENERGY FACILITY
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill.

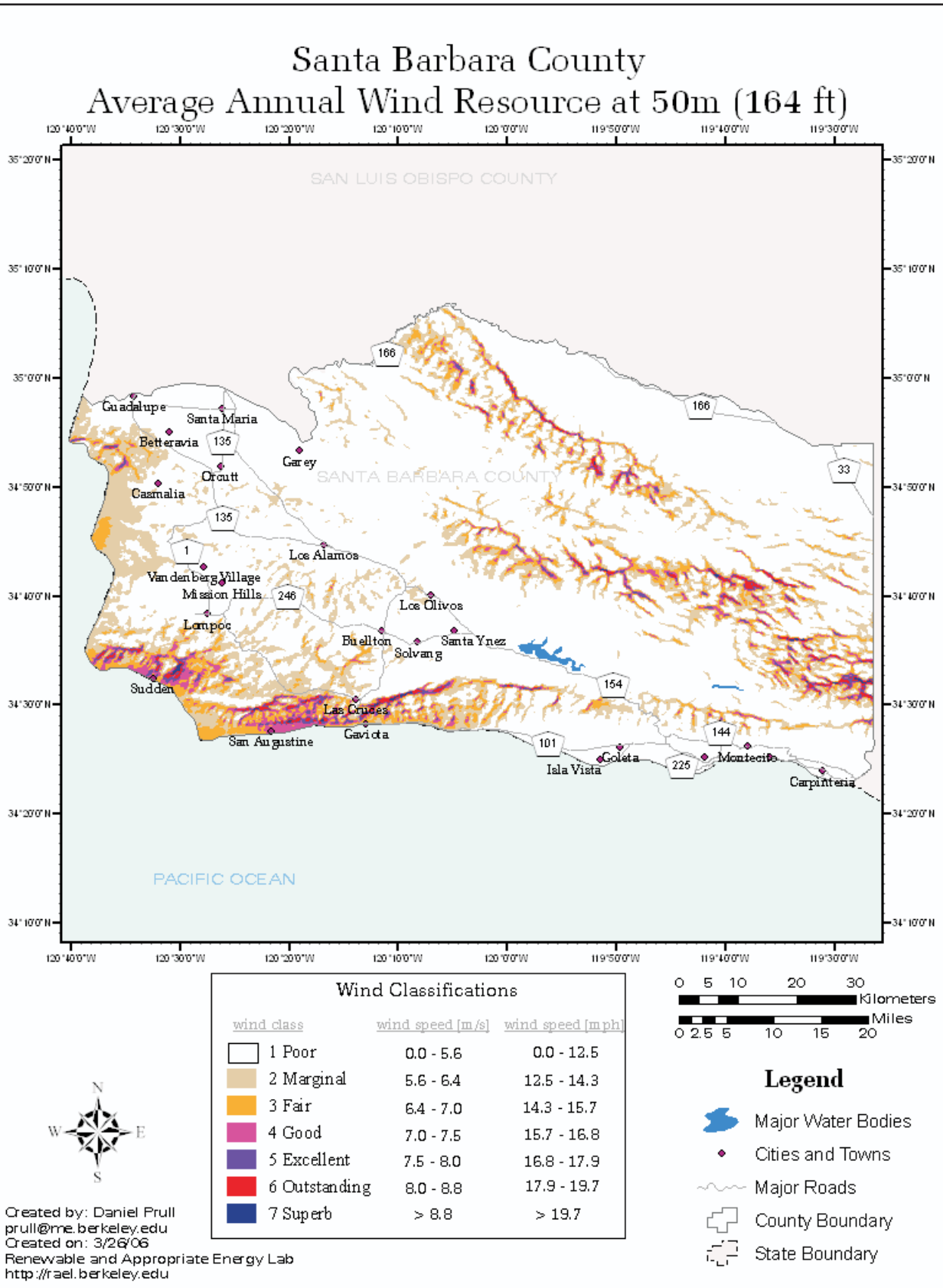


FIGURE 2-3
AVERAGE ANNUAL WIND RESOURCE AT 50M (164 FT)
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: CECSB.

LEGEND

- GPS Points
- Proposed PG&E Power Line
- Roads (Proposed)
- Lot Boundary Lines
- State Coastal Zone Boundary
- O&M Facility (Proposed)
- Staging Areas (Proposed)
- Approximate Turbine Construction Corridors (Proposed)
- Substation (Proposed)
- Applicant Leased Project Boundary

0 3,000 Feet

N

KEY MAP

PROJECT LOCATION

PROPOSED PG&E POWER LINE

STAGING AREA

SUBSTATION

STAGING AREA

PROPOSED O&M FACILITY

STAGING AREA

STATE COASTAL ZONE BOUNDARY

MIGUELITO COUNTY PARK

NORTH

SCOLARI

WEST

MIDDLE

SIGNORELLI

SOUTH

SUDDEN

LARSEN

SAN MIGUELITO ROAD

SAN MIGUELITO ROAD

FIGURE 2-4
POWER LINE ROUTE
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill.

