

Final Fire Protection Plan Tierra del Sol Solar Farm Project



**APNs 612-082-11&12; 612-090-57&58; 612-092-11, 12 &13; 612-100-01&02; 612-110-02, 20&21;
612-120-01; 658-051-07&08; 658-090-17, 31, 35, 36, 40 thru 43, & 50 thru 55658-120-02&03; 659-010-
01&15; and 659-070-11&16.**

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Fire Protection Plan

EXECUTIVE SUMMARY

This Fire Protection Plan (FPP) is submitted pursuant to section 4903 of the County Consolidated Fire Code to address the adverse environmental effects that the proposed Tierra Del Sol Solar Farm Project (Project) may have from wildland fire. It provides documentation that the project does not expose people or structures to a significant risk of loss, injury or death involving wildland fires based on its conformance with applicable fire and building codes.

The proposed Project is a solar farm that would produce up to 60 megawatts (MW) of solar energy and would consist of approximately 2,538 concentrating photovoltaic (CPV) trackers on 420 acres in southeastern San Diego County, near the unincorporated community of Boulevard, California. The project includes a generation interconnection transmission (Gen-tie) line to feed power to the Boulevard substation. As proposed, the project will be developed in two phases. Phase One would include the construction and operation of 45 MWs on approximately 330 acres. Phase Two would consist of the construction and operation of 15 MWs on approximately 90 acres. The project includes the use of “moving” solar arrays that track the sun across the sky on a daily basis. Individual solar tracker dimensions are approximately 48 feet across by 25 feet tall and they are elevated above the ground on steel poles. In addition, the proposed Project will construct a new gen-tie line that extends for approximately 6 miles from the solar farm to the San Diego Gas & Electric Boulevard rebuilt substation off of Old Highway 80 on Ozz Road near Boulevard, California.

The Project will be constructed in an area of San Diego County which is statutorily designated by CAL FIRE as a Very High Fire Hazard Severity Zone (CAL FIRE FRAP 2007). Fire hazard designations are based on topography, vegetation, and weather, amongst other factors that indicate the likelihood of wildfire occurrence. The project sites are located in an area dominated by chaparral vegetation, which is a vegetation community that experiences occasional wildfire and can burn in an extreme manner under windy, dry conditions. The terrain on, and within the vicinity of the Project, is predominantly flat to gently rolling. The Project area, like all of inland San Diego County, is subject to seasonal weather conditions that can heighten the likelihood of fire ignition and spread. Based on the region’s fuels, fire history, and expected fire behavior, a high-intensity fire can be expected to occur in the project area. Fire behavior in the project area can be extreme with intense heat, above average flame lengths, fast spread and spotting. The applicable fire codes and measures required by this FPP directly address the fire concerns associated with this Project’s location.

Fire protection in the Project area is shared by several agencies, with the San Diego County Fire Authority (SDCFA) and California Department of Forestry and Fire Protection (CalFire) providing significant resources. The closest fire station is the Boulevard Volunteer

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Fire Department. CalFire has the primary responsibility for wildfire protection within State Responsibility Areas (SRAs). Both SDCFA and CAL FIRE operate fire stations within a short driving distance of the project.

The project will introduce a solar facility, electrical transmission line and related activities into a rural setting that currently includes semi-disturbed and undisturbed wildland fuels. The Project may increase potential ignition sources in the area with the ongoing operation and maintenance program, but will reduce the available wildland fuels and will result in a higher level of fire monitoring and awareness due to on-site personnel and security measures. The site is currently subject to ignition sources including a major electrical transmission line easement through the middle of the property along with regular U.S. Border Patrol vehicle traffic and neighboring and cross-border roadways. The Project will include compliance with the San Diego County Consolidated Fire Code and will provide additional measures that enhance fire safety and protection.

Based on the project's conformance with applicable fire and building codes along with the additional measures identified in this FPP, the project would not result in a significant impact under CEQA.

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Fire Protection Plan

1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the Tierra Del Sol Solar Farm Project near the community of Boulevard, California. The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, this FPP has considered the property location, topography, geology (soils and slopes), combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary/emergency access where applicable), solar component and structure ignitability and ignition resistive features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect this project and its essential infrastructure. The plan recommends measures that the property owner will take to reduce the probability of ignition of equipment or structures throughout the project area addressed by this plan.

