

D.15 Fire and Fuels Management

Section D.15.1 provides a description of the project's environmental setting/affected environment. Applicable regulations, plans, and standards are listed in Section D.15.2. Potential impacts/environmental effects and mitigation measures for the Proposed PROJECT are presented in Section D.15.3. Project alternatives are analyzed in Sections D.15.4 through D.15.7. The mitigation monitoring, compliance, and reporting program is discussed in Section D.15.8; Section D.15.9 addresses residual effects of the project and the references cited in this section are listed in Section D.15.10.

D.15.1 Environmental Setting/Affected Environment

Methodology and Assumptions

The fire and fuels study area includes lands that may be affected by construction and operation of the Proposed PROJECT. The study area includes land underlying and adjacent to the proposed East County (ECO) Substation, Tule Wind, and Energia Sierra Juarez U.S. Generator-Tie (ESJ Gen-Tie) projects, as well as the Campo, Manzanita, and Jordan wind energy project areas. Additionally, wildfire-related impacts require analysis of a larger area than that associated with a given project, including up to several miles beyond the project's immediate footprint and influence area. As such, this analysis incorporates a greater eastern San Diego County fire environment assessment.

Information utilized for this assessment was based on the following:

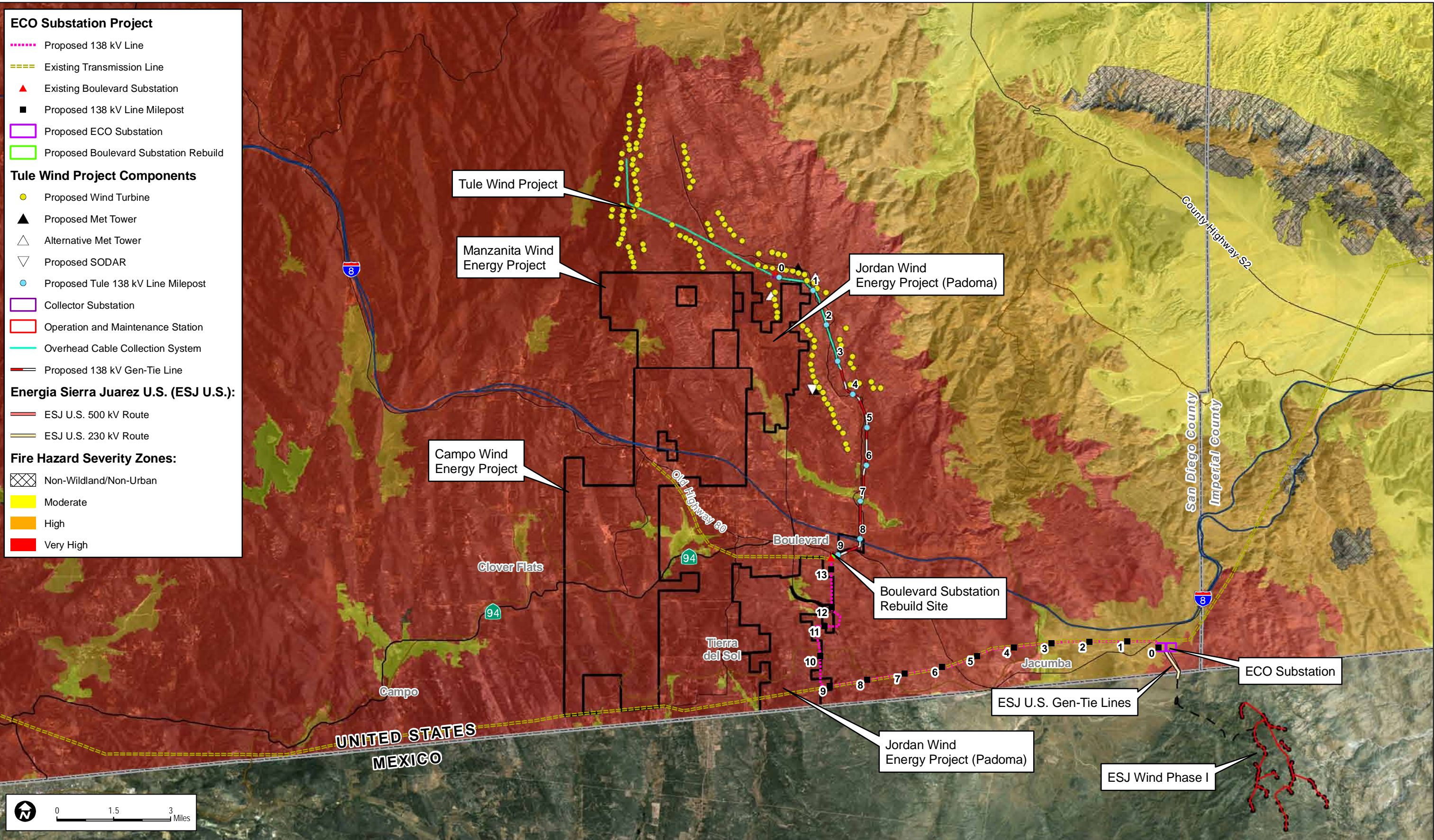
- Site visit to the general project areas
- Aerial image review
- Vegetation coverage map review
- San Diego Gas and Electric Company's (SDG&E's) Proponent's Environmental Assessment (PEA) for the ECO Substation Project (2009)
- California Public Utilities Commission (CPUC) and Bureau of Land Management's (BLM's) Final EIR/EIS for the Sunrise Powerlink Project (2008a)
- CPUC and BLM's Recirculated Draft EIR/Supplemental Draft EIS for the Sunrise Powerlink Project (2008b).

Additional information was provided by the Pacific Wind Development Tule Wind Project Environmental Document (Iberdrola Resources, Inc. 2010a) and from Energia Sierra Juarez U.S. Transmission, LLC's, Major Use Permit Package and Initial Study (March 2010), including its Fire Protection Plan (Hunt Research Corporation 2009).

Review of available information necessary to analyze overall fire risk includes California Department of Forestry and Fire Protection's (CAL FIRE's) Fire and Resource Assessment Program (FRAP) data (CAL FIRE 2010b), 2007 California Fire Code, 2007 California Building Code (Chapter 7A), 2009 County of San Diego Consolidated Fire Code, County of San Diego Guidelines For Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection, San Diego County Fire Code, and a Rural Fire Protection District letter to CPUC regarding the ECO Substation Project (September 2009). The Campo, Manzanita, and Jordan wind energy projects are being analyzed at a program level in this EIR/EIS as no site-specific survey data is available. Due to the close proximity of these wind energy projects to the ECO Substation, Tule Wind, and ESJ Gen-Tie projects, a similar fire and fuels setting is assumed.

D.15.1.1 General Overview

According to the "San Diego County Fire Severity Zones in SRA" map, the Proposed PROJECT would be located primarily within a very high fire hazard severity zone (CAL FIRE 2007a). CAL FIRE uses Fire Hazard Severity Zones to classify the anticipated fire-related hazard for state responsibility areas (SRAs). Fire hazard measurements take into account the following elements: vegetation, topography, weather, crown fire production, and ember production and movement. The very high fire hazard severity designation can be attributed to a variety of factors including highly flammable, dense, drought-adapted desert chaparral vegetation, seasonal, strong winds, and a Mediterranean climate that results in vegetation drying during the months most likely to experience Santa Ana winds. Santa Ana winds are winds originating from the Great Basin that create extreme fire weather conditions characterized by low humidity, sustained high speeds, and extremely strong gusts. Santa Ana winds typically blow from the northeast over the Peninsular Range. As the air is forced through coastal mountain passes, wind speeds of 40 miles per hour (mph) can be maintained for hours with gusts from 70 to 115 mph possible (Schroeder et al. 1964). Winds can exceed 100 mph, particularly near the mouth of canyons oriented along the direction of airflow; this situation can lead to serious fire suppression problems, resulting in temporary closure of sections of main highways (BLM 2007). Figure D.15-1, Fire Hazard Severity Zones Map, identifies the CAL FIRE hazard zone designations in the general vicinity of the ECO Substation, Tule Wind, and ESJ Gen-Tie project areas.



- ECO Substation Project**
- Proposed 138 kV Line
 - Existing Transmission Line
 - Existing Boulevard Substation
 - Proposed 138 kV Line Milepost
 - Proposed ECO Substation
 - Proposed Boulevard Substation Rebuild
- Tule Wind Project Components**
- Proposed Wind Turbine
 - Proposed Met Tower
 - Alternative Met Tower
 - Proposed SODAR
 - Proposed Tule 138 kV Line Milepost
 - Collector Substation
 - Operation and Maintenance Station
 - Overhead Cable Collection System
 - Proposed 138 kV Gen-Tie Line
- Energia Sierra Juarez U.S. (ESJ U.S.):**
- ESJ U.S. 500 kV Route
 - ESJ U.S. 230 kV Route
- Fire Hazard Severity Zones:**
- Non-Wildland/Non-Urban
 - Moderate
 - High
 - Very High

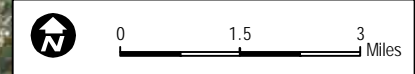


FIGURE D.15-1
Fire Hazard Severity Zones Map

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Firesheds

–Firesheds” are defined as regional landscapes that are delineated based on a number of fire-related features including fire history, fire regime, vegetation, topography, and potential wildfire behavior (CPUC and BLM 2008a). The fireshed concept is one way to evaluate fire risk across a given landscape and in relation to proposed projects. Firesheds are conceptually analogous to watersheds. An ignition that escapes containment at the top of the fireshed could spread to the limits of the fireshed and into adjacent fireshed(s) under extreme weather conditions. Furthermore, an individual fireshed encompasses areas with similar fire risk and where a similar prevention and response strategy could influence the wildfire outcome (CPUC and USFS 2009). For more detailed information on the fireshed concept, please refer to the Sunrise Powerlink Project Final EIR/EIS (CPUC and BLM 2008a).

As defined in the Sunrise Powerlink EIR/EIS, the ECO Substation and ESJ Gen-Tie projects both occur entirely within the Boulevard Fireshed while the Tule Wind project occurs primarily in the La Posta Fireshed with southern portions in the Boulevard Fireshed. These firesheds were originally defined specifically in relation to the Sunrise Powerlink project and alternatives, and included areas within the Santa Ana wind influence area in relation to potential ignitions from that project and its alternatives. Nonetheless, firesheds are relevant to the Proposed PROJECT, as the three proposed projects occur within the core area of these two firesheds, and the two firesheds encompass areas within the Santa Ana wind influence area in relation to potential ignitions from the three proposed projects. The following sections describe each of these firesheds.

Boulevard Fireshed Description

The Boulevard Fireshed is located in the extreme southeastern corner of San Diego County and encompasses the ECO Substation Project and the ESJ Gen-Tie Project. Nearby communities include Boulevard, Manzanita, and Jacumba, all receiving designation as communities at risk of wildfire (California Fire Alliance 2010; CAL FIRE 2001). Terrain varies throughout the fireshed with elevations ranging from below 1,700 feet above mean sea level (amsl) to nearly 4,700 feet amsl. Vegetation throughout the fireshed varies, but large portions are dominated by sparse, semi-arid vegetation including desert scrub, chaparral, juniper woodland, and oak woodland. Land ownership within the fireshed includes State of California, BLM, County of San Diego, Native American Reservation, and private holdings. Population density is a sparse 34 people per square mile.

Fire History

Fire history within the Boulevard Fireshed indicates that over the last roughly 50 years, 29 wildfires greater than 10 acres have been recorded. Most fires have been small, either due to lack

of fuel or quick response and control. Only three fires have grown to 500 to 1,000 acres and another three fires are considered “major” fires of over 1,000 acres. Large portions of the fireshed have not burned in the last 50 years. The xeric environment within the fireshed supports sparse vegetation, which is likely the primary limiting factor for wildfire ignition and spread. However, invasive annual grasses are establishing throughout the fireshed and may, over time, cause a shift to more frequent and larger fires (CPUC and BLM. 2008a). Recorded ignitions within the fireshed include a variety of sources, including equipment use, vehicles, campfires (including fires from illegal immigrants), debris burning, lightning, smoking, and powerline-related ignitions.

Fire Suppression

Fire suppression responsibilities are tasked to the San Diego Rural Fire Protection District, San Diego County Fire Authority, CAL FIRE, BLM, and Tribal governments. The Boulevard area is covered by the Boulevard Fire and Rescue with a single station, which is staffed 24 hours/day, 7 days/week. Between these agencies, there are significant firefighting resources to serve the area’s wildfire potential, especially with CAL FIRE’s air attack capabilities that can reach the area within 20 minutes.

Wildfire Modeling Results

The Boulevard Fireshed was modeled (CPUC and BLM. 2008a) for fire behavior, burn probability, and escape potential. Based on those results, and independent San Diego County fire behavior modeling confirmations, the fireshed includes vegetation, topography, and weather that are favorable to wildfire spread. Large expanses of naturally vegetated areas occur throughout the fireshed and could result in large-scale wildfire from an ignition, regardless of source. Supporting this conclusion is CAL FIRE’s Fire Threat ranking, which indicates the level of fire threat based on the potential fire behavior (fuel rank) and expected fire frequency (fire rotation). The Proposed PROJECT occurs in varying classification areas, but generally occurs within areas ranked high, very high, or extreme (CAL FIRE 2005).

La Posta Fireshed Description

The La Posta Fireshed is located directly to the west of the Boulevard Fireshed in southeastern San Diego County and includes the northern portion of the Tule Wind Project, primarily wind turbine generators and associated facilities. Nearby communities include Boulder Grove, Live Oak Springs, Cuyapaipe, and La Posta, all receiving designation as communities at risk of wildfire (California Fire Alliance 2010; CAL FIRE 2001). The La Posta Fireshed is generally at higher elevations than the Boulevard Fireshed, with elevations ranging from nearly 4,000 feet amsl to nearly 6,000 feet amsl. Vegetation throughout the fireshed varies, with coniferous forests at the higher elevations and sparse chaparral and sagebrush communities in the eastern portions

of the fireshed. Land ownership within the fireshed includes U.S. Forest Service (USFS), Native American Reservation, BLM, State of California, City of San Diego, SDG&E, County of San Diego, and private holdings. Population density is higher than the Boulevard Fireshed at 56 people per square mile.

Fire History

Fire history within the La Posta Fireshed indicates that over the last 50 years, 36 wildfires greater than 10 acres have been recorded. Most fires have been small, either due to lack of continuous fuels or quick response and control. A total of five fires have grown to 500 to 1,000 acres and another four fires are considered “major” fires of over 1,000 acres. Of note, the 1970 Laguna Fire in this fireshed was ignited by a downed electrical distribution line. Over the 13-year period between 1995 and 2008, there have been 419 reported ignitions. Lightning, campfire, equipment use, vehicle fires, and arson are among the primary causes.

Fire Suppression

Fire suppression responsibilities within the La Posta Fireshed are tasked to the San Diego Rural Fire Protection District, San Diego County Fire Authority, CAL FIRE, BLM, USFS, and Tribal governments. These agencies include significant firefighting resources to serve the area’s wildfire potential, especially with the combined CAL FIRE and USFS air attack capabilities that can reach the area within 20 minutes or less.

Wildfire Modeling Results

The La Posta Fireshed was modeled (CPUC and BLM, 2008a) for fire behavior, burn probability, and escape potential. Based on those results, and independent San Diego County fire behavior modeling confirmations, the fireshed includes vegetation, topography, and weather that are favorable to wildfire spread. Large expanses of naturally vegetated areas occur throughout the fireshed and could result in large-scale wildfire from an ignition, regardless of source. Supporting this conclusion is CAL FIRE’s Fire Threat ranking, which indicates the level of fire threat based on the potential fire behavior (fuel rank) and expected fire frequency (fire rotation). Fire Threat classifications vary over the project extent and include rankings of high, very high, or extreme (CAL FIRE 2005).

Major Wildfires in San Diego County

As discussed in the Draft 2010 Multi-Jurisdictional Hazards Mitigation Plan Update prepared by San Diego County’s Office of Emergency Services, wildland fires have prompted five Proclaimed States of Emergency and wildland–urban interface fires have prompted three Proclaimed States of Emergency within the County between 1950 and 2007 (County of San Diego 2010a). The worst wildfires in the County’s history occurred recently in October 2003 and

again in October 2007. The 2007 fires included the Witch Creek Fire along with six other smaller fires that burned throughout the County resulting in the burn over of 369,000 acres of land, 2,670 structures, 239 vehicles, 2 commercial properties, and subsequent costs exceeding \$1.5 billion. The fires were responsible for 10 civilian deaths, 23 civilian injuries, and 10 firefighter injuries. The second worst wildland fire occurred during October in 2003 and consisted of the Cedar, Paradise, Otay, and Roblar fires. All together these fires were responsible for burning 332,766 acres of land and 3,239 structures, and they resulted in 17 deaths.

Table D.15-1 lists the largest wildfires in San Diego County between 1950 and 2007.

Table D.15-1
Major Wildfires in San Diego County
Larger than 5,000 Acres

Fire	Date	Acres Burned	Structures Destroyed	Structures Damaged	Deaths
Conejos Fire	July 1950	62,000	—	—	0
Laguna Fire	October 1970	190,000	382	—	5
Harmony Fire	October 1996	8,600	122	142	1
La Jolla Fire (Palomar Mtn.)	September 1999	7,800	2	2	1
Viejas Fire	January 2001	10,353	23	6	0
Gavilan Fire (Fallbrook)	February 2002	6,000	43	13	0
Pines Fire (Julian, Ranchita)	July 2002	61,690	45	121	0
Cedar Fire	October 2003	280,278	5,171	63	14
Paradise Fire	October 2003	57,000	415	15	2
Otay Fire	October 2003	46,291	6	0	0
Roblar (Pendleton)	October 2003	8,592	0	0	0
Mataguay Fire	July 2004	8,867	2	0	0
Horse Fire	July 2006	16,681	—	—	0
Witch Creek Fire	October 2007	197,990	1,125	77	2
Harris Fire	October 2007	90,440	255	12	5
Poomacha Fire	October 2007	49,410	139	—	0
Ammo Fire	October 2007	21,004	—	—	0
Rice Fire	October 2007	9,472	208	—	0

Source: County of San Diego 2010a.
 Note: “—” = not available.

Fires Caused by Equipment Use

Equipment that may cause a fire hazard includes:

Construction Phase

- Earth-moving equipment
- Chainsaws—may result in vegetation ignition from overheating, spark, fuel leak, etc.
- Vehicles—heated exhausts in contact with vegetation may result in ignition
- Welders—open heat source may result in metallic spark coming into contact with vegetation
- Wood chippers—include flammable fuels and hydraulic fluid that may overheat and spray onto vegetation with a hose failure
- Compost piles—large piles that are allowed to dry and are left on-site for extended periods may result in combustion and potential for embers landing in adjacent vegetation
- Grinders—sparks from grinding metal components may land on a receptive fuel bed
- Torches—heat source, open flame, and resulting heated metal shards may come in contact with vegetation
- Dynamite/blasting—if necessary, blasting may cause vegetation ignition from open flame, excessive heat or contact of heated material on dry vegetation.

Operation and Maintenance Phase

- Transformers—at the base of each tower and filled with flammable oils and are subject to occasional failure and explosion, sending sparks, hot materials out in all directions
- Capacitors—may overheat, fail, and cause a spark, which may result in combustion of flammable materials, such as vegetation, if nearby
- Electrical transmission lines—energized lines may arch from adjacent vegetation (trees) or if tower fails, may arch on the ground, causing ignition of vegetation
- Wind turbines—include various components inside the nacelle as well as transformers that may ignite and cause heated or flaming debris/embers from as high as 400 feet above ground
- Towers/insulators/conductors—towers/insulators may be struck by lightning, may invite bird roosting, and may become targets for backcountry shooters, all of which can result in sparks and vegetation ignition
- Substations—include various electrical components that may explode, fail, or ignite
- Vehicles—heated exhausts in contact with vegetation may result in ignition

- Hot Works Equipment—all small hand tools either gas or electric powered that may result in sparks, flames, or excessive heat may result in vegetation ignition.

Fires Caused by Power Lines

Electrical transmission and collection lines such as those proposed for this project and associated structures can start fires in a number of ways, including the following:

- Uncleared vegetation, especially trees, coming into contact with conductors
- Sparks (from exploding hardware such as transformers and capacitors) coming into contact with vegetation
- Wind-blown debris coming into contact with hardware such as transformers and conductors
- Conductor-to-conductor contact
- Wood transmission poles blown down by high winds
- Dust or dirt buildup on power line hardware
- Aircraft or helicopter, or attached features such as fire-fighting water buckets, coming into contact with power line hardware and support structures
- Wildlife coming into contact with power line hardware or transmission line.

Power lines of different voltages may cause fires in different ways. According to the Final EIR/EIS for the Sunrise Powerlink Project, between 2004 and 2007 the majority (89 of 104) of SDG&E power line ignitions were low-voltage system ignitions while the remaining events were medium- and high-voltage (69 kilovolt (kV), 113 kV, 230 kV) system ignitions (CPUC and BLM 2008a). SDG&E's extra-high-voltage (500 kV) system (consisting of the Southwest Powerlink (SWPL) transmission line) has never been the cause of a fire (CPUC and BLM 2008a). In other words, the higher energy transmission systems produced substantially fewer fires than the lower rated distribution systems. Reasons for this trend are likely related to the structural components, materials, line heights, locations, and adjacent vegetation, among others. The majority (12) of transmission line ignitions were associated with 69 kV or 138 kV lines and resulted in a total of 163,276 acres burned, the majority of which occurred in the Witch Creek Fire. Low-voltage system ignitions, on the other hand, resulted in a total of 9,818 acres burned. Over the 2004 to 2007 time period, the 15 high-voltage line ignitions were caused by a variety of factors including Mylar balloon contact with conductors, conductor-to-conductor contact, dust on insulators, static line failure, kite tail contact with conductors, crashing plane contact with transmission line towers, and wildlife contact with conductors (CPUC and BLM 2008a). There are significantly more miles of low-voltage line than high-

voltage line, and, on average, annual low-voltage and high-voltage line ignitions, on a per-mile basis, are similar within SDG&E's territory.

Due to system components, low-voltage and high-voltage lines are susceptible to different wildfire-causing events. For example, some low-voltage lines are mounted with devices (transformers and capacitors) that can explode and ignite nearby vegetation; however, none of the Proposed PROJECT power lines would include such devices. Also, fallen or wind-blown tree limbs and debris is more likely to come into contact with low-voltage transmission lines because these lines are spaced much closer together than higher voltage lines. Arcing (which occurs when electrons are able to jump a gap in a circuit) from a single conductor to ground through vegetation contact can occur on power lines of all voltages, but generally the distance to the ground of conductors on all facilities limits the potential for this event to occur (arcing between conductor phases is more likely to occur) (CPUC and BLM 2008a). Of the various voltage lines, 69 kV transmission lines can be subject to conductor-to-conductor contact when high winds force two conductors on a single pole to oscillate so excessively that they come in contact with one another (also known as "mid-line" slap) (CPUC and BLM 2008a). Nearby vegetation can catch fire from sparks resulting from conductor-to-conductor contact. Maintenance activities can also inadvertently result in fires on transmission lines of any voltage, depending on the specific components of the system in question.

Although power line structures (including wood and steel poles and steel lattice structures) are designed to retain their structural integrity in high-wind environments, high winds can (in rare cases) blow over these structures. When such an event occurs, the protection and control systems of transmission lines systems are designed to safeguard against the threat of wildland fire by shutting off power immediately, thereby disrupting electrical flow along the line (CPUC and BLM 2008a). This approach, however, does not always work as designed and sparks generated prior to power shut down can ignite nearby vegetation, although the occurrence of this type of wildfire is very rare.

Small- and medium-voltage power line ignitions caused by high winds were responsible for four of the largest fires recorded in California between 1923 and 2007: the Witch Fire (which eventually merged with the Guejito Fire) (2007), the Campbell Complex (1990), the Laguna Fire (1970), and the Clampitt Fire (1970). Two of these fires occurred within SDG&E territory. The Witch, Guejito, and Rice fires that occurred in 2007 in San Diego County involved low-voltage SDG&E power line failure caused by inadequate maintenance practices, enabling windy conditions to result in vegetation ignition. According to a report prepared by the CPUC's Consumer Protection and Safety Division, the Witch Fire was caused by conductor contact on an SDG&E 69 kV transmission line during Santa Ana wind conditions. The Guejito Fire was caused by contact between a Cox Communications' lashing wire and an SDG&E 12 kV

conductor during Santa Ana wind conditions, and the Rice Fire was caused by a tree limb falling and coming into contact with an SDG&E 12 kV conductor during Santa Ana wind conditions (CPUC 2008). In all cases, the Consumer Protection and Safety Division found that the responsible party was in violation of CPUC General Order 95, Rule 31.1 (CPUC 2008). General Order 95, Rule 31.1 is discussed in Section D.15.2.

In addition to high winds and vegetation maintenance violations, contact between large birds and power lines and gunshots fired at power line hardware can also result in wildfires. Fire can result from birds coming into contact with two closely spaced conductors, resulting in an unintended electrical arc or “flashover” (CPUC and BLM 2008a). Bird-related flashovers, which are more common on lines where conductors are positioned close together and can hence be contacted by outstretched wings, can result in fires if the feathers of an electrocuted bird catch fire and come into contact with ground vegetation. Wider spacing of conductors minimizes the possibility of this type of flashover; therefore, the risk of flashover decreases with increasing voltage as higher-voltage lines are required to be spaced at greater intervals. Regarding gun shots, it is common in remote areas for vandals to shoot at power line components, including ceramic insulators. Lower-voltage lines are more susceptible to damage from gun shots and possess a greater wildfire potential when compared to higher-voltage lines. The support structures associated with higher-voltage lines are taller than those associated with lower-voltage lines, making insulators and conductors placed on lower-voltage lines easier targets for vandals. Similarly, the structural integrity of steel conductors associated with higher-voltage lines is greater than the integrity afforded to similar hardware located on lower-voltage lines, resulting in a less dramatic response to being hit by bullets and resulting in lower occurrences of vandalism.

As previously discussed, inadequate maintenance practices around power lines and associated structures can also result in wildfires, such as when the structural integrity of the power lines or structures is degraded and trees or vegetation are allowed to grow to the point of contacting hardware, such as conductors. California Public Resources Code 4293 establishes the minimum clearance requirements for overhead power lines. These requirements are discussed in Section D.15.2.