Vestas V90 – 3.0 MW

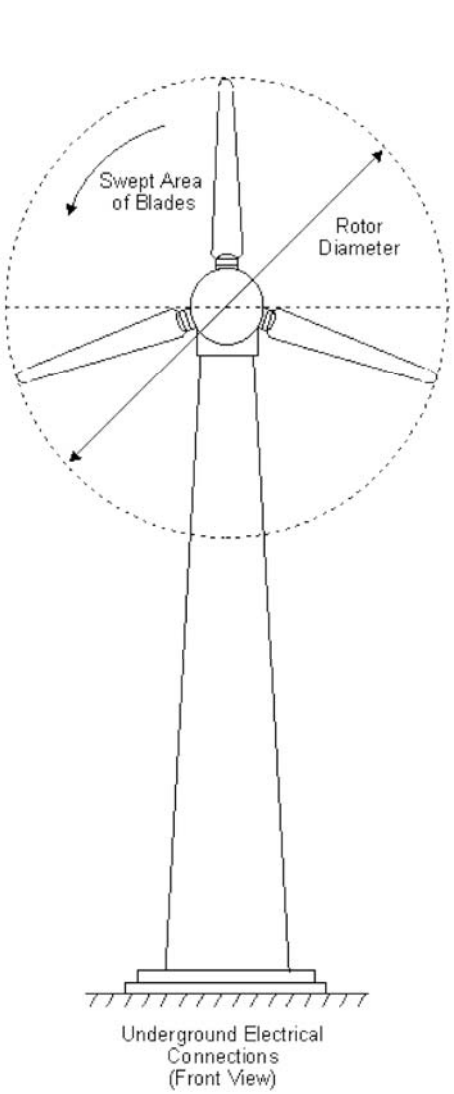
GE – 2.5 MW

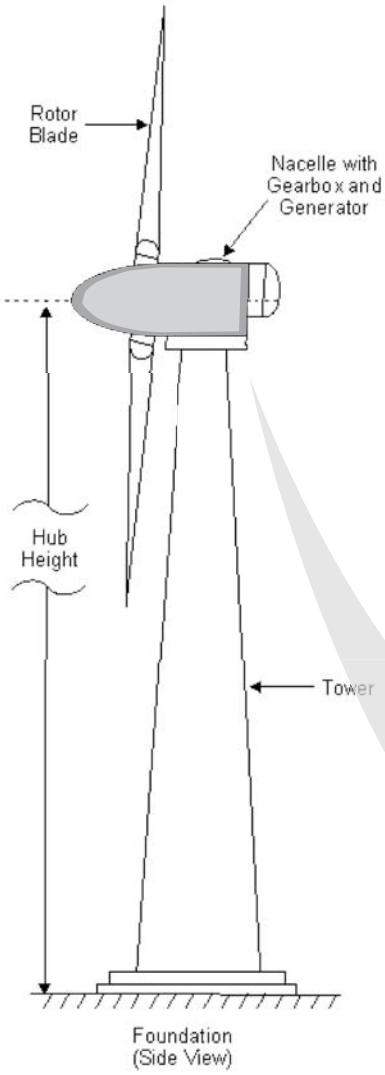
Gamesa G90 – 2.0 MW

Suzlon Energy – 1.25 MW

FIGURE 2-5
EXAMPLES OF WIND TURBINE GENERATORS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill





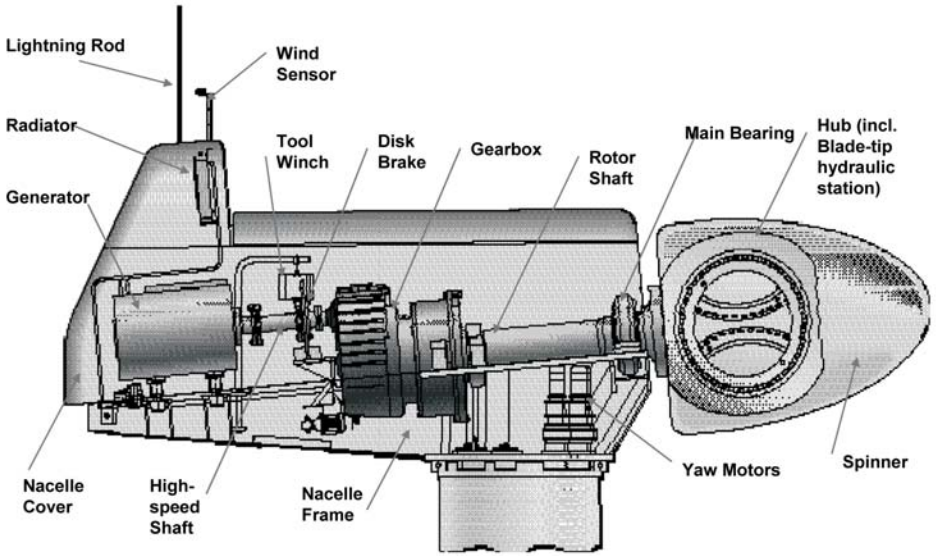


FIGURE 2-6
TYPICAL WIND TURBINE GENERATOR
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill

Inset A: WTG Foundation construction.