This FPP is consistent with the County Consolidated Fire Code (CCFC), which was certified as a package with the County Building Code by the State Board of Forestry to be consistent with California Code of Regulations, Title 14, Fire Safe Regulations. Since the project is within State Responsibility Area, Title 14 is applicable, but the certified CCFC is now used in lieu of Title 14. Further, the Project is consistent with the County Building and Electrical Codes and will employ all related CPUC regulations including the General Order 95: *Rules for Overhead Electric Line Construction*.

The purpose of this FPP is to analyze the project's various components and siting in a fire hazard area and to generate and memorialize the fire safety requirements of the Fire Authorities Having Jurisdiction (FAHJ). Recommendations of this FPP incorporate analysis and recommendations resulting from the Soitec Solar Portfolio Project Emergency Service Capabilities Assessment and Cumulative Impact Mitigation report (Dudek 2013) which analyzed the cumulative impact on the area's emergency service resources from foreseeable projects in the Boulevard Area and made recommendations for effectively mitigating identified impacts. Requirements and recommendations are based on site-specific characteristics and incorporate input from the project applicant and the SDCFA. This FPP incorporates all applicable fire safety regulations and requirements and documents in text a selection of these regulations that are most pertinent to the Project's unique facility and location.

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Fire Protection Plan

1.1 Project Summary

1.1.1 Project Location

The Project is located to the south of Interstate 8 (I-8), within private lands located adjacent to the US/Mexico Border (Figure 1). The property includes Assessor's Parcel Numbers (APN) 658-090-31, 658-090-55, 658-120-03, 658-090-54, and 658-120-02 for the solar farm and 612-082-12; 612-090-57 and 58; 612-092-113; 612-100-02; 612-110-02, 18, and 20; 658-051-07, 08, and 17; 658-090-17 and 36; 659-010-01 and 15; and 659-070-11 and 16 for the gen-tie line. Figure 2, Vicinity Map, shows the project's relationship to the surrounding unincorporated community of Boulevard. Surrounding land use/ownership includes private lands to the north, east, and west with various rural land uses within the United States and the International Border and country of Mexico to the south with rural residential as the primary land use. The Tierra del Sol Solar Farm site is located in Sections 13 and 24 of Township 18 South, Range 6 East, on the U.S. Geographical Survey (USGS), 7.5 minute, Tierra del Sol quadrangle map. The gen-tie transmission line would be utilized to deliver power from the solar farm to the Boulevard rebuilt substation located approximately 5 miles to the northeast. Specifically, the gen-tie line passes through Sections 12 and 13 of Township 18 South, Range 6 East and Section 7 of Township 18 South, Range 7 East on the USGS- 7.5 minute Tierra del Sol quadrangle map and Sections 28, 29, 31 and 32 of Township 17 South, Range 7 East and Section 6 of Township 18 South, Range 7 East on the USGS-7.5 minute Live Oak Springs quadrangle map. The Project site (solar farm and gen-tie line) will be constructed in areas of San Diego County which are determined to be in an area classified as a Very High Fire Hazard Severity Zone by CAL FIRE (CAL FIRE FRAP 2007).

1.1.2 Project Description

The proposed Tierra Del Sol solar farm project (Project) would produce up to 60 megawatts (MW) of solar energy and would consist of approximately 2,657 Concentrator Photovoltaic (CPV) dual axis tracking systems ("trackers") on 420 acres in southeastern San Diego County near the unincorporated community of Boulevard, California. The proposed project will be developed in two phases. Phase I would include the construction and operation of 45 MWs (1,993 CPV trackers) on approximately 330 acres. Phase II would consist of the construction and operation of 15 MWs (664 CPV trackers) on approximately 90 acres. The project includes a Major Use Permit (MUP) to authorize a Major Impact Utility Pursuant to Sections 1350, 2705, and 2926 of the County of San Diego's Zoning Ordinance. The project will also require a Rezone to remove Special Area Designator "A" to ensure compliance with Section 5100 of the County of San Diego's Zoning Ordinance. An Agricultural Preserve Cancellation will also be required to develop the project site as proposed.



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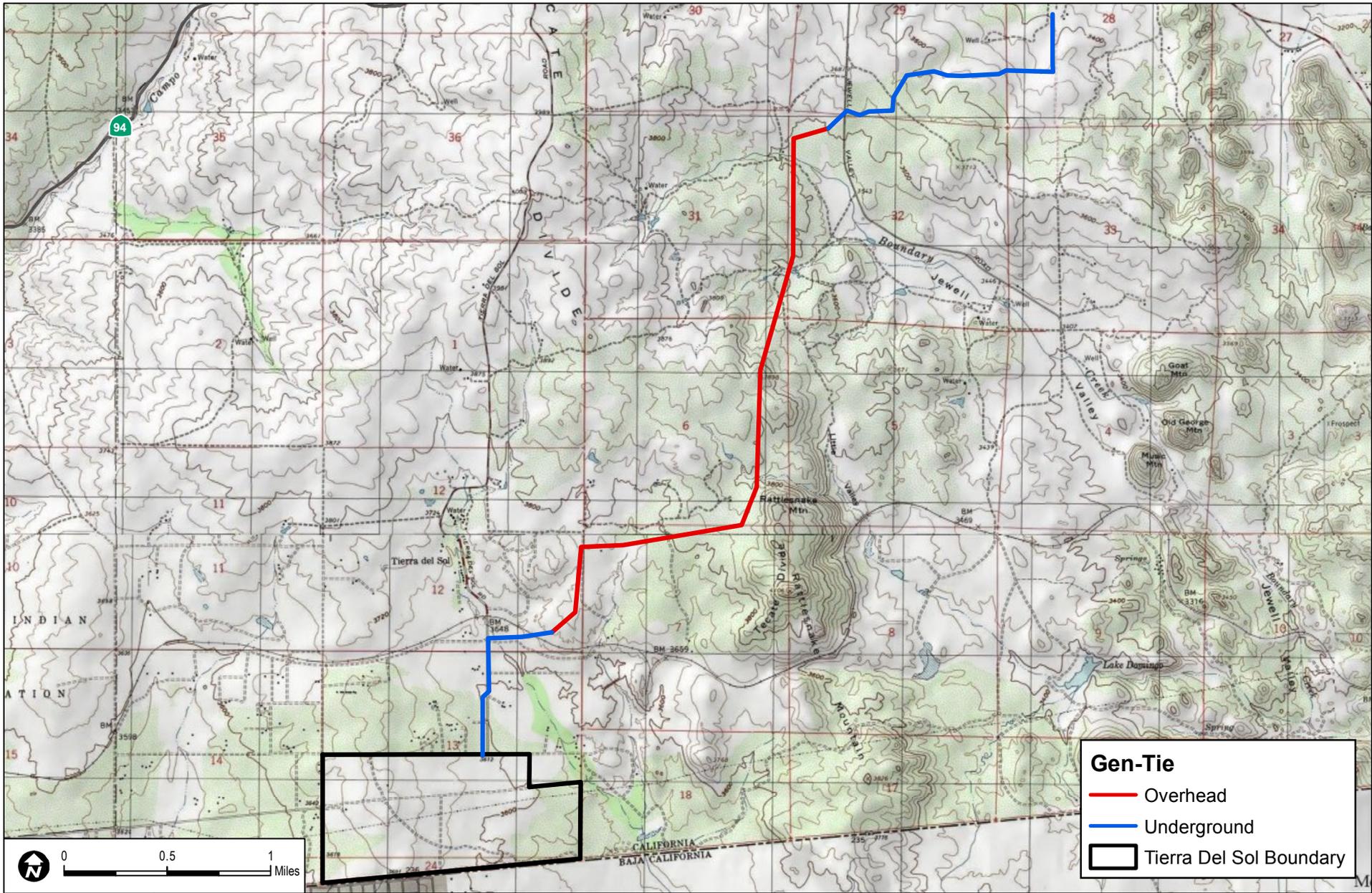
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FIRE PROTECTION PLAN - TIERRA DEL SOL SOLAR FARM

FIGURE 1
Regional Map

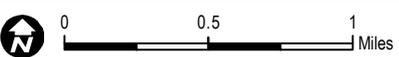
Tierra del Sol Solar Farm Project Fire Protection Plan

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Gen-Tie

- Overhead
- Underground
- Tierra Del Sol Boundary



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SOURCE: USGS 7.5-Minute Series Tierra Del Sol and Live Oak Springs Quadrangle.

FIGURE 2
Vicinity Map

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FIRE PROTECTION PLAN - TIERRA DEL SOL SOLAR FARM

**Tierra del Sol Solar Farm Project
Fire Protection Plan**

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Appendix A includes illustrations of individual project features. Individual tracker dimensions are approximately 48 feet across by 25 feet tall. Each tracker would be mounted on a 28-inch steel mast (steel pole) which would be supported by one of the following: (1) inserting the mast into the ground up to 20 feet and encasing it in concrete, (2) vibrating the mast into the ground up to 20 feet, or (3) attaching the mast to a concrete foundation sized to adequately support the tracker based on wind loading and soil conditions at the site. The preferred method would be to set the mast by vibratory pile driving methods depending upon soil conditions.

In its most vertical position and depending on foundation design, the top of each tracker would not exceed 30 feet above grade, and the lower edge would not be less than 1 foot above ground level. In its horizontal “stow” mode (for high winds), each tracker would have a minimum ground clearance of 13 feet, 6 inches.

Trackers would be installed and arranged in building blocks or groups. Power from each Building Block would be delivered from each tracker to a conversion station through a 1,000 volt (V) direct current (DC) underground collection system. The underground 1,000 V DC collection system construction footprint would include a trench of one to two feet in width and a depth of up to approximately four feet. It is anticipated that power from the trackers on site would be separated into three 34.5 kilavolt (kV) underground collection circuits, each delivering approximately 20 MW of power to the project substation.

Each 34.5 kV underground branch circuit associated with Phase I would connect to a 34.5 kV overhead trunk line on the project site for delivery to the project substation. These two collection circuits for Phase I would run overhead on an above ground trunk line adjacent to the south side of the Southwest Powerlink right of way. The approximately 1.2 mile above ground trunk line would utilize steel poles and would be approximately 50-75 feet high and spaced about 300-500 feet apart. The minimum ground clearance of the 34.5 kV lines would be 30 feet. The maximum hole dimensions for steel pole foundations would be 24 inches in diameter and approximately 20 feet deep. Phase II will connect to the project substation entirely via one 34.5 kV underground branch circuit and the underground 34.5 kV collection system construction footprint would include a trench of three to four feet in width and a depth of up to approximately four feet. Base material would be installed in all trenches to (i) ensure adequate drainage, and (ii) to ensure sufficient thermal conductivity and electrical insulating characteristics below and above collection system cables.

The project will include construction of a 34.5/138 kV step-up substation site (located within the northeast corner of the project site and adjacent to the O&M annex site) would increase the voltage received from the overhead and underground collector system from 34.5

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to 138 kV. Switching and transformer equipment as well as a control house and a parking area for utility vehicles would be located within the 3-acre substation site and for security purposes and to allow for nighttime inspections lighting would be installed near substation equipment, the control shelter, and on the entrance gates.

A 4-acre operations and maintenance (O&M) annex site would be located adjacent to the substation site and would be used for storage, employee operations, and maintenance equipment. The approximate 125 foot by 60 foot pre-manufactured single story building would include administrative and operational offices, warehouse storage for material and equipment, and lavatory facilities served by a private on-site septic system and groundwater well. . It is anticipated that in-place tracker washing would occur every 6 to 8 weeks during nighttime and evening hours, using an IPC Eagle Wash Station which would be towed by a pick-up truck, ATV, or Cushman electric cart. On-site water storage tanks will be installed to facilitate washing.

The project will also include a dual circuit 138 kV gen-tie electrical transmission line and right-of-way for the interconnection from the proposed project site to San Diego Gas and Electric's (SDG&E'S) Rebuilt Boulevard Substation. The dual circuit 138 kV gen-tie transmission line would consist of overhead and underground components for approximately 6 miles, with approximately 3.5 miles of the transmission line overhead and 2.5 miles underground (Figure 3). The southern portion of the dual circuit 138 kV transmission line will consist of an approximately 1-mile underground alignment leading northward from the onsite substation along the County right-of-way within Tierra del Sol Road for approximately 0.6 miles. The alignment would then be routed to the east via a 90 degree turn that would consist of an approximately 0.3-mile segment. A transition pole would be constructed at this location where the transmission line would transition from an underground alignment to an overhead alignment that would extend approximately 3.5 miles and end just east of Jewel Valley Road. At this point the dual circuit 138 kV alignment would transition back to underground for the remaining 1.5 miles eastward, and end at the interconnection point to the Rebuilt Boulevard Substation. Each transmission line pole would have a maximum height of 125 to 150 feet, depending upon location and span widths needed to clear drainages and obstructions. The cable span lengths would generally range from 500-1,400 feet dependent on the terrain. Several of the pole site locations are accessible from existing dirt access roads; however, where pole site locations are not accessible from existing roads, materials would be transported to the pole site by helicopter, light duty off-road equipment, and/or foot.