In addition to more prudent vegetation management and line maintenance, SDG&E prepared a plan in which the utility would shut down power during dry and windy conditions in areas at highest risk for wildfires. The areas affected by this proposed shut-down plan would have included much of San Diego County’s eastern areas or “backcountry.” The ECO Substation, Tule Wind, and ESJ Gen-Tie project areas are located wholly within this potential shut-down plan area. The San Diego City Council supported the plan while the County of San Diego Board of Supervisors opposed the plan. The CPUC ultimately rejected the shut-down plan.

Fires Caused by Wind Turbines

Wind turbines can be the source of wildfire ignitions due to short-circuits, collection line failure, turbine malfunction or mechanical failure, and lightning- and bird-related incidents. When mechanical or electrical failures cause turbines to catch fire, they may burn for many hours due to the limited ability of fire suppression crews to effectively fight fires hundreds of feet above the ground. Wind-blown flaming debris from a turbine fire can ignite vegetation in the surrounding area. However, most modern turbines are equipped with lightning arresters and automatic fire detection and suppression systems (CPUC and BLM 2007a).

Fires Caused by Transformers

Transformers located at the base of each wind turbine tower may cause fires through arcing that occurs following failure of insulation within the transformer. Industry statistics indicate that one in five transformer failures result in a fire (USDI 2005). The extremely hot arc may cause oils to combust, metals to be vaporized, and molten copper to be thrown into the air (USDI 2005). Explosions sometimes occur from the vaporization of mineral oils and release of carbon monoxide.

Environmental Effects of Fires

Although fire can benefit natural ecosystems that have evolved with occasional fire and that benefit from the stimulation of growth through the reproduction of plants and wildlife habitat, fire can also be detrimental to biological and other natural resources, such as air quality and water quality.

Biological Resources

Flora. Grassland communities, usually non-native grasses, will readily establish after wildfires in chaparral and scrub communities. With repeated burning at short intervals of up to several years, it is possible to convert chaparral and scrub to non-native grasslands. Chaparral and scrub vegetation communities will typically re-sprout and absent fire or other disturbances will return to pre-fire conditions. Chaparral communities also tend to repopulate many of the San Diego County forest types following stand-replacing fire. The chaparral may establish for the first several years after the fire event, whereupon the tree cover will begin to establish (USDA 2000a). Because vegetation communities can be converted following fire, these changes in dominant vegetation communities can drastically affect plant and animal habitat and can affect the prevalence of special-status species.

Fauna. Generally speaking, fires injure or kill a relatively small proportion of wild animals. For example, birds and larger mammals can flee wildfire and small mammals and reptiles can seek refuge in subterranean burrows. Habitat changes resulting from fires have a much more profound

impact on faunal populations and communities than does the fire itself. Fires can result in short-term increases in vegetation productivity and the availability and nutrient content of forage and browse (USDA 2000b). These increases can in turn lead to increases in herbivore populations. However, any increase in population size is highly dependent upon the population's ability to survive in the post-fire environment (USDA 2000b). In general, fires that devastate a landscape featuring many shrubs and trees reduce habitat cover for species requiring cover and increase habitat for species (such as raptors) that prefer open areas (USDA 2000b).

Desert Ecosystems. Weedy species have been known to invade desert and semi-desert habitats in areas where fires have occurred infrequently because of scant fuels sources. When fires occur in these areas, vegetation can change (such as converting to non-native grasses) and become more susceptible to ignition. Animals within desert ecosystems are ill-suited to avoid fire and often struggle to use resources and prosper in post-fire communities (CPUC and BLM 2008a).

Air Quality

Carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons, and other constituent materials are all present in wildfire smoke. The specific composition of smoke depends largely on the fuel type (vegetation types contain different amounts of cellulose, oils, waxes, and starches, which when ignited produce different compounds). In addition, hazardous air pollutants and toxic air contaminants, such as benzene and formaldehyde, are also present in smoke. However, the principal pollutant of concern from wildfire smoke is particulate matter. In general, particulate matter from smoke is very small in size and can be inhaled into the deepest recesses of the lungs, presenting a serious health concern (Lipsett 2008).

Factors including weather, stage of fire, and terrain can all dictate fire behavior and the impact of smoke on the ground. Wind, for instance, generally results in lower smoke concentrations because wind causes smoke to mix with a larger volume of air. Regional weather systems, such as the Santa Ana winds of Southern California, on the other hand, can spread fire quickly and result in numerous devastating impacts. The Santa Ana winds effectively work to reverse the typical onshore flow patterns and blow winds from dry, desert Great Basin areas westward toward the coast. As a result, coastal communities can be impacted by fires originating in inland areas (Lipsett 2008).

Large quantities of pollutants can be released by wildland fires over a relatively short period of time. Air quality during large fires can become severely hazardous and can remain impaired for several days after the fire is ignited.

Water Quality

Fire can impact water quality by increasing potential for erosion and sedimentation in areas where vegetation has been burned by fire, resulting in increased water temperature through removal or drastic modification of shade-providing trees and vegetation. Water chemistry can also be altered through the introduction of pollutants and chemical constituents. Aquatic environments may also be impacted through the introduction of fire retardant chemicals used during firefighting activities.

Erosion and Sedimentation. Watersheds severely burned by wildfire are vulnerable to accelerated rates of soil erosion and can experience large amounts of post-fire sediment deposits. Increases in post-fire suspended sediments in streams and lakes (in addition to possible increases in turbidity) can result from erosion and overland flow, channel scouring, and creep accumulations in stream channels after an event (USDA 2005). While less is known regarding the effect of fire on turbidity, it has been observed that post-fire turbidity levels in stream water are affected by the steepness of the devastated watershed (USDA 2005). The little data available regarding post-fire turbidity levels has indicated that U.S. Environmental Protection Agency (EPA) water quality standard for turbidity can be exceeded after a fire event (USDA 2005).

Water Temperature. When fire burns stream bank vegetation and shade trees, water temperature can rise, which in turn can lead to thermal pollution, which leads to increased biological activity in the stream. Increased activity levels place a greater demand on the dissolved oxygen content of the water and can affect the survivability and sustainability of aquatic populations and communities (USDA 2005). Water temperature increases up to 62°F have been recorded in stream flows following fires in which the stream bank vegetation was burned (USDA 2005).

Water Chemistry. Ash deposits generated by a fire can affect the pH of water immediately after the event, potentially increasing to levels that violate water quality standards. In addition, increases in the pH of nearby soil can also cause increases in stream flow pH (USDA 2005). Dissolved nitrogen levels can increase after fires as a result of accelerated mineralization and nitrification (dissolved nitrogen is commonly studied as an indicator of fire disturbance), but these levels do not typically exceed established water quality standards (USDA 2005). Dissolved phosphorous, sulfur, chloride, and total dissolved solids levels can increase after a fire, but studies have shown that these increases typically do not result in violation of drinking water quality standards (USDA 2005).

Fire Retardant. The use of fire retardants to protect communities, sensitive resources, or other assets has proven highly effective, but it can have a direct effect on aquatic environments. The use of ammonium-based retardants can affect water quality and, in some instances, they can be toxic to aquatic biota (USDA 2005). Nitrogen-containing retardants can potentially affect

drinking water quality, and retardants containing sodium ferrocyanide (YPS) can potentially be lethal for aquatic organisms (USDA 2005).

Firefighting in San Diego County

Bureau of Land Management

The Tule Wind Project and a short segment of the ECO Substation 138kV transmission line would be located on and would traverse BLM-jurisdictional lands. The ESJ Gen-Tie Project would be located entirely on County of San Diego jurisdictional land and within the San Diego Rural Fire Protection District.

The BLM maintains several programs in the disciplines of fire suppression, preparedness, fuels management, prevention and education, community assistance, and protection and safety, all of which are intended to safely protect the public, natural landscape, and wildlife habitat from fire-related damage (BLM 2009). The various programs of the BLM are discussed briefly as follows.

- The Fire and Aviation Directorate Program is tasked with providing aerial firefighting support for fires occurring on BLM lands. Aircraft used by the BLM are BLM-owned and contracted.
- The Community Assistance and Protection Program includes mitigation and prevention, education, and community outreach. Experts within this program are typically deployed to fire-prone areas before a fire starts to educate the community regarding fire management and suppression activities.
- The Fuels Management Program focuses on protecting communities and natural resources while providing for local economic opportunities. Through this program, fuels are effectively managed through collaboration with local communities and agencies in the form of community wildfire protection programs, fuels treatment, biomass utilization, and local fuels management contracts.

It should be noted that in addition to maintaining these programs, the BLM provides funding for firefighting efforts (through Community Assistance Grants) in the rural areas of San Diego County. In the past, funding has been used for wildfire training to local volunteers responsible for responding to fires on BLM lands. In San Diego County, BLM lands are under a Direct Protection Agreement with CAL FIRE, which specifies that CAL FIRE provides fire response resources and is responsible for conducting investigations regarding the recovery of fire suppression costs (CPUC and BLM 2008a).

The project is located within the California Desert District and in the El Centro Fire Management Zone of the BLM. The current Fire Management Plan (FMP) for the California Desert District

was developed in 1998 and was designed around a “fire management zone” concept based on distinct vegetation communities and the strategies for fire suppression within each of those communities. The intent was for objectives and constraints identified for fire-suppression activities to be developed by Land Use Plan decisions associated with resources. The FMP categorized the Planning Area as Fire Management Zone (FMZ) 6, which is a CAL FIRE Direct Protection Area. This means that CAL FIRE is the primary fire protection agency for BLM-administered lands in the area (CPUC and BLM 2008a).

The primary objective of CAL FIRE fire policy is to suppress all vegetation fires of 10 acres or less upon initial attack, based on “assets at risk analysis,” which favors protection of structures in the urban interface. CAL FIRE and BLM operate under a Cooperative Fire Protection Plan that implores CAL FIRE to consider BLM’s resource protection standards in order to develop the least-cost/least-damaging suppression strategy possible. During wildfire incidents on BLM lands, BLM is required to send a resource advisor to work directly with the CAL FIRE incident commander to ensure resource values are fully protected or at least mitigated. This requirement is applicable to all vegetation fires occurring in the planning area (CPUC and BLM 2008a).

United States Forest Service

Wildland fire suppression responsibility on federal and private lands within the congressional boundary of the Cleveland National Forest is provided by the USFS. In southeastern San Diego County, USFS firefighting facilities can be co-located with firefighting operations of other jurisdictions such as CAL FIRE and San Diego County to share resources (CPUC and BLM 2008a). The joint CAL FIRE and USFS Firefighting Air Attack Base in Ramona (operated May through November) is an example of shared resources. During extended wildland fire attack, federal resources can be mobilized throughout the country to support these incidents. Cleveland National Forest resources include the following:

- 28 fire engine companies
- Three “Hotshot” handcrews
- One medium-sized helicopter
- One type-1 helicopter (heli-tanker)
- Access to air tankers jointly used by Angeles National Forest and San Bernardino National Forest.

California Department of Forestry and Fire Protection – San Diego Unit

CAL FIRE’s San Diego Unit is responsible for fire protection services on all SRA lands, including lands located in southeastern San Diego County and Imperial County. Approximately

1,237,201 acres of state responsibility lands and 301,130 acres of cooperative direct protection responsibility lands are under the jurisdiction of the San Diego Unit (CAL FIRE 2009). The San Diego Unit is well equipped for firefighting activities in the region. Equipment and personnel at the disposal of the San Diego Unit include the following:

- 18 California Department of Forestry (CAL FIRE) fire stations, 26 CAL FIRE fire engines
- 7 local government stations with 11 fire engines
- 4 CAL FIRE/CDC Conservation Camps with 19 handcrews
- 1 CAL FIRE/USFS Air Attack Base equipped with 1 CAL FIRE OV-10 Air Attack Aircraft, 2 CAL FIRE S-2T Air Tankers and 1 USFS Type 2 Helicopter
- 2 CAL FIRE/San Diego Sheriff Type 2 Helicopters
- 4 CAL FIRE bulldozers
- 1 CAL FIRE/USFS Interagency Command Center, Monte Vista Headquarters.

The San Diego Unit is headquartered at 2249 Jamacha Road in El Cajon.

Anza-Borrego Desert State Park

As a state park (and thus an SRA), wildland fire oversight within Anza-Borrego Desert State Park (Anza-Borrego) is provided by CAL FIRE. A Cooperative Fire Protection Agreement and Operating Plan between Anza-Borrego Desert State Park and CAL FIRE was established and is intended to coordinate pre-fire planning and coordinate an effective response during fire suppression activities in order to minimize threats to threatened and endangered biological resources and sensitive cultural and archaeological sites (CPUC and BLM 2008a). According to the plan, Anza-Borrego is responsible for rehabilitation of the post-fire environment. Portions of Anza-Borrego area are also identified as local responsibility areas (LRA), which receive fire support services from the Borrego Springs Fire Protection District (Borrego Springs is a small desert community located some 90 miles northeast of San Diego). Fire support services provided by the Borrego Springs Fire Protection District on Anza-Borrego lands are provided by virtue of a mutual aid agreement with CAL FIRE.

County of San Diego

Fire protection services within the County of San Diego are provided by various city and rural district fire departments. Fire protection resources are primarily dependent on locality and need. Incorporated cities typically have their own fire departments to provide fire services within their jurisdictional boundaries. Unincorporated county occurs within the Proposed PROJECT area and Rural Fire Protection District provides fire services in both LRA and SRA. In SRA, CAL FIRE

has the primary responsibility for suppressing wildfires. In addition to LRAs, County Service Areas have also been identified and services to these areas are typically provided by volunteer fire departments. Federal Responsibility Areas are typically the responsibility of the USFS, but military and civilian departments on bases within these areas provide services. In addition, there are numerous Fire Safe Councils (including the Boulevard/Jacumba Fire Safe Council) that are volunteer groups that meet with fire agencies to assist with fuel-reduction strategies and fire safety education.

The unincorporated area of the County of San Diego has a Cooperative Fire Protection Agreement with CAL FIRE for fire and emergency services in the San Diego Rural Fire Protection District. CAL FIRE responds to wildland fires, structure fires, floods, hazardous material spills, swift water rescues, civil disturbances, earthquakes, and medical emergencies. CAL FIRE maintains two facilities in the project area: the CAL FIRE McCain Valley Camp Station (located at 2550 McCain Valley Road) and the CAL FIRE White Star station (located at 1684 Tierra Del Sol Road). The Jacumba area is serviced by Station 43 of the San Diego Rural Fire Protection District (staff consists of volunteer firefighters) and the Boulevard area is also serviced by a volunteer fire station, which is located at 39223 Highway 94 in Boulevard. Additionally, the area has a mutual-aid agreement with the Campo and Manzanita Indian tribes for fire protection services. The Campo Reservation Fire Station is located at 36190 Highway 94, and the Manzanita Indian Tribe's fire services are located adjacent to the Tule Wind area.

The San Diego County Fire Authority was created by the County Board of Supervisors in July 2008 to improve fire protection and emergency medical services in the region. The authority's goal is to unify the administrative support, communications, and training of 15 rural fire agencies and extend "around the clock" protection to 1.5 million acres of the unincorporated county that previously had either limited or part-time "on-call" protection by 2012. To date (since 2010), the County has purchased 33 pieces of fire apparatus, including 15 water tenders and 13 Type II engines for volunteer fire companies and districts within the San Diego County Fire Authority area.

D.15.1.2 Project-Specific Environmental Setting/Affected Environment

Fuels

The fuels in the area of the Proposed PROJECT vary widely by location. Table D.15-2 includes a description of the vegetation fuels within each study area. In general, fuel types are associated with chaparral, scrub, grasslands, and oak and willow woodland.

Table D.15-2
Project Area Vegetation Fuel Types

Native Vegetation Community	Study Area Acreage			
	<i>ECO</i> ¹	<i>TULE</i> ²	<i>ESJ Gen-Tie</i> ³	<i>Proposed PROJECT</i>
Big sagebrush scrub	—	151.3	—	151.3
Chamise chaparral	—	178.5	—	178.5
Chamise chaparral/redshank chaparral	303.0	—	—	303.0
Closed coast live oak woodland	—	12.8	—	12.8
Emergent wetland	5.0	—	—	5.0
Montane buckwheat scrub	—	171.0	—	171.0
Mulefat scrub	—	0.3	—	0.3
Non-native grassland	—	65.1	—	65.1
Non-vegetated channel	—	3.4	—	3.4
Northern mixed chaparral	—	477.4	—	477.4
Open coast live oak woodland	6.5	50.3	—	56.8
Peninsular juniper woodland and scrub	98.0	—	14.9	112.9
Redshank chaparral	—	118.1	—	118.1
Scrub oak chaparral	—	550.8	—	550.8
Semi-desert chaparral	—	1,689.8	—	1,689.8
Shadscale scrub	16.5	—	—	16.5
Sonoran mixed woody succulent scrub	287.5	—	46.4	333.9
Southern north slope chaparral	—	56.7	—	56.7
Southern riparian woodland	—	1.2	—	1.2
Southern willow scrub	—	1.8	—	1.8
Southern willow scrub/mulefat scrub	7.0	—	—	7.0
Unsurveyed area ⁴	—	374.4	—	374.4
Upper Sonoran manzanita chaparral	—	220.8	—	220.8
Upper Sonoran subshrub scrub	—	610.4	—	610.4
Total	723.5	4,734.1	61.3	5,518.8

Sources: Insignia Environmental 2009; HDR 2010; EDAW 2010.

Notes:

¹Includes a study area encompassing all project components, including the ECO Substation, SWPL Loop-In, 138 kV transmission line corridor, and the Boulevard Substation Rebuild.

²Includes a study area encompassing all Tule Project components, including the turbines and meteorological towers, collector system, proposed and alternate transmission lines, access roads, substation, and operation and maintenance areas.

³Includes a study area encompassing the ESJ Gen-Tie two alternate transmission line alignments and the two public access routes.

⁴Unsurveyed area refers to portions of the project that were not accessible due to private land restrictions.

Topography

Topography in the vicinity of the project area varies by area. In general, east San Diego County includes terrain that is favorable to wildfire spread including steep slopes, ravines, mountains, and valleys. The ECO Substation Project site slopes gently to the west with elevations ranging from approximately 2,800 to 3,900 feet amsl. The Tule Wind Project would be located in the In-

Ko-Pah Mountains and in the McCain Valley areas, which have moderate slopes and elevations between roughly 3,600 and 6,400 feet amsl. The ESJ Gen-Tie Project site is a gently sloping portion of the Jacumba Valley at an elevation of approximately 3,300 to 3,400 feet amsl.

Project Facilities Fuels Interface

The fire environment, primarily the vegetation (fuels) and topography, directly affect the potential risk of ignition and fire spread from project-related activities and infrastructure. This is mainly based on activities and infrastructure proximity to potential ignition sources. As such, it is important to understand the relationship between the Proposed PROJECT facilities and the surrounding terrain. Table D.15-3 provides a summary of the project components for each of the project areas.

ECO Substation Project

The ECO Substation Project would include a substation, loop-in, 13.3-mile overhead transmission line, rebuild of the Boulevard Substation, access roads, and temporary construction areas. These project components would be on primarily gently sloping to flat terrain and occurring within succulent scrub and/or chaparral vegetation. Chaparral vegetation represents a higher potential risk for ignition and spread than succulent scrub.

Tule Wind Project

The Tule Wind Project includes 134 wind turbines, overhead and underground collector cable, substation, operations facility, overhead transmission line, access roads, and temporary construction areas. These components would occur in steeper terrain and within a variety of potentially flammable vegetation types, including chaparral, scrub, oak woodland, and grassland. Given the steep terrain and fuel bed throughout this project area combined with the potential ignition sources associated with wind turbines, the potential for wildfire ignition and spread is higher than associated with the ECO Substation Project.

ESJ Gen-Tie Project

The ESJ Gen-Tie Project includes steel lattice towers, access road, and temporary construction areas. These project components occur within relatively flat terrain and in lower flammability vegetation including succulent scrub and juniper woodland.

Table D.15-3
Project Components for Each Project Area Fire Environment Interface

Project Component	Temporary Impacts (acres)	Permanent Impacts (acres)
ECO Substation Project		
ECO Substation 500/230/138-kilovolt (kV) Substation	26.15	85.90
SWPL Loop-In	0	1.74
13.3-Mile Overhead 138 kV Transmission Line	22.54	11.02
Boulevard Substation Rebuild	0	3.20
Access Roads	0	8.45
<i>ECO Substation Project Total</i>	<i>48.69</i>	<i>110.35</i>
Tule Wind Project		
134 Wind Turbines (1.5 to 3.0 megawatt (MW))	0	386.50
Overhead and Underground 34.5 kV Collector Cable System	108.20	0.02
Collector Substation	0	5.00
Operations and Maintenance Facility	0	5.00
Overhead 138 kV Transmission Line	44.60	0.12
Meteorological Towers and SODAR Unit	0.048	0.062
Access Roads	84.20	166.10
Temporary Construction Areas (parking area, concrete batch plant, and laydown areas)	53	0
<i>Tule Wind Project Total</i>	<i>290.1 (224.40)¹</i>	<i>562.80 (544.00)¹</i>
ESJ Gen-Tie Project		
500 kV Gen-Tie Route		
Steel Lattice Towers/Monopoles	0	3.45
Gen-Tie Tower Access Road	0	0.80
28-Foot Property Legal Access Road and Turnaround	0	4.50
Construction Laydown/Parking/Stringing Area	0	1.90
<i>ESJ 500 kV Gen-Tie Project Total</i>	<i>0</i>	<i>10.65</i>
230 kV Gen-Tie Route		
Steel Lattice Towers/Monopoles	0	2.20
Gen-Tie Tower Access Road	0	0.90
28-Foot Property Legal Access Road and Turnaround	0	4.50
Construction Laydown/Parking/Stringing Area	0	2.00
<i>ESJ 230 kV Gen-Tie Project Total</i>	<i>0</i>	<i>9.60</i>
Proposed PROJECT		
<i>ECO Substation, Tule Wind, and ESJ Gen-Tie (500 kV Route) Projects Total</i>	<i>338.79 (273.09)</i>	<i>638.80 (655.001)</i>
<i>ECO Substation, Tule Wind, and ESJ Gen-Tie (230 kV Route) Projects Total</i>	<i>338.79 (273.09)</i>	<i>682.75 (663.95)</i>

¹ There is a difference between the impacts for each project component and the total disturbed area due to the fact that some project components fall into the same disturbance footprint, thus creating overlap. This overlap gives a higher calculation that distorts the overall project surface land disturbances. The total provided in parentheses is the proper calculated total with the overlapping areas removed; however, the total disturbed area has been retained in the table.

Assets at Risk

Existing land uses in the study area can be characterized as predominately rural, large-lot ranches and single-family homes with a mixture of small-scale agriculture, recreational, and open space, with the exception of the Ewiiapaayp Band of Kumeyaay Indians Reservation that has land uses zoned for commercial economic development and specifically renewable wind and solar energy development in accordance with its Land Use Code (Title 102), Land Planning Code (Title 107), Community Economic Development Strategy Plan, and Integrated Resources Management Plan.

Rural land uses are generally located between the communities of Jacumba and Boulevard, and tribal lands are located north and south of Interstate 8 (I-8) near Boulevard. North of I-8, the landscape is a mixture of large-lot rural residences and open space with mountainous terrain consisting of steep slopes, prominent ridgelines, and rock outcroppings within state park, tribal, and BLM lands. South of I-8, the landscape is predominantly rural with desert vegetation and terrain primarily within County of San Diego (County) jurisdictional lands. BLM lands are located throughout the area (west of the ECO Substation for instance); however, most of these lands are discontinuous and relatively small. Tribal lands are generally located west of Boulevard. The U.S.–Mexico border fence is a dominant feature on the landscape south of I-8 and is highly visible from the community of Jacumba and from ECO Substation and ESJ Gen-Tie Project components.

Section D.4, Land Use, provides additional details regarding current land use and occurrences of residential and other structures. A brief summary of residential structures follows.

ECO Substation Project

Based on the low density, rural land uses, there are a relatively low number of potentially affected structures at risk within the immediate vicinity of the ECO Substation Project. There are a total of 20 residences/structures within approximately 1,000 feet (range from 115 to 950 feet) of the project's proposed substation and electrical transmission line. The structures occur equally in all directions.

Tule Wind Project

Land uses in the vicinity of the Tule Wind Project are consistent with the area, although Rough Acres Ranch residential structures occur to the southeast of the proposed Tule Wind facility. A total of 44 residences/structures are within approximately 2,000 feet. To the northeast, a single residence is within roughly 2,000 feet of one or more of the proposed wind turbines. There are a total of six residences/structures within roughly 1,000 feet (range from 100 to 950 feet) of the 138 kV transmission line, occurring primarily to the south and west of the proposed alignment.

ESJ Gen-Tie Project

Land use in the vicinity of the ESG Gen-Tie Project includes one trailer approximately 2,400 feet northwest of the gen-tie and a second trailer roughly 2,400 feet west of the proposed transmission line. The trailer to the northwest may be an illegal land use based on the lack of County permits.

Regional Assets at Risk

Assets at risk from wildfire include all structures within approximately 40 miles to the west of the project site, stretching from the Cleveland National Forest to the urbanized areas of Pine Valley, Alpine, El Cajon, Chula Vista, and some coastal cities. This area includes terrain, vegetation, and climate that has historically supported wildfire spread. Some of the area has no recorded fire history, other areas haven't burned for 40 years, since the Laguna Fire in 1970, indicating that fuels may be heavy and would readily spread fire. The result of an ignition under worst-case conditions would be wildfire threat to all structures and communities to the west of the project in east and southeast San Diego County. Near the project, rural development is typical with the nearest community of Boulevard being listed as a federally recognized community at risk of wildfire. Section D.4, Land Use, presents a detailed analysis of nearby assets at risk. In summary, there are various residences, structures, and facilities within approximately 0.5 mile of the Proposed PROJECT. These assets include varying vulnerability to wildfire, depending on age of construction, type of construction, location with regards to terrain, vegetation modification (defensible space), and access, amongst others.

From a regional wildfire perspective, the Proposed PROJECT is located in an area designated by the County of San Diego as a wildfire corridor based on fuel ages, topography, and climate. Based on this designation, it is feasible that communities and individual structures beyond the arbitrary 0.5-mile distance from the Proposed PROJECT may be impacted should a wildfire ignite from a Proposed PROJECT-related source. As such, County fire estimates that over 2,000 residences (not including other structures) may be at risk of loss during a wind driven wildfire (Miller et al. 2009).

Cross Border Assets at Risk

Cross border assets at risk in Mexico are similar to those in the United States with primarily rural, widely scattered ranches dominated by open areas vegetated with shrubland that can fuel wildfire spread. The community of Tecate is the largest community between the easterly area of the ESJ project and Tijuana to the west. Similar to the fire environment in eastern San Diego County, wildfire ignitions, if they occur during favorable weather conditions including low humidity and high winds, can spread rapidly to the west and south, all the way to the Mexican coastal communities. Potential wildfire impacts in Mexico resulting from ignition caused by Tule

Wind turbines or other project components include loss of personal property, injury, or loss of life as well as environmental impacts.

D.15.2 Applicable Regulations, Plans, and Standards

This section discusses federal, state, and regional environmental regulations, plans, and standards applicable to the Proposed PROJECT, as well as the Campo, Manzanita, and Jordan wind energy projects. In addition to the federal regulations identified, the Campo and Manzanita wind energy projects may be subject to the Bureau of Indian Affairs' (BIA's) policies and regulations and tribe-specific policies and plans.

D.15.2.1 Federal Regulations

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) Standards as the electric safety standard for the state (CPUC and BLM 2008a). FERC is not discussed further.

Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995 and updated in 2001 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgement of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founded on the following guiding principles:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.

- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

National Fire Plan

The National Fire Plan was a Presidential directive in 2000 as a response to severe wildland fires that had burned throughout the U.S. The National Fire Plan focuses on reducing fire impacts on rural communities and assurance for sufficient firefighting capacity in the future (National Park Service 2010). It is a long-term investment that will help protect natural resources in addition to communities. The plan is a long-term commitment based on cooperation and communication among federal agencies, states, local governments, tribes and interested publics. There are five key areas addressed under the National Fire Plan:

- Firefighting and Preparedness
- Rehabilitation and Restoration
- Hazardous Fuels Reduction
- Community Assistance
- Accountability.

International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property including fire, explosions, and hazardous materials handling or usage. The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated in order to protect life and property (often times these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

National Electric Safety Code 1977, 2006

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and

communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

North American Electric Reliability Corporation Standards

The NERC is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2010). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. The plan, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway (NERC 2006). The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (NERC 2006).

Institute of Electrical and Electronics Engineers Standard 516-2003

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2003, *Guide for Maintenance Methods on Energized Power Lines*, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

D.15.2.2 State Regulations

California Fire Code

The California Fire Code is contained within Chapter 9 of Title 24 of the California Code of Regulations (CCR). Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage

requirements for hazardous materials at fixed facilities (Iberdrola Renewables, Inc. 2010a). Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

California Health and Safety Code

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, high-rise building and childcare facility standards, interagency support protocols, and emergency procedures. Also, Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to, standard requirements.

California Fire Plan

The California Fire Plan is the statewide plan for reducing the risk of wildfire. The basic principles of the Fire Plan are as follows:

- Involve the community in the fire management planning process
- Assess public and private resources that could be damaged by wildfires
- Develop pre-fire management solutions and implement cooperative programs to reduce community's potential wildfire losses.

One of the more important objectives of the plan regards pre-fire management solutions. Included within the realm of pre-management solutions are fuels breaks, the establishment of Wildfire Protection Zones, and prescribed fires to reduce the availability of fire fuels. In addition, the Fire Plan recommends that clearance laws, zoning, and related fire safety requirements implemented by state and local authorities address fire-resistant construction standards, hazard reduction near structures, and infrastructure (California Board of Forestry 2000). The Fire Plan does not contain any specific requirements or regulations. It acts as more of an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place.

California Public Utilities Commission General Order 95: Rules for Overhead Transmission Line Construction

General Order 95 was initially adopted in 1941 and was most recently updated in 2009 for Southern California (<http://162.15.7.24/PUBLISHED/Graphics/112890.PDF>). General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1

generally states that design, construction, and maintenance of overhead electrical lines should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 35 of General Order 95 (Tree Trimming) requires tree trimming to occur when overhead utility lines pass through trees in order to maintain reasonable clearance distance between the utility line and any branches or foliage. In addition, Rule 35 requires that dead or diseased trees that overhang or lean toward and may fall into a span be removed.

Under California Public Utilities Code Section 1708.5, interested persons are permitted to petition the CPUC to adopt, amend, or repeal a regulation. In response to the 2007 wildfires in San Diego County, on November 6, 2007, SDG&E submitted a petition to the CPUC requesting that the CPUC issues an Order Instituting Rulemaking to determine whether General Order 95 should be amended or if more rules should be adopted to address disaster preparedness, including damage from Santa Ana wind-driven firestorms (CPUC and BLM 2008a). According to SDG&E, the petition requested that the CPUC consider several items, including the following:

- Operating rural electrical lines differently during severe fire weather
- Mitigating potential hazards associated with rural lines including undergrounding line, using steel poles in place of wood, and shortening spans between poles
- Better coordinating disaster management efforts among agencies, municipalities, local jurisdictions, and utilities
- Maintaining electrical line rights-of-way (ROWs) free of vegetation
- Adopting a state-wide Disaster Management Plan.

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies including wildland fires and residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is responsible for enforcing State of California fire safety codes included in the CCR and California Public Resources Codes. Public Resources Code 4291 states generally that any person operating any structure located on brush-covered lands or land covered with flammable material is required to maintain defensible space around the structure. CCR Title 14 Section 1254 identifies minimum clearance requirements required around utility poles. In SRAs within the jurisdiction of CAL

FIRE, the LE-38 Fire Safety Inspection Program is an important tool for community outreach and enforcement of state fire codes.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and the successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes. If a CAL FIRE investigation reveals that a wildfire occurred as a result of a violation of a law or negligence, the responsible party could face criminal and/or misdemeanor charges (CAL FIRE 2007b). In cases where a violation of a law or negligence has occurred, CAL FIRE has established the Civil Cost Recovery Program, which requires parties liable for wildfires to pay for wildfire-related damages.

Fire break clearances are established by Public Resources Code 4292 and 4293. These regulations are discussed in further detail as follows:

- **Public Resources Code 4292** states a that a minimum firebreak of 10 feet in all directions from the outer circumference of such pole or tower be established around any pole which supports a switch, transformer, lightning arrester, line junction, or end or corner pole. All vegetation shall be cleared within the firebreak.
- **Public Resources Code 4293** establishes the minimum vegetation clearance distances (between vegetation and energized conductors) required for overhead transmission line construction. Minimum clearances are discussed as follows:
 - A minimum radial clearance of 4 feet shall be established for any conductor of a line operating at 2,400 or more volts but less than 72,000 volts.
 - A minimum radial clearance of 6 feet shall be established for any conductor of a line operating at 72,000 or more volts but less than 110,000 volts.
 - A minimum radial clearance of 10 feet shall be established for any conductor of a line operating at 110,000 or more volts but less than 300,000 volts.
 - A minimum radial clearance of 15 feet shall be established for any conductor of a line operating at 300,000 or more volts.

California Code of Regulations Title 14 Section, Sections 1252, 1253, and 1254

CCR Title 14 Sections 1252 and 1253 state that in San Diego County, power line hazard reduction standards are applicable year round. Power lines reduction strategies includes pole

brush clearing and in southeastern San Diego County, and CAL FIRE is responsible for inspecting local implementation of these strategies.

CCR Title 14 Section 1254 states that the fire break minimum clearance requirements of California Public Resources Code 4292 are applicable within an imaginary cylindroidial space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached. The radius of the cylindroid is 3.1 meters (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level: remove flammable materials, including but not limited to, ground liter, duff, and dead or desiccated vegetation that will allow fire to spread
- From 0–2.4 meters (0–8 feet) above ground level: remove flammable trash, debris, or other materials, including grass, herbaceous, and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 meters (8 feet)
- From 2.2 meters (8 feet) to horizontal plane of highest point of conductor attachment: remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

CAL FIRE Civil Cost Recovery Program

The California Legislature has ruled that since wildland fires cost taxpayers millions of dollars per year, taxpayers should not be responsible for costs associated with suppressing fires caused by an act of human carelessness. The CAL FIRE Civil Cost Recovery Program was established to recover firefighting costs when the fires are a result of people (or entities) violating the law or being negligent in their actions. For overhead electric lines, these violations are generally related to non-compliance with vegetation clearance requirements.

Examples of cost recovery related to transmission lines include the following (CAL FIRE 2004):

- In 1996, Southern California Edison was billed \$7.9 million for fire suppression costs for the Calabasas Fire. A settlement was negotiated for \$6.55 million just prior to trial in 2003. CAL FIRE determined that the fire was caused when a eucalyptus branch was bent by the wind into a lightning arrester.
- The largest amount ever billed by CAL FIRE to date was to Pacific Gas & Electric (PG&E) in 1990 for \$8.2 million. The Campbell Fire burned over 125,000 acres and destroyed 27

structures in Tehama County. CAL FIRE determined that the fire was caused by a tree limb that made contact with a 500 kV powerline. PG&E had not maintained the 10-foot clearance around its powerline as required by law. PG&E eventually agreed to a negotiated settlement of \$5 million.

D.15.2.3 Regional Policies/Plans

Eastern San Diego County Resource Management Plan

Section 2.8 of the Eastern San Diego Resource Management Plan establishes goals, objectives, and management actions associated with wildland fire management on BLM-administered lands. The following goals and objectives are applicable to the ECO Substation and Tule Wind projects:

- WFM-01 Protect human life (both firefighters and public) and communities, property, and the natural resources on which they depend. Firefighter and public safety are the highest priority in all fire management activities.
- WFM-02 Reduce hazardous fuels around communities at risk within the wildland–urban interface using mechanical, manual, biological, and prescribed fire treatments, where applicable.
- WFM-03 Appropriate management response for resource benefits will range from full suppression to the appropriate strategy to safely contain and control wildland fires in the planning area.
- WFM-04 Maintain natural biological processes through the use of fire as a natural disturbance.

CAL FIRE San Diego Unit Pre-Fire Management Plan

The San Diego Unit of CAL FIRE has developed a Pre-Fire Management Plan for San Diego County, encompassing 1,237,201 acres of SRA within San Diego County and portions of western Imperial County. In the Pre-Fire Management Plan, the San Diego unit of CAL FIRE states that all communities within San Diego County are potentially at risk of wildland fires (CAL FIRE 2009). Similar to the California Fire Plan, the Pre-Fire Management Plan does not contain any specific requirements. Rather, it assesses current fire-management policies, analyzes assets within San Diego County at risk of damage due to wildfire, and makes recommendations on how best to protect San Diego County’s natural and man-made resources from wildfire damage. The identified assets at risk in San Diego County include water (soil erosion after wildfires damage water flumes and storage facilities), structures, wildlife, air quality, and power and communication infrastructure.

CAL FIRE provides a description of various programs and projects intended to reduce the occurrence of large damaging fire. These programs/projects include Battalion Pre-Fire plans, fuel breaks, defensible parameters around communities, clearances around structures, and a diverse mosaic of fuels and continuity that would help existing policies and strategies achieve success when combating fires (CAL FIRE 2009).

Southwest Powerlink Memorandum of Understanding

A fire prevention Memorandum of Understanding (MOU) was agreed upon by SDG&E and the CAL FIRE for vegetation management activities associated with the Southwest Powerlink (SWPL). The MOU states that vegetation management within the SWPL easement areas is mutually beneficial as reducing vegetation would minimize wildfire potential and improve the reliability and integrity of the transmission line while at the same time improve the safety of firefighters working near the transmission line. The MOU specifies vegetation management activities that are the responsibility of CAL FIRE and those that are the responsibility of SDG&E. For example, CAL FIRE is responsible for notifying SDG&E in advance of prescribed burns located near SWPL facilities and structures and for monitoring the fire danger in the area and notifying SDG&E when conditions are too hazardous to conduct vegetation management activities. SDG&E, on the other hand, is responsible for notifying CAL FIRE on days where the SWPL's reliability is critical and prescribed burns should not take place adjacent to the SWPL, as well as for filing the appropriate paperwork with CAL FIRE when requesting CAL FIRE assistance regarding vegetation management activities within the SDG&E easement.

County of San Diego General Plan Public Safety Element

The following policies included in the General Plan's Public Safety Element are applicable to the Proposed PROJECT:

- **Policy 1:** The County shall seek to reduce fire hazards to an acceptable level of risks.
- **Policy 2:** The County will consider constraints in terms of fire hazards in land use decisions. Within designated areas where population or building densities may be inappropriate to the hazards present, measures will be taken to mitigate the risk of life and property loss.
- **Policy 3:** The County will support the planning and coordinate implementation of a countywide fuel break and fuel management system.

County of San Diego Code of Regulatory Ordinances

The following sections of the County Code of Regulatory Ordinances would be applicable to the Proposed PROJECT:

Title 6, Division 8, Chapter 4: Removal of Combustible Vegetation and Other Flammable Materials Ordinance (Sections 68.401–68.406)

The Removal of Combustible Vegetation and Other Flammable Materials Ordinance establishes that combustible vegetation, dead, dying or diseased trees, green waste, rubbish, and other materials on private property can create fire hazards resulting in conditions that are potentially injurious to the health, safety, and welfare of the public. The ordinance goes on to state that combustible vegetation and other materials are public nuisances that must be abated and the requirements for abatement must be enforced in all County Service Areas and in the unincorporated areas of the County outside of a fire protection district or municipal water district. Fire protection districts and municipal water districts have either adopted their own combustible vegetation abatement programs or have adopted the county ordinance.

Clearance requirements and combustible vegetation removal protocols are established in Section 68.404 and 68.406 of the ordinance. Section 68.404 states that ~~no~~ responsible party shall permit on a parcel any accumulation of combustible vegetation, dead, dying or diseased trees, green waste, rubbish, or other flammable materials within thirty (30) feet of the property line when such accumulation endangers property or the health, safety, or welfare of residents of the vicinity” and that ~~no~~ responsible party shall permit on a parcel any accumulation of combustible vegetation, dead, dying or diseased trees, green waste, rubbish, or other flammable materials within ten (10) feet of each side of the improved width of highways, private roads and driveways” (County of San Diego 1985). Section 68.406 requires that combustible vegetation removal be conducted so as to leave the plant root structure intact to stabilize the soil and prevent erosion and that areas where combustible vegetation removal has occurred may be replanted with fire-resistant shrubbery and planting materials (County of San Diego 1985). The ordinance also requires that vegetation removal be conducted in conformance with all federal, state, and local environmental laws and regulations.

Title 9, Division 6, Chapter 1: County Fire Code (Section 96.1.4703)

Section 96.1.4703 states that the County Department of Planning and Land Use or the applicable fire protection district may require an applicant for a parcel map, specific plan, or major use permit located in a wildland–urban interface fire area to prepare and submit a Fire Protection Plan (FPP) as part of the approval process. According to the County Fire Code, wildland–urban interface fire area is a geographic area identified by the state as a ~~Fire Hazard Severity Zone~~” (the ECO Substation, Tule Wind, and ESJ Gen-Tie projects would be located primarily within a Very High Fire Hazard Severity Zone). The FPP, which requires that the topography, combustible vegetation, and fire history (among other factors) be considered during development of the plan, addresses water supply, vehicular and emergency apparatus access, travel time to the nearest fire station, structure setback from property lines, ignition-resistant building features, fire

protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management.

County of San Diego Consolidated Fire Code

The first consolidated fire code was created in 2001 through a collaboration between the County of San Diego and local fire protection districts and essentially assured consistency between County and local district fire ordinances for the purpose of public health and safety. The consolidated code includes minimum requirements for access, water supply, distribution, construction type, fire protection systems, and vegetation management within the County. The code also regulates hazardous materials and hazardous substance releases.

San Diego County Rural Fire Protection District

Hazard Reduction Ordinance #2002-02 contains defensible space standards required for properties located within the jurisdiction of the San Diego Rural Fire Protection District. The applicable policies of the Hazard Reduction Ordinance include the following:

- Trash, rubbish, debris, and other combustible materials, which create a fire hazards, must be removed from property when within 100 feet of a structure and properly disposed of.
- Improved properties shall maintain 100 feet of clearance from all structures clear of native vegetation weeds and brush. Distances shall be measured in a horizontal plane.
- Vacant properties shall maintain 100 feet of clearance from adjacent structures clear of native vegetation, weeds, and brush. Distances shall be measured in a horizontal plane.

For all clearance activities, clearance shall be accomplished by methods that will not disturb native soil or rootstock and native chaparral may be thinned as approved by the Fire Protection District.

Border Agency Fire Council

Formally created during the 1996 fire season, the Border Agency Fire Council (BAFC) consists of 38 member organizations representing fire protection, law enforcement, legislators, health care workers, natural resource managers, and elected officials in the United States and Mexico. The member organizations meet quarterly during the winter and every 6 to 8 weeks during the fire season at the CAL FIRE San Diego unit headquarters in El Cajon. The BAFC promotes fire prevention and suppression strategies within the border area in order to prevent wildfires and minimize potential damage. Due to collaborative efforts of the member organizations, the BAFC has been successful at altering the natural environment to allow for better access for emergency services while at the same time respecting the natural values of the border area (BAFC 2007). In addition, the BAFC has been at the forefront in establishing and maintaining the International

Fuel Break at Otay Mountain, which seeks to protect life and property in nearby communities, improve endangered species habitat, and reduce the risk of a large-scale fire in the protected Tecate Cypress groves on Otay Mountain (BAFC 2007). The member organizations of the BAFC include the BLM, CAL FIRE, San Diego Fire and Rescue, San Diego Rural Fire Protection District, and SDG&E. The ECO Substation, Tule Wind, and ESJ Gen-Tie projects are located within the Border Agency Fire Council's Area of Concern (BAFC 2007).

San Diego County Multi-Jurisdictional Hazard Mitigation Program

Required by the federal Disaster Mitigation Act of 2000, the Multi-Jurisdictional Hazard Mitigation Plan is a comprehensive countywide plan that identifies potential risks associated with natural and man-made disasters and discusses ways to minimize resulting damage. Many purposes are served by the document including enhancing public awareness, creating a decision tool for management, promoting compliance with state and federal program requirements, enhancing local policies for hazard mitigation capability, providing inter-jurisdictional coordination, and achieving regulatory compliance (County of San Diego 2004). The plan also identifies goals, objections, and actions for each participating jurisdiction in the County.

Numerous natural and man-made hazards including coastal storms, dam failure, earthquake, flood, and structure/wildland fires are profiled in the plan. Each profiled disaster is discussed in terms of the nature of the disaster, the history of the disaster in San Diego County, and the location and extent/probability of occurrence and magnitude. The plan identifies 11 general goals and numerous objectives for the County of San Diego including the following:

- **Goal 1:** Promote disaster-resistant future development
- **Goal 2:** Increase public understanding and support for effective hazard mitigation
- **Goal 4:** Enhance hazard mitigation coordination and communication with federal, state, local, and tribal governments
- **Goal 10:** Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to structural fires/wildfire.

A draft update of the 2004 plan has been completed by the County Office of Emergency Services and is currently under review. It expects to adopt the 2010 update in summer 2010.

San Diego Fire Chiefs Association Defensible Space Memorandum of Understanding

In response to the Harmony Grove Fire in 1997, the San Diego County Fire Chief's Association and the Fire District's Association of San Diego County entered into an MOU with the California Department of Fish and Game, U.S. Fish and Wildlife Service, and CAL FIRE (San Diego Fire Chiefs Association 2007). The removal of flammable vegetation within 100 feet of

any structure and 30 feet from any roadway without a biological survey is permitted by the MOU. The intent of the MOU was to establish guidelines by which CAL FIRE, cities, and fire districts can continue to protect lives and property from the threat of fires by requiring the flammable vegetation abatement pursuant to applicable state and local regulations. The MOU is also intended to establish a cooperative mechanism through which the U.S. Fish and Wildlife Service and California Department of Fish and Game may assess, minimize, and help account for potential adverse impacts to sensitive species and habitats resulting from vegetation abatement activities” (San Diego County Fire Chiefs Association 2007).

D.15.3 Environmental Effects

D.15.3.1 Definition and Use of the California Environmental Quality Act Significance Criteria/Indicators under the National Environmental Policy Act

There are no specific criteria for impacts related to wildfire within the California Environmental Quality Act (CEQA) Guidelines. However basing wildfire related impacts on significance criteria set forth in Appendix G of CEQA Guidelines (14 CCR 15000 et seq.), project-related wildfire impacts would be considered significant if any of the following were to occur:

- Activities associated with project construction, maintenance, or decommissioning (Tule) significantly increase the probability of a wildfire resulting in damaging impacts to communities, firefighter health and safety, and/or natural resources
- The presence of the overhead transmission line significantly increases the probability of a wildfire resulting in damaging impacts to communities, firefighter health and safety, and/or natural resources
- The presence of the project creates obstructions to fire suppression efforts, resulting in damaging impacts to communities and/or natural resources
- Activities associated with project construction or maintenance result in a fuel vegetation matrix with an increased ignition potential and rate of fire spread.

In addition to the impacts outlined in the CEQA Guidelines, the County of San Diego Guidelines for Determining Significance for Wildland Fire and Fire Protection are also listed as the project occurs within unincorporated areas of the County. Failure of private, local, or state projects to comply with any one of the following guidelines are generally considered a significant impact under CEQA related to wildland fire and fire protection as a result of project implementation, in the absence of scientific evidence to the contrary:

1. The project cannot demonstrate compliance with the following fire regulations: California Fire Code, CCR, County Fire Code, and the County Consolidated Fire Code.
2. A comprehensive FPP has been required, and the project is inconsistent with its recommendations including fuel modification.
3. The project cannot meet the emergency response objectives identified in the Public Facilities Element of the County General Plan or offer Same Practical Effect.

The three County guidelines for significance presented previously are not directly applicable on BLM lands. However, this section simply illustrates how the County impact analysis thresholds are integrated into the significance measure for the Proposed PROJECT's impacts. The County's thresholds are incorporated into the four primary significance indicators discussed at the beginning of Section 15.3 as follows:

Item 1, compliance with applicable codes, is included in impact guideline two regarding the presence of the Proposed PROJECT increasing probabilities for a wildfire. The applicable local fire codes and regulations are designed to reduce the likelihood for ignition, escape, and damage from wildfire. Analysis of potential impacts will include the level of extent the project's components meet or exceed these codes.

Item 2: Project inconsistency with an FPP required for the project is included in guidelines two and four. Project FPPs have been prepared for components of this project, and recommendations from the FPP are applied as applicant proposed mitigation measures. Where the project is not consistent with the FPP in terms of fire protection features and/or fuel modification, overall project impact level is proportionate.

Item 3: Emergency response objective consistency is incorporated within criteria three. The project's effect on fire suppression efforts and efficiency and potential obstructions to fire response standards with presence of the project are analyzed and impacts resulting are based on General Plan standards.

D.15.3.2 Applicant Proposed Measures

ECO Substation Project

Applicant Proposed Measures (APMs) ECO-HAZ-05, Preparation of a Construction Fire Prevention Plan, and ECO-HAZ-06, Implementation of Wildland Fire Prevention and Fire Safety Electric Standard Practice, were proposed by SDG&E to reduce impacts related to fire. Section B.3.4 of the EIR/EIS provides additional detail regarding these APMs.

Tule Wind Project

APMs TULE-Project Design Feature (PDF)-1 through TULE-PDF-26 are proposed by Pacific Wind Development to reduce impacts related to fire safety. Most of the APMs are required for a wind energy facility. Section B.4.4 of the EIR/EIS lists these APMs.

ESJ Gen-Tie Project

APMs ESJ-FIRE-1 through ESJ-FIRE-3 were proposed by ESJ U.S. Transmission, LLC, to reduce impacts related to fire safety. APM ESJ-FIRE-1 provides for fire department turnarounds; ESJ-FIRE-2 provides for ongoing fuel modification; and ESJ-FIRE-3 requires funding with the local fire authority for firefighting resources. Section B.5.4 provides additional detail regarding these APMs.

Campo, Manzanita, and Jordan Wind Energy Projects

At the time this EIR/EIS was prepared, the project proponents for these three wind energy projects have not developed project-specific APMs.

D.15.3.3 Direct and Indirect Effects

Table D.15-4 lists the impacts identified for the Proposed PROJECT, along with the classifications of impacts under CEQA. An overview of the project area firesheds follows. Detailed discussions of each impact and the specific locations where each is identified are then presented in the following sections. Cumulative effects are analyzed in Section F of this EIR/EIS.

Table D.15-4
Fire and Fuels Management Impacts

Impact No.	Description	Classification
SDG&E ECO Substation – Fire and Fuels Management Impacts		
ECO-FF-1	Construction, operation and maintenance activities would significantly increase the probability of a wildfire.	Class II
ECO-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
ECO-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ECO-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Pacific Wind Development Tule Wind – Fire and Fuels Management Impacts		
Tule-FF-1	Construction, operation, and maintenance, and decommissioning activities would significantly increase the probability of a wildfire.	Class II

Table D.15-4 (Continued)

Impact No.	Description	Classification
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
Tule-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Energia Sierra Juarez U.S. Transmission, LLC ESJ Gen-Tie – Fire and Fuels Management Impacts		
ESJ-FF-1	Construction, operation, and maintenance activities would significantly increase the probability of a wildfire.	Class II
ESJ-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
ESJ-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ESJ-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Proposed PROJECT (COMBINED – including Campo, Manzanita, and Jordan Wind Energy)		
FF-1	Construction, operation, and maintenance, and decommissioning (Tule) activities would significantly increase the probability of a wildfire.	Class II
FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact FF-1: Construction, operation and maintenance, and decommissioning (Tule Wind Project only) activities would significantly increase the probability of a wildfire.

ECO Substation Project

Construction

Project construction would result in up to 89 workers per day (estimated peak) occurring in the project area for the several month construction period. Construction activities that may result in ignition sources would include vegetation clearing and piling, grading, site preparation, soil disturbances (augering, trenching, scraping, piling), concrete pouring and preparation, pole placement and construction, hot work, transmission line placement (pulleys), potentially aerial

stringing (helicopter), refueling, and maintenance activities. These construction activities would include presence of vehicles, heavy equipment, heat-generating equipment and activities (welding, cutting, grinding, brazing, soldering, thermal spraying, thawing pipe, torch applied roof systems, or similar activities), sparks from various sources, and potentially discarded cigarettes, among others.

Operation and Maintenance

In addition to construction activities, operational maintenance activities would include the presence of humans and vehicles as well as heat- and spark-generating equipment on occasion. Operation would include transmission of electric current through transmission lines and substation equipment. Operation of the ECO Substation Project may result in vegetation ignitions and wildfire from equipment failure (e.g., transformers, circuit breakers), transmission line arcing, bird or floating debris contact, or pole failure and subsequent line arcing.

Maintenance activities that may result in wildfire ignition include vegetation maintenance, requiring motorized hand tools or other small machinery, including string trimmers, brush cutters, chain saws, and masticators. Substation and electrical transmission line maintenance would include a patrol vehicle and as needed, heavier equipment necessary for accessing the towers and attached components. Various processes that could result in sparks or heat sources would occur for repairs, replacements, or other maintenance needs. Substation maintenance includes numerous sources of ignition and fire spread, such as hot work procedures, generators, and personnel smoking, among others. Substation switchyards also include various sources of ignition and fire spread, such as transformers, gas storage, high-voltage equipment, and vegetation.

However, though there are numerous potential sources for ignitions, maintained substations/switchyards built according to current code and regulatory requirements rarely result in fires and even more rarely represent the source for wildfire (Bolger and Delcourt 2001). Among the most important components for fire safety at substations is routine maintenance. Regular maintenance, along with fire protection measures that will be employed during the construction phase, will reduce the probability of fire ignition and spread over time.

There are key protection systems built into substations as required by the applicable building codes. The substation and related facilities will be provided a layered fire protection approach through compliance with existing building codes and requirements as well as project design features, and Applicant Proposed Measures. The approach includes focused areas of “built-in” fire protection of life safety, passive, active, and manual measures. Each layer of protection is designed into the facility to minimize ignition and fire spread as follows:

Life-Safety Measures

Life-safety measures are required by building codes and other regulations and are occupancy type specific. The life-safety measures include fire/smoke detection systems, warning signals, exit illumination, remote fire-separated exits, and structural ignition resistance that provide passive protection. These measures would be applicable to the on-site operations building.

Passive Measures

Passive measures are those measures that do not require outside action to provide fire safety benefits. They are built-in to the structure and equipment and will function to prevent ignition or limit fire spread. Among the passive measures that will be required for the substation and related facilities are the following:

- Fire stopping in buildings (fire walls, blocking/obstructions across air passages to prevent spread of fire)
- Fire separation that limits spread of fire in structures
- Non-combustible construction per building code in hazardous fire areas
- Low flame spread materials
- Crushed rock around oil-filled equipment
- Defensible space around buildings and fence line.

Active Measures

Active measures include those systems that provide detecting and extinguishing capabilities and that rely on outside stimulus to operate and limit/reduce fire spread. For example, an occupant warning system such as a fire alarm/smoke detection system will actively sense the presence of smoke and in turn provide a warning or signal to occupants in the building and to off-site, remote fire agencies. Another important system that effectively limits fire spread is the automatic fire sprinkler/extinguishing system. These types of system will be installed within structures associated with this project, according to occupancy requirements, resulting in significantly reduced probability of fire spread.

Manual Measures

Manual measures are the last layer of fire protection features that will be provided at the project's structures. Among the important manual measures are fire extinguishers, fire hydrants or other water sources (tanks), and hose stations. These measures provide equipment for on-site personnel use for extinguishing or reducing spread of fire. In addition, staff training is

incorporated into the Proposed ECO Substation Project, resulting in a trained staff ready to act should a controllable ignition occur.

Wildfire Risk Evaluation

Construction, operation, and maintenance activities associated with the ECO Substation Project would be located adjacent to native Southern California fuels and/or other combustible materials found in the Boulevard Fireshed. Regardless of the fuel density and load, these various ignition sources have the capacity to ignite nearby vegetation, resulting in wildfire, especially during weather events that include low humidity and high wind speeds. Exasperating this situation is data indicating that human activity (including accidental ignitions from various construction and transmission line related activities) is the leading cause of wildfire damage with regard to burned acreage in Southern California (Keeley and Fotheringham 2003). Furthermore, within the Boulevard Fireshed, over the last roughly 13 years, humans have been responsible for 81% of all documented wildfire ignitions.

Any of the proposed construction activities may result in vegetation ignitions given the presence of flammable fuels within the proximity of the Proposed ECO Substation Project components. As previously described, regional assets at risk include over 2,000 existing residential properties along with existing outbuildings, infrastructure, and facilities in the vicinity of the project and especially to the east and south of the project.

The potential risk of wildfire ignition and spread associated with construction, operation, and maintenance of the ECO Substation Project can be managed and pre-planned so that the potential for vegetation ignition is minimized. In addition, pre-planning and personnel fire awareness and suppression training not only results in lower probability of ignition, but also in higher probability of fire control and extinguishment in its incipient stages. Data indicate that 95% of all wildfire ignitions are controlled during initial attack (Smalley 2008).

Implementation of APMs ECO-HAZ-05 and ECO-HAZ-06, as previously presented, would provide a plan for educating construction and ongoing maintenance personnel about the fire hazard risk from substation and electrical transmission line construction activities. It will also provide training for practices to reduce the likelihood of fire ignition and to quickly extinguish ignitions that may occur. Further, it provides for coordination with CAL FIRE and the local fire authority and restricts construction activities during the days when fire spread would be most likely (Red Flag Warning periods), among others.

Implementation of Mitigation Measures FF-1 and FF-2, which provide clarification and supersede APMs ECO-FF-1 and ECO-FF-2 along with Mitigation Measures FF-3 and FF-4 would mitigate the increased probability of a wildfire during construction or maintenance of the

ECO Substation Project. Under CEQA this impact with implementation of mitigation would be less than significant (Class II).

MM FF-1 Develop and implement a Construction Fire Prevention/Protection Plan. At minimum, the plan will include the following:

- Procedures for minimizing potential ignition
 - vegetation clearing
 - fuel modification establishment
 - parking requirements
 - smoking restrictions
 - hot work restrictions
- Red Flag Warning restrictions
- Fire coordinator role and responsibility
- Fire suppression equipment on site at all times work is occurring
- Requirements of Title 14 of the California Code of Regulations, Article 8 #918 –“Fire Protection” for the private land portions
- Applicable components of the SDG&E Wildland Fire Prevention and Fire Safety Electric Standard Practice (2009)
- Emergency response and reporting procedures
- Emergency contact information
- Worker education materials; kick-off and tailgate meeting schedules
- Other information as provided by responsible fire agencies for the Proposed PROJECT.

The project applicant will provide a draft copy of the Construction Fire Prevention/Protection Plan to the responsible fire agencies for comment a minimum of 90 days prior to the start of any construction activities. The comments will be provided back to the applicant and revisions to the plan will address each comment to the satisfaction of the commenting agency. The final plan will be approved by the responsible fire agencies with input from other permitting agencies, as desired, and provided to the project applicant for implementation during all construction activities.

MM FF-2 Revise the Wildland Fire Prevention and Fire Safety Electric Standard Practice (2009) to Create the Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan

The plan will address the Proposed PROJECT and will be implemented during all operation and maintenance work associated with the project for the life of the project. Important fire safety concepts that are included in this document and make it an important overall mitigation measure are the following:

- Guidance on where maintenance activities may occur (non-vegetated areas, cleared access roads, and work pads that are approved as part of the project design plans)
- Fuel modification buffers required by the Fire Protection Plans (FPP)
- When vegetation work will occur (prior to any other work activity)
- Timing of vegetation clearance work to reduce likelihood of ignition and or fire spread
- Coordination procedures with fire authority
- Integration of the project's Construction Fire Prevention/Protection Plan content
- Personnel training and fire suppression equipment
- Red Flag Warning restrictions for operation and maintenance work
- Fire safety coordinator role as manager of fire prevention and protection procedures, coordinator with fire authority and educator
- Communication protocols
- Incorporation of responsible fire agencies reviewed and approved Response Plan mapping and assessment.
- Other information as provided by CAL FIRE, San Diego Rural Fire Protection District, San Diego County Fire Authority (SDCFA), BLM, and U.S. Forest Service (USFS), as applicable.

The project applicant will provide a draft copy of the Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan to the responsible fire agencies for comment a minimum of 90 days prior to the start of any construction activities. The comments will be provided back to the applicant and plan revisions will address each comment to the satisfaction of the commenting agency. The final plan will be approved by the responsible fire

agencies with input from permitting agencies, as desired, and provided to the project applicant for implementation during all construction activities.

MM FF-3 Development Agreement with Rural Fire Protection District and San Diego County Fire Authority. Provide funding for the training and acquisition of necessary firefighting equipment and services to the local fire authority to improve the response and firefighting effectiveness near electrical transmission lines and aerial infrastructure. Although not implementable on BLM or other federal land, the local fire authority will respond through mutual aid to wildfires within its jurisdiction, regardless of land ownership designation, and, therefore, the Development Agreement is applicable to the Proposed PROJECT on a project-wide basis. Funding would be provided through a Development Agreement with Rural Fire Protection District and San Diego County Fire Authority. The Development Agreement would include, but not be limited to the following items as agreed upon by the Rural Fire Protection District, the San Diego County Fire Authority and the applicant:

- Funding toward purchase of a Type I (or other) fire engine equipped for potential project related fires (i.e., foam capability)
- Funding as required by standard fire district fee schedule
- Foam concentrate supply of 450 gallons, foam education equipment, and nozzles on mobile trailer.

MM FF-4 Customized Fire Protection Plan for Project. A Fire Protection Plan will be submitted as part of the Proposed PROJECT EIR/EIS (pre-project) and will include, at minimum, the following:

- San Diego County FPP Content Requirements (<http://www.co.sandiego.ca.us/dplu/docs/Fire-Report-Format.pdf>)
- Rural Fire Protection District Content Requirements:
 - Provisions for fire safety and prevention
 - Water supply
 - Fire suppression/detection systems – built-in detection system with notification
 - Secondary containment
 - Site security and access

- Emergency shut-down provisions
- Fuel modification plan
- Access road widths and surfacing
- Emergency drill participation.
- Emergency evacuation plan.

The FPP will be submitted as part of the project EIR/EIS and will be incorporated into MM FF-1, the Construction Fire Prevention/Protection Plan, and MM FF-2, the Wildland Fire Prevention and Fire Safety Electric Standard Practice (2009)¹ Operation and Maintenance Plan. The Customized Fire Protection Plan will incorporate clarifications and additional measures detailed in this section.

Tule Wind Project

Construction

The construction period for the Tule Wind Project is proposed to be 18 to 24 months and will include up to 125 workers per day at peak. Construction activities that may result in ignition sources would include vegetation clearing and piling, grading, site preparation, soil disturbances (augering, trenching, scraping, piling), concrete pouring and preparation, pole and turbine placement and construction, hot work, transmission line placement (pulleys), potentially aerial stringing (helicopter), refueling, and maintenance activities. These construction activities would include presence of vehicles, heavy equipment, heat-generating equipment and activities (welding, cutting, grinding, brazing, soldering, thermal spraying, thawing pipe, torch applied roof systems, or similar activities), sparks from various sources, and potentially discarded cigarettes, among others, as well as use of fuels, and combustible materials during construction and infrastructure installation.

Operation and Maintenance

Operation of the Tule Wind Project would include generation and transmission of electric current from wind turbines, through transmission lines and substation equipment. Operation of the Tule Wind Project may result in vegetation ignitions and wildfire from equipment failure (e.g., turbine (blade, braking, oil heating, lightning, nacelle, transformers, circuit breakers), transmission line arcing, and pole failure, among others. Operation of the facility requires on-

¹http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/Attach%204_07-B%20Wildland%20Fire%20Prevention%20and%20Safety%20Practice.pdf

site presence of humans, vehicles, moving wind-driven generators and related parts and increased activity in the area.

The presence of up to 134 wind turbines, up to 400 feet tall presents a unique source for burning embers/materials in an area with receptive fuel beds. Wind turbines in California annually result in 35 turbine generator related fires (IAEI 2010). Fire causes are related to short-circuits and lightning. The elevated nacelle, where most wind turbine fires occur, results in the potential for burning, heated or flaming material to be liberated from the turbine. Under worst-case wind conditions, with wind gusts in excess of 50 mph, burning material (embers) may travel a mile or more, held aloft by the wind (Dudek 2010). However, most debris from a failed turbine drops within 500 feet of the turbine (Iberdrola Renewables, Inc. 2010b).

Maintenance will include the presence of humans and vehicles as well as heat- and spark-generating equipment on occasion. Vegetation maintenance will require motorized hand tools or other small machinery, including string trimmers, brush cutters, chain saws, and masticators. Wind turbine and electrical transmission line maintenance will include patrol vehicles and as needed, heavier equipment necessary for accessing the towers and attached components. Various processes that could result in sparks or heat sources would occur for repairs, replacements, or other maintenance needs.

Decommissioning

Decommissioning is expected for the Tule Wind Project. Prior to the termination of the ROW authorization, a final decommissioning plan would be developed in compliance with the standards and requirements for closing a site and would be circulated for approval by interested agencies.

A site reclamation plan and monitoring program would be included as components of the decommissioning plan. Requirements in effect at the time of decommission are anticipated to require that all turbines and ancillary structures be removed from the site. The final decommissioning plan would, however, be developed in compliance with the standards and requirements for closing a site at the time decommissioning occurs.

When the facility is retired or decommissioned, the turbine towers will be removed from the site and the materials will be reused or sold for scrap. Decommissioning activities are anticipated to have similar types of construction-related activities, and, therefore, all procedures, management plans, and BMPs developed for the construction phase of the project would be applied to the decommissioning phase of the project.

Decommissioning activities would result in short-term impacts similar to construction-related fire and fuel management impacts. The risk of fire danger during construction operation and

maintenance and decommissioning would be related to a variety of factors discussed previously, including smoking, refueling, and operating vehicles and other equipment off roadways.

Wildfire Risk Analysis

Construction activities adjacent to native, flammable fuels or other combustible materials found in the Tule Wind Project site adjacency, regardless of the density and fuel load, have the capacity to ignite nearby vegetation, resulting in wildfire, especially during weather events that include low humidity and high wind speeds. Exasperating this situation is data indicating that human activity (including accidental ignitions from various construction related activities) is the leading cause of wildfire damage with regard to burned acreage in Southern California (Keeley and Fotheringham 2003). Furthermore, within the project area region, over the last roughly 13 years, humans have been responsible for 81% of all documented wildfire ignitions.

Any of the proposed construction activities may result in vegetation ignitions given the presence of flammable fuels within the proximity of the Proposed Tule Wind Project components. As previously described, regional assets at risk include over 2,000 existing residential properties along with existing outbuildings, infrastructure, and facilities in the vicinity of the project and especially to the east and south of the project.

The potential risk of wildfire ignition and spread associated with construction, operation, and maintenance of the project can be managed and pre-planned so that the potential for vegetation ignition is minimized. In addition, pre-planning and personnel fire awareness and suppression training not only results in lower probability of ignition, but also in higher probability of fire control and extinguishment in its incipient stages. Data indicate that 95% of all wildfire ignitions are controlled during initial attack (Smalley 2008).

Initial attack for a nacelle fire that is up to 400 feet in the air may be limited through conventional firefighting strategies. In the absence of built in fire suppression systems, fire fighters would likely focus on monitoring the nacelle fire and focusing ground suppression efforts on ember or debris created spot fires. A 200-foot-wide fuel modification zone (in all directions) will be provided around each wind turbine. As previously discussed, during worst-case wind conditions, embers/debris may travel a mile or more, but most debris falls near the tower base with proportionally less debris the further from the tower (Iberdrola Renewables, Inc. 2010b). Based on the typical debris pattern in a tower failure, larger fuel modification zones around each tower are not warranted due to the fact that under normal conditions, 200 feet would be adequate to capture the majority of debris and under worst case conditions, fuel modification zones that are 1,000 feet or greater would not guarantee capture of all potential embers. The impacts associated with increasing the fuel modification areas are not directly proportional to the anticipated benefits.

APMs TULE-PDF-1 through TULE-PDF-26 would reduce the likelihood of ignition during construction, operation and maintenance, and decommissioning. These measures include pre-planning and design features intended to minimize ignition potential of equipment components, minimize equipment failure, which may result in ignition, and provide a non-flammable buffer between equipment and combustible vegetation. In addition, the project's Conceptual Draft Fire Protection Plan, identifies additional built-in features and processes that would reduce and manage wildfire-related risk (RC Biological Consulting, Inc. 2010). Implementation of Mitigation Measures FF-1 and FF-2, which augment and clarify APMs TULE-PDFE-1 through TULE-PDF-26, along with incorporation of Mitigation Measures FF-3 (development agreement) and FF-4 (customized fire protection plan incorporating APMs), would mitigate the increased probability of a wildfire during construction operation and maintenance and decommissioning of the Tule Wind Project. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

ESJ Gen-Tie Project

Construction

Project construction at the ESJ Gen-Tie Project would result in an increase in the amount of human activities (up to 25 workers per day at peak) occurring in the project area for the 6-month construction period. Construction activities that may result in ignition sources would include vegetation clearing and piling, grading, site preparation, soil disturbances (augering, trenching, scraping, piling), concrete pouring and preparation, pole and turbine placement and construction, hot work, crane, refueling, and maintenance activities. These construction activities would include presence of vehicles, heavy equipment, heat-generating equipment and activities (welding, cutting, grinding, brazing, soldering, thermal spraying, thawing pipe, torch applied roof systems, or similar activities), sparks from various sources, and potentially discarded cigarettes, among others, as well as use of fuels, and combustible materials during construction and infrastructure installation.

Operation and Maintenance

Operation of the ESJ Gen-Tie Project would include transmission of electric current through transmission lines and substation equipment. Operation of the ESJ Gen-Tie Project may result in vegetation ignitions and wildfire from equipment failure (transformers, circuit breakers, etc.), transmission line arcing, and pole failure, among others. Operation of the facility requires on-site presence of humans, vehicles and increased activity in the area.

Maintenance will include the presence of humans and vehicles as well as heat- and spark-generating equipment on occasion. Vegetation maintenance will require motorized hand tools or other small machinery, including string trimmers, brush cutters, chain saws, and masticators.

Substation and electrical transmission line maintenance will include patrol vehicles and as needed, heavier equipment necessary for accessing the towers and attached components. Various processes that could result in sparks or heat sources would occur for repairs, replacements, or other maintenance needs.

Wildfire Risk Evaluation

Construction, operation, and maintenance activities associated with the ESJ Gen-Tie Project would be located adjacent to native fuels and/or other combustible materials, but at reduced levels from that of other Proposed PROJECT components. However, regardless of the lighter fuel density and type of fuel load, these various ignition sources have the capacity to ignite nearby vegetation, resulting in wildfire, especially during weather events that include low humidity and high wind speeds. Exasperating this situation is data indicating that human activity (including accidental ignitions from various construction and transmission line related activities) is the leading cause of wildfire damage with regard to burned acreage in Southern California (Keeley and Fotheringham 2003). Furthermore, within the Boulevard Fireshed, over the last roughly 13 years, humans have been responsible for 81% of all documented wildfire ignitions.

Any of the proposed construction activities may result in vegetation ignitions given the presence of flammable fuels within the proximity of the Proposed PROJECT components. As previously described, regional assets at risk include over 2,000 existing residential properties along with existing outbuildings, infrastructure, and facilities in the vicinity of the project and especially to the east and south of the project.

The potential risk of wildfire ignition and spread associated with construction, operation, and maintenance of the ESJ Gen-Tie project can be managed and pre-planned so that the potential for vegetation ignition is minimized. In addition, pre-planning and personnel fire awareness and suppression training not only results in lower probability of ignition, but also in higher probability of fire control and extinguishment in its incipient stages. Data indicate that 95% of all wildfire ignitions are controlled during initial attack (Smalley 2008).

The project's Fire Protection Plan (Hunt Research Corporation 2009) provides an evaluation of the project's fire hazard and provides recommendations for reducing the associated risk. The FPP's recommendations are incorporated as APMs ESJ-FIRE-1 through ESJ-FIRE-3 and provide for access road turnaround, restrictions on new plantings within 30 feet of the project's ROW, and coordination with the local fire authority for providing funding for equipment, training, and services necessary to respond to the electrical transmission line in its jurisdiction. These measures would reduce fire hazard associated with the ESJ project, but they do not reduce the fire hazard impact related to construction, operation, and maintenance to below significant.

ESJ personnel fire prevention and safety training and awareness during construction and thereafter are among the most important components of a fire prevention plan. Necessary measures to provide the training and daily site procedures would provide a much higher level of safety on this site. Therefore, implementation of Mitigation Measure FF-1, which provides for creation/adoption of a Construction Fire Prevention Plan, and Mitigation Measure FF-2, which provides for a project-specific Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan, during construction and operation/maintenance phases of the project along with Mitigation Measure FF-3 (development agreement), which would increase the ability of the Rural Fire Protection District and San Diego County Fire Authority to respond to fire emergencies related to this project, and Mitigation Measure FF-4, with incorporation of details provided in this section, would mitigate the project's impact on significantly increasing the probability of a wildfire. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Proposed PROJECT

Impacts associated with construction, operation, maintenance, and decommissioning (of the four wind projects) of the Proposed PROJECT would be less than significant with implementation of mitigation measures identified for the ECO Substation, Tule Wind, and ESJ Gen-Tie projects. Required activities for construction, ongoing operation, maintenance, and decommissioning (of the four wind projects) of the project components, including (but not limited to) the proposed substations and 138 kV Transmission Line associated with the ECO Substation Project, the proposed wind generator facility and transmission and distribution lines associated with the Tule Wind Project, as well as the Campo, Manzanita, and Jordan wind energy projects, and the 500 kV or 230 kV transmission lines associated with the ESJ Gen-Tie Project, would present potential ignition sources across an area that has been identified as having high fire hazard and where fires have occurred before. The rural area where much of the project would occur places the potential ignition sources in close proximity to wildland fuels and creates a specialized fire emergency response requirement where training and equipment may be necessary to successfully respond to fire emergencies. The presence of habitable structures in the vicinity of the project, and to the east and south, where wind driven wildfire could threaten more than 2,000 residential structures, presents a considerable potential risk. However, with implementation of Mitigation Measures FF-1, FF-2, FF-3, and FF-4, construction, operation and maintenance, and decommissioning (of the four wind projects) related fire safety impacts associated with the project increasing the risk of wildfire would mitigate adverse effects. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Impact FF-2: Presence of project facilities including overhead transmission line would increase the probability of a wildfire.

ECO Substation Project

Substations and overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. Substations include various ignition sources that occasionally fail and result in open flame, sparks, or burning liquids. Transmission lines include line faults that can be caused by a variety of events including conductor contact by floating debris, gun shots, and aircraft collisions; these events are rare but would be beyond control of the project applicant. Impact FF-2 is adverse because certain events are beyond the control of methods and processes and cannot be provided mitigation measures that reduce the probability of occurrence. Due to the potential for ignitions related to the presence of the overhead transmission line to occur throughout the calendar year, including during extreme fire weather, and in an area considered Very High Fire Hazard Severity Zone with adjacent wildland fuels the presence of the project would increase the likelihood of a wildfire. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Although the impact cannot be fully mitigated, measures that reduce the likelihood of ignition can be provided that would reduce fire safety risks. The project would include scheduled, routine operation and maintenance, including monitoring and maintenance of facilities and equipment. Monitoring is likely to include routine aerial inspections of project infrastructure through helicopter or climbing means (as incorporated into Mitigation Measure FF-3) and regular vegetation clearing to minimize the potential for fire. This type of monitoring and maintenance would occur because it is required, but also because it is an important cost-reducing activity that helps avoid shortened useable component life spans, disruptive power outages and down time, and costly repair/replacement activities. Further, the mechanical and structural design and construction of the 138 kV Transmission Line must meet the requirements of the CPUC's General Order No. 95, Rules for Overhead Electric Line Construction (2009 update). Although energized conductors can represent potential fire hazard, SDG&E takes into account normal and unusual structural loading in its designs under General Order No. 95 to prevent these fire hazards.

Vehicles would use existing roads to access proposed project components during operation and maintenance activities, which would reduce the potential for vehicle-caused vegetation fire. In addition, a shield wire would be installed on the steel poles to protect the energized conductor from lightning, further reducing potential vegetation fire hazards. In addition, vegetation along roadways and within the ROW would be maintained to reduce the potential for ignition related to the transmission line and other facilities.

Vegetation maintenance would decrease the probability of ignition due to the separation that would result between native fuels and the project facilities. Vegetation management would reduce the likelihood that a component failure results in vegetation ignition and possible spread. Conversely, prescribed burning or wildfires that may occasionally occur in the area from a variety of ignition sources unrelated to the project would, without routine vegetation management, threaten the project's facilities. The vegetation management that would occur on an ongoing basis would help ensure that the project facilities are not affected by a wildfire.

Although with implementation of Mitigation Measures FF-2, FF-3, and FF-4 (which provide fire safety procedures for ongoing maintenance of the transmission line and its related components), the other mandated construction methods and materials and maintenance practices, and customized fire protection planning and funding to the local fire authority for training and equipment through a development agreement, the risk of ignitions and of damage from a project-related ignition are reduced, they remain adverse. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Tule Wind Project

The presence of over 100 wind turbines and related electrical transmission lines would result in potential ignition sources adjacent to wildland fuels in an area with a history of wildfires and over 2,000 inhabited structures in the vicinity, especially “down wind” to the east and west during a Santa Ana wind-driven fire. Turbines and electrical transmission lines include potential for sparks, heat, and flammable liquids, and they require ongoing maintenance procedures for the life of the project. Ongoing maintenance activities and the inclusion of five permanent and five part-time employees at the facility will also increase the possibility of a vegetation ignition.

Wind Turbines

Wind turbines and related facilities include electrical moving parts, flammable liquids, transmission lines, transformers, routine maintenance, and susceptibility to lightning strikes. These projects are often located in areas away from urbanization, adjacent to natural vegetation. Because of these features, wind energy projects have the potential to spark vegetation fires in high fire risk/hazard areas. For example, although having occurred rarely and primarily in older technology turbines, periodic fires or ignition sources stemming from engine and brake malfunctions can result in the ignition of fire and the ejection of flaming or molten debris (GIA 2008). This type of malfunction can trigger a fire event that can spread into nearby brush and other combustible materials.

Newer technology has addressed many of the issues experienced by older turbines (GIA 2008). However, fire-related accidents do occur and should be anticipated, even in newer technology. Causes of fire-related accidents include lack of proper maintenance, lightning strikes, part

degradation from wear, improper connection attachments, improper electrical installations, overheating caused by overloading, arcs, short circuits, technical defects, power switch failures, electronics failures, resistance due to insufficient contacts with electrical connections, hot surfaces, and ignition sources from maintenance work (welding, cutting).

During the long-term operation and maintenance of the Tule Wind Project, maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and it could also include the use of heavy equipment for repairs or replacement. The operation of the project would include use of gasoline, diesel fuel, and other flammable materials. Wind turbines use gearbox oils and hydraulic fluids and maintenance of these turbines includes cleaning fluids and degreasers.

Wind turbines do have the potential for lightning strikes, of which the turbine engineering is designed to withstand the atmospheric discharge and dissipate the strike into the ground via the ground grid, assuming the lightning protection is installed correctly and functioning at intended levels. Given the fuel modification buffers that will occur around each turbine base, it is unlikely that this type of ignition will occur.

Potential ignitions are minimized through a systems approach to fire protection. The system begins with diligent maintenance and includes built-in protection systems that compensate for the unpredictable.

The primary areas of risk at the Tule Wind Project site will be the overall premises, the towers, the rotor blades, the nacelles (machine houses) (GIA 2008), and potentially transformers (if included in the design) and overhead collection lines.

Each of these components varies in its potential as a source for ignitions and in combustibility and fire spread. As such, different fire protection measures are required for each component. The premises include the wind turbines, electrical transmission line and related electrical infrastructure and related access roadways and components. This area would be managed and maintained according to the project-specific FPP. The tower is perhaps of least concern with regard to ignition, but it must include lightning protection to minimize the possibility of lightning transfer to nearby vegetation or combustible materials. The collector lines are also potential ignition sources from arcing or support failure. The rotor blades are potentially flammable and require lightning protection. Occurrences of lightning struck blades that resulted in subsequent total loss of the nacelle have occurred and must be considered in pre-planning. The nacelle is the most valuable and susceptible component. The nacelle has a high concentration of electronics and potential ignition sources within an enclosed area. The nacelle is unmanned and too high for firefighter response. For these reasons, the nacelle is the focus of fire protection systems.

Wind turbine projects require a system of fire protection features to reduce the potential for ignitions that spread to nearby vegetation and result in wildfire. MM FF-5 provides for implementation of wind turbine fire protection systems including low-flammability materials, maintenance, training, and automatic detection, suppression and warning systems. Nacelle fire detection and warning systems are currently available and widely used in wind turbines and would be implemented with construction of the Tule Wind Project turbines. In addition to warning and detection systems, the project will include nacelle fire suppression systems. Although these systems are not available in a tested, state or nationally approved package for wind turbines, the applicant will implement this technology through the wind turbine manufacturer or an aftermarket supplier to the satisfaction of the appropriate fire authority as part of the project design. In addition, APMs for fire safety, referred to as Project Design Features (PDF) PDF-1 through PDF-26, described in detail in Section B.4.4, will be incorporated to reduce overall fire risk during construction and operation of the project.

MM FF-5 Wind Turbine Generator Fire Protection Systems. Fire detection, warning, and suppression systems for each wind turbine generator will include the latest technology and will address, at minimum, the following:

- Use of non-combustible or difficult to ignite materials
- Early fire detection and warning systems
- Frequent maintenance
- Auto switch-off and complete disconnection from the power supply system
- Ongoing hazard/fire safety training for staff
- Automatic fire extinguishing systems in the nacelle of each wind turbine (stationary, inert gas, or similar). Pacific Wind Development will implement this technology through the wind turbine manufacturer or an aftermarket supplier.
- Non-combustible or high flash point lubricant oils.

Although, implementation of APMs PDF-1 through PDF-26, and Mitigation Measures FF-1 through FF-4 along with Mitigation Measure FF-5, which provides ignition resistance, warning, and extinguishing measures, will provide a proactive plan for ongoing operation and maintenance of the Tule Wind Project with reduced fire threat, this impact remains adverse due to the impact created by the presence of the wind turbine facility and the corresponding increase in the probability of a wildfire. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Electrical Transmission Line

As discussed for the ECO Substation Project, overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by a variety of events including conductor contact by floating debris, gun shots, and aircraft collisions; these events are rare but would be beyond the control of the project applicant. Impact FF-2 can be partially mitigated, but remain adverse because certain events are beyond the control of methods and processes and cannot be provided mitigation measures that would significantly reduce the probability of occurrence. Due to the potential for ignitions related to the presence of the overhead transmission line to occur throughout the calendar year, including during extreme fire weather, and in an area considered Very High Fire Hazard Severity Zone with adjacent wildland fuels, the presence of the project would adversely increase the likelihood of a wildfire. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

With implementation of Mitigation Measures FF-1 through FF-4, which provide fire safety procedures for ongoing maintenance of the transmission line and its related components, and the other mandated construction and decommissioning methods and materials and maintenance practices, the risk of ignitions and the risk of damage from a project-related ignition are reduced, however, they remain adverse. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

ESJ Gen-Tie Project

As discussed for the ECO Substation Project, overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. Impact FF-2 is considered a significant impact because certain events are uncontrollable and cannot be provided mitigation measures that reduce the probability of occurrence to below significant. Due to the potential for ignitions related to the presence of the overhead transmission line to occur throughout the calendar year, including during extreme fire weather, in an area that includes population centers and scattered residents, especially to the east and south, the presence of the project would adversely increase the likelihood of a catastrophic wildfire that could result in damage to private property and persons. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

With implementation of Mitigation Measures FF-1 through FF-3, along with the incorporation of the Mitigation Measure FF-4 completed fire protection plan into the plans prepared for Mitigation Measures FF-1 and FF-2, the risk of ignitions and the risk of damage from a project-related ignition are reduced, however, they remain adverse. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Proposed PROJECT

Development of the Proposed PROJECT, including the proposed Campo, Manzanita, and Jordan wind energy projects would result in the long-term presence of facilities and features that have the potential and history of producing ignitions through a variety of equipment failures or outside sources acting on the facilities. These sources of ignition can be managed so that the likelihood of ignition or fire spread is reduced, but cannot be controlled to the point of excluding the potential for ignition and subsequent wildfire. Potential for the presence of the facilities/transmission lines associated with the Proposed PROJECT to cause an increase in wildfires are, therefore, considered to be significant. Although Mitigation Measures FF-1 through FF-5 will reduce the potential for wildfire ignitions or fire spread by requiring intensive pre-planning, fire safety procedures, customized operation and maintenance restrictions and requirements, and customized fire detection warning and suppression systems (wind turbines), among other fire safety features, the Proposed PROJECT's likelihood of increasing the occurrences of wildfires is considered adverse and immitigable. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact FF-3: Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting

ECO Substation Project

ECO Substation

The ECO Substation and Boulevard Substation Rebuild would be constructed to current building codes and regulatory requirements and would receive fuel modification areas as well as ongoing maintenance. This would result in very low possibility of fire escaping into wildland fuels. The access roadway will be enhanced to include up to 28-foot graded width with 24-foot decomposed granite improved surface, and the ROW maintenance road would be a 20-foot-wide, dirt road, resulting in adequate fire access during a fire or medical emergency. Therefore, there is no impact associated with the substation with regards to effectiveness of firefighting (No Impact).

Electrical Transmission Line

Ground-Based Firefighting

The project will include enhancement of existing County roadway as well as patrol roads along the proposed transmission lines. Response to the 138 kV transmission line will be facilitated by the roads and provided fuel modification. Once on the site, firefighters may face challenging and unusual conditions due to the special training and equipment required to respond to emergencies involving live electrical wires.

Wildland firefighters working around energized transmission lines may be exposed to electrical shock hazards including the following: direct contact with downed power lines, contact with electrically charged materials and equipment due to broken lines, contact with smoke that can conduct electricity between lines, and the use of solid-stream water applications around energized lines. Between 1980 and 1999 in the United States, there were 10 firefighter fatalities due to electrical structure contact during wildfire suppression (NFPA 2001). Maintaining a minimum 500-foot safety buffer greatly reduces the risk of electrical structure contact, and it reduces the effectiveness of ground-based frontal attacks. Most firefighting agencies implement this or a similar safety buffer. Depending on the fire circumstances, the presence of the electrical transmission line may result in the decision to let a fire burn through the area before attacking with ground and aerial firefighting resources.

A potential outcome of not providing immediate attack on a wildfire ignition is that it is able to build in size and intensity, especially under weather favorable to fire spread. Delays in containment allow for rapid fire perimeter growth through a fueled flaming front and through fire brand spotting. Vegetation containing dead material often results in ember production that, under windy conditions, can rapidly increase fire spread rate by igniting spot fires as much as 2 to 3 miles or more in front of the flame front. This type of fire behavior significantly complicates fire containment.

Aerial Firefighting

The presence of the 138 kV transmission line in an area where fire history indicates fires are likely to recur and where there are currently limited aerial obstructions would have the potential of significantly impacting aerial firefighting efforts. Introducing transmission lines to the area could affect firefighting operations and endanger the safety of aerial-based responders to a wildfire in the area. The proposed electrical transmission line would create a north-south aerial feature in an area that currently does not include this potential barrier for several miles to the east and is void of aerial barriers to the west. The presence of the line represents various aerial fire attack hazards including increasing the risk of transmission line direct contact by aircraft or water buckets, resulting in a “no fly” zone or restricting aerial water or retardant drop effectiveness in areas with transmission lines. Limiting the effectiveness of aerial fire containment activities is considered significant since this form of fire attack has proven to be an especially effective means of slowing or containing fires, particularly in areas where there is limited access or longer response times.

The implementation of Mitigation Measure FF-2 will result in reduction in the likelihood of ignitions occurring due to the project’s ongoing presence on the landscape, but it does not reduce the effect that the project would have on firefighting activities. Implementation of Mitigation Measures FF-3 and FF-6 (below) will further reduce the potential conflict by providing funding

for local fire authority training and equipment (Rural Fire Protection District and San Diego County Fire Authority) as well as funding for local FireSafe Council fire management planning and fuel reduction project implementation. Even with the proposed mitigation measures, the source of potential conflict (i.e., the presence of the overhead transmission line) would remain, and the potential for reduced aerial and ground-based firefighter effectiveness would be adverse and cannot be reliably mitigated. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

MM FF-6 Funding for FireSafe Council. Provide funding for locally based FireSafe Council (e.g., Campo/Lake Moreno FireSafe Council) to prepare or implement a Community Wildfire Protection Plan. The funding will be determined in conjunction with the local fire authority's input, the specified fuel reduction project priorities identified by the FireSafe Council and in consideration of the funding amount provided under Mitigation Measure FF-3.

This measure is irrespective of project location on BLM land as the funding will be to a local FireSafe Council for analysis and implementation of fuel reduction projects on privately owned, City or County lands adjacent to assets at risk. The Community Wildfire Protection Plan (CWPP) allows the local community to identify strategic fuel reduction projects to minimize fire risk, and become eligible for additional grant funding. Project related funding amounts will be determined with input from local fire agencies. Environmental review occurs as part of the CWPP process and would not, therefore, be required within the Proposed PROJECT EIR/EIS.

Tule Wind Project

Construction and long-term operation of a wind facility and electrical transmission line and overhead collectors in an area that currently does not include this type of facility in an area with a history of fires would present challenges to firefighting operations. Challenges related to responding to fires related to the electrical generating or transmission systems would be difficult for the firefighting forces that have jurisdiction. CAL FIRE responders are familiar with the requirements of firefighting around electrical facilities. Volunteer firefighters in the area may not have the latest training for this type of condition. Regardless, even trained firefighters have accidents as indicated by the number of deaths related to electrical transmission lines over the last 40 years. Indicative of the difficulty of fighting fires related to these facilities is the Draft Boulevard Subregional Plan that states, "There is uncertainty in how Boulevard's volunteer fire and rescue department will be able to handle a fire or other emergency event at the top of new industrial turbines which now stand between 400 and 600 feet tall." The plan goes on to state that

–fires at an industrial wind energy facility represents a new and significant health and safety issue that needs to be fully and properly addressed” (County of San Diego 2010b).

Ground-Based Firefighting

The project will include enhancement of existing County roadway as well as access/patrol roads along the proposed wind turbine grid and transmission lines. Response to the Tule Wind Project will be facilitated by the roads and provided fuel modification. Once on the site, firefighters may face challenging and unusual conditions due to the special training and equipment required to respond to emergencies involving live electrical wires.

Though the project may impact firefighting effectiveness, it may benefit firefighting access to some remote areas under specific conditions by providing a road network. A Road Management Plan and a Ground Transportation Plan would be completed by the project applicant prior to construction to coordinate the delivery of large-scale equipment trucks and cranes, so not to block or obstruct fire routes or equipment.

Wildland firefighters working around energized transmission lines may be exposed to electrical shock hazards including the following: direct contact with downed power lines, contact with electrically charged materials and equipment due to broken lines, contact with smoke that can conduct electricity between lines, and the use of solid-stream water applications around energized lines. Between 1980 and 1999 in the U.S., there were 10 firefighter fatalities due to electrical structure contact during wildfire suppression (NFPA 2001). Maintaining a minimum 500-foot safety buffer greatly reduces the risk of electrical structure contact, and it reduces the effectiveness of ground-based frontal attacks. Most, if not all, firefighting organizations employ a similar safety buffer around electrical structures. Depending on the fire circumstances, the presence of the electrical transmission line may result in the decision to let a fire burn through the area before attacking with ground and aerial firefighting resources.

Aerial Firefighting

The presence of the nearly 400-foot wind turbines and the 138 kV Transmission Line in an area where there is currently no aerial obstructions would have the potential of significantly impacting aerial firefighting efforts. Introducing these vertical features to the area could affect firefighting operations and endanger the safety of firefighters responding to a wildfire in the area (CAL FIRE 2010a). The proposed electrical transmission line would create a substantial number of north–south trending aerial features in an area that currently does not include this potential barrier for several miles to the east and is void of aerial barriers to the west.

The implementation of Mitigation Measure FF-2 will result in reduction in the likelihood of ignitions occurring due to the project’s ongoing presence on the landscape, but it does not reduce

the effect that the project would have on firefighting activities. Implementation of Mitigation Measures FF-3, FF-5, and FF-6 will further reduce the potential conflict by providing funding for Rural Fire Protection District and San Diego County Fire Authority training and equipment, fire detection, warning, and suppression systems in wind turbines, as well as funding for local FireSafe Council fire management planning and fuel reduction project implementation. Even with implementation of these mitigation measures, the source of potential conflict (i.e., the presence of the 400-foot-tall wind turbines and overhead transmission line) would remain, and the potential for reduced aerial and ground firefighter effectiveness would be adverse and cannot be reliably mitigated. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

ESJ Gen-Tie Project

The presence of the 500 kV Transmission Line or 230 kV double circuit line in an area where there is currently no aerial obstructions would have the potential of significantly impacting both aerial and ground-based firefighting efforts. Introducing transmission lines to the area could affect firefighting operations and endanger the safety of firefighters responding to a wildfire in the area.

Ground-Based Firefighting

Wildland firefighters working around energized transmission lines may be exposed to electrical shock hazards including the following: direct contact with downed power lines, contact with electrically charged materials and equipment due to broken lines, contact with smoke that can conduct electricity between lines, and the use of solid-stream water applications around energized lines. Between 1980 and 1999 in the United States, there were 10 firefighter fatalities due to electrical structure contact during wildfire suppression (NFPA 2001). Maintaining a minimum 500-foot safety buffer greatly reduces the risk of electrical structure contact, and it reduces the effectiveness of ground-based frontal attacks. This may result in the decision to let a fire burn through the area before attacking with ground and aerial firefighting resources.

A potential outcome of not providing immediate attack on a wildfire ignition is that it is able to build in size and intensity, especially under weather favorable to fire spread. Delays in containment allow for rapid fire perimeter growth through a fueled flaming front and through fire brand spotting. Vegetation containing dead material often results in ember production that, under windy conditions, can rapidly increase the fire's spread rate by spotting fires as much as 2 to 3 miles or more in front of the flame front. This type of fire behavior significantly complicates fire containment.

Aerial Firefighting

The proposed electrical transmission line would create a north–south aerial feature in an area that currently does not include this potential barrier for several miles to the east and is void of aerial barriers to the west. The presence of the line represents various aerial fire attack hazards, including increasing the risk of transmission line direct contact by aircraft or water buckets, resulting in a “no fly” zone or restricting aerial water or retardant drop effectiveness in areas with transmission lines, limiting the effectiveness of aerial fire containment, which has proven to be an especially effective means of slowing or containing fires, particularly in areas where there is limited access or longer response times.

The transmission line will span an area south of Interstate 8 (I-8) to the Mexican Border, a distance of less than 1 mile. The presence of the proposed ESJ Gen-Tie transmission line complicates the immediate vicinity with regard to aerial firefighting. However, the fire history of the area indicates that fires are not as common to the area and fuels are lighter in the vicinity of the ESJ Gen-Tie Project. The project’s Fire Protection Plan indicates that a fall fire (Santa Ana winds) would produce a moderately intense wildfire as opposed to a high or severely intense fire. Further, the existing border wall may inhibit fire spread from south to north and vice-versa under non-windy conditions. However, wind-driven fire, either on- or off-shore, has the potential to produce significant fire embers/brands, which would not be affected by the border wall. Interstate -8 may serve as a fire break to the north, assisting in the containment of wildfires not driven by Santa Ana winds. The area to the east of the Proposed ESJ Gen-Tie Project is void of aerial features, and to the west there are no aerial features for several miles. As a result, the ability of aircraft to conduct operations in largely open areas in all directions of the transmission line will not be significantly affected by the presence of the transmission line, but ignitions close to the transmission line would likely be affected and result in inefficiencies in aerial activity for initial attack.

Based on this analysis, the implementation of Mitigation Measure FF-2 will result in reduction in the likelihood of ignitions occurring due to the project’s ongoing presence on the landscape, but it does not reduce the effect that the project would have on firefighting activities. Implementation of Mitigation Measures FF-3 and FF-6 will further reduce the potential conflict should a wildfire ignite by providing funding for Rural Fire Protection District and San Diego County Fire Authority training and apparatus/equipment along with local FireSafe Council fire management planning and fuel reduction project implementation at downwind residents/population centers. Even with implementation of these mitigation measures, the source of potential conflict (i.e., the presence of the overhead transmission line) would remain, and the potential for reduced aerial and ground firefighter effectiveness would be adverse and cannot be reliably mitigated. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Proposed PROJECT

As identified in the preceding discussions, the Proposed PROJECT's various electrical generation, transmission, and distribution components would result in the presence of horizontal and vertical structures across a relatively large area of east San Diego County. The proposed Campo, Manzanita, and Jordan wind projects would also locate wind turbines and associated overhead transmission lines/facilities within areas that currently do not include these types of facilities. Portions of the area currently include similar facilities in various locations, and the Proposed PROJECT would share portions of the existing ROWs with similar structures and would add additional facilities/aerial features where there are currently none. These horizontal and vertical features can affect the ability of responding firefighters from effectively and efficiently performing their duties. Therefore, even with implementation of proposed mitigation measures, the potential for reduced aerial and ground firefighter effectiveness would be adverse and cannot be reliably mitigated. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact FF-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.

ECO Substation Project

Grading associated with the access/maintenance road and substation, switchyard, transmission line access road, and associated facilities would remove native vegetation as part of the requirements for construction and for fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Removal of native plants may allow aggressively establishing non-native plants to successfully germinate and become established due to the lack of competition for sunlight and soil moisture. Once established, it is common for non-native plants to spread, especially those plants listed on the California Invasive Plant Council's invasive plant list (<http://www.cal-ipc.org/>).

Non-native plants may be spread by a variety of means, including from animal, human, and vehicle dispersal, among others. Non-native plant establishment is most prevalent where competition is scarce and there has been soil disturbance. The introduction/release and proliferation of non-native, invasive plants may be facilitated by the project's construction activities. If allowed to proliferate, larger areas may be affected, and following natural disturbances such as wildfire, these large areas may be prone to conversion to non-native fuels, such as non-native, annual grasses. In turn, non-native grasses are more prone to ignite and carry wildfire due to their tendency to dry earlier in the season than native plants and their structure (fine, flashy fuels) and dry fuel moisture, which is conducive to fast fire spread. These types of fuels often burn more frequently than native fuels, which results in the exclusion of the native

plants and the proliferation of the non-native plants. Invasive annual grasses may also influence fire spread by changing the horizontal spacing characteristics of a native fuel bed. Naturally occurring sparse shrubs with substantial spacing may become “connected” through the grasses creation of a fine fuel continuum between patchy, perennial shrubs, allowing wildfires to expand further into otherwise sparsely vegetated wildlands (Brooks 2008).

Establishment and corresponding spread of invasive plants within the proposed project ROW would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure FF-2 as well as including the restoration of areas affected by project activities with native plantings, where appropriate. Mitigation Measure FF-7 will result in the preparation of a restoration plan for implementation in all disturbed areas outside the area that would receive at least annual vegetation removal. The restoration plan will revegetate disturbed areas with native plants common to the eco-region and in densities and species diversity that are consistent with pre-project conditions. Therefore, with implementation of MM FF-2 and FF-7, the potential for increased ignition potential due to establishment of non-native plants is reliably mitigated. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

MM FF-7 Preparation of Disturbed Area Revegetation Plan. All areas disturbed during construction activities that will not be continuously included in the long-term maintenance access ROW will be provided native plant restoration in order to prevent non-native, weedy plants from establishing. Disturbed areas that will be included in the long-term maintenance program will not be revegetated as any plants that establish in these areas will be removed on an ongoing (at least annual) basis.

Mitigation Measure FF-7 directs that the temporary disturbance areas will be revegetated with native plants common to the area through direction detailed in a habitat restoration plan. The habitat restoration plan will be prepared to restore native habitat and to reduce the potential for non-native plant establishment. The restoration plan will incorporate a Noxious Weeds and Invasive Species Control Plan to assist in restoring the construction area to the prior vegetated state and lessen the possibility of establishment of non-native, flammable plant species. The Revegetation Plan will be provided to the approving agencies for review and approval.

Tule Wind Project

Grading associated with the access/maintenance roads, wind turbine pads, operations and maintenance (O&M) facility, substation, laydown areas, and parking areas will remove native vegetation as part of the requirements for construction and for fuel buffers. The project is anticipated to disturb a total of 762.5 acres, with approximately 230 acres of temporary disturbance during construction. As described for the ECO Substation Project whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases.

Establishment and corresponding spread of invasive plants within the proposed project ROW would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. The introduction of non-native plants with an increased ignition potential and rate of wildfire spread can be mitigated by following the prevention and management protocol outlined in Mitigation Measures FF-2 as well as including the restoration of areas affected by project activities with native plantings, where appropriate. Mitigation Measure FF-7 will result in the preparation of a restoration plan for implementation in all disturbed areas outside the area that will receive at least annual vegetation removal. The restoration plan will revegetate disturbed areas with native plants common to the area and in densities and species diversity that are consistent with pre-project conditions. Therefore, with implementation of Mitigation Measures FF-2 and FF-7, the potential for increased ignition potential due to establishment of non-native plants is reliably mitigated. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

ESJ Gen-Tie Project

Grading associated with the access/maintenance road electrical transmission line will remove native vegetation as part of the requirements for construction and for fuel buffers. As described for the ECO Substation Project, whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases.

Establishment and corresponding spread of invasive plants within the proposed project ROW would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact that can be mitigated by following the prevention and management protocol outlined in Mitigation Measures FF-2 and FF-7. The ESJ Project's Fire Protection Plan calls for no new plantings within 30 feet of the ROW. However, Mitigation Measure FF-7 will result in the preparation of a restoration plan for implementation in all

disturbed areas outside the area that will receive at least annual vegetation removal. The restoration plan would revegetate disturbed areas with native plants common to the area and in densities and species diversity that are consistent with pre-project conditions in order to minimize establishment of non-native, flashy fuels that would have a higher potential to increase fire ignitions and fire frequency. Therefore, with implementation of Mitigation Measures FF-2 and FF-7, the potential for increased ignition potential due to establishment of non-native plants is reliably mitigated. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Proposed PROJECT

As identified in the preceding discussions, the Proposed PROJECT would include substantial ground disturbance through the removal of existing vegetation for purposes of constructing the proposed facilities. Similar ground disturbance would occur for construction of the proposed Campo, Manzanita, and Jordan wind energy projects as would occur with the Tule Wind Project. Removal of native vegetation often results in the establishment of non-native species that can spread and result in higher likelihood of ignition and fire spread. The project includes two customized plans for each of the three project components that comprise the Proposed PROJECT that include a focus on controlling the establishment and spread of vegetation in the disturbed areas. Mitigation Measure FF-2 will include fuel modification requirements including ongoing maintenance practices that minimize the establishment and spread of plants within the critical areas identified as fuel modification zones. The Disturbed Area Revegetation Plans required by Mitigation Measure FF-7 will specifically address disturbed areas, particularly those located outside designated fuel modification areas. These areas will be revegetated with native plants to prohibit invasive species from establishing and spreading. Therefore, with implementation of Mitigation Measures FF-2 and FF-7, the potential for increased ignition potential due to establishment of non-native plants is reliably mitigated. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

D.15.4 ECO Substation Project Alternatives

Table D.15-5 summarizes the impacts and classification of impacts under CEQA that have been identified for the ECO Substation Project alternatives.

Table D.15-5
Fire and Fuels Management Impacts Identified for
ECO Substation Alternatives

Impact No.	Description	Classification
ECO Substation Alternative Site		
ECO-FF-1	Construction and/or operation and maintenance and decommissioning activities would significantly increase the probability of a wildfire.	Class II
ECO-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
ECO-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ECO-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
ECO Partial Underground 138 kV Transmission Route Alternative		
ECO-FF-1	Construction and/or operation and maintenance and decommissioning activities would significantly increase the probability of a wildfire.	Class II
ECO-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
ECO-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ECO-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
ECO Highway 80 138 kV Transmission Route Alternative		
ECO-FF-1	Construction and/or operation and maintenance and decommissioning activities would significantly increase the probability of a wildfire.	Class II
ECO-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
ECO-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ECO-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
ECO Highway 80 Underground 138 kV Transmission Route Alternative		
ECO-FF-1	Construction and/or operation and maintenance and decommissioning activities would significantly increase the probability of a wildfire.	Class II
ECO-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
ECO-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ECO-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

D.15.4.1 ECO Substation Alternative Site

This alternative would not affect the impact conclusions resulting from the implementation of the proposed Tule Wind and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

Section D.15.1 describes the environmental setting for the proposed ECO Substation Project. As this alternative would only relocate the ECO Substation site 700 feet to the east, the fire setting would be the same as described in Section D.15.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact FF-1: Under this alternative the ECO Substation site would be shifted 700 feet to the east. Impacts associated with construction and maintenance activities would be the same as those identified for the proposed ECO Substation Project in Section D.15.3.3. Implementation of Mitigation Measures FF-1 through FF-4, would mitigate the increased probability of a wildfire during construction or maintenance of the ECO Substation Project. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Impact ECO-FF-2: Relocation of the ECO Substation site under this alternative does not eliminate the presence of the overhead transmission line component of the project; thus, impacts would be adverse and immitigable as identified for the proposed ECO Substation Project in Section D.15.3.3. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-3: Relocation of the ECO Substation site under this alternative does not eliminate the presence of the overhead transmission line component of the project; thus, impacts would be adverse and immitigable as identified for the proposed ECO Substation Project in Section D.15.3.3. Under CEQA, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-4: As with the proposed ECO Substation site, relocation of the ECO Substation under this alternative would still require similar native vegetation removal and ground disturbance, both of which have the likelihood of resulting in the establishment of non-native plants. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be adverse but mitigated with implementation of Mitigation Measures FF-2 and FF-4. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

D.15.4.2 ECO Partial Underground 138 kV Transmission Route Alternative

Under this alternative, the proposed ECO Substation Project would remain the same, but approximately 4 miles of the proposed 138 kV Transmission Line between the SWPL and Boulevard Substation would be installed underground rather than overhead on transmission line

poles. This alternative would not affect the impact conclusions resulting from the implementation of the proposed Tule Wind and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

With the exception of the undergrounding of the proposed 138 kV Transmission Line between milepost (MP) 9 and the rebuilt Boulevard Substation, components of this alternative would be the same as those identified for the ECO Substation Project as presented in Section B of this EIR/EIS. Under this alternative, from MP 9 to the rebuilt Boulevard Substation, the proposed 138 kV Transmission Line would be installed underground (instead of on overhead transmission poles) along the same route as the proposed ECO Substation Project. Since this alternative would follow the same route as the proposed ECO Substation Project, the fire environment and fire authorities with jurisdiction adjacent to project components of this alternative would be the same as those identified in Section D.15.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact FF-1: Construction and maintenance activities associated with this alternative would be similar to the Proposed PROJECT, with the exception of undergrounding a 4-mile portion of the 138 kV Transmission Line between the SWPL and the rebuilt Boulevard Substation. As with the proposed ECO Substation Project described in Section D.15.3.3, with implementation of APMs ECO-HAZ-05, ECO-HAZ-06, and Mitigation Measures FF-1 through FF-4, impacts associated with construction and maintenance activities would be adverse but mitigated. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Impact ECO-FF-2: The undergrounding of a 4-mile section of the 138 kV Transmission Line between the SWPL and the rebuilt Boulevard Substation results in a less-than-significant impact for the undergrounded section, as this would be similar to existing site conditions. However the presence of the overhead transmission line associated with this remaining project components presents an ongoing source of potential wildfire ignitions. While fire-related impacts would be less than significant for the undergrounded 4-mile portion of the transmission line, impacts for the remaining 9-mile section of overhead transmission line would be adverse and immitigable as identified for the proposed ECO Substation Project described in Section D.15.3.3. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-3: The undergrounding of a section of the 138 kV Transmission Line under this alternative results in a less-than-significant impact for the 4-mile undergrounded section as

this would be similar to existing site conditions as related to Impact ECO-FF-3. However, the remaining overhead transmission line that would not be undergrounded would be adverse and immitigable for the ECO Substation Project. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-4: he undergrounding of a 4-mile section of the 138 kV Transmission Line, as included in this alternative, would increase ground disturbance and the likelihood of non-native plant establishment. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be greater than those identified for the proposed ECO Substation Project in Section D.15.3.3. However, with implementation of Mitigation Measures FF-2 and FF-7, impacts would be adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.4.3 ECO Highway 80 138 kV Transmission Route Alternative

This alternative would not affect the impact conclusions resulting from the implementation of the proposed Tule Wind and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

With the exception of the Old Highway 80 138 kV Transmission Line route alternative, the fire environment traversed by the project components of this alternative would be the same as those identified for the proposed ECO Substation Project in Section D.15.1. From the intersection of the SWPL transmission line and Old Highway 80 (approximately 1.5 miles northwest of Jacumba), this alternative would expand and utilize an existing utility ROW and overbuild an existing distribution line for approximately 4.8 miles along Highway 80 to the rebuilt Boulevard Substation. Overbuilding along the distribution line would require the removal and replacement of wooden poles with taller, steel poles. The total length of the proposed 138 kV Transmission Line would be 10.6 miles, compared to the proposed 13.3 mile long 138 kV Transmission Line.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact ECO-FF-1: Construction and maintenance activities associated with this alternative would be similar to the Proposed PROJECT. The overbuilding along the distribution line would reduce the need for vegetation removal, resulting in reduced potential ignition sources only for the 4.8-mile overbuild section; however, impacts associated with construction and maintenance activities would ultimately be the same as those identified for the proposed ECO Substation Project. With implementation of APMs ECO-HAZ-05, ECO-HAZ-06, and Mitigation Measures FF-1 through FF-4, impacts associated with construction and maintenance activities would be

adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact ECO-FF-2: The overbuilding of the 138 kV Transmission Line along Old Highway 80 under this alternative does not eliminate the presence of the overhead transmission line; thus, impacts would be the same as those identified for the proposed ECO Substation Project (Class I) discussed in Section D.15.3.3. The replacement of combustible wood poles with steel poles along the 4.8-mile overbuild section would reduce risks associated with line and pole failure during a fire event. However, although this alternative would replace combustible wood poles with non-combustible steel poles, wildfire probability would be adverse and immitigable as the presence of the overhead transmission line still presents potential ignition sources. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-3: The overbuilding of the 138 kV Transmission Line along Old Highway 80 under this alternative results in a less-than-significant impact for the 4.8-mile overbuild section as this would be similar to existing site conditions. However, the remaining 5.8 miles of overhead transmission line in an area that currently has none results in a significant impact (Class I) for the ECO Substation Project. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-4: Overbuilding of the 138 kV Transmission Line along Old Highway 80 under this alternative would reduce the level of ground disturbance and the likelihood of non-native plant establishment for the 4.8-mile overbuild section. However, other project activities associated with substation construction, staging, fuel reduction, pole replacement, transmission line construction in the 4.8-mile non-overbuild section, and maintenance would result in ground disturbance and the likelihood of non-native plant establishment. Therefore, as identified for the proposed ECO Substation Project in Section D.15.3.3, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be adverse but mitigated with implementation of Mitigation Measures FF-2 and FF-7. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.4.4 ECO Highway 80 Underground 138 kV Transmission Route Alternative

This alternative would not affect the impact conclusions resulting from the implementation of the proposed Tule Wind and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

With the exception of the Old Highway 80 underground route alternative, the fire environment traversed by the project components under this alternative would be the same as those identified for the proposed ECO Substation Project in Section D.15.1. From the intersection of the SWPL transmission line and Old Highway 80, this alternative would place the 138 kV Transmission Line underground adjacent to Old Highway 80 (expanding and utilizing an existing utility ROW) and would follow the roadway north and west to the rebuilt Boulevard Substation. The environmental setting adjacent to the affected segment of Old Highway 80 associated with this alternative would be the same as previously identified for the ECO Highway 80 138 kV Transmission Route Alternative in Section D.15.4.3.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact ECO-FF-1: Construction impacts resulting from this alternative would be similar to those identified for the ECO Highway 80 138 kV Transmission Route Alternative in Section D.15.4.3. The relocation and undergrounding of the transmission line included in this alternative would still introduce construction- and/or maintenance-related impacts associated with an increase in the amount of human activity in the project area and the introduction of a variety of ignition sources. Implementation of Mitigation Measures FF-1 through FF-4, would mitigate the increased probability of a wildfire during construction or maintenance of the ECO Substation Project. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact ECO-FF-2: The presence of the overhead transmission line associated with this alternative presents an ongoing source of potential wildfire ignitions, despite the undergrounding of the 138 kV Transmission Line between the SWPL and the rebuilt Boulevard Substation. While fire-related impacts would not be adverse for the underground portion of the transmission line, impacts for the remaining overhead transmission line section would be the same as those identified for the proposed ECO Substation Project, described in Section D.15.3.3. Implementation of Mitigation Measures FF-1 through FF-4 would help reduce the risk of ignition and the risk of damage from a project-related ignition; however, it cannot be reliably mitigated. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-3: The undergrounding of the 138 kV Transmission Line along Old Highway 80 under this alternative results in reduced impacts for the 4.8-mile underground section when compared to the proposed project, as this would be similar to existing site conditions. However, the remaining 5.8 miles of overhead transmission line would be adverse and unmitigable for the

ECO Substation Project. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ECO-FF-4: The undergrounding of the 138 kV Transmission Line along Old Highway 80 under this alternative would increase ground disturbance and the likelihood of non-native plant establishment. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be greater than those identified for the proposed ECO Substation Project in Section D.15.3.3. However, with implementation of Mitigation Measures FF-2 and FF-7, impacts would be adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.5 Tule Wind Project Alternatives

Table D.15-6 summarizes the impacts and classifications of impacts under CEQA that have been identified for the Tule Wind Project alternatives.

Table D.15-6
Fire and Fuels Management Impacts Identified for
Tule Wind Project Alternatives

Tule Wind Alternative 1, Gen-Tie Route 2 with Collector Substation/O&M Facility on Rough Acres Ranch		
Tule-FF-1	Construction, operation, and maintenance activities would significantly increase the probability of a wildfire.	Class II
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
Tule-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Tule Wind Alternative 2, Gen-Tie Route 2 Underground with Collector Substation/O&M Facility on Rough Acres Ranch		
Tule-FF-1	Construction, operation and maintenance activities would significantly increase the probability of a wildfire.	Class II
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
Tule-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Tule Wind Alternative 3, Gen-Tie Route 3 with Collector Substation/O&M Facility on Rough Acres Ranch		
Tule-FF-1	Construction, operation, maintenance, and decommissioning activities would significantly increase the probability of a wildfire.	Class II
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
Tule-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

Table D.15-4 (Continued)

Tule Wind Alternative 4, Gen-Tie Route 3 Underground with Collector Substation/O&M Facility on Rough Acres Ranch		
Tule-FF-1	Construction, operation, and maintenance activities would significantly increase the probability of a wildfire.	Class II
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
Tule-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Tule Wind Alternative 5, Reduction in Turbines		
Tule-FF-1	Construction, operation, maintenance, and decommissioning activities would significantly increase the probability of a wildfire.	Class II
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	Class I
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
Tule-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

D.15.5.1 Tule Wind Alternative 1, Gen-Tie Route 2 with Collector Substation/O&M Facility on Rough Acres Ranch

This alternative would not affect the impact conclusions resulting from the implementation of the proposed ECO Substation and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

The fire environment traversed by the project components under this alternative would be similar as those identified for the proposed Tule Wind Project in Section D.15.1. This alternative would relocate the O&M facility and collector substation to private County of San Diego jurisdictional land on Rough Acres Ranch, and it would reroute the 138 kV transmission line from the relocated collector substation to the rebuilt Boulevard Substation and extend the overhead cable collector system through the Lark Canyon Off-Highway Vehicle Area to the collector substation.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact TULE-FF-1: Under this alternative the O&M and collector substation facilities would be relocated to the Rough Acres Ranch. Impacts associated with construction and maintenance activities would be similar to those identified for the proposed Tule Wind Project in Section D.15.3.3. Implementation of APMs TULE PDF-1 through TULE PDF-26, and Mitigation Measures FF-1 through FF-4 would mitigate the increased probability of a wildfire during

construction or maintenance of this alternative. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Impact TULE-FF-2: The presence of over 100 wind turbines, electrical transmission lines, and overhead collectors presents an ongoing source of potential wildfire ignitions adjacent to wildland fuels. Wind turbines and related facilities include electrical moving parts, flammable liquids, transmission lines, and transformers, require routine maintenance, and are susceptible to lightning strikes. Overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. While altering the location of the O&M and collector substation facilities from the project would reduce the length of the 138 kV Transmission Line component, this alternative would have similar impacts as the proposed project as related to impact TULE-FF-2. Due to the potential for ignitions related to the presence of wind turbines and overhead transmission lines to occur throughout the calendar year, including during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire.

Implementation of Mitigation Measures FF-1 through FF-5 will provide a proactive plan for ongoing operation and maintenance of this alternative with reduced fire threat; however, this would remain an adverse and immitigable effect. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-3: Construction and long-term operation of a wind facility and electrical transmission lines and overhead collectors in an area that currently does not include this type of facility would have the potential of significantly impacting both aerial and ground-based firefighting efforts. Though this alternative would impact firefighting effectiveness, it may benefit firefighting access to some remote areas under specific conditions by providing a road network. Despite the potential for increased firefighting access, the presence of turbines and overhead transmission lines affects firefighting operations, increases risk to firefighters, and has the potential for delaying initial attack capabilities. While altering the location of the O&M and collector substation facilities from the project would reduce the length of the 138 kV Transmission Line project component, Impact TULE-FF-3 would be similar to the proposed project for this alternative.

Relocation of the O&M and collector substation facilities under this alternative does not eliminate the presence of the overhead transmission line or turbines; thus, impacts would adverse and immitigable as those identified for the proposed Tule Wind Project presented in Section D.15.3.3. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-4: Ground disturbance associated with construction of roads, wind turbine pads, O&M facility, laydown areas, and parking areas would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative will adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. For this alternative, Impact TULE-FF-4 is the same as the proposed project.

Under this alternative, relocation of the O&M and collector substation facilities would have similar impacts associated with ground disturbance and non-native plant establishment as the proposed project. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be the same as those identified for the proposed Tule Wind Project, adverse but mitigated with implementation of Mitigation Measures FF-2 and FF-7. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.5.2 Tule Wind Alternative 2, Gen-Tie Route 2 Underground with Collector Substation/O&M Facility on Rough Acres Ranch

This alternative would not affect the impact conclusions resulting from the implementation of the proposed ECO Substation and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

Section D.15.5.1 describes the existing fire environment associated with the relocation of the collector substation and O&M facility to Rough Acres Ranch and the subsequent shortened 138 kV transmission line route and extended collector cable system. Because this alternative would only underground the alternate 138 kV Transmission Line, the existing fire environment setting would be the same as described in Section D.15.5.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact TULE-FF-1: Construction and maintenance under this alternative would result in an increase in the amount of human activity in the project area and introduction of a variety of ignition sources, including vehicles, heavy equipment for grading, trenching, and vegetation removal, heat generating equipment for welding, cutting, or grinding, sparks from various equipment and sources, and potentially discarded cigarettes, among others. Implementation of APMs TULE PDF-1 through TULE PDF-26, and Mitigation Measures FF-1 through FF-4 would mitigate the increased probability of a wildfire during construction or maintenance of this

alternative. Under CEQA, this impact with implementation of mitigation would be less than significant (Class II).

Impact TULE-FF-2: The presence of over 100 wind turbines, electrical transmission lines, and overhead collectors presents an ongoing source of potential wildfire ignitions adjacent to wildland fuels. Wind turbines and related facilities include electrical moving parts, flammable liquids, transmission lines, and transformers, require routine maintenance, and are susceptible to lightning strikes. Overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. Altering the location of the O&M and collector substation facilities from the project and undergrounding the alternate 138 kV Transmission Line would reduce the probability of increased wildfire for the undergrounded section. However, due to the potential for ignitions related to the presence of wind turbines and overhead collector lines to occur throughout the calendar year, including during extreme fire weather, the presence of this alternative would adversely increase the likelihood of a catastrophic wildfire. Implementation of Mitigation Measures FF-1 through FF-5 will provide a proactive plan for ongoing operation and maintenance of this alternative with reduced fire threat. However, the adverse effect created by the presence of the wind turbine facility and the corresponding increase in the probability of a wildfire would be adverse and immitigable. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-3: Construction and long-term operation of a wind facility and electrical transmission lines and overhead collectors in an area that currently does not include this type of facility would have the potential of significantly impacting both aerial and ground-based firefighting efforts. Though this alternative will impact firefighting effectiveness, it may benefit firefighting access to some remote areas under specific conditions by providing a road network. Despite the potential for increased firefighting access, the presence of turbines and overhead collector lines affects firefighting operations, increases risk to firefighters, and has the potential for delaying initial attack capabilities. While altering the location of the O&M and collector substation facilities from the project and undergrounding the alternate 138 kV Transmission Line would reduce the probability of increased wildfire for the undergrounded section, this alternative would not eliminate the presence of overhead collector lines or turbines; thus, impacts would be similar to those identified for the proposed Tule Wind Project in Section D.15.3.3.

Implementation of Mitigation Measures FF-1, FF-2, FF-3, FF-5, and FF-6 will reduce the risk of ignitions and the risk of damage from a project-related ignition; however, this would be adverse and immitigable. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-4: Ground disturbance associated with construction of roads, wind turbine pads, O&M facility, laydown areas, and parking areas would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. For this alternative, Impact TULE-FF-4 is the same as the Proposed PROJECT.

Under this alternative, relocation of the O&M and collector substation facilities and undergrounding the alternate 138 kV Transmission Line would have similar impacts associated with ground disturbance and non-native plant establishment as the proposed project. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be the same as those identified for the proposed Tule Wind Project. With implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.5.3 Tule Wind Alternative 3, Gen-Tie Route 3 with Collector Substation/O&M Facility on Rough Acres Ranch

This alternative would not affect the impact conclusions resulting from the implementation of the proposed ECO Substation and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

The fire environment traversed by the project components under this alternative would be similar as those identified for the proposed Tule Wind Project in Section D.15.1. With the exception of the proposed 138 kV transmission line, this alternative would be similar to the Tule Wind Alternative Gen-Tie Route 2 with Collector Substation/O&M Facility on Rough Acres Ranch discussed in Section D.15.5.1. Under this alternative, the 138 kV transmission line would run north and then east from the relocated substation, primarily traversing private County of San Diego jurisdictional land, to Ribbonwood Road, where it would then run south to Old Highway 80. The gen-tie would then turn east, travelling adjacent to Old Highway 80, toward the rebuilt Boulevard Substation.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact TULE-FF-1: Under this alternative the O&M and collector substation facilities would be relocated to the Rough Acres Ranch. Impacts associated with construction and maintenance

activities would be the same as those identified for the proposed Tule Wind Project in Section D.15.3.3. Implementation of APMs Tule PDF-1 through Tule PDF-26, and Mitigation Measures FF-1 through FF-4 would mitigate the increased probability of a wildfire during construction or maintenance of the Tule Wind Project. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact TULE-FF-2: The presence of over 100 wind turbines, electrical transmission lines, and overhead collectors presents an ongoing source of potential wildfire ignitions adjacent to wildland fuels. Wind turbines and related facilities include electrical moving parts, flammable liquids, transmission lines, and transformers, require routine maintenance, and are susceptible to lightning strikes. Overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. While altering the location of the O&M and collector substation facilities from the project would shorten the 138 kV Transmission Line component, this alternative would have similar impacts as the proposed project as related to impact TULE-FF-2. Due to the potential for ignitions related to the presence of wind turbines and overhead transmission lines to occur throughout the calendar year, including during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire.

Implementation of Mitigation Measures FF-1 through FF-5 would provide a proactive plan for ongoing operation and maintenance of this alternative with reduced fire threat; however, this would remain an adverse and immitigable effect. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I)

Impact TULE-FF-3: Construction and long-term operation of a wind facility and electrical transmission lines and overhead collectors in an area that currently does not include this type of facility would have the potential of significantly impacting both aerial and ground-based firefighting efforts. Though this alternative would impact firefighting effectiveness, it may benefit firefighting access to some remote areas under specific conditions by providing a road network. Despite the potential for increased firefighting access, the presence of turbines and overhead transmission lines affects firefighting operations, increases risk to firefighters, and has the potential for delaying initial attack capabilities. Although altering the location of the O&M and collector substation facilities from the project would reduce the length of the 138 kV Transmission Line project component, Impact TULE-FF-3 would be similar to the proposed project for this alternative.

Relocation of the O&M and collector substation facilities under this alternative does not eliminate the presence of the overhead transmission line or turbines; thus, impacts would be the same as those identified for the proposed Tule Wind Project in Section D.15.3.3.

Implementation of Mitigation Measures FF-1, FF-2, FF-3, FF-5, and FF-6 will reduce the risk of ignitions and the risk of damage from a project-related ignition; however, this would be adverse and immitigable. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-4: Ground disturbance associated with construction of roads, wind turbine pads, O&M facility, laydown areas and parking areas would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative will adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. For this alternative, Impact TULE-FF-4 is the same as the Proposed PROJECT.

Under this alternative, relocation of the O&M and collector substation facilities will have similar impacts associated with ground disturbance and non-native plant establishment as the proposed project. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be the same as those identified for the proposed Tule Wind Project. With implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.5.4 Tule Wind Alternative 4, Gen-Tie Route 3 Underground with Collector Substation/O&M Facility on Rough Acres Ranch

This alternative would not affect the impact conclusions resulting from the implementation of the proposed ECO Substation and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

Section D.15.5.3 describes the existing fire environment associated with the Tule Wind Alternative Gen-Tie Route 3 with Collector Substation/O&M Facility of Rough Acres Ranch. Because this alternative would only underground the 138 kV transmission line, the existing fire environment setting would be the same as described in Section D.15.5.3.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact TULE-FF-1: Construction and maintenance under this alternative would result an increase in the amount of human activity in the project area and introduction of a variety of ignition sources, including vehicles, heavy equipment for grading, trenching, and vegetation

removal, heat generating equipment for welding, cutting, or grinding, sparks from various equipment and sources, and potentially discarded cigarettes, among others. Impacts associated with construction and maintenance activities would be the same as those identified for the proposed Tule Wind Project in Section D.15.3.3.

Implementation of APMs Tule PDF-1 through Tule PDF-26, and Mitigation Measures FF-1 through FF-4 would mitigate the increased probability of a wildfire during construction or maintenance of the Tule Wind Project. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact TULE-FF-2: The presence of over 100 wind turbines, electrical transmission lines, and overhead collectors presents an ongoing source of potential wildfire ignitions adjacent to wildland fuels. Wind turbines and related facilities include electrical moving parts, flammable liquids, transmission lines, and transformers, require routine maintenance, and are susceptible to lightning strikes. Overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. Altering the location of the O&M and collector substation facilities and undergrounding the alternate 138 kV Transmission Line would reduce the probability of increased wildfire for the undergrounded section. However, due to the potential for ignitions related to the presence of wind turbines and overhead collector lines to occur throughout the calendar year, including during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire.

Implementation of Mitigation Measures FF-1 through FF-5 will provide a proactive plan for ongoing operation and maintenance of this alternative with reduced fire threat. However, the adverse effect created by the presence of the wind turbine facility and the corresponding increase in the probability of a wildfire would remain an adverse and immitigable effect. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-3: Construction and long-term operation of a wind facility and electrical transmission lines and overhead collectors in an area that currently does not include this type of facility would have the potential of significantly impacting both aerial and ground-based firefighting efforts. Though this alternative will impact firefighting effectiveness, it may benefit firefighting access to some remote areas under specific conditions by providing a road network. Despite the potential for increased firefighting access, the presence of turbines and overhead transmission lines affects firefighting operations, increases risk to firefighters, and has the potential for delaying initial attack capabilities. While altering the location of the O&M and collector substation facilities from the project and undergrounding the alternate 138 kV Transmission Line would reduce the probability of increased wildfire for the undergrounded

section, this alternative would not eliminate the presence of the overhead collector lines or turbines; thus, impacts would be similar to those identified for the proposed Tule Wind Project in Section D.15.3.3. Implementation of Mitigation Measures FF-1, FF-2, FF-3, FF-5, and FF-6 would help reduce the adverse risk of ignitions and the risk of damage from a project-related ignition, however, not to a reliable level. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-4: Ground disturbance associated with construction of roads, wind turbine pads, O&M facility, laydown areas, and parking areas would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative will adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. For this alternative, Impact TULE-FF-4 is the same as the proposed project.

Under this alternative, relocation of the O&M and collector substation facilities and undergrounding the alternate 138 kV Transmission Line would have similar impacts associated with ground disturbance and non-native plant establishment as the proposed project. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be the same as those identified for the proposed Tule Wind Project. With implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.5.5 Tule Wind Alternative 5, Reduction in Turbines

This alternative would not affect the impact conclusions resulting from the implementation of the proposed ECO Substation and ESJ Gen-Tie projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

Under this alternative the proposed Tule Wind Project would be the same as that described in Section B of this EIR/EIS with the exception that this alternative would remove specific turbine locations. The proposed action would erect 11 turbines adjacent to the BLM In-Ko-Pah Mountains Area of Critical Concern (ACEC) and 51 turbines adjacent to wilderness areas on the western side of the project site (see Figure C-2). Under this alternative these turbines would be removed. Therefore, with the exception of removed turbines, the environmental setting for this alternative would be similar to that identified for the proposed Tule Wind Project in Section D.15.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact TULE-FF-1: Similar to the proposed Tule Wind Project, construction and maintenance under this alternative would result an increase in the amount of human activity in the project area and introduction of a variety of ignition sources, despite the reduction in the number of turbines. Impacts associated with construction and maintenance activities would be similar to those identified for the proposed Tule Wind Project in Section D.15.3.3. Implementation of APMs Tule PDF-1 through Tule PDF-26, and Mitigation Measures FF-1 through FF-4 would mitigate the increased probability of a wildfire during construction or maintenance of the Tule Wind Project. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact TULE-FF-2: Despite the reduction in the number of wind turbines under this alternative, the presence of over 70 wind turbines, electrical transmission lines, and overhead collectors presents an ongoing source of potential wildfire ignitions adjacent to wildland fuels. Wind turbines and related facilities include electrical moving parts, flammable liquids, transmission lines, and transformers, require routine maintenance, and are susceptible to lightning strikes. Overhead transmission lines present an ongoing source of potential wildfire ignitions for the life of the project. Despite reducing the number of wind turbines, this alternative is similar to the proposed project as related to impact TULE-FF-2. Due to the potential for ignitions related to the presence of wind turbines and overhead transmission lines to occur throughout the calendar year, including during extreme fire weather, the presence of the project would adversely increase the likelihood of a catastrophic wildfire.

Implementation of Mitigation Measures FF-1 through FF-5 will provide a proactive plan for ongoing operation and maintenance of this alternative with reduced fire threat; however, this would remain an adverse and immitigable effect. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-3: Construction and long-term operation of a wind facility and electrical transmission lines and overhead collectors in an area that currently does not include this type of facility would have the potential of significantly impacting both aerial and ground-based firefighting efforts. The presence of turbines and overhead transmission lines affects firefighting operations, increases risk to firefighters, and has the potential for delaying initial attack capabilities, even with the reduced number of turbines included in this alternative. Consequently, Impact TULE-FF-3 is similar to the proposed project for this alternative.

Although the number of turbines is reduced under this alternative, the presence of over 70 turbines results in the same adverse and immitigable effect as identified for the proposed Tule Wind Project in Section D.15.3.3. Implementation of Mitigation Measures FF-1, FF-2, FF-3, FF-5, and FF-6 would help reduce the adverse risk of ignitions and the risk of damage from a project-related ignition; however, not to a reliable level. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact TULE-FF-4: Ground disturbance associated with construction of roads, wind turbine pads, O&M facility, laydown areas, and parking areas would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative will adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. For this alternative, Impact TULE-FF-4 is the same as the proposed project.

Reduction in the number of turbines under this alternative would have similar impacts associated with ground disturbance and non-native plant establishment as the proposed project. Therefore, the fire-related impacts associated with the introduction of non-native plants and their impacts on fire behavior would be the same as those identified for the proposed Tule Wind Project. With implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.6 ESJ Gen-Tie Project Alternatives

Table D.15-7 summarizes the impacts and classifications of impacts under CEQA that have been identified for the ESJ Gen-Tie Project alternatives.

Table D.15-7
Fire and Fuels Management Impacts Identified for
ESJ Gen-Tie Substation Alternatives

ESJ Underground 230 kV Gen-Tie Alternative		
ESJ-FF-1	Construction, operation, and maintenance activities would significantly increase the probability of a wildfire.	Class II
ESJ-FF-2	Presence of the overhead transmission line/facilities would increase the probability of a wildfire.	Class III
ESJ-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class III

Table D.15-7 (Continued)

ESJ-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
ESJ Gen-Tie Overhead Alternative Alignment		
ESJ-FF-1	Construction, operation, and maintenance activities would significantly increase the probability of a wildfire.	Class II
ESJ-FF-2	Presence of the overhead transmission line/facilities would increase the probability of a wildfire.	Class I
ESJ-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class I
ESJ-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
ESJ Gen-Tie Underground Alternative Alignment		
ESJ-FF-1	Construction, operation, and maintenance activities would significantly increase the probability of a wildfire.	Class II
ESJ-FF-2	Presence of the overhead transmission line/facilities would increase the probability of a wildfire.	Class III
ESJ-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	Class III
ESJ-FF-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

D.15.6.1 ESJ Underground 230 kV Gen-Tie Alternative

This alternative would not affect the impact conclusions resulting from the implementation of the proposed ECO Substation and Tule Wind projects as discussed in Section D.15.3.3.

Environmental Setting/Affected Environment

Section D.15.1 describes the existing fire environment associated with the ESJ Gen-Tie Project, which considers both a 500 kV gen-tie and a 230 kV gen-tie option. Because this alternative would select and construct the 230 kV gen-tie underground, the existing fire environment would be the same as described in Section D.15.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact ESJ-FF-1: Construction and maintenance activities associated with this alternative would be the same as those identified for the proposed project. The undergrounding of the 230 kV transmission line included in this alternative would still introduce construction and/or maintenance-related impacts associated with an increase in the amount of human activity in the project area and the introduction of a variety of ignition sources. Implementation of Mitigation Measures FF-1 through FF-3 would mitigate the increased probability of a wildfire during

construction or maintenance of the this alternative. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact ESJ-FF-2: The undergrounding of transmission lines included in this alternative eliminates overhead transmission lines as a source of potential wildfire ignitions. Under CEQA, for this alternative, impact ESJ-FF-2 is considered less than significant (Class III).

Impact ESJ-FF-3: The undergrounding of transmission lines included in this alternative eliminates overhead transmission lines as a source of conflict with both aerial and ground-based firefighting efforts. Under CEQA, for this alternative, impact ESJ-FF-3 is considered less than significant (Class III).

Impact ESJ-FF-4: Ground disturbance associated with construction of roads, substation, switchyard, and associated facilities would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. Undergrounding of the 230 kV transmission line would increase the level of ground disturbance and the likelihood of non-native plant establishment. With implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.6.2 ESJ Gen-Tie Overhead Alternative Alignment

This alternative would not affect impact conclusions resulting from the implementation of the proposed Tule Wind Project as discussed in Section D.15.3.3. This alternative assumes the implementation of the ECO Substation Alternative Site and that the fire and fuel impacts identified in Section D.15.4.1 would occur.

Environmental Setting/Affected Environment

This alternative would be similar to the proposed ESJ Gen-Tie Project (the 500 kV or 230 kV gen-tie options) analyzed in Section D.15.3.3; however, it would be shifted 700 feet to the east to connect with the ECO Substation Alternative Site (described in Section D.15.4.1). As such, the environmental setting would be similar to that described in Section D.15.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact ESJ-FF-1: Under this alternative, the 500 kV or 230 kV gen-tie lines would be shifted 700 feet to the east. Construction and maintenance activities associated with this alternative would be the same as those identified for the Proposed PROJECT, as described in Section D.15.3.3. Implementation of Mitigation Measures FF-1 through FF-3 would mitigate the increased probability of a wildfire during construction or maintenance of this alternative. Under CEQA, this impact with implementation of mitigation would be to less than significant (Class II).

Impact ESJ-FF-2: Shifting of the 500 kV or 230 kV gen-tie lines under this alternative does not eliminate the presence of the overhead transmission line component of the project; thus, impacts would be the same as those identified for the proposed ESJ Gen-Tie Project in Section D.15.3.3. Implementation of Mitigation Measures FF-1 through FF-4 would help reduce the adverse risk of ignitions and the risk of damage from a project-related ignition; however, not to a reliable level. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ESJ-FF-3: Shifting of the 500 kV or 230 kV gen-tie lines under this alternative does not eliminate the presence of the overhead transmission line component of the project; thus, impacts would be the same as those identified for the proposed ESJ Gen-Tie Project (Class I) in Section D.15.3.3.

Although implementation of Mitigation Measures FF-2, FF-3, and FF-6 will reduce the likelihood of ignitions and provide funding for fire management, planning, and training efforts; the presence of the overhead transmission line would reduce aerial and ground firefighter effectiveness; therefore, this would be adverse and immitigable. Under CEQA, for this alternative, impacts would be significant and cannot be mitigated to a level that is considered less than significant (Class I).

Impact ESJ-FF-4: Ground disturbance associated with construction of roads, substation, switchyard, and associated facilities would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread of invasive plants within the project area for this alternative would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. However, with implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but

mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.6.3 ESJ Gen-Tie Underground Alternative Alignment

This alternative would not affect the impact conclusions resulting from the implementation of the proposed Tule Wind Project as discussed in Section D.15.3.3. This alternative assumes the implementation of the ECO Substation Alternative Site and that the fire and fuel impacts identified in Section D.15.4.1 (ECO Substation Alternative Site) would occur.

Environmental Setting/Affected Environment

This alternative would result in the underground placement of the 230 kV Gen-Tie Transmission Line to connect with the ECO Substation Alternative Site (described in Section D.15.4.1). As such, the environmental setting would be similar as that described in Section D.15.1.

Environmental Impacts/Environmental Effects

Direct and Indirect (Note: cumulative effects are addressed in Section F of this EIR/EIS)

Impact ESJ-FF-1: Construction and maintenance activities associated with this alternative would be the same as those identified for the Proposed PROJECT. The undergrounding of the 230 kV transmission line included in this alternative would still introduce construction- and/or maintenance-related impacts associated with an increase in the amount of human activity in the project area and the introduction of a variety of ignition sources. Implementation of Mitigation Measures FF-1 through FF-3 would mitigate the increased probability of a wildfire during construction or maintenance of this alternative. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

Impact ESJ-FF-2: The undergrounding of transmission lines included in this alternative eliminates overhead transmission lines as a source of potential wildfire ignitions. Under CEQA, for this alternative, Impact ESJ-FF-2 is considered less than significant (Class III).

Impact ESJ-FF-3: The undergrounding of transmission lines included in this alternative eliminates overhead transmission lines as a source of conflict with both aerial and ground-based firefighting efforts. Under CEQA, for this alternative, Impact ESJ-FF-3 is considered less than significant (Class III).

Impact ESJ-FF-4: Ground disturbance associated with construction of roads, substation, switchyard, and associated facilities would remove native vegetation within the development areas and within fuel buffers. Whenever native vegetation is removed and soils are disturbed, the potential for non-native plant establishment increases. Establishment and corresponding spread

of invasive plants within the project area for this alternative would adversely influence fire behavior by altering fuel beds; increasing the fine, flashy fuel load; potentially increasing the fire frequency; and contributing to increases in fire spread rates. Undergrounding of the 230 kV transmission line would increase the level of ground disturbance and the likelihood of non-native plant establishment. However, with implementation of Mitigation Measures FF-2 and FF-7, the introduction of non-native plants is adverse but mitigated. Under CEQA, for this alternative, this impact with implementation of mitigation would be less than significant (Class II).

D.15.7 No Project/No Action Alternatives

D.15.7.1 No Project Alternative 1 – No ECO Substation, Tule Wind, ESJ Gen-Tie, Campo, Manzanita, or Jordan Wind Energy Projects

Environmental Impacts/Environmental Effects

Impacts FF-1 through FF-4: Under the No Project Alternative 1, the ECO Substation, Tule Wind, and ESJ Gen-Tie projects, as well as the Campo, Manzanita, and Jordan wind energy projects, would not be built, and the existing conditions would remain at these sites.

Fire and fuel impacts resulting from the Proposed PROJECT would not occur.

D.15.7.2 No Project Alternative 2 – No ECO Substation Project

Environmental Impacts/Environmental Effects

Impacts FF-1 through FF-4: Under the No Project Alternative 2, the proposed ECO Substation Project would not be constructed by SDG&E, and the existing energy grid and local environment would remain. The Tule Wind Project and ESJ Gen-Tie projects would be constructed and would be required to interconnect with either an existing substation or a new substation at another location. It is assumed that SDG&E would seek to construct a new substation to interconnect planned renewable energy generation in the area.

Impacts from expanded substations or a new substation would vary including locations and gen-tie lines. The location of the ECO Substation Project was selected in part to facilitate the interconnection hub concept; it is located near already-planned wind generation projects (CAISO Generation Interconnection Queue) and close to a region with favorable wind potential as determined by the Department of Energy Wind Program and the National Renewable Energy Laboratory. Impacts associated with the Tule Wind and ESJ Gen-Tie projects would be expected to be similar to those described in Section D.15.3.3 but could vary depending on the point of interconnection and the resulting gen-tie route and length of the Tule Wind and ESJ Gen-Tie projects and the potential for fire ignition and spread at these locations.

While the removal of the ECO Substation Project would result in removal of a potential ignition source (substation and 138 kV Transmission Line) from the high fire hazard area of southeast San Diego County, and this would result in a potential reduction in the likelihood of ignitions and fire spread, the Tule Wind and ESJ Gen-Tie projects would be required to interconnect to a substation somewhere in southeastern San Diego County in order to deliver renewable energy to an existing or adopted transmission line. Operational impacts associated with the No Project Alternative 2 – No ECO Substation Project would ultimately depend on the length and route of the Tule Wind and ESJ Gen-Ties and also the locations and components of the existing substation or new substation point of interconnection.

D.15.7.3 No Project Alternative 3 – No Tule Wind Project

Environmental Impacts/Environmental Effects

Impacts FF-1 through FF-4: Under the No Project Alternative 3, the Tule Wind Project would not be built, and the existing conditions on the project site would remain. Under the No Project Alternative 3, the ECO Substation and ESJ Gen-Tie projects would proceed and the Tule Wind Project would not occur. The environmental setting for the ECO Substation and ESJ Gen-Tie projects were previously identified in Section D.15.1 and D.15.1.

Under the No Project Alternative 3 – No Tule Wind Project, a significant source of ignitions would be removed from the Proposed PROJECT. The Tule Wind Project represents a significant source of ignitions and obstruction to firefighting effectiveness and operations; therefore, its removal from the project would significantly reduce the likelihood of wildfires. Additionally, removal of the wind turbines from the landscape would result in substantially reduced obstructions for firefighting response and would avoid a large area of disturbance that could lead to establishment of non-native, fire-prone plant species.

D.15.7.4 No Project Alternative 4 – No ESJ Gen-Tie Project

Environmental Impacts/Environmental Effects

Impacts FF-1 through FF-4: Under the No Project Alternative 4, the ESJ Gen-Tie Project would not be built, and the existing conditions on the project site would remain. If the ESJ Gen-Tie were not built, renewable energy generated in Mexico would not be delivered to the proposed ECO Substation and the U.S. market.

Under the No Project Alternative 4, Sempra could be forced to add new gen-tie facilities elsewhere in order to deliver renewable energy to the U.S. market. The ESJ Wind Phase I Project in Mexico would still be built under No Project Alternative 4 conditions, and the impacts

associated with an alternative gen-tie would be expected to be similar to those described in Section D.15.3.3 but could vary depending on length of gen-tie line and the location pursued.

D.15.8 Mitigation Monitoring, Compliance, and Reporting

Table D.15-8 presents the mitigation monitoring, compliance, and reporting program for fire and fuels management, for the ECO Substation, Tule Wind, and ESJ Gen-Tie projects. Section D.15.9 provides residual effects.

The proposed Campo, Manzanita, and Jordan wind energy projects would require preparation of a mitigation monitoring, compliance, and reporting program following project-specific environmental review and evaluation under all applicable environmental regulations once sufficient project-level information has been developed.

Table D.15-8
Mitigation Monitoring, Compliance, and Reporting–ECO Substation, Tule Wind, and ESJ
Gen-Tie Projects–Fire and Fuels Management

ECO Substation Project	
Mitigation Measure	<p>FF-1: Develop and implement a Construction Fire Prevention/Protection Plan. San Diego Gas and Electric Company (SDG&E) shall develop a multiagency Construction Fire Prevention/Protection Plan for the East County (ECO) Substation Project and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include the California Public Utilities Commission (CPUC), California Department of Forestry and Fire Protection (CAL FIRE), Rural Fire Protection District, and San Diego County Fire Authority (SDCFA). SDG&E shall provide a draft copy of this plan to each listed agency at least 90 days before the start of any construction activities. Comments on the plan shall be provided by SDG&E to all other participants, and SDG&E shall resolve each comment in consultation with CAL FIRE, Rural Fire Protection District, and SDCFA. The final plan will be approved by commenting agencies and provided to SDG&E for implementation during all construction activities.</p> <p>At minimum, the plan will include the following:</p> <ul style="list-style-type: none"> • Procedures for minimizing potential ignition <ul style="list-style-type: none"> ○ vegetation clearing ○ fuel modification establishment ○ parking requirements ○ smoking restrictions ○ hot work restrictions • Red Flag Warning restrictions • Fire coordinator role and responsibility • Fire suppression equipment on site at all times work is occurring • Requirements of Title 14 of the California Code of Regulations (CCR), Article 8 #918 “Fire Protection” for private land portions • Applicable components of the SDG&E Wildland Fire Prevention and Fire Safety Electric Standard Practice (2009) • Emergency response and reporting procedures

Table D.15-8 (Continued)

	<ul style="list-style-type: none"> • Emergency contact information • Worker education materials; kick-off and tailgate meeting schedules • Other information as provided by CAL FIRE, Rural Fire Protection District, SDCFA, and Bureau of Land Management (BLM). <p>Additional restrictions will include the following:</p> <ul style="list-style-type: none"> • During the construction phase of the project, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. • Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&E shall update in writing the 24-hour contact information and on-site fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CAL FIRE Rural Fire Protection District, and SDCFA. • During Red Flag Warning events, as issued daily by the National Weather Service in state responsibility areas (SRAs) and local responsibility areas (LRA), and when the U.S. Forest Service (USFS) Project Activity Level (PAL) is Very High on Cleveland National Forest (CNF) (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. • Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF. • All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition. • Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as-needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. • Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Prevention/Protection Plan. <p>SDG&E shall fully implement the plan during all construction and maintenance activities. All construction work on the ECO Substation shall follow the Construction Fire Prevention/Protection Plan guidelines and commitments, and plan contents are to be incorporated into the standard construction contracting agreements for the construction of the ECO Substation. Primary plan enforcement implementation responsibility shall remain with SDG&E and monitored by CAL FIRE, Rural Fire Protection District, and SDCFA.</p>
Location	At ECO Substation, access roads/work areas.
Monitoring/Reporting Action	CAL FIRE, Rural Fire Protection District, SDCFA, BLM, and USFS (as appropriate) will review SDG&E's Construction Fire Prevention/Protection Plan and ensure its implementation.
Effectiveness Criteria	Approval and implementation of the plan.

Table D.15-8 (Continued)

	<p>Quarterly updates to agencies. Work stoppage during Red Flag Warnings and Very High PAL. Coordination with fire authority.</p>
Responsible Agency	CAL FIRE, Rural Fire Protection District, SDCFA, BLM, and USFS.
Timing	<p>Minimum 90 days prior to scheduled start of construction for draft of Construction Fire Prevention/Protection Plan. Minimum 30 days prior to scheduled start of construction for final plan. Plan in effect throughout construction.</p>
Mitigation Measure	<p>FF-2: Revise the Wildland Fire Prevention and Fire Safety Electric Standard Practice Plan (2009)² to Create the Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan. Revised plan will address the ECO Substation Project and will be implemented during all operation and maintenance work associated with the project for the life of the project. Important fire safety concepts that will be included in this document are as follows:</p> <ul style="list-style-type: none"> • Guidance on where maintenance activities may occur (non-vegetated areas, cleared access roads, and work pads that are approved as part of the project design plans) • Fuel modification buffers required by the Fire Protection Plan (FPP) • When vegetation work will occur (prior to any other work activity) • Timing of vegetation clearance work to reduce likelihood of ignition and or fire spread • Coordination procedures with fire authority • Integration of the project's Construction Fire Prevention/Protection Plan content • Personnel training and fire suppression equipment • Red Flag Warning restrictions for operation and maintenance work • Fire safety coordinator role as manager of fire prevention and protection procedures, coordinator with fire authority and educator • Communication protocols • Incorporation of CAL FIRE, San Diego Rural Fire Protection District, and SDCFA reviewed and approved Response Plan mapping and assessment. • Other information as provided by CAL FIRE, San Diego Rural Fire Protection District, SDCFA, BLM, and USFS. <p>SDG&E will provide a draft copy of the Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan to the agencies listed previously for comment a minimum of 90 days prior to the start of any construction activities. The comments will be provided back to SDG&E and plan revisions will address each comment to the satisfaction of the commenting agency. The final plan will be approved by the commenting agencies and provided to SDG&E for implementation during all operation and maintenance activities.</p>
Location	At ECO Substation, access roads/work areas.
Monitoring/Reporting Action	CAL FIRE, Rural Fire Protection District, SDCFA, BLM, and USFS will review and provide comments. CAL FIRE, Rural Fire Protection District, SDCFA will approve SDG&E's - 3revised Fire Plan for Electric Standard Practice. CPUC and BLM will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the plan.

²http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/Attach%204_07-B%20Wildland%20Fire%20Prevention%20and%20Safety%20Practice.pdf

Table D.15-8 (Continued)

	<p>Quarterly updates to agencies. Work stoppage during Red Flag Warnings and Very High PAL. Ongoing coordination with Fire Authority.</p>
Responsible Agency	CAL FIRE, Rural Fire Protection District, and SDCFA.
Timing	Review and approval of plan minimum 90 days prior to energizing the ECO Substation Project. Revision every 5 years thereafter.
Mitigation Measure	<p>FF-3: Development Agreement with Rural Fire Protection District and San Diego County Fire Authority. Provide funding for the training and acquisition of necessary firefighting equipment and services to Rural Fire Protection District and SDCFA to improve the response and firefighting effectiveness near electrical substations, transmission lines, and aerial infrastructure. Although not implementable on BLM or other federal land, the local fire authority will respond through mutual aid to wildfires within its jurisdiction, regardless of land ownership designation. Funding would be provided through a Development Agreement with Rural Fire Protection District and SDCFA. The Development Agreement would include, but not be limited to, the following items as agreed upon by Rural Fire Protection District, SDCFA, and SDG&E:</p> <ul style="list-style-type: none"> • Funding toward purchase of a Type I (or other) fire engine equipped for potential project-related fires (i.e., foam capability) • Funding as required by standard fire district fee schedule • Foam concentrate supply of 450 gallons, foam education equipment, and nozzles on mobile trailer.
Location	At ECO Substation, access roadway/work areas.
Monitoring/Reporting Action	Rural Fire Protection District/SDCFA verifies SDG&E contributes to fund.
Effectiveness Criteria	<p>Agreement is finalized. Annual contributions are made according to agreement between SDG&E, Rural Fire Protection District, and SDFCA. Equipment is acquired and put "online."</p>
Responsible Agency	Rural Fire Protection District/SDCFA.
Timing	Annually or as otherwise agreed.
Mitigation Measure	<p>FF-4: Customized Fire Protection Plan for Project A Fire Protection Plan completed and submitted with Draft EIR/EIS and to include, at minimum, the following:</p> <ul style="list-style-type: none"> • San Diego County FPP Content Requirements (http://www.co.san-diego.ca.us/dplu/docs/Fire-Report-Format.pdf) • Rural Fire Protection District Content Requirements <ul style="list-style-type: none"> ○ Provisions for fire safety and prevention ○ Water supply ○ Fire suppression/detection systems – built-in detection system with notification ○ Secondary containment ○ Site security and access ○ Emergency shut-down provisions ○ Fuel modification plan ○ Access road widths and surfacing ○ Emergency drill participation • Emergency evacuation plan. • Integration into Plans prepared to satisfy FF-1 and FF-2 <p>The FPP will incorporate additional APMS described in Section B.3.4 of this EIR/EIS</p>

East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects
D.15 FIRE AND FUELS MANAGEMENT

Table D.15-8 (Continued)

Location	Applicable to ECO Substation site, access roads, and work areas.
Monitoring/Reporting Action	CPUC and BLM verify FPP is prepared and approved by CAL FIRE, Rural Fire Protection District, and SDCFA.
Effectiveness Criteria	FPP is created. FPP requirements are implemented project wide.
Responsible Agency	Rural Fire Protection District/SDCFA
Timing	FPP incorporated into EIR/EIS submittal. Findings incorporated into Plans created to satisfy FF-1 and FF-2. Comments provided to SDG&E minimum of 60 days prior to scheduled start of construction. Final FPP completed a minimum of 30 days prior to the scheduled start of construction. Plan applicable for life of project.
Mitigation Measure	FF-6: Funding for FireSafe Council. Provide funding for locally based FireSafe Council (e.g., Campo/Lake Moreno FireSafe Council) to prepare or implement a Community Wildfire Protection Plan. The funding will be determined in conjunction with the local fire authority's input, the specified fuel reduction project priorities identified by the FireSafe Council, and in consideration of the funding amount provided under Mitigation Measure FF-3.
Location	Funds to be allocated for hazard reduction projects within the nearest jurisdiction/FireSafe Council boundary with assets to be protected.
Monitoring/Reporting Action	San Diego County FireSafe Council verifies project contributions.
Effectiveness Criteria	Funds are deposited. Community Wildfire Protection Plan is prepared and/or hazard reduction projects are initiated and completed.
Responsible Agency	San Diego County FireSafe Council monitors SDG&E fund contributions.
Timing	Annually to correspond with funding of Rural Fire Protection District Development Agreement.
Mitigation Measure	FF-7: Preparation of Disturbed Area Revegetation Plan. All areas disturbed during construction activities that will not be continuously included in the long-term maintenance access right-of-way (ROW) will be provided native plant restoration in order to prevent non-native, weedy plants from establishing. Disturbed areas that will be included in the long-term maintenance program will not be revegetated as any plants that establish in these areas will be removed on an ongoing (at least annual) basis. Mitigation Measure FF-7 directs that the temporary disturbance areas will be revegetated with native plants common to the area through direction detailed in a Habitat Restoration Plan. The Habitat Restoration Plan will be prepared to restore native habitat and to reduce the potential for non-native plant establishment. The restoration plan will incorporate a Noxious Weeds and Invasive Species Control Plan to assist in restoring the construction area to the prior vegetated state and lessen the possibility of establishment of non-native, flammable plant species. A copy of the Revegetation Plan will be provided to the CPUC and BLM.
Location	All disturbed areas of ECO Substation, access roadway and work areas.
Monitoring/Reporting Action	CPUC and BLM to verify that restoration plan has been submitted and is implemented.
Effectiveness Criteria	Restoration plan will designate monitoring frequency and duration and success criteria.
Responsible Agency	CPUC/BLM.
Timing	Plan submitted to CPUC and BLM for review 90 days prior to energizing the substation and related facilities. Restoration will be initiated at earliest opportunity upon completion of soil-disturbing activities.

Table D.15-8 (Continued)

Tule Wind Project	
Mitigation Measure	<p>FF-1: Develop and implement a Construction Fire Prevention/Protection Plan. Pacific Wind Development shall develop a multiagency Construction Fire Prevention/Protection Plan for the Tule Wind Project and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include the following: CAL FIRE, Rural Fire Protection District, and SDCFA. Pacific Wind Development shall provide a draft copy of this plan to each listed agency at least 90 days before the start of any construction activities. Comments on the plan shall be provided by Pacific Wind Development to all other participants, and Pacific Wind Development shall resolve each comment in consultation with CAL FIRE, Rural Fire Protection District, and SDCFA. The final plan will be approved by the commenting agencies and provided to Pacific Wind Development for implementation during all construction activities.</p> <p>At minimum, the plan will include the following:</p> <ul style="list-style-type: none"> • Procedures for minimizing potential ignition <ul style="list-style-type: none"> ○ vegetation clearing ○ fuel modification establishment ○ parking requirements ○ smoking restrictions ○ hot work restrictions • Red Flag Warning restrictions • Fire coordinator role and responsibility • Fire suppression equipment on site at all times work is occurring • Requirements of Title 14 of the CCR, Article 8 #918 "Fire Protection" for private land portions • Access Road widening (28-foot County roads, 18-foot-wide spur roads) • Applicable components of the SDG&E Wildland Fire Prevention and Fire Safety Electric Standard Practice (2009) • Emergency response and reporting procedures • Emergency contact information • Worker education materials; kick-off and tailgate meeting schedules • Other information as provided by CAL FIRE, Rural Fire Protection District, SDCFA, BLM, California State Land Commission (CSLC), and Tribal Governments <p>Additional restrictions will include the following:</p> <ul style="list-style-type: none"> • During the construction phase of the project, Pacific Wind Development shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. • Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), Pacific Wind Development shall update in writing the 24-hour contact information and on-site fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the Rural Fire Protection District, SDCFA, and CAL FIRE • During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and LRAs, and when the USFS PAL is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. • Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF.

Table D.15-8 (Continued)

	<ul style="list-style-type: none"> • All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition. • Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. • Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Prevention/Protection Plan. <p>Pacific Wind Development shall fully implement the plan during all construction and maintenance activities. All construction work on the Tule Wind Project shall follow the Construction Fire Prevention/Protection Plan guidelines and commitments, and plan contents are to be incorporated into the standard construction contracting agreements for the construction of the Tule Wind Project. Primary plan enforcement implementation responsibility shall remain with Pacific Wind Development and monitored by CAL FIRE, Rural Fire Protection District, and SDCFA.</p>
Location	At project wind generation site, access roads, work areas, and along entire Tule Wind Project site.
Monitoring/Reporting Action	CAL FIRE, Rural Fire Protection District, SDCFA, BLM, CSLC, BIA, and/or Ewiiapaayp Band of Kumeyaay Indians (depending on the jurisdiction where the construction activities are being completed), and USFS (as appropriate) will review Pacific Wind Development's Construction Fire Prevention/Protection Plan and ensure its implementation.
Effectiveness Criteria	Approval and implementation of the plan. Quarterly updates to agencies. Work stoppage during Red Flag Warnings and Very High PAL. Coordination with fire authority.
Responsible Agency	CAL FIRE, Rural Fire Protection District, SDCFA, BLM, CSLC, BIA, Ewiiapaayp Band of Kumeyaay Indians, and USFS.
Timing	Minimum 90 days prior to construction for draft of Construction Fire Prevention/Protection Plan. Minimum 30 days prior to construction for final plan. Plan in effect throughout construction.
Mitigation Measure	<p>FF-2: Revise Existing Wildland Fire Prevention and Fire Safety Electric Standard Practice Plan (2009) to Create the Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan. Revised plan will address the Tule Wind Project and will be implemented during all operation and maintenance work associated with the project for the life of the project. Important fire safety concepts that will be included in this document are as follows:</p> <ul style="list-style-type: none"> • Focused Fire Protection Plan content applicable to the Tule Wind Project's ongoing operation • Guidance on where maintenance activities may occur (non-vegetated areas, cleared access roads, and work pads that are approved as part of the project design plans)

Table D.15-8 (Continued)

	<ul style="list-style-type: none"> • Fuel modification buffers required by the FPP • When vegetation work will occur (prior to any other work activity) • Timing of vegetation clearance work to reduce likelihood of ignition and or fire spread • Coordination procedures with fire authority • Integration of the project's Construction Fire Prevention/Protection Plan content • Personnel training and fire suppression equipment • Red Flag Warning restrictions for operation and maintenance work • Fire safety coordinator role as manager of fire prevention and protection procedures, coordinator with fire authority and educator • Communication protocols • Incorporation of CAL FIRE, San Diego Rural Fire Protection District, and SDCFA reviewed and approved Response Plan mapping and assessment. • Other information as provided by CAL FIRE, San Diego Rural Fire Protection District, SDCFA, BLM, CSLC, Tribal Governments, and USFS. <p>Pacific Wind Development will provide a draft copy of the Wildland Fire Prevention and Fire Safety Electric Standard Practice to the agencies listed previously for comment a minimum of 90 days prior to the start of any construction activities. The comments will be provided back to Pacific Wind Development and plan revisions will address each comment to the satisfaction of the commenting agency. The final plan will be approved by the commenting agencies and provided to Pacific Wind Development for implementation during all operation and maintenance activities.</p>
Location	At Tule Wind Project site, access roads/work areas.
Monitoring/Reporting Action	CAL FIRE, Rural Fire Protection District, SDCFA, BLM, and USFS will review and provide comment, and CAL FIRE, Rural Fire Protection District, and SDCFA will approve Pacific Wind Development's revised Fire Plan for Electric Standard Practice. BLM and San Diego County will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the plan. Quarterly updates to agencies. Work stoppage during Red Flag Warnings and Very High PAL. Ongoing coordination with Fire Authority.
Responsible Agency	CAL FIRE, Rural Fire Protection District, SDFCA, BLM, Tribal Governments, and CSLC.
Timing	Review and approval of plan minimum 90 days prior to energizing the Tule Wind Project. Revision every 5 years thereafter.
Mitigation Measure	<p>FF-3: Development Agreement with Rural Fire Protection District and San Diego County Fire Authority (SDCFA). Provide funding for the training and acquisition of necessary firefighting equipment and services to Rural Fire Protection District/SDCFA to improve the response and firefighting effectiveness near wind turbines, electrical transmission lines, and aerial infrastructure. Although not implementable on BLM or other federal land, the local fire authority will respond through mutual aid to wildfires within its jurisdiction, regardless of land ownership designation. Funding would be provided through a Development Agreement with Rural Fire Protection District and SDCFA. The Development Agreement would include, but not be limited to, the following items as agreed upon by Rural Fire Protection District, SDCFA, and the applicant:</p> <ul style="list-style-type: none"> • Funding toward purchase of a Type I (or other) fire engine equipped for potential project-related fires (i.e., foam capability). • Funding as required by standard Fire District fee schedule • Foam concentrate supply of 450 gallons, foam education equipment, and nozzles on mobile trailer.

East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects
D.15 FIRE AND FUELS MANAGEMENT

Table D.15-8 (Continued)

Location	At Tule Wind Project, access roadway/work.
Monitoring/Reporting Action	Rural Fire Protection District/SDCFA verifies Pacific Wind Development contributes to fund.
Effectiveness Criteria	Agreement is finalized. Annual contributions are made according to agreement between Pacific Wind Development and Rural Fire Protection District/SDCFA. Equipment is acquired and put "online".
Responsible Agency	Rural Fire Protection District/SDCFA.
Timing	Annually or as otherwise agreed.
Mitigation Measure	FF-4: Customized Fire Protection Plan for Project. A Fire Protection Plan to include, at minimum, the following: <ul style="list-style-type: none"> • San Diego County FPP Content Requirements (http://www.co.san-diego.ca.us/dplu/docs/Fire-Report-Format.pdf) • Rural Fire Protection District Content Requirements <ul style="list-style-type: none"> ○ Provisions for fire safety and prevention ○ Water supply ○ Fire suppression/detection systems – built-in detection system with notification ○ Secondary containment ○ Site security and access ○ Emergency shut-down provisions ○ Fuel modification plan ○ Access road widths and surfacing ○ Emergency drill participation • Emergency evacuation plan. • Integration into Plans created to satisfy FF-1 and FF-2. <p>The FPP will incorporate additional APMs described in Section B.4.4 of this EIR/EIS.</p>
Location	Applicable to Tule Wind Project site, access roads, and work areas.
Monitoring/Reporting Action	BLM and County verify FPP is prepared and approved by Rural Fire Protection District and SDCFA.
Effectiveness Criteria	FPP is created. FPP requirements are implemented project wide.
Responsible Agency	Rural Fire Protection District/SDCFA
Timing	Draft FPP incorporated into EIR/EIS submittal. Findings incorporated into Plans created to satisfy FF-1 and FF-2. Comments provided to Pacific Wind Development minimum of 60 days prior to scheduled start of construction. Final FPP completed a minimum of 30 days prior to the scheduled start of construction. Plan applicable for life of project.
Mitigation Measure	FF-5: Wind Turbine Generator Fire Protection Systems. Fire detection, warning, and suppression systems for each wind turbine generator will include the latest technology and will address, at minimum, the following: <ul style="list-style-type: none"> • Use of non-combustible or difficult to ignite materials • Early fire detection and warning systems • Frequent maintenance • Auto switch-off and complete disconnection from the power supply system • Ongoing hazard/fire safety training for staff • Automatic fire extinguishing systems in the nacelle of each wind turbine (stationary, inert gas, or similar). Pacific Wind Development will implement this technology through the

Table D.15-8 (Continued)

	wind turbine manufacturer or an aftermarket supplier. <ul style="list-style-type: none"> • Non-combustible or high flash point lubricant oils.
Location	At Tule Wind Project wind turbine locations.
Monitoring/Reporting Action	Rural Fire Protection District and SDCFA approve Pacific Wind Development's Fire Protection System.
Effectiveness Criteria	Fire suppression system approval by Rural Fire Protection District and SDCFA.
Responsible Agency	Rural Fire Protection District and SDCFA.
Timing	Prior to operation.
Mitigation Measure	FF-6: Funding for FireSafe Council. Provide funding for locally based FireSafe Council (e.g., Campo/Lake Moreno FireSafe Council) to prepare or implement a Community Wildfire Protection Plan. The funding will be determined in conjunction with the local fire authority's input, the specified fuel reduction project priorities identified by the FireSafe Council and in consideration of the funding amount provided under Mitigation Measure FF-3.
Location	Funds to be allocated for hazard reduction projects within the nearest jurisdiction/FireSafe Council boundary with assets to be protected.
Monitoring/Reporting Action	San Diego County FireSafe Council verifies project contributions.
Effectiveness Criteria	Funds are deposited. Community Wildfire Protection Plan is prepared and/or hazard reduction projects are initiated and completed.
Responsible Agency	San Diego County FireSafe Council monitors Pacific Wind Development's fund contributions
Timing	Annually.
Mitigation Measure	FF-7: Preparation of Disturbed Area Revegetation Plan. All areas disturbed during construction activities that will not be continuously included in the long-term maintenance access ROW will be provided native plant restoration in order to prevent non-native, weedy plants from establishing. Disturbed areas that will be included in the long-term maintenance program will not be revegetated as any plants that establish in these areas will be removed on an ongoing (at least annual) basis. Mitigation Measure FF-7 directs that the temporary disturbance areas will be revegetated with native plants common to the area through direction detailed in a Habitat Restoration Plan. The Habitat Restoration Plan will be prepared to restore native habitat and to reduce the potential for non-native plant establishment. The restoration plan will incorporate a Noxious Weeds and Invasive Species Control Plan to assist in restoring the construction area to the prior vegetated state and lessen the possibility of establishment of non-native, flammable plant species. A copy of the Revegetation Plan will be provided to the BLM and San Diego County. In addition, prior to the termination of the ROW authorization, a decommissioning plan will be developed and approved by the BLM and other agencies having jurisdiction. The decommissioning plan will include a site reclamation plan and monitoring program. As the wind facility is removed from the site, topsoil from all decommissioning activities will be salvaged and reapplied during final reclamation. All areas of disturbed soil will be reclaimed to native habitat conditions found naturally in the area.
Location	At disturbed areas of Tule Wind Project site, access roadway, work areas (as appropriate).
Monitoring/Reporting Action	BLM/San Diego County/CSLC/BIA/Ewiiapaayp Band of Kumeyaay Indians (depending on the jurisdiction where the restoration activities are being completed) to verify that restoration plan has been submitted and is implemented.
Effectiveness Criteria	Restoration plan will designate monitoring frequency and duration and success criteria.
Responsible Agency	BLM/San Diego County/CSLC/BIA/Ewiiapaayp Band of Kumeyaay Indians

Table D.15-8 (Continued)

Timing	Plan submitted BLM/San Diego County/CSLC/BIA/Ewiiapaayp Band of Kumeyaay Indians for review 90 days prior to energizing the collector substation and related facilities. Restoration will be initiated at earliest opportunity upon completion of soil-disturbing activities.
ESJ Gen-Tie Project	
Mitigation Measure	<p>FF-1: Develop and implement a Construction Fire Prevention/Protection Plan. Energia Sierra Juarez (ESJ) U.S. Transmission, LLC shall develop a multiagency Construction Fire Prevention/Protection Plan for the ESJ Gen-Tie Project and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include CAL FIRE, Rural Fire Protection District, and San Diego County Fire Authority, (SDCFA), and ESJ U.S. Transmission, LLC shall provide a draft copy of this plan to each listed agency at least 90 days before the start of any construction activities. Comments on the plan shall be provided by ESJ U.S. Transmission, LLC to all other participants, and ESJ U.S. Transmission, LLC shall resolve each comment in consultation with CAL FIRE, Rural Fire Protection District, and SDCFA. The final plan will be approved by the commenting agencies and provided to ESJ U.S. Transmission, LLC for implementation during all construction activities. At minimum, the plan will include the following:</p> <ul style="list-style-type: none"> • Procedures for minimizing potential ignition <ul style="list-style-type: none"> ○ vegetation clearing ○ fuel modification establishment ○ parking requirements ○ smoking restrictions ○ hot work restrictions • Red Flag Warning restrictions • Fire coordinator role and responsibility • Fire suppression equipment on site at all times work is occurring • Requirements of Title 14 of the CCR, Article 8 #918 "Fire Protection" • Applicable components of the SDG&E Wildland Fire Prevention and Fire Safety Electric Standard Practice (2009) • Emergency response and reporting procedures • Emergency contact information • Worker education materials; kick-off and tailgate meeting schedules • Other information as provided by CAL FIRE, Rural Fire Protection District, SDCFA <p>Additional restrictions will include the following:</p> <ul style="list-style-type: none"> • During the construction phase of the project, ESJ U.S. Transmission, LLC shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. • Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), ESJ U.S. Transmission, LLC shall update in writing the 24-hour contact information and on-site fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the Rural Fire Protection District, and CAL FIRE. • During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and LRAs, and when the USFS PAL is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. • Utility and contractor personnel shall be informed of changes to the Red Flag event

Table D.15-8 (Continued)

	<p>status and PAL as stipulated by CAL FIRE and CNF.</p> <ul style="list-style-type: none"> • All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition. • Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. • Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Prevention/Protection Plan. <p>ESJ U.S. Transmission, LLC shall fully implement the plan during all construction and maintenance activities. All construction work on the ESJ Gen-Tie Project shall follow the Construction Fire Prevention/Protection Plan guidelines and commitments, and plan contents are to be incorporated into the standard construction contracting agreements for the construction of the ESJ Gen-Tie Project. Primary plan enforcement implementation responsibility shall remain with ESJ U.S. Transmission, LLC and monitored by CAL FIRE, Rural Fire Protection District, and SDCFA.</p>
Location	Along the entire alignment of the ESJ Gen-Tie Project site, access roads/work areas.
Monitoring/Reporting Action	CAL FIRE, Rural Fire Protection District, SDCFA, USFS, (as appropriate) will review ESJ U.S. Transmission, LLC's Construction Fire Prevention/Protection Plan and ensure its implementation.
Effectiveness Criteria	<p>Approval and implementation of the plan.</p> <p>Quarterly updates to agencies.</p> <p>Work stoppage during Red Flag Warnings and Very High PAL.</p> <p>Coordination with fire authority.</p>
Responsible Agency	CAL FIRE, Rural Fire Protection District, SDCFA, and USFS.
Timing	<p>Minimum 90 days prior to construction for draft of Construction Fire Prevention/Protection Plan.</p> <p>Minimum 30 days prior to construction for final plan.</p> <p>Plan in effect throughout construction.</p>
Mitigation Measure	<p>FF-2: Revise the Wildland Fire Prevention and Fire Safety Electric Standard Practice Plan (2009) to Create the Project Specific Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan. Revised plan will address the ESJ Gen-Tie Project and will be implemented during all operation and maintenance work associated with the project for the life of the project. Important fire safety concepts that will be included in this document are as follows:</p> <ul style="list-style-type: none"> • Focused Project Fire Protection Plan content (Hunt Research Corporation 2009) that is applicable to ongoing operation of the ESJ Gen-Tie transmission line • Guidance on where maintenance activities may occur (non-vegetated areas, cleared access roads, and work pads that are approved as part of the project design plans) • Fuel modification buffers required by the FPP

Table D.15-8 (Continued)

	<ul style="list-style-type: none"> • When vegetation work will occur (prior to any other work activity) • Timing of vegetation clearance work to reduce likelihood of ignition and or fire spread • Coordination procedures with fire authority • Integration of the project's Construction Fire Prevention/Protection Plan content • Personnel training and fire suppression equipment • Red Flag Warning restrictions for operation and maintenance work • Fire safety coordinator role as manager of fire prevention and protection procedures, coordinator with fire authority and educator • Communication protocols • Incorporation of CAL FIRE, Rural Fire Protection, and SDCFA reviewed and approved Response Plan mapping and assessment • Other information as provided by CAL FIRE, Rural Fire Protection District, SDCFA, and USFS. <p>ESJ U.S. Transmission, LLC will provide a draft copy of the Wildland Fire Prevention and Fire Safety Electric Standard Practice to the agencies listed previously for comment a minimum of 90 days prior to the start of any construction activities. The comments will be provided back to ESJ U.S. Transmission, LLC and plan revisions will address each comment to the satisfaction of the commenting agency. The final plan will be approved by the commenting agencies and provided to ESJ U.S. Transmission, LLC for implementation during all operation and maintenance activities.</p>
Location	Along the entire alignment of the ESJ Gen-Tie Project site, access roads/work areas.
Monitoring/Reporting Action	CAL FIRE, Rural Fire Protection District, SDCFA, and USFS will review and provide comment, and Rural Fire Protection District, SDCFA and CAL FIRE will approve the revised ESJ U.S. Transmission, LLC's Fire Plan for Electric Standard Practice. San Diego County will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the plan. Quarterly updates to agencies. Work stoppage during Red Flag Warnings and Very High PAL. Ongoing coordination with Fire Authority.
Responsible Agency	Rural Fire Protection District, SDCFA, and CAL FIRE.
Timing	Review and approval of plan minimum 90 days prior to energizing the ESJ Gen-Tie Project. Revision every 5 years thereafter.
Mitigation Measure	<p>FF-3: Development Agreement with Rural Fire Protection District/San Diego County Fire Authority (SDCFA). Provide funding for the training and acquisition of necessary firefighting equipment and services to Rural Fire Protection District/SDCFA to improve the response and firefighting effectiveness near electrical transmission lines and aerial infrastructure. Funding would be provided through a Development Agreement with Rural Fire Protection District and SDCFA. The Development Agreement would include, but not be limited to, the following items as agreed upon by Rural Fire Protection District, SDCFA, and ESJ U.S. Transmission, LLC:</p> <ul style="list-style-type: none"> • Funding toward purchase of a Type I (or other) fire engine equipped for potential project-related fires (i.e., foam capability). • Funding as required by standard Fire District fee schedule • Foam concentrate supply of 450 gallons, foam education equipment, and nozzles on mobile trailer.
Location	Along the entire alignment of the ESJ Gen-Tie Project site, access roads/work areas.
Monitoring/Reporting Action	Rural Fire Protection District and SDCFA verifies ESJ U.S. Transmission, LLC contributes to fund.

**East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects
D.15 FIRE AND FUELS MANAGEMENT**

Table D.15-8 (Continued)

Effectiveness Criteria	Agreement is finalized. Annual contributions are made according to agreement between ESJ U.S. Transmission, LLC and Rural Fire Protection District/SDCFA. Equipment is acquired and put "online".
Responsible Agency	Rural Fire Protection District/SDCFA.
Timing	Annually or as otherwise agreed.
Mitigation Measure	FF-4: Customized Fire Protection Plan for Project. A Fire Protection Plan to include, at minimum, the following: <ul style="list-style-type: none"> • San Diego County FPP Content Requirements (http://www.co.san-diego.ca.us/dplu/docs/Fire-Report-Format.pdf) • Rural Fire Protection District Content Requirements <ul style="list-style-type: none"> ○ Provisions for fire safety and prevention ○ Water supply ○ Fire suppression/detection systems – built-in detection system with notification ○ Secondary containment ○ Site security and access ○ Emergency shut-down provisions ○ Fuel modification plan ○ Access road widths and surfacing ○ Emergency drill participation • Emergency evacuation plan • Integration into Plans created to satisfy FF-1 and FF-2. <p>The FPP will incorporate additional APMs described in Section B.5.4 of this EIR/EIS.</p>
Location	Applicable to ESJ Gen-Tie site, access roads, and work areas.
Monitoring/Reporting Action	San Diego County verifies FPP is prepared and is approved by Rural Fire Protection District and SDCFA.
Effectiveness Criteria	FPP is created. FPP requirements are implemented project wide.
Responsible Agency	Rural Fire Protection District/SDCFA.
Timing	Draft FPP incorporated into EIR/EIS submittal. Findings incorporated into Plans created to satisfy FF-1 and FF-2. Comments provided to ESJ U.S. Transmission, LLC minimum of 60 days prior to scheduled start of construction. Final FPP completed a minimum of 30 days prior to the scheduled start of construction. Plan applicable for life of project.
Mitigation Measure	FF-6: Funding for FireSafe Council. Provide funding for locally based FireSafe Council (e.g., Campo/Lake Moreno FireSafe Council) to prepare or implement a Community Wildfire Protection Plan. The funding will be determined in conjunction with the local fire authority's input, the specified fuel reduction project priorities identified by the FireSafe Council, and in consideration of the funding amount provided under Mitigation Measure FF-3.
Location	Funds to be allocated for hazard reduction projects within the nearest jurisdiction/FireSafe Council boundary with assets to be protected.
Monitoring/Reporting Action	San Diego County FireSafe Council verifies project contributions.
Effectiveness Criteria	Funds are deposited. Community Wildfire Protection Plan is prepared and/or hazard reduction projects are initiated and completed.
Responsible Agency	San Diego County FireSafe Council monitors ESJ U.S. Transmission, LLC's fund contributions.

Table D.15-8 (Continued)

Timing	Annually to correspond with funding of Rural Fire Protection District/SDCFA Development Agreement.
Mitigation Measure	<p>FF-7: Preparation of Disturbed Area Revegetation Plan. All areas disturbed during construction activities that will not be continuously included in the long-term maintenance access ROW will be provided native plant restoration in order to prevent non-native, weedy plants from establishing. Disturbed areas that will be included in the long-term maintenance program will not be revegetated as any plants that establish in these areas will be removed on an ongoing (at least annual) basis.</p> <p>Mitigation Measure FF-7 directs that the temporary disturbance areas will be revegetated with native plants common to the area through direction detailed in a Habitat Restoration Plan. The Habitat Restoration Plan will be prepared to restore native habitat and to reduce the potential for non-native plant establishment. The restoration plan will incorporate a Noxious Weeds and Invasive Species Control Plan to assist in restoring the construction area to the prior vegetated state and lessen the possibility of establishment of non-native, flammable plant species. A copy of the Revegetation Plan will be provided to the San Diego County.</p>
Location	At disturbed areas of ESJ Gen-Tie project site, access roadway and work areas.
Monitoring/Reporting Action	San Diego County to verify that restoration plan has been submitted and is implemented.
Effectiveness Criteria	Restoration plan will designate monitoring frequency and duration and success criteria.
Responsible Agency	San Diego County.
Timing	Plan submitted to San Diego County for review 90 days prior to energizing transmission line. Restoration will be initiated at earliest opportunity upon completion of soil-disturbing activities.

D.15.9 Residual Effects

Implementation of the mitigation measures presented in Section D.15.8 would not mitigate the impacts in Table D.15-9 because full mitigation of wildfire related impacts from the presence of the Proposed PROJECT or alternatives (including turbines, transmission line, and related facilities) increases the probability of a wildfire and reduces the effectiveness of firefighting and, therefore, cannot be fully mitigated. The transmission line and wind turbine presence results in a potential ignition source, with historical fire start examples, located over a long time horizon within a susceptible fire environment. The electrical transmission lines and related components and the wind turbine facility present a potential obstacle for normal firefighting operations and strategies and even with training, firefighting effectiveness will be reduced by the presence of these facilities over a long time frame. Under CEQA, the following impacts would be significant and cannot be mitigated to a level that is considered less than significant; therefore, impacts would yield residual effects.

Table D.15-9
Significant and Unmitigable Impacts

<i>Impact No.</i>	<i>Description</i>	<i>Status after Mitigation</i>
ECO Substation – Class I Impacts		
ECO-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	The presence of the 138 kV transmission line would increase the probability of a wildfire and would remain a significant and unmitigable impact.
ECO-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	The 138 kV transmission line and associated components present an obstacle for normal firefighting operations and would remain a significant and unmitigable impact.
Tule Wind – Class I Impacts		
Tule-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	The presence of the 138 kV transmission line and wind turbines would increase the probability of a wildfire and would remain a significant and unmitigable impact.
Tule-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	The 138 kV transmission line and wind turbines present an obstacle for normal firefighting operations and would remain a significant and unmitigable impact.
ESJ Gen-Tie –Class I Impacts		
ESJ-FF-2	Presence of project facilities including overhead transmission line would increase the probability of a wildfire.	The presence of the gen-tie line would increase the probability of a wildfire and would remain a significant and unmitigable impact.
ESJ-FF-3	Presence of the overhead transmission line/facilities would reduce the effectiveness of firefighting.	The gen-tie line and associated components present an obstacle for normal firefighting operations and would remain a significant and unmitigable impact.

D.15.10 References

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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