Inset B: Pad transformer beside WTG.

Inset C: Excavated trench for underground cables.

Inset D: Substation and interconnection facilities.

Inset E: Typical WTG construction.
The WTG is a 1.5-MW machine.
(Photo Credit: Michael D. Burns,
Oak Creek Energy Systems Inc., Mojave, California.)

Inset F: WTG blade/hub assembly.

Inset G:
Meteorological tower.

FIGURE 2-7
EXAMPLES OF PROJECT COMPONENTS AND CONSTRUCTION DETAILS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill

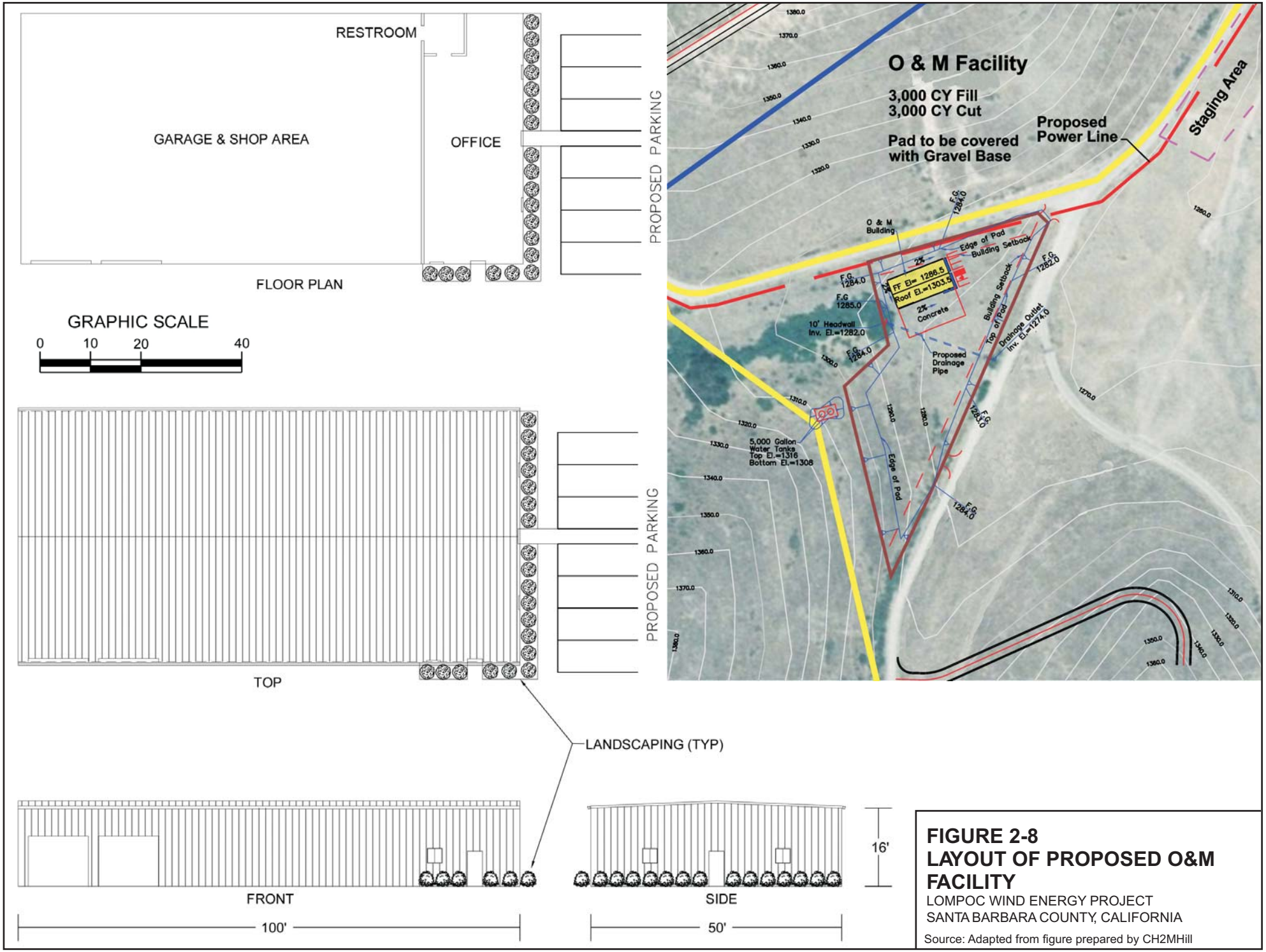


FIGURE 2-8
LAYOUT OF PROPOSED O&M FACILITY
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill

Batch Plant during Transport

Batch Plant in Operation

FIGURE 2-9
PORTABLE CONCRETE BATCH PLANT
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill