E.5 New In-Area Renewable Generation – Contents

E.5.1 Description of Alternative Components E.5-2
E.5.2 Biological Resources E.5-33
E.5.3 Visual Resources E.5-97
E.5.4 Land Use E.5-111
E.5.5 Wilderness and Recreation E.5-129
E.5.6 Agriculture E.5-137
E.5.7 Cultural and Paleontological Resources E.5-153
E.5.8 Noise E.5-171
E.5.9 Transportation and Traffic E.5-181
E.5.10 Public Health and Safety E.5-195
E.5.11 Air Quality E.5-209
E.5.12 Water Resources E.5-219
E.5.13 Geology, Mineral Resources, and Soils E.5-235
E.5.14 Socioeconomics, Public Services, and Utilities E.5-251
E.5.15 Fire and Fuels Management E.5-267
E.5.16 References E.5-279

E.5 New In-Area Renewable Generation

The New In-Area Renewable Generation Alternative would involve development of various In-Area renewable projects that together could provide sufficient generation capacity to defer the need for the Proposed Project. This alternative would develop nearly 1,000 MW by 2016. No single In-Area Renewable Generation Project by itself would be likely to provide the necessary capacity to serve as a viable alternative to the Sunrise Powerlink Project. By considering the availability of in-area renewable resources as a whole, this alternative offers a viable scenario of In-Area Renewable Generation development. The resources involved would be solar, wind, and biomass/biogas. Potential project locations are described in Section E.5.1 to the extent possible, but as not all these potential projects have been proposed at these locations by a specific applicant, the analysis of their environmental effects is based on reasonable assumptions about what could be developed.

The New In-Area Renewable Generation Alternative would provide capacity from a mix of resources as shown in Table E.5.1-1. The capacity distribution is based on an energy planning assessment proportional to renewable availability in San Diego County.

Transmission Lines Required for "Non-Wires" Alternatives. The renewable technologies addressed in this section are considered as "Non-Wires alternatives" because they offer alternatives to the SDG&E Proposed Project that do not include, as their primary component, construction of a transmission line. However, all generation alternatives require connection to the electric grid, and cannot be considered completely wire-free. Some technologies, like solar photovoltaics and biomass/biogas generate relatively small amounts of power at distributed locations already served by electric distribution lines. However, the larger renewable technologies, including wind and solar thermal, can require major transmission system upgrades in order to transmit generation to load centers. The impacts of new transmission lines are addressed along with the impacts of the generation facilities themselves.

Table E.5.1-1. Capacity Added by the New In-Area Renewable Generation Alternative (MW)

In-Area Renewable Resource	Nameplate Capacity[1] Added	Incremental Firm On-Peak Capacity[2]
Solar Thermal	290	232
Solar PV	210	105
Wind	400	96
Biomass/Biogas	100	100
TOTAL	1000 MW	533 MW

1 Nameplate Capacity = The full-load continuous rating of a generator or device under specific conditions as designated by the manufacturer. Installed generator nameplate rating is usually indicated on a nameplate physically attached to the generator.
2 Firm On-Peak Capacity = Level of generation expected during the time of the day when the power system experiences its heaviest load, usually during late afternoon.

Applicable Regulations, Plans, and Standards and Significance Criteria. The New In-Area Renewable Generation Alternative would be located within San Diego County and as such would be subject to the federal, State, and regional environmental regulations, plans and standards applicable to this region as detailed in Section D.16 and Appendix 2. The New In-Area Renewable Generation Alternative would use the same Significance Criteria as the Proposed Project based primarily on the CEQA Guidelines Appendix G as detailed in Sections D.2 through D.15.

E.5.1 Description of Alternative Components

E.5.1.1 Solar Thermal

The solar thermal component of the Non-Wires In-Area Renewable Alternative would include large-scale solar thermal energy development in the Borrego Springs area. The gross technical potential for solar thermal power that potentially would likely be generated in the unincorporated Borrego Springs area is approximately 6,000 MW. Between 2010 and 2016, up to 290 MW of overall nameplate potential (232 MW for reliability accounting purposes) from new solar thermal generating resources potentially would be added near Borrego Springs. Although no developers have identified sites in Borrego Springs for such a large solar thermal project, this alternative assumes that development would occur near existing transmission infrastructure, namely the existing 69 kV Borrego Substation. The 70-square-mile community of Borrego Springs is situated in northeastern San Diego County and is completely surrounded by Anza-Borrego Desert State Park. The community has a population of 2,592 people (San Diego, 2007). Due to its proximity to Anza-Borrego Desert State Park, the community has become a prime location for resort developments.

Solar thermal electric power plants utilize one of three primary technologies, including: parabolic troughs, central receivers (or power towers), and parabolic dish with Stirling engine. California leads the world in solar-thermal electric power generation with over 360 MW of operating power plants, of which 354 MW is generated using nine parabolic trough plants located in the Mojave Desert (SDRESG, 2005). Even though the nine plants in the Mojave Desert were the first such plants built, they all remain operational (in 2004). Parabolic trough power plants consist of large fields of parabolic trough collectors, a heat-transfer fluid/steam generation system, a steam turbine/generator cycle, and thermal storage or fossil-fired backup systems (or both). For purposes of the solar thermal component of the New In-Are Renewables Alternative, a parabolic trough plant design is assumed with thermal storage.

Generation of solar thermal electricity is land intensive. Solar parabolic trough systems typically require approximately five acres to generate one MW, assuming a flat or gentle slope of 0.5 to 1 percent (SDRESG, 2005). To build 290 MW of solar thermal nameplate capacity, this alternative would involve development of approximately 1,450 acres (or 2.3 square miles) near the Borrego Substation, northeast of Borrego Springs (see Figure E.5.1-1a). The site is privately owned and is designated as Spaced Rural Residential by the County General Plan. There are several rural, single family residences in the surrounding area, and agricultural lands are located to the north and west. The Borrego Springs Airport is located to the south of the subject site.

Solar Parabolic Trough Power Plant Design

A solar parabolic trough power plant converts solar radiation to electricity by using sunlight to heat a fluid, such as oil, which is then used to generate steam. The plant consists of a large field of parabolic trough solar collectors arranged in many parallel rows, normally aligned on a north-south horizontal axis (see Figure E.5.1-1b for an example at Kramer Junction, California). Each parabolic trough collector has a linear parabolic-shaped reflector that focuses the sun's direct beam radiation on a linear receiver, also referred to as a heat collection element (HCE) located at the focus of the parabola (see Figure E.5.1-1c). The collectors track the sun from east to west to ensure that the sun is continuously focused on the linear receiver. Heat transfer fluid (HTF) within the collector is heated to approximately 740°F as it circulates through the receiver and returns to a series of heat exchangers where the fluid is used to generate high-pressure steam. The superheated steam is then fed to a conventional reheat steam turbine/generator to produce electricity.

Figure E.5.1-1a. New In-Area Renewable Generation Alternative, Solar Thermal Vicinity Map
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Solar Plant Components

The 290 MW solar field would encompass approximately 1,450 acres and would utilize parabolic solar trough technology similar to the nine existing solar fields in the California Mojave Desert, but utilizing currently available improvements in technology as described below. The solar parabolic trough power plant would include the following major elements. It is noted that several, directly adjacent, 40 to 50 MW solar plants potentially would be constructed in order to accommodate the 290 MW capacity of this component.

- **Parabolic Trough Collectors**. The parabolic trough collectors rotate around the horizontal north/south axis to track the sun as it moves through the sky during the day. Reflectors, or mirrors, focus the sun's radiation on a linear receiver/HCE which is located along the length of the collector (see Figure E.5.1-1c). The current low iron glass mirrors are one of the most reliable components in parabolic collectors. There has been no long-term degradation in the reflective quality of the low iron glass mirrors; ten year-old mirrors can be cleaned and brought back to like new reflectivity. Long term endurance of the mirror, as measured by the experience at existing solar thermal collection fields, indicates that mirror life of 35 years or more can be expected for the Borrego Springs solar thermal component. In addition, the linear receiver/HEC is one of the primary reasons for the high efficiency of the parabolic trough collector design. The receiver/HCE consists of a steel tube with a cermet (ceramic and metal substance) selective surface, surrounded by an evacuated glass tube. To track the sun, a drive system uses hydraulic rams to position the collector. A closed loop tracking system relies on a sun sensor for the precise alignment required to focus the sun on the receiver/HCE during operation. The tracking is controlled by a local controller.
- **Heat Transfer Fluid (HTF)**. A synthetic oil such as diphenyl/biphenyl oxide is typically used as the HTF. Dowtherm A and Solutia Therminol VP-1 are commercial products that have been used in the Mojave Desert plants. Synthetic oil typically used as HTF is a special high-temperature oil that is classified as a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and an "Environmental Hazardous Substance, Liquid, N.O.S." as defined by the U.S. Department of Transportation. The local controller also monitors the HTF temperature and reports operational status. HTF runs along a tube through the trough collectors and is then used to heat water and power a steam generator. The lifespan of HTF is time and temperature dependent but HTFs often last for several years. Significant overheating and fluid contamination will affect the performance of the HTF. As the HTF would most likely be changed every few years, it is unlikely that it would be stored on site other than in the tube itself, and would be brought in as needed for replacement.
- **Solar Boiler.** Solar boilers are designed differently than conventional gas-fired boilers in that they are "fired" with hot oil instead of hot gases. This design is similar to any shell and tube heat exchanger in that the hot HTF is circulated through tubes and the steam is produced on the shell side.
- **HTF Oil Heater**. Due to the high freezing temperature of the solar field's HTF (54°F), to eliminate the problem of oil freezing, an oil heater would be installed and used to protect the system during the night hours and colder months.
- **Thermal Storage**. Thermal storage can be used to increase the operational flexibility of a solar thermal facility. By storing hot thermal energy delivered from the solar field, steam can be produced at will to meet later peaks, such as evening. Also, thermal storage can assist during intermittent disruptions in the solar resource, such as clouds, or can be used to provide a more uniform output over time. There is limited experience in California with thermal storage and

thermal storage is currently not in use at any of the nine Mojave solar power plants. Current thermal storage facilities utilize a two-tank salt storage system comprised of separate hot and cold salt tanks.

The solar collection field would connect to the existing 69 kV Borrego Substation, located approximately 0.2 miles west of the collection field site, via an underground or aboveground transmission line that would require three to five transmission poles, similar to the existing SDG&E 138 kV poles in the area.

Transmission System Upgrades

The existing 69 kV transmission infrastructure serving Borrego Springs would need to be substantially upgraded to deliver the output of this solar development to load centers. The 290 MW solar thermal facility included in the Renewable Alternative would require an upgrade from the existing 69 kV transmission infrastructure in the area to at least 138 kV. From the Borrego Substation, the existing 69 kV transmission line to Narrows Substation (in Anza-Borrego Desert State Park) would be upgraded to 138 kV, requiring replacement of the existing wood poles with tubular or lattice steel poles ranging in 90 to 110 feet in height (see Figure E.5.1-1d). In addition, the 138 kV transmission line would need to be extended to Warners Substation. Two options are addressed for this connection:

Option 1: Under Option 1, a new 138 kV transmission line would be placed underground from the solar thermal site to Borrego Substation to Warners Substation, a distance of approximately 35.8 miles (see Figure E.5.1-1d). The Option 1 underground 138 kV line would be underground in Borrego Valley Road to Yaqui Pass Road/S3. From its intersection with SR78, it would be the same as the Partial Underground 230 kV ABDSP SR78 to S2 Alternative with the All Underground ABDSP Option (see Section D.3.15.1) within ABDSP. From the intersection with S22 the route would continue underground in S2 for approximately 6 miles to the Warners Substation. Option 1 would install the underground 138 kV line via direct burial into the trench in the roadway.

Option 2: Option 2 would follow the existing Borrego-Narrows 60 kV corridor to Narrows Substation. Within ABDSP the Option 2 overhead transmission line route would be similar to the Overhead 500 kV in Existing ROW Alternative (see Section D.3.15.2), except it would require replacement of the existing 69 kV wood poles with tubular or lattice steel poles ranging in 90 to 110 feet in height. From the western Park boundary the route would follow the Proposed Project to MP 87.8 and then would continue west-northwest in the existing Narrows-Warners 69 kV corridor across undeveloped VID preserve land to Warners Substation. Under Option 2, the existing 69 kV transmission line from Narrows Substation to Warners Substation (through Grapevine Canyon, in the existing 100-foot ROW along Grapevine Canyon Road to Montezuma Valley/San Felipe Road), would need to be upgraded to 138 kV (see Figure E.5.1-1d). Option 2 would require about 36.5 miles of new steel poles. Other transmission system upgrades include the following:

- The substations at Borrego, Narrows, and Warners would have to be upgraded to accommodate the 138 kV circuits (all are currently 69 kV to distribution substations).
- The need for additional upgrades between Warners and the Escondido or Sycamore Canyon areas would need to be determined with future transmission interconnection studies.

Figure E.5.1-1b. Parabolic Trough Solar Plant at Kramer Junction, California
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Figure E.5.1-1c. Parabolic Trough Collector
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Figure E.5.1-1d. Solar Thermal Transmission Line Upgrade Options
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Construction

Based on information on the existing solar fields in the California Mojave Desert, construction of the solar thermal collection field would begin with site preparation which would involve grading the 1,450-acre site to a suitable slope, followed by excavation and construction of foundations and pads for the switchyard, boiler, and collection panels. Construction would continue with assembly and installation of the solar collector panels, solar boiler, HTF oil heater, and solar thermal tanks. Upgrade of the existing transmission infrastructure, including connection to the 69 kV Borrego Substation, would also be required including pole replacement and/or undergrounding for the new 138 kV transmission line and expansion of the Borrego Springs, Narrows, and Warners Substations. Upgrade of the approximately 36-mile transmission line under either Option 1 or 2 would occur concurrently with construction of the other project components.

Construction would last approximately 18 to 24 months and would require approximately 75 construction workers. Construction equipment would include earth moving machinery, generators, a water truck for dust control and a crane for transport and erection of heavy equipment. Construction workers would likely come from greater San Diego County and would be temporarily housed in hotels and resorts within the Borrego Springs area.

Operation & Maintenance

The operation and maintenance of a solar power plant is very similar to other steam power plants that cycle on a daily basis. The plants are staffed with operators 24 hours per day, using a minimal crew at night; and require typical staffing to maintain the power plant and associated solar field. Although solar power plant maintenance requirements are unique in some respects, they utilize many of the same labor crafts as are typically present in conventional steam power plants (e.g., electricians, mechanics, and welders). In addition, because the plants are off-line for a portion of each day, operations personnel can help support scheduled and preventive maintenance activities. A unique but straightforward aspect of maintaining solar power plants is the need for periodic cleaning of the solar field reflectors/mirrors, at a frequency dictated by a tradeoff between performance gain and maintenance cost (SDRESG, 2005).

Operation of the solar collection field would require one to two full time staff to operate the tracking system, monitor the HTF temperature, and report operational status. Periodic maintenance and cleaning would require an additional one to two staff to facilitate dust and contaminant removal. Deionized water is used to spray clean the solar mirrors on a periodic basis, determined by a reflectivity monitoring program. This operation is generally done at night and involves a water truck spraying deionized water on the mirrors in a drive-by fashion. Rinse water from the washing operation is expected to evaporate on the mirror surface with no appreciable runoff. Approximately 80 gallons of water (to produce steam and wash mirrors) is required per one MWh of electricity produced (SDRESG, 2005). Water could be brought in from the Imperial Irrigation District (IID) or the Vista Irrigation District (VID) and would be deionized through an ion-exchange filtration system.

E.5.1.2 Solar Photovoltaic

The Solar Photovoltaic (PV) component of the New In-Area Renewable Generation Alternative would involve installing solar PV systems on residential, commercial, or industrial building rooftops in sufficient number to provide 105 MW of reliable (firm On-Peak) capacity by 2010.[1] In its PEA, SDG&E discounts the nameplate rated capacity of solar PV systems by 50 percent because only a fraction of a PV system's rated capacity is available during the utility's hour of peak demand. [2] This would require installation of systems with a total nameplate capacity of 210 MW. The solar photovoltaic component of this alternative would be in addition to PV systems that would be installed even without the project.

PV cells are the smallest units of PV-based energy collector systems. These cells convert sunlight directly into electricity, with each cell generating about 1-2 watts. To capture greater amounts of energy, PV cells are assembled into modules. In turn, modules are assembled into panels (also known as assemblies) for installation. The PV panels and associated wiring and other components collectively make up a PV system. Individual rooftop systems are relatively small-scale and would be installed on existing buildings. The orientation of a building and the nature of its roof are important factors, as the energy output from a solar PV panel relates directly to the angle of sunlight striking the panel.

An average residential PV system provides 3.3 kW of electricity, and an average commercial system provides 65.4 kW. Developing 105 MW of reliable solar PV electricity by 2010 would require installation of approximately 20,000 residential systems and 85 commercial systems per year during the three year period, 2008-2010. This would result in a total of 60,000 residential and 255 commercial PV system installations.

Solar PV systems can be independent of the distribution grid, or can be hooked into the grid. PV-captured electric power would be used in or near the buildings on which systems are mounted and, if connected to the grid, excess power could be fed into the electric distribution system. Thus, PV systems can reduce the demand for electricity from the grid, contribute power to the grid, or both.

System installation would be dispersed throughout the SDG&E service territory (SB1, 2007). Distributed generation occurs at sites already connected to the distribution grid, so there would be no need for additional transmission facilities. Specific installation locations have not been identified, since the final locations would depend on the consumer. The San Diego Regional Energy Office (SDREO) is the local administrator of the statewide Self-Generation Incentive Program (SGIP). The program ran through December 31, 2007, although some extension or analogous program is likely to continue in 2008 and beyond. Since January 1, 2007, solar PV incentives have been administered through the California Solar Initiative.

Table E.5.1-2 shows the solar PV additions assumed to occur under this alternative component.

[1] Firm On-Peak Capacity, here described as reliable capacity, is the level of generation expected during the time of the day when the power system experiences its heaviest load, usually during late afternoon.

[2] Nameplate Capacity is the full-load continuous rating of a generator or device under specific conditions as designated by the manufacturer. Installed generator nameplate rating is usually indicated on a nameplate physically attached to the generator.

Components

The most common PV modules are 5 to 25 square feet in size and weigh about 3 to 4 lbs per square foot (CEC, 2001). A PV panel usually consists of four or more modules. A panel may cover 20 to 35 square-foot, a size that facilitates handling during installation (CEC, 2001). The modular nature of the systems allows some assembly and wiring to be done on the ground, as required. It also allows for customizing the size of the installation and for future expansion. In addition to the panels, PV system components include mounting systems and wiring that integrate the solar PV panels into the building's structural and electrical systems. For most applications, PV systems also require a DC-to-AC inverter to convert DC power derived from the PV array into AC power. Finally, meters would be installed to monitor system performance and energy flow. Electricity generated can be used as it is produced and/or stored in a battery system for use later, when the sun is not shining.

Table E.5.1-2. Nameplate Capacity Added by the Solar PV Alternative by 2010

System Type	Individual Unit Capacity (kW)	Number of Installations by 2010	Total Capacity Added (kW)	Total Capacity Added (MW)
Residential	3.3	60,000	198,000	198
Commercial	65.4	255	16,677	16.7
Total	68.7	60,255	214,677	214.7

Construction

Under this alternative, PV systems would be installed on existing structures. Because of their dispersed nature and relatively small size, individual PV systems would not require an extensive work area, an extended time on site, or a large construction crew. An experienced crew can install a 2 kW non-battery PV system in two to four person-days, and most residential PV systems, including 3.3 kW, take less than one working week to install. Large scale commercial installation takes approximately three to five weeks, but may take a little as one week depending on siting requirements. Labor required to install 210 MW nameplate capacity of PV would involve 500-600 persons per year over a 3-year period.[3] Systems with battery storage are more labor-intensive than non-battery systems. A battery system can increase installation time by 50 to 100 percent (CEC, 2001).

Operation

PV systems are generally low maintenance; however, inspections, performance evaluations, and some system maintenance are typically required during the course of the system's lifetime. A well-designed and maintained PV system will operate for more than 20 years. The PV module, with no moving parts, has an expected lifetime exceeding 30 years (Sandia National Laboratories, 2007).

E.5.1.3 Biomass/Biogas

A component of the New In-Area Renewable Generation Alternative would be development of new or expanded biomass/biogas projects. The alternative calls for biomass/biogas to be used to fuel 50 MW of capacity by 2010 and 100 MW of capacity by 2016. The biomass/biogas component of the alternative includes three new facilities: Fallbrook Renewable Energy Facility, Miramar Renewable Energy Facility and Miramar Landfill cogeneration expansion. The locations of these facilities are shown in Figure E.5.1-2.

[3] This assumes that approximately 4 person-days would be required to install a 2 kW system.

Fallbrook Renewable Energy Facility

The Fallbrook Renewable Energy Facility would be a biomass facility located on approximately 80 acres of the Pankey Ranch property on Pala Road, east of the intersection of Pala Road (Highway 76) and Interstate 15 and south of the San Luis Rey River in the Pala Mesa Valley. Figure E.5.1-3a provides a perspective illustration of the Fallbrook facility, and Figure E.5.1-3b illustrates the site location. Envirepel, Inc. would be the facility owner and as of this printing had yet to submit an Application for Certification to the California Energy Commission for project approval.

The facility's three 30 MW steam turbine generators would provide 90 MW of capacity. From these, the facility would be capable of exporting 67 MW of electricity on a continuous basis (Arand, 2007; Envirepel, 2007). Thermal energy not available for electric generation would be captured by a water heating system for use by commercial agricultural facilities that would be located adjacent to the energy facility. Annually, 600,000 tons of biomass fuel would be delivered to the energy facility from a radius of 50 miles. This would require approximately 15,000 truck trips per year, or approximately 6-7 trucks per hour during a 6-day week. Following processing into a useable size, biomass material would be delivered to bunkers capable of providing four days of storage. The fuel would be fed to 24 combustion units. The facility would deliver power to an existing 69 kV circuit approximately one mile from the site, on one of two possible routes. Route Option 1 runs northwest for approximately 0.1 miles, turns north, northwest crossing Pala Road for approximately 0.8 miles, and then heads north for approximately 0.1 miles to meet up with the existing circuit line. The existing circuit runs between the Via Monserate and Pala Substations. Route Option 2 runs approximately 0.2 miles northeast to the end of the Pankey orchards, then turns north, northeast for approximately 0.8 miles crossing Pala Road until it meets up with the existing circuit line. Figure E.5.1-3c illustrates the Route Options.

Construction. The Fallbrook Renewable Energy Facility would be a new grassroots facility developed in an existing orchard. It would cover 28 acres and would require construction of an integrated facility housing the biomass delivery and processing area, storage, electricity generation, and office operations. Nearby, greenhouse structures would be erected to take advantage of excess heat from the facility for growing organic produce.

Operation of the Fallbrook Renewable Energy Facilities would require large volumes of combustible material be collected, delivered, and processed. However, the biomass material would be collected and hauled to landfills regardless, so hauling does not represent an increase in overall labor for this component of the operation.

Miramar Renewable Energy Facility

The Miramar Renewable Energy Facility would be a new biomass facility developed at the existing Miramar Landfill (Figure E.5.1-4). The biomass-fueled facility would be separate from the landfill's existing biogas-fueled electric generation facility, and would be either at the landfill or nearby. Biomass materials bound for the landfill would be diverted to the new facility, where they would be processed and combusted. The facility would use a 30 MW steam turbine generator. From the 30 MW capacity installed in the facility, 26 MW would be supplied to the electric grid.

Figure E.5.1-2. New In-Area Renewable Generation Alternative, biomass component
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Figure E.5.1-3a. Biomass: Rendering of Proposed Fallbrook Renewable Energy Facility
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Figure E.5.1-3b. Biomass: Fallbrook Site
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Figure E.5.1-3c. Potential Transmission Connections for Fallbrook REF
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Construction. The Miramar Renewable Energy Facility would be new construction on or near the existing Miramar Landfill. As with the Fallbrook facility, it would be a grassroots facility integrating biomass delivery and processing, a storage area for the prepared fuel, generation facilities, and office functions.

Operation of the Miramar Renewable Energy Facility would require large volumes of combustible material be collected, delivered, and processed. However, the biomass material would be collected and hauled to the landfill regardless, so hauling does not represent an increase in overall labor for this component of the operation.

Miramar Landfill Biogas Facility

Miramar Landfill is a joint public and private facility operated by the City of San Diego on MCAS Miramar. The landfill is located north of Highway 52, at the north end of Convoy Street. It is permitted to dispose of 1.4 million tons of waste annually. Within the landfill property, two fill sites are closed: North Landfill and West Landfill Phase 1. Operations continue at the West Landfill Phase 2 site. Established in 1959, the landfill has had a generation facility since 1997. The cogeneration facility relies on eight Caterpillar 3516 reciprocating engine generators. The current capacity of the facility is 10 MW. Some of the generated power is used for operations, but 3.7 MW is excess to facility needs and is sold to SDG&E. In addition to landfill gas, the generation facility receives about 10% of its gas from the Metro Biosolids Center digesters. Untapped gas in Miramar Landfill reportedly has the potential to expand electric generation capacity to 13 MW, providing an additional 3 MW to SDG&E (Purtee, 2007). This expansion would occur adjacent to the existing co-generation facility at the landfill. The site is already developed and surrounded by existing structures and paved areas. There is an existing connection to the grid.

Construction. The Miramar Landfill biogas facility would require erection of a prefabricated metal building to house additional generating equipment. This would occur adjacent to the existing biogas-fueled cogeneration facility. The site is a paved area within a cluster of other structures and facilities on the site. While the work crew may vary in size depending on the phase of construction, it is estimated to be 4-5 persons over approximately 5 months. Additional gas from the landfill would be needed to operate the expanded facility. This would require drilling additional wells and installing additional collecting pipes in the landfill.

Operation. The Miramar Landfill biogas facility would operate in a fashion similar to the existing co-generation facility. Landfill gas would be collected from material previously delivered to the site that is undergoing anaerobic decomposition. Relatively little work is associated with the gas collection and processing system once it is installed. The generation facility itself requires one operator, who already operates the existing facility. Therefore, no new staff would be required for operations.

E.5.1.4 Wind

The New In-Area Renewable Generation Alternative would include new wind power projects in the San Diego area similar to four projects identified on the SDG&E transmission interconnection queue with the California Independent System Operator (CAISO, 2007). These projects would each be located in the Crestwood area in southeastern San Diego County, west of the Carrizo Gorge, just north of Boulevard along I-8. The wind component also includes a new 230 kV transmission line and 230/500 kV substation to allow wind energy to be transmitted into San Diego via the existing Southwest Powerlink 500 kV transmission line. This substation could be sited either on the Campo Reservation,

the potential Campo Substation, or just north of the town of Jacumba, the potential Jacumba Substation. The Jacumba Substation is analyzed in depth as a Connected Action to the Proposed Project in Section D.

A report by the San Diego Regional Energy Study Group identifies the County's wind resource areas by classifications that range between Wind Classes 3 and 7, depending on relative availability of wind (ranging from 300 to 2,000 watts per square-meter) in this area (see Figure E.5.1-5). The report also summarizes these Wind Class areas by property ownership, as presented in Table E.5.1-3 (PRESD, 2005). Additional wind areas are located to the east of Carrizo Gorge near the Imperial County line, but no projects are projected to be constructed in this area before 2016. Wind projects under this alternative would likely occur in Class 4, 5, 6, or 7 areas.

Table E.5.1-3. Ownership of Land in Wind Classes 3, 4, 5, 6, and 7 in the San Diego Region (square miles)

Land Classification	Wind Class 3	Wind Class 4	Wind Class 5	Wind Class 6	Wind Class 7	Total
U.S. Forest Service	30.4	9.6	4.6	2.4	2.5	49.6
State Parks	0.0	65.4	39.0	30.0	10.5	144.8
Bureau of Land Management	65.0	37.0	30.1	48.3	22.5	202.9
Privately Owned	96.6	38.7	13.4	6.6	2.3	157.6
Indian Reservation	32.2	16.3	4.7	1.7	1.2	56.1
State	5.7.	0.9	0.3	0.1	0	7.1
County of San Diego	3.8	1.5	0.5	0.2	1.1	7.1
Military Reservation	0.6	0.2	0.0	0.0	0.0	0.9
Other Federal	0.2	0.0	0.0	0.0	0.0	0.2
Other Special Districts	0.3	0.1	0.1	0.4	0.0	0.9
Caltrans	0.8	0.7	0.2	0.1	0.0	1.7
Water Districts	4.3	1.0	0.0	0.0	0.0	5.2
Total area per wind class	239.9	171.2	92.8	89.9	40.2	634.0

Source: Land Classification data from SANDAG and land area analysis by SDG&E GIS as provided in the report Potential for Renewable Energy in the San Diego Region, Table F.2, August 2005.

The wind projects under this component could be developed within the 2010 to 2016 time frame to achieve 400 MW of total nameplate capacity by 2016. The recent operational Kumeyaay project provides 46 MW of nameplate capacity, and three other Crestwood-area projects proposing to develop 117 MW, 36 MW, and 201 MW nameplate capacity would also be included to achieve 400 MW. Although these projects are identified on the interconnection queue, specific development information is proprietary, and the exact locations of potential developments are not known; therefore, a separate analysis was conducted to identify lands available for wind farm development. Figure E.5.1-6a shows the Kumeyaay project site and the Wind Class 4, 5, 6, and 7 areas where future wind projects could be developed to achieve 400 MW of total nameplate capacity by 2016. The areas designated as available

Figure E.5.1-4. Biomass and Biogas: Miramar Sites
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Figure E.5.1-5. San Diego Area Regional Wind Resources
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Figure E.5.1-6a. New In-Area Renewable Generation Alternative, wind component
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Figure E.5.1-6b. wind component Detail
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for wind farm development on Figure E.5.1-6b were determined based on a review of the Wind Classes, topography, resource sensitivity, and land ownership. Wind Classes 4 through 7 were determined as most feasible for development as demonstrated by the Kumeyaay project. Topography was also assessed since construction and future operation and maintenance activities would require access to the wind turbine sites and many of the steep slopes in the area would prohibit access and construction. The selection of the areas available for wind farm development also avoided designated sensitive resource areas such as the BLM Area of Critical Environmental Concern and Peninsular Bighorn Sheep Critical Habitat. Finally, reservation and BLM lands were selected over the privately owned residential parcels throughout the region.

The recent Kumeyaay project was constructed with 25 new 2-MW propeller-type turbines. It is expected that future wind projects would also employ similar turbines. Under this New In-Area Renewable Generation Alternative, approximately 200 MW of wind power would need to come on line by 2010, of which 46 MW has been achieved by the Kumeyaay project, and by 2016, the total incremental wind generation would be 400 MW of nameplate capacity. It is assumed that 177 2-MW turbines would be used to add the additional 354 MW of capacity although larger turbines could be utilized. Wind farms typically require 5 to 17 acres per MW generated. Thus, 354 MW under this alternative would use 1,770 to 6,018 acres (2.8 to 9.6 square miles).

The available acreages for the identified wind component areas are 4,988 acres on the Campo, La Posta, and Manzanita Reservations near the already existing Kumeyaay project (herein called the Tribal wind component section) and 2,275 acres for the northern wind component area in land that is owned by the BLM (herein called the BLM wind component section), or 7,263 acres total. However, wind turbine "footprints" utilize only about 5 percent of the land on which the system is built.

Wind Component Area Siting

The 354 MW wind component would be located within the designated Wind Class 4, 5, 6, and 7 areas illustrated on Figure E.5.1-6a. These properties are located with the Campo, La Posta and Manzanita Reservations and BLM lands, and are designated in the San Diego County General Plan as Tribal Lands, Rural, and Open Space (recreation). The Rural designated areas are located within reservation lands. The surrounding area is sparsely developed with rural residences (1 du/40 acres and 1 du/80 acres), open space (BLM lands), and public/semi-public lands (Cleveland National Forest).

The land that would be occupied by the wind component is generally characterized by rolling to steep foothills. The area is mostly treeless; however, live oaks occur in the area and are a highly valued resource. The area is also considered an open space resource and biological resource area of the County. The San Diego County, Mountain Empire Subregion Plan, puts forth the landforms of the Subregion are an important environmental resource that should be respected in new development. Hillside grading shall be minimized and designed to blend in with the existing natural contours. The Subregion contains a variety of different plant and animal habitats, as well as numerous rare and endangered plant and animal species. In addition, numerous archaeological and historical sites have been identified in the Subregion which attests to a rich history of human habitation.

Wind Component Design

The design of the wind energy project involves initial site testing and monitoring, followed by design of an actual wind facility.

Site Testing and Monitoring

Site monitoring and testing involves the collection of sufficient amounts of meteorological data to accurately characterize the wind regime. Meteorological data, such as data on wind speed and direction, wind shear, temperature, and humidity, are typically collected over a period of at least one year. However, some developers may choose to collect data for as long as 3 years to account for anticipated annual weather variations. The collected data is used to support decisions on whether the wind resources at a site are suitable for development and, if so, the appropriate number, type, and location of wind turbines to be incorporated into the facility design.

The collection of meteorological data requires the erection of meteorological towers equipped with weather instruments. These towers can be as high as 165 feet (50 meters). For purposes of the wind component it is assumed that the alternative sites can be adequately characterized with 10 or fewer towers. Meteorological towers are typically metal, lattice-type structures and many are permanently mounted to their own trailers since they are relatively lightweight. As a result, installation of permanent foundations is not required unless the tower will stay in service during operation of the wind facility. Guy wires may be necessary for meteorological towers in very windy areas. Signal cables used during the site monitoring and testing phase are not likely to be buried, unless the tower will remain in service during operation of the wind facility. Remote tower sites may require the construction of minimum-specification access roads (i.e., two-track). During the site testing and monitoring phase, the towers would be unattended except for periodic visits by maintenance personnel. At the end of this phase, the temporary towers would be removed. For this analysis, it is assumed that meteorological towers will be made permanent (i.e., improvement of access roads, installation of foundations, and undergrounding of cabling) during construction of the wind facility.

Wind Facility Design

Although site monitoring and testing activities have not been fully completed for the proposed wind component sites, for purposes of this analysis it is assumed that the sites are viable as demonstrated by the existing Kumeyaay project. The wind component would include the installation of approximately 177 new 2-MW propeller-type turbines, mounted on tubular towers and utilizing a three-blade upwind nacelle orientation. Alternatively, based on wind conditions and topographical constraints, larger turbines could be used and therefore, less turbines would be required. The wind component would include the following design and operational elements:

- Maximum rotational speed of turbine rotor blades. The rotational speed of the blades would be relatively slow, averaging approximately 20 revolutions per minute (rpm). This is compared to the historic turbines' faster rotational speed of 36 to38 rpm.
- Turbine tower type and height. The turbines would be mounted on enclosed tubular towers. The total height of the turbine and tower structures would likely range from 380 to 440 feet depending on the turbine size, elevation, and topography at each tower location. The rotor-diameter would be approximately 300 feet for a 2 MW turbine and up to 340 feet for a 3.6 MW turbine.
- Distance of rotor blades from the ground. The total distance from blade tip at the 6 o'clock position to the ground surface would be at least 24 meters, or about 80 feet.
- Turbine siting. Siting and spacing of wind turbines depends on site-specific conditions that are influenced by terrain and wind conditions. The ultimate location of turbines would need to be determined after a more detailed analysis of the terrain and wind in these areas. Turbines would likely be located on ridge-tops and in some areas with sufficient upwind space, multiple rows of turbines

could be used. The wake of upwind turbines can substantially diminish the velocity and increase the turbulence at downwind turbines. Where the rows are sufficiently spaced, the losses can be minimized. Crosswind spacing is less likely to diminish turbine productivity. To avoid losses created by upwind turbines, this alternative would space the turbines in rows between eight to ten rotor-diameters apart.

- Use of guy wires. The new turbines would not require any guy wire support.
- Tower access. Maintenance access to the nacelle will be in the form of ladders inside the towers, accessed from locked doors at the base of the towers.
- Perchless nacelles. The turbine nacelle and rotor design is 3-bladed, with an upwind active yaw horizontal-axis configuration, which is the predominant design standard in the wind industry today.
- Turbine interconnect systems. All turbine interconnect systems will be placed underground.

In addition to the turbine structures, the following facilities would also be required:

- A new **switch yard** would need to be constructed as part of the wind component at the southern end of the Campo Reservation north of Interstate 8. The exact siting of the switch yard would be dependent upon final design of the wind component.
- **Connection to Transmission Grid**. A new 230 kV transmission line would be required to connect the wind component switch yard to the existing 500 kV SWPL transmission line (10 miles to the south). A new substation would also be necessary and could either occur on the Campo Reservation or northwest of the town of Jacumba. This new transmission line would be overhead and would follow the Interstate 8 Alternative alignment from approximately MP I 8-45 to MP I 8-35.
- **Substation.** A new 230/500 kV substation would be required to connect the new wind power to the existing SWPL transmission line. The new substation could be built on Campo Reservation lands, the Campo Substation, and would be located within the lands designated for the wind farm (exact location of the substation would be based on Campo Band feedback). Figure E.5.1-6a shows the approximate location of this substation. A second possibility would be the Jacumba Substation, sited approximately 0.5 miles northwest of the town of Jacumba. This option is analyzed in depth as a Connected Action in the D Sections. Figure E.5.1-6c shows the approximate location of this substation.
- **Operation and maintenance facility**. A new operation and maintenance facility would need to be constructed as part of the wind component. Depending on the geographical separation of the groups of wind turbines, multiple facilities could be required.
- Main **access roads** would be required for construction and to access the turbine areas and various wind component facilities. Spur roads off of the main access roads would also be required to allow access to individual or clusters of turbine sites. Construction equipment and wind turbine and tower weights will dictate initial access road widths and alignments. For example, because some of the turbine components are extremely long (e.g., blades) or heavy (e.g., nacelles containing all drivetrain components except the rotor), right-of-way clearances and minimum turning radii also become critical parameters for road design. Typical access roads would be 30 to 40 feet in width for the construction period, and then restored to widths of 16-24 feet once the construction period is complete. Depending on subsurface stratigraphy, surface soils may need to be excavated, and gravel and/or sand may need to be imported to establish a sufficiently stable road base. Engineered storm water control may be necessary, and natural drainage patters are likely to be altered, at least on a local scale.

Construction and Grading

Installation of the new wind turbines associated with the wind component would require the grading and construction activities described below.

Upon completion, each turbine pad would occupy approximately a 40-foot by 40-foot site (or approximately 1,600 square-foot), including a concrete pad and drain rock surround. During the construction period, relatively flat temporary pads would be constructed at each turbine site to provide a base for construction equipment, including the large crane needed to erect the tower and assemble the turbine. Installation of tower foundations would involve excavations to depths up to 40 feet below grade, with the diameters of excavations being roughly the same as the diameter of the tower base, approximately 15 to 20 feet depending on turbine model selected. Approximately 160 yd^3 of concrete, requiring an average of 6,000 gallons of water, would be required for each tower foundation (BLM, 2005). After backfilling of foundation voids, remaining excavated materials would need to be disposed of off-site or redistributed on the site. Contour grading would be conducted at each new turbine pad location as needed to match construction grade with the existing grade. The temporary area of disturbance for new turbines is estimated to be approximately one to three acres per turbine, or approximately 177 to 531 acres (assuming 2 MW turbines) of which 6.5 acres would be permanent disturbance.

Based on the remoteness of the wind component sites, it may be necessary to construct a temporary concrete batching plant on site, especially if haul distances from existing or specially constructed off-site concrete plants are over an hour (BLM, 2005). Depending on available materials on site, constituents of concrete (aggregate and sand) may also need to be hauled to the on-site batching plant. Electrical power for the batching plant would be provided by a portable diesel engine/generator set (nominally 125-kW capacity). Up to 10 acres could be required for a typical batching plant. This area would need to be cleared of vegetation and some grading might be required to level the site. The soils at the batch plant would be expected to be heavily compacted as a result of plant activities including associated truck traffic (each foundation would require about 18 to 20 concrete-hauling truck trips). The concrete batch plant would also be utilized for other foundations required for the wind component, including the switchyard and operation and maintenance facilities.

Existing access roads would be retained and improved to accommodate large construction trucks and trailers. New access and spur roads would also be constructed to provide construction and maintenance access to each new turbine site. Access and spur roadways that would be needed for construction vehicle access would be cleared of vegetation and graded to a width of approximately 30 to 40 feet for the construction period, and then restored to widths of 16-24 feet once the construction period is complete. Final grading plans would be developed pursuant to subsequent building permits, and would be required to be approved by San Diego County, BLM, and/or Campo, Manzanita, or La Posta Reservations. The length and resultant disturbance resulting from the improvement of existing access roads and construction of new access and spur roads would be dependant upon the final siting of turbine pads within the wind component sites.

Lay-down areas would also be required for equipment and material staging. The construction of equipment lay-down areas would involve the removal of vegetation for the purposes of safety, access, and visibility during lifting operations. Although surface soils may not need to be removed, some regrading might be required to create relatively level areas, and rock and/or gravel are expected to be laid down to give these areas all-weather accessibility and to support the weights of construction vehicles and staged equipment. The number and size of lay-down areas will be subject to the construction contractor's discretion.

Figure E.5.1-6c. Jacumba Substation Potential Site
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Trenching would be required for the installation of turbine and switch yard interconnection systems. A minimum three foot trench depth is assumed, requiring a 20- to 40-foot construction right-of-way depending upon topography and the presence of other physical obstacles. The length and area of disturbance resulting from turbine and switch yard interconnection installation would be dependant upon the final siting of turbine pads.

A switch yard would be located near the southern end of the Campo Reservation, north of Interstate 8. The switch yard site is expected to result in an approximate total disturbance of three to five acres. Depending upon switch yard siting, construction of new permanent access route might also be required.

Site preparation for three new operation and maintenance facilities is assumed, equating to an approximate total disturbance of two acres, including parking areas. Each operation and maintenance site would include an approximately 5,000 square-foot storage facility. Depending upon facility siting, construction of new permanent access routes might also be required.

For the meteorological towers that would remain in place during the operation of the wind component, construction of permanent foundations and access roads, and undergrounding of cable would be required. Each tower site would occupy approximately a 30-foot by 30-foot area (or approximately 900 square-feet), including a concrete foundation, drain rock surround, and guy wires. During the construction period, relatively flat temporary pads would be constructed at each meteorological tower location to allow for construction vehicle access, and foundation and tower installation. The total graded area for permanent towers is estimated to be approximately 1/2-acre per tower, of which 0.25 acres would be permanent disturbance. Because most construction equipment cannot be transported on public roads, it is most likely that fuel would be staged on site in portable tanks. These tanks are expected to be staged at or near the lay-down areas and resupplied throughout the construction period by commercial vendors. The total volume of fuel (primarily diesel fuel) to be present on site is not expected to exceed 1,000 gallons. No major equipment maintenance is expected to be performed on site on construction equipment, other than maintenance of fluid levels.

A new 230 kV transmission line would be placed aboveground for an approximate distance of 10 miles to connect the wind component switch yard to the existing 500 kV SWPL, and a new substation would also need to be constructed.

Standard tubular steel pole (TSP) structures standing approximately 100 to 120 feet tall are assumed. Approximately 45 to 75 TSP structures would be installed approximately every 700 to 1,200 feet depending on site conditions (i.e., terrain; existing buildings, roadways, utilities; etc.) and transmission line alignment. Construction would involve the installation of foundations, erection of TSP structures, and cable pulling, tensioning, and splicing. A large auger would be used to dig foundation holes for each structure that would be 5 to 7 feet in diameter, and 15 to 30 feet deep. A cage of reinforced steel with anchor bolts would be installed and concrete would be placed in the hole. Cranes would most likely be used to erect the pre-assembled structures; helicopters are also an option. Temporary disturbance around each TSP structure site resulting from construction activity would be approximately 100-foot diameter centered on each new tower; permanent disturbance at the TSP structures sites would be limited to the diameter of the foundations. Additional temporary disturbance would occur as a result of construction access roads and cable pulling, tensioning, and splicing sites. Permanent access roads would also be required. The exact number of access roads, both temporary and permanent, and temporary pulling/tensioning/splicing sites required will be a function of terrain; existing buildings, roadways, utilities, etc.; and transmission line alignment.

The new 230 kV/500 kV substation for the 500 kV transmission line interconnect would also result in the permanent disturbance of approximately 20 to 25 acres either within the Campo Reservation as illustrated in Figure E.5.1-6a or at approximate MP I8-35 of the Interstate 8 Alternative, about one-half mile north of the town of Jacumba, along the existing SWPL, as illustrated in Figure E.5.1-6c. While the Jacumba site has an existing dirt road for access, construction of an expanded permanent access route would also be required.

All temporarily disturbed areas, including crane pads, the outside shoulders of all construction access roads, and interconnect and power line rights-of-way would be re-seeded and reclaimed to native vegetation once the construction period is completed.

On the basis of experience to date, the final footprint or permanent disturbance of the wind component (turbine towers, access roads, facility interconnections, switch yard, operation and maintenance facilities, and ancillary facilities) would be 5 to 10 percent of the total acreage of the wind component sites or 363 to 726 acres (BLM, 2005). This area does not include the permanent disturbance resulting from the required 230 kV transmission line and substation interconnection to the grid, requiring up to an additional 40 acres.

Construction Personnel and Time Frame

It is assumed that construction of the wind component would need to occur within three or more phases to accomplish installation of turbines and associated facilities (access roads, interconnections, switch yard, meteorological towers, and operation and maintenance facilities), construction of the 230 kV transmission line and associated substation, and site restoration. Staffing for the construction of the wind component would require approximately 50 to 75 people to construct each phase of the project and an additional 50 people per phase to support overall construction activities. Construction would occur following completion of the environmental review process, approval of the Land Use Permit, and obtaining all other necessary permits for construction. Each phase would take approximately nine to 18 months to complete. Construction of all phases would occur prior to 2016.

Operations and Maintenance

Upon completion, approximately 6 or fewer full time on-site employees along with a plant manager would operate the project. Maintenance activities include monitoring operations, securing the site, changing fluids on the turbines, replacing worn parts, and repairing broken equipment. Wastes resulting from wind facility maintenance typically include small amounts of gear oil and lubricating oils from yaw motors or transmission and glycol-based coolants from transmissions equipped with forced-flow radiator cooling loops. Most turbine designers construct their turbines in modular fashion. Thus, it is likely that most major overhauls or repairs of turbine components would involve removing the component from the site to a designated off-site repair facility. Because most towers are equipped with lifting devices of sufficient capacity to lower or raise individual drivetrain components, a crane should not be needed for such component replacements. In general and with the exception of major overhauls and repairs, maintenance and operations is a low-intensity activity that could be shared with other projects in the area. Major overhauls or upgrades (repowering) of wind turbines would require separate permitting and environmental review.

E.5.2 Biological Resources

Each of the four components of the New In-Area Renewable Generation Alternative is addressed in this section. The criteria by which environmental impacts would be considered significant are the same as those considered for the Proposed Project and are discussed in Sections D.2 through D.15.

Biological Resources Setting for Solar Thermal

The solar thermal component is located in the Colorado Desert and South Coast bioregions (CERES, 2003). Due to survey limitations (i.e., access and timing issues related to publication of the Draft EIR/EIS), on-the-ground surveys were not conducted for this alternative (although Options 1 and 2 from the Narrows Substation [see Figure E.5.1-1d] closely follow the Partial Underground 230 kV ABDSP SR78 to S2 Alternative and SRPL Proposed Project for which on-the-ground surveys were conducted, except in their western ends). Vegetation in areas not already mapped was determined by interpretation of aerial photography and with professional knowledge of the area from fieldwork done for the SRPL Proposed Project and its alternatives. The special status plant and wildlife species with moderate to high potential to occur (listed below) were determined based on observations during 2007 surveys for the SRPL Proposed Project and its alternatives, the habitats present, and/or documented CNDDB records.

The setting for the solar thermal component is described below in three sections. The first section describes the solar thermal component and the transmission corridor from the Borrego Substation to the Narrows Substation. The second section describes the transmission corridor from the Narrows Substation to the Warner Substation for Solar Thermal Option 1. The third section describes the transmission corridor from the Narrows Substation to the Warners Substation for Solar Thermal Option 2.

Solar Thermal Component and Transmission Corridor From Borrego Substation to Narrows Substation

The predominant native vegetation communities at the solar thermal component are, based on aerial photograph interpretation, Sonoran creosote bush scrub and desert saltbush scrub. Desert saltbush scrub-disturbed, mesquite bosque, and stabilized and partially stabilized desert sand dunes are also present. All of these communities are considered sensitive. Disturbed habitat and non-native vegetation are also present; these communities are not considered sensitive (see Appendix 8L, Figure Ap.8L-1). Vegetation communities are described in Section D.2.1.2.2.

The predominant native vegetation communities along the transmission line corridor from the Borrego Substation to the Narrows Substation are, based on aerial photograph interpretation, Sonoran mixed woody and succulent scrub and desert saltbush scrub. Sonoran wash scrub, Sonoran mixed woody and succulent scrub-disturbed, and Sonoran creosote bush scrub-disturbed are also present. All of these communities are considered sensitive. Developed, disturbed habitat, and non-native vegetation are also present; these communities are not considered sensitive (see Appendix 8L, Figures Ap.8L-2 and Ap. 8L-3). Vegetation communities are described in Section D.2.1.2.2.

Overview of Special Habitat Management Areas. The solar thermal component site does not occur within any special habitat management area. The southern portion of the transmission line corridor between the Borrego Substation and the Narrows Substation is in ABDSP.

Designated Critical Habitat. The southern portion of the transmission line corridor travels through approximately two miles of PBS designated critical habitat.

Special Status Plant Species. These listed or non-listed, sensitive plant species have moderate to high potential to occur at the solar thermal component and along the transmission line corridor from the Borrego Substation to the Narrows Substation based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- Borrego bedstraw
- Coves' cassia
- Ayenia
- Pygmy lotus
- Spearleaf
- Hairy stickleaf
- Desert spikemoss

For more specific information about the special status plant species and their listing or sensitivity status, see Table D.2-3.

Special Status Wildlife Species. These listed PBS is expected to occur along the southern portion of the transmission line corridor where it travels through PBS designated critical habitat.

These listed wildlife species have moderate to high potential at the solar thermal component and along the transmission line corridor from the Borrego Substation to the Narrows Substation based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records: barefoot banded gecko and Swainson's hawk.

The following non-listed, sensitive wildlife species have moderate to high potential to occur at the solar thermal component and along the transmission line corridor from the Borrego Substation to the Narrows Substation based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- Red-diamond rattlesnake
- Coastal rosy boa
- Coast (San Diego) horned lizard
- Colorado Desert fringe-toed lizard
- Sharp-shinned hawk
- Northern harrier
- Prairie falcon
- Loggerhead shrike
- California horned lark
- Le Conte's thrasher
- Crissal thrasher
- Townsend's big eared bat
- Western mastiff bat
- Fringed myotis
- Pallid bat
- Pallid San Diego pocket mouse
- Colorado Valley woodrat
- Palm Springs little pocket mouse
- Jacumba little pocket mouse

For more specific information about the special status wildlife species and their listing or sensitivity status, see Table D.2-4.

Option 1 Underground Upgrades from Narrows Substation to Warners Substation

The predominant vegetation communities along Option 1 from the Narrows Substation to the Warners Substation are various types of desert scrubs, chaparrals, non-native grassland, and coast live oak woodland. Flat-topped buckwheat scrub, coastal sage scrub-inland form, arrowweed scrub, cismontane alkali marsh, freshwater marsh, mesquite bosque, southern willow scrub, riparian woodland, and southern cottonwood-willow riparian forest are also present. All of these communities are considered sensitive. Developed and disturbed habitat are present as well; these communities are not considered sensitive (see Appendix 8L, Figures Ap.8L-3, Ap.8L-4, and Ap.8L-6 through Ap.8L-9). Vegetation communities are described in Section D.2.1.2.2 and D.2.21.1.

Overview of Special Habitat Management Areas. Option 1 occurs almost entirely within ABDSP. It would travel adjacent to the San Felipe Hills Wilderness Study Area, through the Grapevine Mountain Wilderness area, and between Pinyon Ridge Wilderness and Vallecito Mountains Wilderness areas, but would be entirely underground in existing, paved roadways through all of these special habitat management areas.

Designated Critical Habitat. Option 1 travels through approximately 8.5 miles of PBS designated critical habitat and is located within approximately 500 feet of southwestern willow flycatcher designated critical habitat. This option would be underground through the PBS designated critical habitat and would be underground in existing, paved roadway within approximately 500 feet of southwestern willow flycatcher designated critical habitat.

Special Status Plant Species. No listed plant species were observed in 2007 along the Partial Underground 230 kV ABDSP SR78 to S2 Alternative to the SRPL Project that this option partly follows. One non-listed, sensitive plant species was observed along this option in 2007: desert spikemoss.

These listed or non-listed, sensitive plant species have moderate to high potential to occur along this option based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- Nevin's barberry
- Borrego bedstraw
- Coves' cassia
- Warners Springs lessingia
- Southern skullcap
- Delicate clarkia
- Purple stemodia
- San Diego milk-vetch
- San Diego sunflower
- San Diego gumplant
- San Diego marsh-elder
- Ramona horkelia

For more specific information about the special status plant species and their listing or sensitivity status, see Table D.2-3.

Special Status Wildlife Species. The following listed wildlife species were observed along this option where surveys were conducted for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative.

- Least Bell's vireo
- PBS
- Little willow flycatcher and/or Southwestern willow flycatcher (in migration only in 2007)

The following listed wildlife species have moderate to high potential to occur along this option based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- QCB
- Unarmored threespine stickleback
- Barefoot banded gecko
- Swainson's hawk
- Southwestern willow flycatcher
- Western yellow-billed cuckoo
- SKR

The following non-listed, sensitive wildlife species were observed along this option where surveys were conducted for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative.

- Sharp-shinned hawk
- Yellow-breasted chat
- Northern harrier
- Summer tanager
- Yellow warbler

The following non-listed, sensitive wildlife species have moderate to high potential to occur along this option based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- Two-striped garter snake
- Red-diamond rattlesnake
- San Diego mountain kingsnake
- Coast (San Diego) horned lizard
- Colorado Desert fringe-toed lizard
- Belding's orange-throated whiptail
- Silvery legless lizard
- Cooper's hawk
- White-tailed kite
- Prairie falcon
- Loggerhead shrike
- California horned lark
- Le Conte's thrasher
- Crissal thrasher
- Townsend's big eared bat
- Western mastiff bat
- Fringed myotis
- Long-legged myotis
- Pallid bat
- Pallid San Diego pocket mouse
- San Diego black-tailed jackrabbit
- Small-footed myotis
- Yuma myotis
- Colorado Valley woodrat
- San Diego desert woodrat
- Pocketed free-tailed bat
- Palm Springs little pocket mouse
- Jacumba little pocket mouse
- American badger

For more specific information about the special status wildlife species and their listing or sensitivity status, see Table D.2-4.

Option 2 New Overhead 138 kV Transmission Line from Narrows Substation to Warners Substation

The predominant vegetation communities along Option 2 from the Narrows Substation to the Warners Substation are various types of desert scrubs, northern mixed chaparral, non-native grassland, and coast live oak woodland. Semi-desert chaparral, coastal sage scrub-inland form, big sagebrush scrub, and riparian woodland are also present. All of these communities are considered sensitive. Developed, disturbed habitat, and intensive agriculture are present as well; these communities are not considered sensitive (see Appendix 8L, Figures Ap.8L-2 through Ap.8L-9). Vegetation communities are described in Section D.2.1.2.2.

Overview of Special Habitat Management Areas. This option is located just north of the BLM San Felipe Hills Wilderness Study Area west of ABDSP. State designated Vallecito Mountains, Pinyon Ridge, and Grapevine Canyon wilderness areas in ABDSP occur along the option.

Designated Critical Habitat. This option travels through approximately 11 miles of Peninsular bighorn sheep designated critical habitat.

Special Status Plant Species. One listed plant species, Borrego bedstraw, and one non-listed, sensitive plant species, Coves' cassia, were observed along this option in 2007 where surveys were conducted for the SRPL Proposed Project or Overhead 500 kV ABDSP Within Existing ROW Alternative.

These listed or non-listed, sensitive plant species have moderate to high potential to occur along this option based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- Nevin's barberry
- Warners Springs lessingia
- Southern skullcap
- Delicate clarkia
- Ayenia
- San Diego milk-vetch
- San Diego sunflower
- San Diego gumplant
- San Diego marsh-elder
- Ramona horkelia

- Pygmy lotus
- Spearleaf
- Purple stemodia
- Hairy stickleaf
- Desert spikemoss

For more specific information about the special status plant species and their listing or sensitivity status, see Table D.2-3.

Special Status Wildlife Species. These listed wildlife species were observed where surveys were conducted for the SRPL Proposed Project or Overhead 500 kV ABDSP Within Existing ROW Alternative, or are expected to occur, along this option: least Bell's vireo and PBS. The highly sensitive golden eagle is known to nest in the vicinity of this option (Bittner, 2007).

The following listed wildlife species have moderate to high potential along this option to occur based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- QCB
- Swainson's hawk
- Barefoot banded gecko
- SKR

No non-listed, sensitive wildlife species were observed along this option where surveys were conducted for the SRPL Proposed Project or Overhead 500 kV ABDSP Within Existing ROW Alternative. The following non-listed, sensitive wildlife species have moderate to high potential to occur along this option based on the habitats present and/or documented CNDDB, USFWS, and/or ABDSP records.

- Two-striped garter snake
- Red-diamond rattlesnake
- Coastal rosy boa
- San Diego mountain kingsnake
- Coast (San Diego) horned lizard
- Colorado Desert fringe-toed lizard
- Belding's orange-throated whiptail
- Silvery legless lizard
- Long-eared owl
- Cooper's hawk
- Sharp-shinned hawk
- White-tailed kite
- Northern harrier
- Prairie falcon
- Loggerhead shrike
- California horned lark
- Le Conte's thrasher
- Crissal thrasher
- Yellow warbler
- Yellow-breasted chat
- Summer tanager
- Townsend's big eared bat
- Western mastiff bat
- Fringed myotis
- Long-legged myotis
- Pallid bat
- Pallid San Diego pocket mouse
- San Diego black-tailed jackrabbit
- Small-footed myotis
- Yuma myotis
- Colorado Valley woodrat
- San Diego desert woodrat
- Pocketed free-tailed bat
- Palm Springs little pocket mouse
- Jacumba little pocket mouse
- American badger

For more specific information about the special status wildlife species and their listing or sensitivity status, see Table D.2-4.

Biological Resources Impacts for Solar Thermal

The impact numbers and descriptions used in this analysis are the same as those used for the SRPL Project. The significance criteria used in evaluation of the impacts for the Solar Thermal Component

are the same as those used for the SRPL Project and can be found in Section D.2.4.1. The biological resources impacts are presented in two sections below. The first section is for Solar Thermal Option 1, and the second section for Solar Thermal Option 2.

Option 1—Solar Thermal Component to Warners Substation Underground Upgrades

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation communities; Class III for non-sensitive vegetation communities; No Impact vegetation management and type conversion)

Vegetation Communities. The loss of nearly 1,450 acres of sensitive vegetation communities at the solar thermal component would occur from site grading and excavation as well as construction and installation of a number of components including solar collector panels, a solar boiler, an HTF oil heater, switchyard components, and transmission line connections. There would also be temporary and permanent impacts to sensitive vegetation communities along an approximate three-mile segment of the underground transmission line where it would not occur in existing, paved roadways between the Borrego and Narrows Substations. Impacts to sensitive vegetation communities from these construction activities would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). These impacts would not be mitigable to less than significant levels (Class I) because of the uncertainty of the amount of impacts and the location of mitigation lands. Implementation of Mitigation Measures B-1a, B-1c, B-1d, and B-1f through B-1j would help to reduce impacts to sensitive vegetation communities, but not to a level below significance. Impacts to non-sensitive vegetation communities would be adverse but less than significant (Class III). There would be no impacts to vegetation communities for transmission line upgrades in existing, paved roadways.

Vegetation Management (Loss of Trees). This option occurs completely underground in existing paved roadways, so no vegetation management (i.e., removal of trees or tree trimming) is required to maintain proper clearance between vegetation and transmission lines (No Impact).

Type Conversion. Fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. See Section D.2.5 for further discussion. Since this project occurs underground, there would be no risk of it causing a fire that could lead to type conversion (No Impact).

Mitigation Measures for Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1d **Perform protocol surveys.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-1j **Protect and restore vegetation.**

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

Construction activities associated with the solar thermal component and with the transmission line upgrade (i.e., along the approximate three-mile segment where the line would not occur in existing, paved roadways between the Borrego and Narrows Substations) could result in adverse effects to jurisdictional waters and wetlands during grading and vegetation removal (which could cause erosion, sedimentation and/or degradation of water quality). Washes that are prevalent in the desert and mesquite bosque that occurs at the generation facility site could be jurisdictional. These impacts would be significant according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) and Significance Criterion 3.b. if the project fails to provide an adequate buffer to protect the function and values of existing wetlands. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c, B-1g, and B-2a through B-2c. There would be no impacts to jurisdictional waters or wetlands for transmission line upgrades in existing, paved roadways.

Mitigation Measures for Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

B-1c **Conduct biological monitoring.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-2c **Avoid sensitive features.**

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

Construction of the generation facility and transmission line not in paved roadway could cause the introduction of invasive, non-native, or noxious plant species that could spread beyond the construction zone. This introduction would be related to the use of vehicles, construction equipment, or earth materials contaminated with non-native plant seed, and use of straw bales or wattles that contain seeds of non-native plant species.

In addition to construction activities that could introduce invasive, non-native, or noxious plant species at the solar thermal generation facility site, the solar collector fields will cast a shadow over a significant portion of the site. This shading, in combination with the nighttime washing of the collectors with water, could change the microclimate of the 1,450-acre solar thermal component site, which is anticipated to reduce or eliminate habitat suitability for many desert plant species, and may increase habitat suitability for others including invasive, non-native, or noxious plant species that could spread beyond the site.

The inadvertent introduction of non-native plant species is a special concern for desert plant communities. Non-native plants pose a threat to the natural processes of plant community succession and fire frequency, and can affect the biological diversity and species composition of native plant communities. The survival of some populations of special status species could be adversely affected by the success of an introduced plant species. Construction and operation/maintenance of the solar thermal component and the underground transmission line segment not in paved roadway would have a substantial adverse

effect on sensitive vegetation communities if weed species are introduced during construction or operation/maintenance activities (Significance Criterion 2.b.), but the impact would be considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1j, B-2a, and B-3a. The impact from the introduction of invasive, non-native, or noxious plant species from the transmission line that would occur within existing, paved roadways would be adverse but less than significant (Class III).

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1j **Protect and restore vegetation.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-3a **Prepare and implement a Weed Control Plan.**

Impact B-4: Construction activities would create dust that would result in degradation of vegetation (Class II)

Construction activities associated with the solar thermal component and transmission line where it does not occur in existing, paved roadways (e.g., grading, excavation, and driving of heavy equipment on unpaved surfaces) would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community. This would be a significant impact according to Significance Criterion 2.b. (substantial adverse effect on sensitive vegetation communities) and Significance Criterion 2.c. (substantial adverse effect on riparian or other sensitive vegetation communities through the spread of fugitive dust) but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-1i includes regular watering to control fugitive dust and a 15 mile-per-hour speed limit on dirt access roads to reduce dust. There would be no impacts to sensitive vegetation communities from dust for transmission line upgrades in existing, paved roadways.

Mitigation Measure for Impact B-4: Construction activities would create dust that would result in degradation of vegetation

B-1i **Restrict the construction of access and spur roads.**

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I)

Listed or sensitive plant species surveys were not conducted for Option 1, but as listed in the beginning of Section E.5.2 (Biological Resources Setting for Solar Thermal), one non-listed, sensitive species, desert spikemoss, was observed along this option where surveys were conducted for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative to the SRPL Proposed Project. Additionally, as listed in the beginning of Section E.5.2 (Biological Resources Setting for Solar Thermal), 16 listed or non-listed, sensitive plant species have moderate to high potential to occur; other species could occur as well.

Because an assessment of impacts to special status plant species can not be done without survey data, the possibility exists that surveys would result in a finding of significant impacts according to Significance Criterion 1.a. (any impact to one or more individuals of a species that is federal or State listed as endangered or threatened) or Significance Criterion 1.b. (any impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species). Therefore, the impacts to special status plant species must be considered significant and not mitigable to less than significant levels

(Class I). Implementation of Mitigation Measures B-1a, B-1c, B-1d, B-1f through B-1i, B-2a, B-2c, and B-5a through B-5d is required to, at least in part, compensate for impacts to special status plant species.

Mitigation Measures for Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1d **Perform protocol surveys.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2c **Avoid sensitive features.**

B-5a **Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies.**

B-5b **Delineate sensitive plant populations.**

B-5c **No collection of plants or wildlife.**

B-5d **Salvage sensitive species for replanting or transplanting.**

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III)

Adverse effects to general (i.e., non-special status) wildlife are anticipated from construction of the Solar Thermal Component from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since the impacts would be to non-special status species, they would be adverse but less than significant, and no mitigation is required. However, the following Mitigation Measures are recommended to reduce the disturbance to wildlife and reduce wildlife mortality: Mitigation Measures B-1a, B-1c, B-1f, B-1i, B-2a, B-2b, B-6a through B-6d, and B-7a.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b Survey areas for brush clearing.

B-6c Protect mammals and reptiles in excavated areas.

B-6d Reduce construction night lighting on sensitive habitats.

B-7a Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species. Other impact classes depend on species; see individual discussions)

Listed or sensitive (special status) wildlife species impacts would result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the solar thermal component and the transmission line where it does not occur in paved roadways. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. Since wildlife surveys were not conducted for the solar thermal component and the transmission line from the Borrego to Narrows Substations, it is unknown what special status species would be directly or indirectly impacted by this option in these locations. A number of listed and non-listed, sensitive wildlife species have potential to occur in these areas; these species are listed at the beginning of Section E.5.2 (Biological Resources Setting for Solar Thermal).

Five non-listed, sensitive wildlife species were observed along the Partial Underground 230 kV ABDSP SR78 to S2 Alternative to the SRPL Project in locations that this option follows where it would be underground in existing, paved roadway. These species include yellow warbler, yellow-breasted chat, summer tanager, sharp-shinned hawk, and northern harrier. Since this option would be underground in existing, paved roadways where these five species were observed, direct impacts to them and their habitats would not occur, and indirect impacts from construction noise would be adverse but less than significant because these species are not federally or State listed. Other non-listed, sensitive species have moderate to high potential to occur where the transmission line occurs in paved roadways as well, as listed at the beginning of E.5.2 (Biological Resources Setting for Solar Thermal), but in these areas, there would be no direct impacts to these species, and indirect impacts would be adverse but less than significant because these species are not federally or State listed.

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a) would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate land required by Mitigation Measure B-1a may not be available, the impacts to non-listed, sensitive wildlife species are considered significant according to Significance Criterion 2.a. (impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-1f, B-1i, B-2a, B-2b, B-6a through B-6d, and B-7a is required to compensate, at least in part, for impacts to non-listed, sensitive wildlife species.

This option would impact or has the potential to impact the following listed species and their habitats: PBS, least Bell's vireo, southwestern willow flycatcher, QCB, SKR, barefoot banded gecko, unarmored threespine stickleback, and western yellow-billed cuckoo. Each of these species is addressed individually below (see Impacts B-7B, B-7D, B-7E, B-7J, B-7L, B-7O, B-7P, and B-7Q). Impacts to the listed Swainson's hawk are covered in Impact B-10.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7B: Direct or indirect loss of Peninsular bighorn sheep or direct loss of habitat (Class I)

This option would occur underground through approximately 10.5 miles of PBS designated critical habitat, and most of the construction would occur within existing, paved roadways. The exception to this is an approximate two-mile segment of the transmission line from the Narrows Substation north. Construction of the transmission line would require trenching and removing soil/rock. These activities would include the use of heavy equipment. Any impact to PBS critical habitat, even temporary impacts as with this option, is significant according to Significance Criterion 1.d. (substantial adverse effect on designated critical habitat for a federal listed species through temporary or permanent disturbance), and the impacts would be significant and not mitigable to less than significant levels (Class I) because it is unknown how the PBS would react to the construction activity.

Human and construction activity in PBS habitat could cause PBS to avoid affected areas and could interfere with the use of resources (e.g., bighorn sheep foraging along, and drinking from, San Felipe Creek), traditional movement routes, and/or could cause physiological stress or increased predation. During a least Bell's vireo survey on May 11, 2007 for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative, two PBS rams were observed foraging on mesquite in San Felipe Creek (in Sentanac Canyon) approximately 2,000 feet downstream of the SR78 bridge over San Felipe Creek. The animals were also seen drinking water in the creek and foraging on freshwater marsh plants in the creek bed. All of the potential effects listed above could adversely affect survival and recovery of the species. These impacts are significant according to the following Significance Criteria: 1.a.) substantial adverse effect through any impact to one or more individuals of a federal or State listed species; 1.f.) substantial adverse effect by any impact that directly or indirectly causes the mortality of special status wildlife species; 4.a.) substantial adverse effect by preventing access to foraging habitat, breeding habitat, water sources, etc.; 4.b.) substantial adverse effect by interfering with connectivity between blocks of habitat or block or interfere with a wildlife corridor; and 4.c.) the substantial adverse effect by fragmenting (although temporary during construction for the underground transmission line) a species' population. Based on the listed status of this species and evidence that shows that human activities significantly, adversely affect it, these impacts would be significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-2a, and B-7c is required to, at least in part, compensate for impacts to PBS.

Mitigation Measures for Impact B-7B: Direct or indirect loss of Peninsular bighorn sheep or direct loss of habitat

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-7c **Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat.**

Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat (Class II)

The least Bell's vireo is present along this option. A protocol survey conducted in 2007 for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative determined there were 12 breeding pairs and three unpaired territorial male vireos within the 200-foot-wide PSA along San Felipe Creek. Numerous least Bell's vireos were also heard singing outside of the PSA. Additionally, one least Bell's vireo was found during surveys for the SRPL Proposed Project at the Tamarisk Grove Campground immediately north of SR78 along this option.

This option would occur underground within SR78 through Sentenac Canyon where the vireo were observed, so direct impacts to least Bell's vireo habitat would not occur. However, least Bell's vireo breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

Any impact to least Bell's vireo breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-7e.

Mitigation Measure for Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat

B-7e **Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.**

Impact B-7E: Direct or indirect loss of southwestern willow flycatcher or direct loss of habitat (Class II)

Two listed subspecies of willow flycatchers occur in California: little willow flycatcher (*Empidonax traillii brewsteri*) and southwestern willow flycatcher (*E. t. extimus*). The southwestern willow flycatcher is the subspecies that breeds in southern California, but both subspecies use riparian habitats in San Diego and Imperial Counties during migration. Up to 24 willow flycatchers were observed during the protocol survey for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative along San Felipe Creek in 2007; all were migrants that moved on to other breeding grounds. No breeding southwestern willow flycatchers were found. Although the southwestern willow flycatcher was not found to breed in the PSA in 2007, it is known to breed approximately one mile upstream from Scissors Crossing (Unitt, 2004) and could move into the study area and breed during any future breeding season.

This option would occur underground within SR78 through Sentenac Canyon where the willow flycatchers were observed, so direct impacts to willow flycatcher habitat would not occur. However, willow flycatcher breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

Any impact to southwestern willow flycatcher breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-7e.

Mitigation Measures for Impact B-7E: Direct or indirect loss of southwestern willow flycatcher or direct loss of habitat

B-7e Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.

Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat (No Impact)

Although a protocol survey for the QCB was not conducted for the alternatives of the SRPL Project (and therefore, not for this option) because the 2007 flight season was not preceded by adequate rainfall, the transmission line would be in existing, paved roadways that are not habitat for the QCB in USFWS protocol Survey Area 2 for the species, so this option would not directly or indirectly affect the QCB or its habitat (No Impact).

Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat (No Impact)

Although a large population of SKR is known from the vicinity of the Warners Substation, the transmission line would be in existing, paved roadways that are not habitat for the SKR near the Warners Substation, so this option would not directly or indirectly affect the SKR or its habitat (No Impact).

Impact B-7O: Direct or indirect loss of barefoot banded gecko or direct loss of habitat (Class I)

This State listed threatened species is known only from five localities in eastern San Diego County and western Imperial County. ABDSP affords protection for some gecko habitat (CDFG, 2006b). The natural history of this gecko is not well known; it is secretive and noctural and hides by day in deep crevices. It is active in fairly cool ambient temperatures during periods of increased humidity, typically spring through fall. It hibernates through the winter (CaliforniaHerps.com, 2007).

Since it is not possible to know what impact this option might have on this secretive, nocturnal species that has high potential to occur in ABDSP, any impact to it or its habitat would be significant according to Significance Criterion 1.a. (substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State listed species through habitat modification) and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, and B-2a is required to, at least in part, compensate for impacts to this species.

Mitigation Measures for Impact B-7O: Direct or indirect loss of barefoot banded gecko or direct loss of habitat

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1c Conduct biological monitoring.

B-2a Provide restoration/compensation for affected jurisdictional areas.

Impact B-7P: Direct or indirect loss of unarmored threespine stickleback or direct loss of habitat (Class II)

The CDFG introduced stickleback to Sentenac Canyon in 1972 and 1973. A population appears to be persisting in the lower part of San Felipe Creek (California State Parks, 2005). The species has been collected upstream and downstream of Sentenac Cienega within the last three years (State Parks, 2007).

This option would be located underground in SR78, and there would be no direct impacts to San Felipe Creek or Sentenac Cienega where the stickleback has potential to occur. Therefore, no direct impacts to the species are expected. There could be indirect impacts to the species, however, if sediment was to enter San Felipe Creek or Sentenac Cienega during construction. This potential sedimentation impact would be significant according to Significance Criterion 1.a (substantial adverse effect through any impact to one or more individuals of a federal or State listed species) but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1c, B-1f, B-1h, B-2a, and B-7n.

Mitigation Measures for Impact B-7P: Direct or indirect loss of unarmored threespine stickleback or direct loss of habitat

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1c Conduct biological monitoring.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1h Comply with all applicable environmental laws and regulations.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-7n Minimize potential impacts to unarmored threespine stickleback habitat.

Impact B-7Q: Direct or indirect loss of western yellow-billed cuckoo or direct loss of habitat (Class II)

The yellow-billed cuckoo has been documented along San Felipe Creek (north of Scissors Crossing and near this option) in 2001, 2002, and 2006 (Unitt, 2004; Paul Jorgensen, 2006) and could begin to nest in the area.

Although a survey protocol for this species has not been established, the species was looked for during least Bell's vireo and southwestern willow flycatcher surveys along San Felipe Creek for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative in 2007. The cuckoo was not observed. This option would occur underground in SR78 through Sentenac Canyon and along San Felipe Creek where the cuckoo could potentially occur. It would also be underground in S2 just north of Scissors Crossing where the cuckoo has recently been documented. Since this option would be in existing, paved roadways, direct impacts to western yellow-billed cuckoo habitat would not occur. However, cuckoo breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

Any impact to western yellow-billed cuckoo breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-7o.

Mitigation Measures for Impact B-7Q: Direct or indirect loss of western yellow-billed cuckoo or direct loss of habitat

B-7o **Conduct yellow-billed cuckoo surveys and implement appropriate avoidance/minimization/compensation strategies.**

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act; Class II)

The solar thermal component site and the transmission line corridor where it would not be in existing, paved roadways contain a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season, even where the transmission line occurs in paved roadways, could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird nest is fully protected against take pursuant to the federal Migratory Bird Treaty Act. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

This option would have a significant impact if it was to violate the Migratory Bird Treaty Act and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criterion 1.g). Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f through B-1i, B-2b, B-2c, B-6b, B-8a, and B-8b.

Mitigation Measures for Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-2c **Avoid sensitive features.**

B-6b **Survey areas for brush clearing.**

B-8a **Conduct pre-construction surveys and monitoring for breeding birds.**

B-8b **Removal of raptor nests.**

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class II for bat colonies; No Impact linkages, wildlife movement corridors, and fish movement)

The solar thermal component site and the transmission line corridor, not in paved roadways, consist of desert washes that carry only intermittent or ephemeral flows in response to seasonal rain events. None contain perennial flows that could support fish and other species that are dependent on permanent water sources, so there would be no impacts to fish movement with this option. Due to the large extent of the site, wildlife would generally be unable to move around it. However, the site is surrounded on several sides by agricultural fields and is not expected to be part of a wildlife movement corridor (No Impact).

Due to the temporary nature of the transmission line construction activity, and most of it occurring within paved roadways, wildlife would not be physically prevented from moving around project equipment in the transmission corridor. During project operation, there would be no impediment to wildlife movement since the transmission line would be underground (No Impact). Impacts associated with PBS movement are explained in Impact B-7B above.

Bat nursery colonies would still be significantly impacted by this option if humans approach an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves trenching, blasting, or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure such as a bridge is disturbed by construction. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to bat nursery colonies would be significant according to Significance Criterion 4 (impede the use of native wildlife nursery sites) but mitigable to less than significant levels (Class II) with implementation of Mitigation MeasuresB-1i, B-1g, B-2c, B-6d, and B-9a.

Mitigation Measures for Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites

B-1g **Build access roads at right angles to streambeds and washes.**

B-1i **Restrict the construction of access and spur roads.**

B-2c **Avoid sensitive features.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-9a **Survey for bat nursery colonies.**

Impact B-10: Presence of Transmission Lines May Result in Electrocution of, and/or Collisions by, Listed or Sensitive Bird Species (No impact)

The risk of electrocution is the same for this option as for the SRPL Proposed Project in Section D.2.14: No Impact.

The primary issue with respect to birds and transmission projects is birds colliding with the transmission towers or lines (not generation facilities) in migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. This option would install transmission lines underground, so there would be no impact from birds colliding with transmission lines or towers (No Impact).

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (No Impact)

This option would install transmission lines underground, so it would not cause increased predation of listed and sensitive species by ravens that nest on transmission towers (No Impact).

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class III non-sensitive wildlife. Other impact classes depend on species)

Disturbance to wildlife and potential wildlife mortality from maintenance activities would be significant impacts according to Significance Criteria 1.a., 1.d., 1.f., 1.g., and 2.b. that include any impacts to one or more listed species (1.a.); disturbance of critical habitat (1.d.); impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species (1.f.); violation of the Migratory Bird Treaty Act (1.g.); and substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (2.b.; this impact would degrade wildlife habitat).

Maintenance of the solar thermal component is not expected to impact wildlife because no native habitat is expected to remain on the site following construction (No Impact).

Maintenance activities would have an adverse but less than significant impact (Class III) on non-sensitive wildlife species from disturbance or potential mortality because they do not have any special status.

Impacts to non-listed, sensitive wildlife species from maintenance activities associated with the transmission line not in paved roadway would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would impact the least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo if the noise threshold (i.e., 60 dB[A] Leq hourly) is met or exceeded at the edge of their nesting territories during their breeding seasons. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-7o and B-12a.

Impacts to PBS and its critical habitat from maintenance where not within a paved roadway, could cause PBS to avoid the affected areas and could interfere with the use of resources such as escape terrain; water; mineral licks; rutting, lambing, or feeding areas; the use of traditional movement routes, and/or could cause physiological stress or increased predation. All of these potential effects could adversely affect survival and recovery of the species and are significant and not mitigable to less than significant levels (Class I), although Mitigation Measure B-7c is required to, at least in part, compensate for the impacts to PBS. Maintenance activities that occur within paved roadways would have adverse but less than significant impacts to PBS (Class III). No mitigation is required.

Impacts to barefoot banded gecko from maintenance activities would be adverse but less than significant (Class III) because the species is unlikely to occur on a maintained access road or paved road. No mitigation is required.

Maintenance of the solar thermal component and the underground transmission line segment not in paved roadway would have a substantial adverse effect on sensitive vegetation communities if weed species are introduced to the surrounding areas during maintenance activities (Significance Criterion 2.b.; this impact would degrade wildlife habitat), but the impact would be considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-3a. The impact from the introduction of invasive, non-native, or noxious plant species from the transmission line that would occur within existing, paved roadways would be adverse but less than significant (Class III). No mitigation is required.

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-3a **Prepare and implement a Weed Control Plan.**

B-5c **No collection of plants or wildlife.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-7c **Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat.**

B-7o **Conduct yellow-billed cuckoo surveys and implement appropriate avoidance/ minimization/compensation strategies.**

B-12a **Conduct maintenance activities outside the general avian breeding season.**

Option 2—Solar Thermal Component to Warners Substation Overhead Transmission Line

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation, vegetation management, and type conversion; Class III for non-sensitive vegetation)

Construction of Option 2 would cause both temporary (during construction from vegetation clearing) and permanent (displacement of vegetation with project features such as a generation facility, steel poles, and permanent access roads) impacts to vegetation communities. Construction activities would also result in the alteration of soil conditions, including the loss of native seed banks and changes in topography and drainage, such that the ability of a site to support native vegetation after construction is impaired. Desert ecosystems are especially sensitive to ground disturbance and can takes decades to recover, if at all.

Vegetation Communities. Impacts to sensitive vegetation communities are considered significant would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). and these impact would not be mitigable to less than significant levels (Class I) because of the uncertainty of the amount of impacts and the location of mitigation lands. Implementation of Mitigation Measures B-1a, B-1c, B-1d, and B-1f through B-1j would help to reduce

impacts to sensitive vegetation communities, but not to a level below significance. Impacts to non-sensitive vegetation communities would be adverse but less than significant (Class III).

Vegetation Management (Loss of Trees). No estimates as to how many trees or shrubs would be removed or trimmed as part of vegetation management for this project are available. However, there are several native woodland and chaparral communities present along the route that support trees and large shrubs that would likely require either removal or trimming. Non-native trees may also be present. The loss or trimming of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they typically do not support special status wildlife species. However, removal or trimming of a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II).

Likewise, removal or trimming of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 (Construction activities would result in a potential loss of nesting birds [violation of the Migratory Bird Treat Act]; Section D.2.12) for how construction activities (including tree/shrub removal) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act. The loss of native trees and shrubs would be a significant impact (Class I) for these reasons:

- It can have a substantial adverse effect on candidate, sensitive, or special status species (Significance Criterion 1);
- It can have a substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criterion 2);
- It can have a substantial adverse effect on federally protected water quality or wetlands (Significance Criterion 3);
- It can interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criterion 4); and
- It can conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criterion 5; see discussion in Section D.16).

Additionally, trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and 5 listed above. The loss and trimming of native trees is considered significant impacts that would not be mitigable to less than significant levels (Class I) because adequate mitigation land required by Mitigation Measure B-1a for restoration and/or acquisition may not be available. However, Mitigation Measure B-1a is required to reduce the impacts to the greatest extent possible.

Type Conversion. As discussed in Section D.15, the construction and operation of new transmission lines in areas with high fire risk could cause wildfires, and could reduce the effectiveness of fire fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of San Diego County is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more

frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. If the project were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would be significant (Class I) according to Significance Criterion 1 (substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criterion 2 (substantial adverse effect on a riparian habitat or other sensitive natural community).

Extensive mitigation for fire risk is presented in Section D.15. However, not all fires can be prevented. Although future fires may not cause type conversion in all instances, the impact must be considered significant because of the severity of potential habitat loss. This impact is not mitigable to less than significant levels (Class I). Implementation of the vegetation management program (described above) would reduce the fire risk of the project, although not to a less than significant level.

Mitigation Measures for Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1d **Perform protocol surveys.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-1j **Protect and restore vegetation.**

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

Construction activities associated with the solar thermal component and with the transmission line could result in adverse effects to jurisdictional waters and wetlands during grading and vegetation removal (which could cause erosion, sedimentation and/or degradation of water quality). Washes are prevalent in the desert, and riparian woodland occurs along this option; both could be jurisdictional. These impacts would be significant according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) and Significance Criterion 3.b. if the project fails to provide an adequate buffer to protect the function and values of existing wetlands. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c, B-1g, and B-2a through B-2c.

Mitigation Measures for Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

B-1c Conduct biological monitoring.

B-1g Build access roads at right angles to streambeds and washes.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-2b Identify environmentally sensitive times and locations for tree trimming.

B-2c Avoid sensitive features.

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

Construction of the generation facility and for the transmission line could cause the introduction of invasive, non-native, or noxious plant species that could spread beyond the construction zone. This introduction would be related to the use of vehicles, construction equipment, or earth materials contaminated with non-native plant seed, and use of straw bales or wattles that contain seeds of non-native plant species.

In addition to construction activities that could introduce invasive, non-native, or noxious plant species at the solar thermal component site, the solar collector fields will cast a shadow over a significant portion of the site. This shading, in combination with the nighttime washing of the collectors with water, could change the microclimate of the 1,450-acre solar thermal component site, which is anticipated to reduce or eliminate habitat suitability for many desert plant species, and may increase habitat suitability for others including invasive, non-native, or noxious plant species that could spread beyond the site.

The inadvertent introduction of non-native plant species is a special concern for desert plant communities. Non-native plants pose a threat to the natural processes of plant community succession and fire frequency, and can affect the biological diversity and species composition of native plant communities. The survival of some populations of special status species could be adversely affected by the success of an introduced plant species. Construction and operation/maintenance of the solar thermal component and the transmission line would have a substantial adverse effect on sensitive vegetation communities if weed species are introduced during construction or operation/maintenance activities (Significance Criterion 2.b.), but the impact would be considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1j, B-2a, and B-3a.

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1j Protect and restore vegetation.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-3a Prepare and implement a Weed Control Plan.

Impact B-4: Construction activities would create dust that would result in degradation of vegetation (Class II)

Construction activities associated with the solar thermal component and transmission line (e.g., grading, excavation, and driving of heavy equipment on unpaved surfaces) would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can signifi-

cantly impact plants' photosynthetic capabilities and degrade the overall vegetation community. This would be a significant impact according to Significance Criterion 2.b. (substantial adverse effect on sensitive vegetation communities) and Significance Criterion 2.c. (substantial adverse effect on riparian or other sensitive vegetation communities through the spread of fugitive dust) but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-1i that includes regular watering to control fugitive dust and a 15 mile-per-hour speed limit on dirt access roads to reduce dust.

Mitigation Measure for Impact B-4: Construction activities would create dust that would result in degradation of vegetation

B-1i Restrict the construction of access and spur roads.

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I)

Listed or sensitive plant species surveys were not conducted for Option 2, but as listed in the beginning of Section E.5.2 (Biological Resources Setting for Solar Thermal), one listed and one non-listed, sensitive species (Borrego bedstraw and Coves' cassia, respectively), were observed along this option where surveys were conducted for the SRPL Proposed Project. Additionally, as listed in the beginning of Section E.5.2 (Biological Resources Setting for Solar Thermal), 15 listed or non-listed, sensitive plant species have moderate to high potential to occur; other species could occur as well.

Because an assessment of impacts to special status plant species can not be done without survey data, the possibility exists that surveys would result in a finding of significant impacts according to Significance Criterion 1.a. (any impact to one or more individuals of a species that is federal or State listed as endangered or threatened) or Significance Criterion 1.b. (any impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species). Therefore, the impacts to special status plant species must be considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-1d, B-1f through B-1i, B-2a, B-2c, and B-5a through B-5d is required to, at least in part, compensate for impacts to special status plant species.

Mitigation Measures for Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1c Conduct biological monitoring.

B-1d Perform protocol surveys.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1g Build access roads at right angles to streambeds and washes.

B-1h Comply with all applicable environmental laws and regulations.

B-1i Restrict the construction of access and spur roads.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-2c Avoid sensitive features.

B-5a Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies.

B-5b Delineate sensitive plant populations.

B-5c **No collection of plants or wildlife.**

B-5d **Salvage sensitive species for replanting or transplanting.**

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III)

Adverse effects to general (i.e., non-special status) wildlife are anticipated from construction of the Solar Thermal Component from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since the impacts would be to non-special status species, they would be adverse but less than significant, and no mitigation is required. However, these Mitigation Measures are recommended to reduce the disturbance to wildlife and reduce wildlife mortality: Mitigation Measures B-1a, B-1c, B-1f, B-1i, B-2a, B-2b, B-6a through B-6d, and B-7a.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species. Other impact classes depend on species; see individual discussions)

Listed or sensitive (special status) wildlife species impacts would result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the solar thermal component and the transmission line. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. Since wildlife surveys were not conducted for the solar thermal component and the transmission line from the Borrego to Narrows Substations, it is unknown what special status species would be directly or indirectly impacted by this option in these locations. A number of listed and non-listed, sensitive wildlife species have potential to occur in these areas; these species are listed at the beginning of Section E.5.2 (Biological Resources Setting for Solar Thermal).

No non-listed, sensitive wildlife species were observed along the SRPL Proposed Project where it overlaps with Option 2, although there are a number of such species that have moderate to high potential to occur as listed at the beginning of E.5.2 (Biological Resources Setting for Solar Thermal).

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a) would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate land required by Mitigation Measure B-1a may not be available, the impacts to non-listed, sensitive wildlife species are considered significant according to Significance Criterion 2.a. (impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-1f, B-1i, B-2a, B-2b, B-6a through B-6d, and B-7a is required to compensate, at least in part, for impacts to non-listed, sensitive wildlife species.

This option would impact or has the potential to impact the following listed or highly sensitive species and their habitats: PBS, least Bell's vireo, golden eagle, QCB, SKR, and barefoot banded gecko. Each of these species is addressed individually below (see Impacts B-7B, B-7D, B-7H, B-7J, B-7L, and B-7O). Impacts to the listed Swainson's hawk are covered in Impact B-10.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7B: Direct or indirect loss of Peninsular bighorn sheep or direct loss of habitat (Class I)

Option 2 would pass through approximately 11 miles of PBS designated critical habitat. Since any impact to critical habitat is significant according to Significance Criterion 1.d. (substantial adverse effect on designated critical habitat for a federal listed species through temporary or permanent disturbance) the impacts would be significant and not mitigable to less than significant levels (Class I) because adequate suitable PBS replacement critical habitat, or other suitable habitat as determined by the USFWS, BLM, CDFG, and ABDSP, may not be available.

Even if enough suitable land is available to mitigate habitat impacts to a less than significant level, human and construction activity in PBS habitat could cause PBS to avoid affected areas and could

interfere with the use of resources. These potential effects could adversely affect survival and recovery of the species and are significant according to the following Significance Criteria: 1.a.) substantial adverse effect through any impact to one or more individuals of a federal or State listed species; 1.f.) substantial adverse effect by any impact that directly or indirectly causes the mortality of special status wildlife species; 4.a.) substantial adverse effect by preventing access to foraging habitat, breeding habitat, water sources, etc.; 4.b.) substantial adverse effect by interfering with connectivity between blocks of habitat or block or interfere with a wildlife corridor; and 4.c.) the substantial adverse effect by fragmenting a species' population. Based on the listed status of this species and evidence that shows that human activities significantly, adversely affect it, these impacts would be significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-2a, and B-7c is required to, at least in part, compensate for impacts to PBS.

Mitigation Measures for Impact B-7B: Direct or indirect loss of Peninsular bighorn sheep or direct loss of habitat

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-7c **Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat.**

Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat (Class II)

A migrant least Bell's vireo was found at the Tamarisk Grove Campground during the 2007 rare plant survey for the SRPL Proposed Project. Although the vireo did not breed at that location in 2007, breeding could occur there in the future. Least Bell's vireo breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

Any impact to least Bell's vireo-occupied habitat or least Bell's vireo breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise). These impacts would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1c, B-2a, and B-7e.

Mitigation Measures for Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-7e **Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.**

Impact B-7H: Direct or indirect loss of golden eagle or direct loss of habitat (Class I for nests within 4,000 feet; Class II in existing transmission corridor)

The golden eagle is very sensitive to human activity, especially in the vicinity of its nesting area(s), and even distant construction activity (or maintenance activity; see Impact B-12 below) could cause abandonment of a nest, subsequent reproductive failure, and continuing decline of the species. These impacts would be significant according to Significance Criterion 1.e. (substantial adverse effect on the breeding success of the golden eagle), 1.f. (directly or indirectly cause the mortality of a special status species), 1.g. (result in the abandonment of migratory bird nests and/or eggs), and 1.h (take golden eagles, eagle eggs, or any part of an eagle). Human activity within 4,000 feet of a nest site is considered significant and not mitigable to less than significant levels (Class I). Exceptions to this are if the activity within 4,000 feet of the nest site (without direct line-of-sight and activity is below the nest site) occurs where there is already an existing disturbance such as a highly traveled road or a utility corridor that already contains large structures, or if the project is underground (Bittner, 2007). The existing dirt road through Grapevine Canyon does not qualify as a highly traveled road, the existing 69 kV distribution line wood poles are not considered large structures, and this option would not be underground.

There is one golden eagle nest area that occurs less than 4,000 feet from this option, and there is direct line-of-sight between the nest area and this option. The specific location of this nest area is not disclosed in this EIR/EIS, nor are the areas within 4,000 feet of the nest area in order to protect the golden eagle. The applicant will be made aware of the MPs subject to mitigation in an unpublished document. The nest location, for purposes of this document, was provided by the Wildlife Research Institute (Bittner, 2007). Impacts to this eagle pair from construction of this option would be significant and not mitigable to less than significant levels (Class I) because of the distance between the nest area and the project (less than 4,000 feet) and the direct line-of-sight that would occur. Implementation of Mitigation Measure B-7h, is required to, at least in part, compensate for impacts to the golden eagle.

Impacts/mitigation relating to golden eagles and electrocution/collision with transmission poles/lines is discussed in Section D.2.14 and in Impact B-10 below.

Mitigation Measure for Impact B-7H: Direct or indirect loss of golden eagle or direct loss of habitat

B-7h Implement appropriate avoidance/minimization strategies for eagle nests.

Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat (Class I)

The results of the USFWS protocol survey conducted in 2007 for the Proposed Project (and, therefore, in a portion of this option where it occurs in USFWS QCB Survey Area 2) for the QCB were negative (i.e., no QCB was found); however, the 2007 flight season was not preceded by adequate rainfall, so the survey results are not adequate to establish absence of this species.

While it is unlikely that this option would impact much (if any) QCB-occupied habitat within Survey Area 2, with the lack of definitive survey data, this option must be assumed to have a significant impact on this species according to Significance Criterion 1.a. (impact one or more individuals of a species that is federal or State listed as endangered or threatened). Since adequate land required by Mitigation Measure B-7i may not be available, the impacts are considered significant and not mitigable to less than significant levels (Class I). However, implementation of Mitigation Measures B-1a, B-1c, B-2a, and B-7i is required to, at least in part, compensate for impacts to the QCB.

Mitigation Measures for Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1c Conduct biological monitoring.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-7i Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/ minimization/compensation strategies.

Impact B-7O: Direct or indirect loss of barefoot banded gecko or direct loss of habitat (Class I)

This State listed threatened species is known only from five localities in eastern San Diego County and western Imperial County. ABDSP affords protection for some gecko habitat (CDFG, 2006b). The natural history of this gecko is not well known; it is secretive and noctural and hides by day in deep crevices. It is active in fairly cool ambient temperatures during periods of increased humidity, typically spring through fall. It hibernates through the winter (CaliforniaHerps.com, 2007).

Since it is not possible to know what impact this option might have on this secretive, nocturnal species, any impact to it or its habitat would be significant according to Significance Criterion 1.a. (substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State listed species through habitat modification) and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, and B-2a is required to, at least in part, compensate for impacts to this species.

Mitigation Measures for Impact B-7O: Direct or indirect loss of barefoot banded gecko or direct loss of habitat

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1c Conduct biological monitoring.

B-2a Provide restoration/compensation for affected jurisdictional areas.

Impact B-8 Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act; Class II)

The solar thermal component site and the transmission line corridor contain a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird nest is fully protected against take pursuant to the federal Migratory Bird Treaty Act. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

This option would have a significant impact if it was to violate the Migratory Bird Treaty Act and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criterion 1.g). Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f through B-1i, B-2b, B-2c, B-6b, B-8a, and B-8b.

Mitigation Measures for Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-2c **Avoid sensitive features.**

B-6b **Survey areas for brush clearing.**

B-8a **Conduct pre-construction surveys and monitoring for breeding birds.**

B-8b **Removal of raptor nests.**

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class II for bat colonies; No Impact linkages, wildlife movement corridors, and fish movement)

The solar thermal component and the transmission line corridor consist of desert washes that carry only intermittent or ephemeral flows in response to seasonal rain events. None contain perennial flows that could support fish and other species that are dependent on permanent water sources, so there would be no impacts to fish movement with this option. Due to the large extent of the generation facility site, wildlife would generally be unable to move around it. However, the site is surrounded on several sides by agricultural fields and is not expected to be part of a wildlife movement corridor (No Impact).

Due to the intermittent locations and temporary nature of the transmission line construction activity, wildlife would not be physically prevented from moving around project equipment in the transmission corridor. During project operation, the widely spaced steel poles would not physically obstruct wildlife movement; wildlife could move around the poles. Additionally, the creation of permanent access roads may, in some cases, make wildlife movement easier (No Impact). Impacts associated with Peninsular bighorn sheep traditional movement routes are explained in Impact B-7B above.

Bat nursery colonies would still be significantly impacted by this option if humans approach an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves trenching, blasting, or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure such as a bridge is disturbed by construction. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to bat nursery colonies would be significant according to Significance Criterion 4 (impede the use of native wildlife nursery sites) but mitigable to less than significant levels (Class II) with implementation of Mitigation MeasuresB-1i, B-1g, B-2c, B-6d, and B-9a.

Mitigation Measures for Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites

B-1g **Build access roads at right angles to streambeds and washes.**

B-1i **Restrict the construction of access and spur roads.**

B-2c **Avoid sensitive features.**

B-6d Reduce construction night lighting on sensitive habitats.

B-9a Survey for bat nursery colonies.

Impact B-10: Presence of Transmission Lines May Result in Electrocution of, and/or Collisions by, Listed or Sensitive Bird Species (No impact for electrocution; Class I for collision for listed species; Class II for collision for non-sensitive species or daytime migration)

The risk of electrocution, along with associated BIO-APM-21, is the same for this option as for the Proposed Project in Section D.2.14: No Impact.

The primary issue with respect to birds and transmission projects is birds colliding with the transmission poles, towers, or lines in migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. According to the local eagle expert (Bittner, 2007), eagles do not tend to be collision victims, except on the smaller distribution lines (e.g., 69 kV lines), because their eyesight is so acute. This option would install 138 kV transmission lines, so the golden eagle is not expected to be impacted by collision.

Mortality as a result of collision with the project features would be greatest where the movements of migrating birds are the most concentrated. Bird migration happens all along the east side of San Diego County's mountains but is most concentrated in the canyons and valleys that lead from southeast to northwest, such as Grapevine Canyon and San Felipe Valley (Unitt, 2007). This option travels through Grapevine Canyon and is in the southeast to northwest Grapevine Canyon corridor to Lake Henshaw (for land and water birds) and is in the route through Borrego Valley up to Coyote Canyon (for the State listed Swainson's hawk). These areas encompass the entire option. The Swainson's hawk is currently a rare migrant in San Diego County, but the Borrego Valley is an important staging site in spring. During migration, this species passes through southern California, specifically through the Anza-Borrego Desert (Unitt, 2004). As many as 6,200 Swainson's hawks have recently been observed over a two-month period during migration in Borrego Valley (State Parks, 2006) where the birds stop to roost and feed on flying ants, dragonflies, or moth caterpillars (Unitt, 2004). "…the numbers seen in the Anza-Borrego Desert suggest that most or all of California's Swainson's hawks migrate across San Diego County" (Unitt, 2004).

Since most birds migrate at night, there is no way to know how many birds and what species of birds could actually be impacted by collision with this option. Therefore, as with the SRPL Proposed Project, it is assumed that some migrating species could be federal or State listed or of other special status, and their mortality would be a significant impact that is not mitigable to less than significant levels (Class I) according to Significance Criterion 1.a. (impact one or more individuals of a species that is federal or State listed), Significance Criterion 1.f. (directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife), and Significance Criterion 1.g. (killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Also, like the Proposed Project, for non-sensitive species or species that migrate during the day, collision would be significant according to Significance Criteria 1.f. and 1.g. but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-10a.

Mitigation Measure for Impact B-10: Listed or sensitive bird species could collide with transmission lines

B-10a Utilize collision-reducing techniques in installation of transmission lines. This entire option occurs in a highly utilized avian flight path

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class II for ravens and Class III for red-tailed hawks)

An increase in common ravens, as a result of providing poles that could support raven nests, would cause an increase in predation of special status species that have the potential to be raven prey. This impact has the potential to occur in ABDSP and would be significant according to Significance Criterion 1.a. (substantial adverse effect on one or more individuals of a species that is federal or State listed) and Significance Criterion 1.f. (indirectly cause the mortality of special status wildlife species). This impact would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-11b.

Although the project would provide additional potential sites for red-tailed hawk nesting, the overall number of red-tailed hawks would still be limited by the availability of prey, so any increase in the number of hawks and hawk predation of special status wildlife, should it occur, would be adverse but less than significant (Class III), and no mitigation is required. However, implementation of Mitigation Measure B-11b for significant impacts from raven predation would deter red-tailed hawk perching and nesting on the poles.

Mitigation Measure for Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers

B-11b Prepare and implement a Raven Control Plan for ABDSP.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class III non-sensitive wildlife. Other impact classes depend on species)

Disturbance to wildlife and potential wildlife mortality from maintenance activities would be significant impacts according to Significance Criteria 1.a., 1.d., 1.f., 1.g., and 2.b. that include any impacts to one or more listed species (1.a.); disturbance of critical habitat (1.d.); impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species (1.f.); violation of the Migratory Bird Treaty Act (1.g.); and substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (2.b.; this impact would degrade wildlife habitat).

These mitigation measures are required for impacts from maintenance activities in addition to those listed separately below: B-1f, B-1h, B-1i, B-2b, B-5c, B-6a, and B-6b.

Maintenance of the solar thermal component is not expected to impact wildlife because no native habitat is expected to remain on the site following construction (No Impact).

Maintenance activities would have an adverse but less than significant impact (Class III) on non-sensitive wildlife species from disturbance or potential mortality because they do not have any special status.

Impacts to non-listed, sensitive wildlife species from maintenance activities associated with the transmission line would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would impact the least Bell's vireo if the noise threshold (i.e., 60 dB[A] Leq hourly) is met or exceeded at the edge of its nesting territories during its breeding season. Furthermore, maintenance activities would impact the golden eagle if they would occur within 4,000 feet of an active golden eagle nest. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-7h and B-12a.

Impacts to PBS and its critical habitat from maintenance could cause PBS to avoid the affected areas and could interfere with the use of resources such as escape terrain; water; mineral licks; rutting, lambing, or feeding areas; the use of traditional movement routes, and/or could cause physiological stress or increased predation. All of these potential effects could adversely affect survival and recovery of the species and are significant and not mitigable to less than significant levels (Class I), although Mitigation Measure B-7c is required to, at least in part, compensate for the impacts to PBS.

Impacts to barefoot banded gecko from maintenance activities would be adverse but less than significant (Class III) because the species is unlikely to occur on a maintained access road. No mitigation is required.

Impacts to the QCB and SKR from maintenance activities would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-12a and B-12c.

Maintenance of the solar thermal component would have a substantial adverse effect on sensitive vegetation communities if weed species are introduced to the surrounding areas during maintenance activities (Significance Criterion 2.b.; this impact would degrade wildlife habitat), but the impact would be considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-3a. The impact from the introduction of invasive, non-native, or noxious plant species from the transmission line that would occur within existing, paved roadways would be adverse but less than significant (Class III). No mitigation is required.

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-3a **Prepare and implement a Weed Control Plan.**

B-5c **No collection of plants or wildlife.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-7c **Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat.**

B-7h **Implement appropriate avoidance/minimization strategies for eagle nests.**

B-12a **Conduct maintenance activities outside the general avian breeding season.**

B-12c **Maintain access roads and clear vegetation in quino checkerspot butterfly habitat.**

Biological Resources Setting for Solar Photovoltaic

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development throughout San Diego County. A variety of different habitats exist throughout San Diego County. However, solar PV systems would be installed within developed areas including residential, commercial, and industrial environments, which have typically been subject to substantial habitat modification. As a result, these areas generally do not support diverse or sensitive biological resources. Sensitive species rarely occur in these types of environments although nesting birds may sometimes occupy structures or ornamental trees within developed areas.

Biological Resources Impacts for Solar Photovoltaic

Construction Impacts of Solar Photovoltaic

Implementation of this component would involve mounting solar PV equipment on rooftops of existing buildings. Selection of structures on which to install PV systems would be based on various factors including specific building layout, type of rooftop and access to direct sunlight. PV installation would not require site grading, soil disruption, or habitat modifications. Construction activities such as assembly and wiring would occur on ground surfaces such as driveways, parking lots, and landscaped areas. Construction activities would occur for one to four days at any installation location and would have no lasting effects on construction sites other than the placement of PV structures on rooftops. Assembly and installation activities would be minimally intrusive and would not impact sensitive vegetation communities (Impact B-1), jurisdictional waters (Impact B-2), special status plant species (Impact B-5), special status wildlife species (Impact B-7), or movement corridors (Impact B-9). Assembly and installation activities would not result in the introduction of non-native plant species (Impact B-3), dust (Impact B-4), disturbance to wildlife (Impact B-6), sensitive bird species collisions (Impact B-10), or predation on sensitive wildlife (Impact B-11). Construction impacts on nesting birds (Impact B-8) are discussed below.

Impact B-8 Construction activities would result in a potential loss of nesting birds (Violation of the Migratory Bird Treaty Act; Class II)

Impacts to biological resources would be limited to potential effects on nesting birds, which are protected by the Migratory Bird Treaty Act. Impacts to nesting birds would be significant but mitigable through implementation of Mitigation Measure B-8a (Class II). Construction activities would potentially impact nesting birds on rooftops. These impacts, including noise in excess of 60 dB(A) Leq at a nest site during the breeding season, could result in the displacement of breeding birds, abandonment of active nests, or accidental nest destruction.

Mitigation Measure for Impact B-8: Construction activities would result in a potential loss of nesting birds (Violation of the Migratory Bird Treaty Act)

B-8a Conduct pre-construction surveys and monitoring for breeding birds.

Operational Impacts of Solar Photovoltaic

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity. No operational or maintenance impacts to sensitive communities or species would occur (Impact B-12).

Biological Resources Setting for Biomass/Biogas

The biomass/biogas component would include components located at several different locations within the San Diego Region.

The Fallbrook Renewable Energy Facility: This biomass facility would be located on approximately 28 acres of the 80-acre Pankey Ranch property on Pala Road, east of the intersection of Pala Road (Highway 76) and Interstate 15 and south of the San Luis Rey River in the Pala Mesa Valley. The facility would deliver power via a new transmission line to an existing 69 kV circuit approximately one mile from the site. The existing circuit runs between the Via Monserate and Pala Substations.

Designated Critical Habitat. The biomass component would cross designated critical habitat for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher.

Special Status Plant Species. The following 18 special status plant species have a moderate to high potential to occur within the vicinity of the biomass component. Two of these species are federal and/or State listed as rare, threatened, or endangered: San Diego thorn-mint and Orcutt's brodiaea.

- San Diego thorn-mint
- California adolphia
- San Diego ambrosia
- Rainbow manzanita
- Orcutt's brodiaea
- Lakeside ceanothus
- Wart-stemmed ceanothus
- Delicate clarkia
- Summer holly
- San Diego sand aster
- Variegated dudleya
- San Diego barrel cactus
- Ramona horkelia
- San Diego marsh elder
- Willowy monardella
- Felt-leaved monardella
- Chaparral nolina
- Parry's tetracoccus

Special Status Wildlife Species. The following 47 special status wildlife species have a moderate to high potential to occur within the vicinity of the biomass component. Four of these species are federal and/or State listed as rare, threatened, or endangered: arroyo toad, southwestern willow flycatcher, coastal California gnatcatcher, and least Bell's vireo.

- Arroyo toad
- Western spadefoot toad
- Silvery legless lizard
- Belding's orange throated whiptail lizard
- Coastal rosy boa
- Southwestern pond turtle
- Red diamond rattlesnake
- San Diego ringneck snake
- Coronado skink
- Coast (San Diego) horned lizard
- Coast patch nosed snake
- Two-striped garter snake
- Sharp-shinned hawk
- Cooper's hawk
- Southern California rufous-crowned sparrow
- Bell's sage sparrow
- Northern harrier
- Yellow warbler
- White-tailed kite
- Loggerhead shrike
- Summer tanager
- White-faced ibis
- Coastal California gnatcatcher
- Least Bell's vireo
- Pallid bat
- Ringtail
- Dulzura pocket mouse
- Northwestern San Diego pocket mouse
- Pallid San Diego pocket mouse
- Townsend's big-eared bat
- Western mastiff bat
- San Diego black-tailed jackrabbit
- Small-footed myotis
- Long-eared myotis
- Fringed myotis
- Long-legged myotis
- Yuma myotis
- San Diego desert woodrat

- California horned lark
- Southwestern willow flycatcher
- Yellow-breasted chat
- Least bittern
- Pocketed free-tailed bat
- Big free-tailed bat
- Southern grasshopper mouse
- Western red bat
- American badger

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: These facilities would occur at the Miramar landfill, a pre-existing landfill that is currently open and active. Construction of transmission lines from this biomass/biogas component would result in impacts to biological resources.

Biological Resources Impacts for Biomass/Biogas

Fallbrook Renewable Energy Facility: The biomass component (Fallbrook Renewable Energy Facility) would be constructed in an existing orchard. An access road to the facility would need to be constructed across the San Luis Rey River and would impact sensitive native vegetation (southern cottonwood-willow riparian forest) and special status species. A new transmission line would be constructed to deliver generated power to an existing 69 kV line, approximately 1.0 miles away.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: The biogas component would require large existing landfills for the generation of electricity through landfill gas. This biomass/biogas facility would occur at the existing Miramar Landfill. This potential site is currently disturbed land that is generally devoid of vegetation and in active use as landfill. However, construction of project components may require undeveloped land adjacent to the landfill to be developed and may impact native vegetation, sensitive plants, and/or sensitive wildlife species. Construction of new transmission lines would also be required to deliver the generated electricity to existing electrical lines.

Impacts and the required mitigation measures that differ from the Proposed Project are addressed below.

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for vegetation management and type conversion; Class II for sensitive vegetation communities and Class III for non-sensitive vegetation communities)

Fallbrook Renewable Energy Facility: Installation of new or additional generators at the project site would require construction of the facilities, including gas collectors and combustion turbines. It is also expected that transmission lines would either need to be constructed or expanded in order to deliver the generated electricity, which would result in additional impacts to native vegetation communities. Impacts to sensitive vegetation communities, including vernal pools or water-holding basins capable of supporting fairy shrimp, could occur, but are expected to be minimal due to the limited amount of native vegetation that would be impacted by the construction and additional tower locations. Impacts to sensitive vegetation communities would be significant according to Significance Criterion 2.a (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities), but mitigable to less than significant through implementation of Mitigation Measures B-1a through B-1j (Class II). Impacts to non-sensitive vegetation communities are considered adverse and less than significant (Class III).

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Installation of new or additional generators at the landfill sites would likely require construction and possibly expan-

sion of the existing landfill gas facilities, including gas collectors and combustion turbines. It is also expected that transmission lines would either need to be constructed or expanded in order to deliver the generated electricity, which would result in additional impacts to native vegetation communities. Impacts to sensitive vegetation communities, including vernal pools or water-holding basins capable of supporting fairy shrimp, could occur, but are expected to be minimal due to the limited amount of native vegetation that would be impacted by landfill expansion and additional tower locations. Impacts to sensitive vegetation communities would be significant according to Significance Criterion 2.a (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities), but mitigable to less than significant through implementation of Mitigation Measures B-1a through B-1j (Class II). Impacts to non-sensitive vegetation communities are considered adverse and less than significant (Class III).

Vegetation Management (Loss of Trees). The biomass and biogas facilities would both require construction of new transmission lines to deliver the generated power to existing lines. No estimates are available as to how many trees or shrubs would be removed or trimmed as part of vegetation management for the biomass/biogas component. However, there are native woodland and chaparral communities present in the project area that support trees and shrubs that would likely require either removal or trimming. The loss or trimming of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they typically do not support special status wildlife species. However, removal or trimming of a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II).

Likewise, removal or trimming of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 (Construction activities would result in a potential loss of nesting birds [violation of the Migratory Bird Treat Act]; Section D.2.12) for how construction activities (including tree/shrub removal) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act. The loss of native trees and shrubs would be a significant impact (Class I) for these reasons:

- It can have a substantial adverse effect on candidate, sensitive, or special status species (Significance Criterion 1);
- It can have a substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criterion 2);
- It can have a substantial adverse effect on federally protected water quality or wetlands (Significance Criterion 3);
- It can interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criterion 4); and
- It can conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criterion 5; see discussion in Section D.16).

Additionally, trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and 5 listed above. The loss and trimming of native trees is considered significant impacts that would not be mitigable to less than significant levels (Class I) because adequate mitigation land required by Mitigation Measure B-1a for

restoration and/or acquisition may not be available. However, Mitigation Measure B-1a is required to reduce the impacts to the greatest extent possible.

Type Conversion. As discussed in Section D.15, the construction and operation of new transmission lines in areas with high fire risk could cause wildfires, and could reduce the effectiveness of fire fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of San Diego County is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. If the project were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would be significant (Class I) according to Significance Criterion 1 (substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criterion 2 (substantial adverse effect on a riparian habitat or other sensitive natural community).

Extensive mitigation for fire risk is presented in Section D.15. However, not all fires can be prevented. Although future fires may not cause type conversion in all instances, the impact must be considered significant because of the severity of potential habitat loss. This impact is not mitigable to less than significant levels (Class I). Implementation of the vegetation management program (described above) would reduce the fire risk of the project, although not to a less than significant level.

Mitigation Measures for Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1b **Implement appropriate avoidance/minimization/compensation strategies for vernal pools and fairy shrimp habitat.**

B-1c **Conduct biological monitoring.**

B-1d **Perform protocol surveys.**

B-1e **Train project personnel.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-1j **Protect and restore vegetation.**

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

Fallbrook Renewable Energy Facility: It is expected that direct and/or indirect impacts to jurisdictional Waters of the U.S. and possibly wetlands (i.e., areas regulated by the ACOE, RWQCB, and/or CDFG) would occur from the biomass component. A formal delineation for the project will be conducted for the final route selected that includes sited project-specific features and final engineering. Then, impacts to jurisdictional areas can be clearly defined, and the applicant can apply for permits from the ACOE, RWQCB, and CDFG. The following vegetation communities that occur along the component route are often jurisdictional: southern cottonwood-willow riparian forest.

This component could have a significant impact on regulated jurisdictional areas according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) through vegetation removal, erosion, sedimentation, and/or degradation of water quality during construction, and the placement of access roads. Impacts to jurisdictional areas are significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c, B-2a, B-2b, and B-2c.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: It is expected that direct and/or indirect impacts to jurisdictional Waters of the U.S. and possibly wetlands (i.e., areas regulated by the ACOE, RWQCB, and/or CDFG) would occur from the biomass/biogas component. A formal delineation for the project will be conducted for the final route selected that includes sited project-specific features and final engineering. Then, impacts to jurisdictional areas can be clearly defined, and SDG&E can apply for permits from the ACOE, RWQCB, and CDFG. Since a formal delineation has not yet been conducted, the precise presence and extent of wetlands at this time is unknown.

This component could have a significant impact on regulated jurisdictional areas according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) through vegetation removal, erosion, sedimentation, and/or degradation of water quality during construction, and the placement of access roads. Impacts to jurisdictional areas are significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c, B-2a, B-2b, and B-2c.

Mitigation Measure for Impact B-2: Construction activities result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

B-1c Conduct biological monitoring.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-2b Identify environmentally sensitive times and locations for tree trimming.

B-2c Avoid sensitive features.

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

Fallbrook Renewable Energy Facility: Non-native, invasive, or noxious plant species can be introduced to areas through the spread of seeds or soil containing seeds. The introduction of non-native or noxious weeds associated with the biomass component would be related to the use of vehicles, construction equip-

ment, or earth materials contaminated with non-native plant seed, and use of straw bales or wattles that contain seeds or non-native plant seeds. The ground disturbance that is expected with the construction of the transmission lines would also favor the establishment of non-native species. The introduction of non-native plant species is a special concern, especially those areas that support sensitive vegetation communities and communities that support special-status plant species. Non-native plants post a threat to the natural processes of plant community succession, fire frequency, affect the biological diversity and species composition of native communities, and can affect a communities' value as wildlife habitat.

Construction of the biomass component would have a significant impact on sensitive vegetation communities according to Significance Criterion 2.b. (introduction of exotic species that substantially adversely affect native vegetation communities). The impacts are considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1j, B-2a, and B-3a that include habitat restoration/compensation, a pre-construction weed inventory, and a Weed Control Plan.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility Non-native, invasive, or noxious plant species can be introduced to areas through the spread of seeds or soil containing seeds. The introduction of non-native or noxious weeds associated with the biomass/biogas component would be related to the use of vehicles, construction equipment, or earth materials contaminated with non-native plant seed, and use of straw bales or wattles that contain seeds or non-native plant seeds. The ground disturbance that is expected with the construction of the transmission lines would also favor the establishment of non-native species. The introduction of non-native plant species is a special concern, especially those areas that support sensitive vegetation communities and communities that support special-status plant species. Non-native plants post a threat to the natural processes of plant community succession, fire frequency, affect the biological diversity and species composition of native communities, and can affect a communities' value as wildlife habitat.

Construction of the biomass/biogas component would have a significant impact on sensitive vegetation communities according to Significance Criterion 2.b. (introduction of exotic species that substantially adversely affect native vegetation communities). The impacts are considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1j, B-2a, and B-3a that include habitat restoration/compensation, a pre-construction weed inventory, and a Weed Control Plan.

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1j **Protect and restore vegetation.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-3a **Prepare and implement a Weed Control Plan.**

Impact B-4: Construction activities would create dust that would result in degradation of vegetation (Class II)

Fallbrook Renewable Energy Facility: Construction activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community.

Construction of the biomass component would create dust that would have a significant impact on sensitive vegetation communities according to Significance Criterion 2.c. (Project-related construction, grading, clearing, or other activities that would substantially adversely affect native vegetation communities through the spread of fugitive dust). The impacts are considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c and B-1i that include biological monitoring, regular watering to control fugitive dust, and a maximum speed limit of 15 miles-per-hour on dirt access roads.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community.

Construction of the biomass/biogas component would create dust that would have a significant impact on sensitive vegetation communities according to Significance Criterion 2.c. (Project-related construction, grading, clearing, or other activities that would substantially adversely affect native vegetation communities through the spread of fugitive dust). The impacts are considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c and B-1i that include biological monitoring, regular watering to control fugitive dust, and a maximum speed limit of 15 miles-per-hour on dirt access roads.

Mitigation Measures for Impact B-4: Construction activities would create dust that would result in degradation of vegetation

B-1c Conduct biological monitoring.

B-1i Restrict the construction of access and spur roads.

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I)

Fallbrook Renewable Energy Facility: Focused plant species surveys have not been completed for the Biomass site, including potential transmission line corridors, so the presence or absence of sensitive plants cannot be determined at this time. Listed and/or sensitive plant species have the potential to occur along the one mile of transmission line that would be constructed and the access road to be constructed across the San Luis Rey River; sensitive plants are not expected to occur at the Biomass site that currently contains an orchard. Any impact to special status plant species would be significant according to Significance Criterion 1.a. (impact to one or more individuals of a species that is federal or State listed as endangered or threatened) and Significance Criterion 1.b. (impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species). Because it is not possible to completely assess the impacts to special status plant species, the impacts, at this point, are considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c through B-1i, B-2a, B-2c, and B-5a through B-5d would minimize the impacts, but not necessarily to less than significant levels.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Focused plant species surveys have not been completed for the biomass/biogas sites, including potential transmission line corridor, so the presence or absence of sensitive plants cannot be determined at this time. Listed and/or sensitive plant species have the potential to occur along the transmission line that would be constructed from the Miramar Landfill; sensitive plants are not expected to occur at the Miramar site

because it is an active landfill. Any impact to special status plant species would be significant according to Significance Criterion 1.a. (impact to one or more individuals of a species that is federal or State listed as endangered or threatened) and Significance Criterion 1.b. (impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species). Because it is not possible to completely assess the impacts to special status plant species, the impacts, at this point, are considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c through B-1i, B-2a, B-2c, and B-5a through B-5d would minimize the impacts, but not necessarily to less than significant levels.

Mitigation Measures for Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1d **Perform protocol surveys.**

B-1e **Train project personnel.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2c **Avoid sensitive features.**

B-5a **Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies.**

B-5b **Delineate sensitive plant populations.**

B-5c **No collection of plants or wildlife.**

B-5d **Salvage sensitive species for replanting or transplanting.**

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class II)

Fallbrook Renewable Energy Facility: Direct loss of small mammals, reptiles, and other less mobile species would occur during construction of the biomass component. This action would result primarily from the use of construction vehicles and the grading of laydown areas for tower erection. Fossorial species, such as small burrowing animals (lizards, snakes, and small mammals) may be harmed through the crushing of burrows, the loss of refugia, and direct mortality from construction activities. Deaths related to construction would be incurred primarily by burrow-dwelling animals; eggs and nestlings of bird species with small, well-hidden nests (impacts to nesting birds is discussed in Impact B-8). More mobile species like birds and larger mammals are expected to disperse into adjacent habitat areas during land clearing and grading. Construction activities and human presence can also alter or disrupt the breeding and foraging behaviors of wildlife. This section discusses impacts to wildlife in general, particularly non-special status species. Impacts to special status species are described in Impact B-7.

Due to the narrow area of disturbance, most of the more common wildlife species found along the project area would be expected to recolonize the corridors after the completion of construction and restoration work. The above-listed impacts on wildlife from construction would be reduced to less than significant

with the implementation of Mitigation Measure B-1c, B-1f, B-2b, B-6a, B-6b, B-6c, and B-6d (Class II). The mitigation measures include biological monitoring, personnel training, restricting work to within predetermined limits of construction, prohibiting litter, clearing brush and trimming trees outside the breeding season, covering construction holes/trenches overnight and inspecting them for wildlife prior to filling, sloping excavations to provide a wildlife escape route, reducing construction night lighting, and keeping vehicle traffic to minimum volume and speed.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Direct loss of small mammals, reptiles, and other less mobile species would occur during construction of the biomass/biogas component. This action would result primarily from the use of construction vehicles and the grading of laydown areas for tower erection. Fossorial species, such as small burrowing animals (lizards, snakes, and small mammals) may be harmed through the crushing of burrows, the loss of refugia, and direct mortality from construction activities. Deaths related to construction would be incurred primarily by burrow-dwelling animals; eggs and nestlings of bird species with small, well-hidden nests (impacts to nesting birds is discussed in Impact B-8). More mobile species like birds and larger mammals are expected to disperse into adjacent habitat areas during land clearing and grading. Construction activities and human presence can also alter or disrupt the breeding and foraging behaviors of wildlife. This section discusses impacts to wildlife in general, particularly non-special status species. Impacts to special status species are described in Impact B-7.

Due to the narrow area of disturbance, most of the more common wildlife species found along the project area would be expected to recolonize the corridors after the completion of construction and restoration work. The above-listed impacts on wildlife from construction would be reduced to less than significant with the implementation of Mitigation Measure B-1c, B-1f, B-2b, B-6a, B-6b, B-6c, and B-6d (Class II). The mitigation measures include biological monitoring, personnel training, restricting work to within predetermined limits of construction, prohibiting litter, clearing brush and trimming trees outside the breeding season, covering construction holes/trenches overnight and inspecting them for wildlife prior to filling, sloping excavations to provide a wildlife escape route, reducing construction night lighting, and keeping vehicle traffic to minimum volume and speed.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I for listed species and burrowing owl; Class II for non-listed sensitive species)

Fallbrook Renewable Energy Facility: Listed or sensitive wildlife impacts could be caused by direct or indirect loss of individuals or direct loss of habitat for listed or sensitive wildlife during construction of the biomass component. In addition, individuals near the construction area may temporarily abandon their territories due to disturbance from noise, and human activity.

The biomass component could impact the following listed or highly sensitive wildlife species: burrowing owl, least Bell's vireo, southwestern willow flycatcher, QCB, arroyo toad, coastal California gnatcatcher, and San Diego and/or Riverside fairy shrimp. The least Bell's vireo, southwestern willow flycatcher, and arroyo toad are known to occur along the San Luis Rey River adjacent to the proposed biomass facility. Coastal California gnatcatcher is known to occur adjacent to the biomass facility. The burrowing owl, QCB, and San Diego and/or Riverside fairy shrimp have the potential to occur adjacent to the facility. This component could impact the non-listed, sensitive wildlife species and their habitats (listed in the Special Status Wildlife Species section above), should they be present.

Impacts to listed and sensitive wildlife species and their habitats would be significant according to Significance Criteria 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), 1.f. (substantial adverse effect by any impact that directly or indirectly causes the mortality of special-status wildlife species), and 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Impacts to burrowing owl, least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher as a result of excessive construction noise would be significant according to Significance Criterion 4.d. (adversely affect wildlife through an increase in noise).

Because it is not possible to completely assess the impacts to listed or highly sensitive species since surveys have not been completed, the impacts, at this point, are considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-2a, B-7d, B-7e, B-7i, B-7j, and B-7l is required to compensate, at least in part, for impacts to burrowing owl, least Bell's vireo, southwestern willow flycatcher, QCB, arroyo toad, coastal California gnatcatcher, and San Diego and/or Riverside fairy shrimp and their habitats.

Most of the non-listed sensitive wildlife species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a) would compensate for the potential loss of sensitive species and their habitats (Class II). Additionally, implementation of Mitigation Measures B-1c, B-2a, and B-7a are required for impacts to sensitive wildlife species.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Listed or sensitive wildlife impacts could be caused by direct or indirect loss of individuals or direct loss of habitat for listed or sensitive wildlife during construction of the biomass/biogas component. In addition, individuals near the construction area may temporarily abandon their territories due to disturbance from noise, and human activity.

The biomass/biogas component could impact the following listed or highly sensitive wildlife species: burrowing owl, QCB, coastal California gnatcatcher, and San Diego and/or Riverside fairy shrimp. These species have the potential to occur adjacent to the landfill sites. This component could impact the non-listed, sensitive wildlife species and their habitats (listed in the Special Status Wildlife Species section above), should they be present.

Impacts to listed and sensitive wildlife species and their habitats would be significant according to Significance Criteria 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), 1.f. (substantial adverse effect by any impact that directly or indirectly causes the mortality of special-status wildlife species), and 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Impacts to burrowing owl and coastal California gnatcatcher as a result of excessive construction noise would be significant according to Significance Criterion 4.d. (adversely affect wildlife through an increase in noise).

Because it is not possible to completely assess the impacts to listed or highly sensitive species since surveys have not been completed, the impacts, at this point, are considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-2a, B-7d, B-7e, B-7i, B-7j, and B-7l is required to compensate, at least in part, for impacts to burrowing owl, QCB, coastal California gnatcatcher, and San Diego and/or Riverside fairy shrimp and their habitats.

Most of the non-listed sensitive wildlife species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a) would compensate for the potential loss of sensitive species and their habitats (Class II). Additionally, implementation of Mitigation Measures B-1c, B-2a, and B-7a are required for impacts to sensitive wildlife species.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1b **Implement appropriate avoidance/minimization/compensation strategies for vernal pools and fairy shrimp habitat.**

B-1c **Conduct biological monitoring.**

B-1e **Train project personnel.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

B-7d **Conduct burrowing owl surveys, and implement appropriate avoidance/minimization/compensation strategies.**

B-7e **Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.**

B-7i **Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/minimization/compensation strategies.**

B-7j **Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/compensation strategies.**

B-7l **Conduct coastal California gnatcatcher surveys and implement appropriate avoidance/minimization/compensation strategies.**

Impact B-8 Construction activities would result in a potential loss of nesting birds (Violation of the Migratory Bird Treaty Act; Class II)

Fallbrook Renewable Energy Facility: The biomass site and transmission lines contain a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation, potentially impacting nesting birds. Ground-nesting birds could also be impacted by foot or

vehicle/equipment traffic. These impacts, including noise in excess of 60 dB(A) Leq at a nest site during the breeding season, could result in the displacement of breeding birds, abandonment of active nests, or accidental nest destruction.

The project would violate the Migratory Bird Treaty Act if it resulted in the mortality of migratory birds or caused destruction or abandonment of migratory bird nests and/or eggs, which would be considered a significant impact according to Significance Criterion 1.g. Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with the implementation of Mitigation Measure B-8a.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility The biomass/ biogas sites and transmission lines contain a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation, potentially impacting nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. These impacts, including noise in excess of 60 dB(A) Leq at a nest site during the breeding season, could result in the displacement of breeding birds, abandonment of active nests, or accidental nest destruction.

The project would violate the Migratory Bird Treaty Act if it resulted in the mortality of migratory birds or caused destruction or abandonment of migratory bird nests and/or eggs, which would be considered a significant impact according to Significance Criterion 1.g. Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with the implementation of Mitigation Measure B-8a.

Mitigation Measure for Impact B-8: Construction activities would result in a potential loss of nesting birds (Violation of the Migratory Bird Treaty Act)

B-1e **Train project personnel.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-2c **Avoid sensitive features.**

B-6b **Survey areas for brush clearing.**

B-8a **Conduct pre-construction surveys and monitoring for breeding birds.**

B-8b **Removal of raptor nests.**

Impact B-9: Adverse Effects to Linkages or Wildlife Movement Corridors, the Movement of Fish, and/or Native Wildlife Nursery Sites (Class II)

Fallbrook Renewable Energy Facility: Construction of the biomass site and its associated access road and transmission line could impact or restrict general wildlife movement and/or nursery sites within and along the San Luis Rey River. The river's function as a wildlife movement corridor would be impacted through the construction of an access road perpendicular to the river and if night lighting is used adjacent to the river during construction or operation. Construction of the access road could also impact movement of fish within the San Luis Rey River. Bat nursery colonies would be significantly impacted by the biomass/biogas component if humans approach or block an entrance to an active nursery colony,

which could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to wildlife movement corridors, fish movement, and bat nursery colonies would be significant according to Significance Criteria 4.b. (interfere with connectivity between blocks of habitat, or block or interfere with a local or regional wildlife corridor or linkage), 4.c. (result in fragmentation of a species' population), and 4.d. (increase noise or nighttime lighting in wildlife habitat or a wildlife corridor or linkage to adversely affect the behavior of the animals). These impacts are mitigable to less than significant levels (Class II) through implementation of Mitigation Measures B-1e, B-1g, B-1i, B-2c, B-6d, and B-9a.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction of the biomass/biogas component and its associated transmission line could impact or restrict general wildlife movement and/or nursery sites Construction of the transmission lines from the biomass/biogas component could result in wildlife temporarily avoiding the construction area. Bat nursery colonies would be significantly impacted by the biomass/biogas component if humans approach or block an entrance to an active nursery colony, which could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to wildlife movement corridors and bat nursery colonies would be significant according to Significance Criteria 4.b. (interfere with connectivity between blocks of habitat, or block or interfere with a local or regional wildlife corridor or linkage), 4.c. (result in fragmentation of a species' population), and 4.d. (increase noise or nighttime lighting in wildlife habitat or a wildlife corridor or linkage to adversely affect the behavior of the animals). These impacts are mitigable to less than significant levels (Class II) through implementation of Mitigation Measures B-1e, B-1g, B-1i, B-2c, B-6d, and B-9a.

Mitigation Measure for Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites

B-1e **Train project personnel.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1i **Restrict the construction of access and spur roads.**

B-2c **Avoid sensitive features.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-9a **Survey for bat nursery colonies.**

Impact B-10: Presence of Transmission Lines May Result in Electrocution of, and/or Collisions by, Listed or Sensitive Bird Species (No Impact for Electrocution; Class I for Collision for listed species; and Class II for Collision for non-sensitive species or daytime migration)

Fallbrook Renewable Energy Facility

Electrocution. It is anticipated that construction of transmission lines would not present an electrocution risk to birds.

Collision. Combustion turbines, combustion generators, and other structural elements are not expected to pose a collision risk to birds. Construction of new transmission lines poses a bird mortality risk as a result of collision. Since most birds migrate at night and migration corridors have never been studied systematically (their use by birds has had to be pieced together from anecdotes), there is no way to

know how many birds and what species of birds could actually be impacted by collision with transmission lines, towers, poles, or static wires. Therefore, it is assumed that some migrating species could be federal or State listed or of other special status, and their mortality would be a significant impact that is not mitigable to less than significant levels (Class I) according to Significance Criteria 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), 1.f. (substantial adverse effect by any impact that directly or indirectly causes the mortality of special-status wildlife species), and 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Implementation of Mitigation Measure B-10a would be required for impacts to listed species, although it would not reduce impacts to less than significant levels.

For non-sensitive species or species that migrate during the day, collision would be significant according to Significance Criteria 1.f. and 1.g., but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-10a.

Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility

Electrocution. It is anticipated that construction of transmission lines would not present an electrocution risk to birds.

Collision. Combustion turbines, combustion generators, and other structural elements are not expected to pose a collision risk to birds. Construction of new transmission lines poses a bird mortality risk as a result of collision. Since most birds migrate at night and migration corridors have never been studied systematically (their use by birds has had to be pieced together from anecdotes), there is no way to know how many birds and what species of birds could actually be impacted by collision with transmission lines, towers, poles, or static wires. Therefore, it is assumed that some migrating species could be federal or State listed or of other special status, and their mortality would be a significant impact that is not mitigable to less than significant levels (Class I) according to Significance Criteria 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), 1.f. (substantial adverse effect by any impact that directly or indirectly causes the mortality of special-status wildlife species), and 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Implementation of Mitigation Measure B-10a would be required for impacts to listed species, although it would not reduce impacts to less than significant levels.

For non-sensitive species or species that migrate during the day, collision would be significant according to Significance Criteria 1.f. and 1.g., but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-10a.

Mitigation Measure for Impact B-10: Presence of Transmission Lines May Result in Electrocution of, and/or Collisions by, Listed or Sensitive Bird Species

B-10a Utilize collision-reducing techniques in installation of transmission lines.

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class III)

Fallbrook Renewable Energy Facility: Common ravens have been documented to prey on the desert tortoise and the FTHL (Liebezeit et al., 2002; Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), which do not occur along this component. The common raven has not been docu-

mented to prey on any other listed or sensitive wildlife in the vicinity of this component (Liebezeit et al., 2002), although the predation may still occur but would be adverse but less than significant (Class III). No mitigation is required.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Common ravens have been documented to prey on the desert tortoise and the FTHL (Liebezeit et al., 2002; Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), which do not occur along this component. The common raven has not been documented to prey on any other listed or sensitive wildlife in the vicinity of this component (Liebezeit et al., 2002), although the predation may still occur but would be adverse but less than significant (Class III). No mitigation is required.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II)

Fallbrook Renewable Energy Facility: The maintenance activities on the biomass/biogas sites are expected to significantly impact wildlife through regular brush clearing around project features. These disturbances would include temporarily displacing animals and disrupting their breeding and/or foraging activities. Maintenance activities could also result in direct wildlife mortality.

Disturbance to wildlife and potential wildlife mortality would be significant according to Significance Criteria 1.a. (impacts to one or more listed species), 1.d. (disturbance of critical habitat), 1.f. (impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species), and 1.g. (violation of the Migratory Bird Treaty Act). Impacts to special-status wildlife species from maintenance activities are significant but mitigable to less than significant levels (Class II) through implementation of Mitigation Measure B-12a.

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would impact the burrowing owl, least Bell's vireo, southwestern willow flycatcher, and/or coastal California gnatcatcher if the noise threshold (i.e., 60 dB[A] Leq hourly) is met or exceeded at the edge of its nesting territories during its breeding season. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would cause disturbance to, and possible mortality of arroyo toad and QCB. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-12b and B-12c.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: The maintenance activities on the biomass/biogas sites are expected to significantly impact wildlife through regular brush clearing around project features. These disturbances would include temporarily displacing animals and disrupting their breeding and/or foraging activities. Maintenance activities could also result in direct wildlife mortality.

Disturbance to wildlife and potential wildlife mortality would be significant according to Significance Criteria 1.a. (impacts to one or more listed species), 1.f. (impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species), and 1.g. (violation of the Migratory Bird

Treaty Act). Impacts to special-status wildlife species from maintenance activities are significant but mitigable to less than significant levels (Class II) through implementation of Mitigation Measure B-12a.

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would impact the burrowing owl, least Bell's vireo, southwestern willow flycatcher, and/or coastal California gnatcatcher if the noise threshold (i.e., 60 dB[A] Leq hourly) is met or exceeded at the edge of its nesting territories during its breeding season. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would cause disturbance to, and possible mortality of QCB. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12c.

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-5c **No collection of plants or wildlife.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-7h **Implement appropriate avoidance/minimization strategies for eagle nests.**

B-12a **Conduct maintenance activities outside the general avian breeding season.**

B-12b **Conduct maintenance when arroyo toads are least active.**

B-12c **Maintain access roads and clear vegetation in quino checkerspot butterfly habitat.**

B-12d **Protect wildlife.**

Biological Resources Setting for Wind

The wind component is located in the Colorado Desert and South Coast bioregions (CERES, 2003). Vegetation mapping was conducted by interpretation of aerial photography and with professional knowledge of the area from fieldwork done for the I8 and BCD alternatives to the SRPL Proposed Project. The special status plant and wildlife species with moderate to high potential to occur (listed below) were determined based on the habitats present and documented CNDDB records. The predominant vegetation communities in the wind component area are native chaparrals that are sensitive vegetation communities. Furthermore, other sensitive vegetation communities are present and include sage scrub communities, non-native grassland, and coast live oak woodland. Non-sensitive vegetation communities present include disturbed habitat and developed. Vegetation communities are described in Section D.2.1.2.2. The Biological Resources Setting for the Jacumba Substation is provided in Section D.2.19.4.

Overview of Special Habitat Management Areas. The wind component does not occur within a special habitat management area.

Designated Critical Habitat. The wind component does not occur within designated critical habitat.

Special Status Plant Species. No listed plant species have potential to occur in the wind component areas based on the habitats present and documented CNDDB records. The following non-listed, sensitive plant species have moderate to high potential to occur based on the habitats present and documented CNDDB records. For more specific information about the special status plant species and their sensitivity status, see Table E.1.2-1.

- Desert beauty
- Jacumba milk-vetch
- Peninsular manzanita
- San Diego sunflower
- Payson's jewel-flower
- Sticky geraea
- Tecate tarplant

Special Status Wildlife Species. The listed QCB has moderate potential to occur in the wind component area based on the habitats present and its location in USFWS protocol Survey Area 2 for the species. The highly sensitive golden eagle is not known to nest in the vicinity of this component (Bittner, 2007).

The following non-listed, sensitive wildlife species have moderate to high potential to occur based on the habitats present and/or documented CNDDB records. For more specific information about the special status wildlife species and their sensitivity status, see Table E.1.2-2.

- Silvery legless lizard
- Belding's orange-throated whiptail
- Coastal rosy boa
- Red-diamond rattlesnake
- San Diego ringneck snake
- Coronado skink
- Coast (San Diego) horned lizard
- Coast patch-nosed snake
- Southern California rufous-crowned sparrow
- Bell's sage sparrow
- Gray vireo
- Dulzura pocket mouse
- Northwestern San Diego pocket mouse
- Western mastiff bat
- San Diego desert woodrat
- Ringtail

Biological Resources Impacts for Wind

The impact numbers and descriptions used in this analysis are the same as those used for the SRPL Project, except for Impacts B-13 and B-14, which specifically apply to the wind component. The significance criteria used in evaluation of the impacts for the wind component are the same as those used for the SRPL Project and can be found in Section D.2.4.1. The Biological Resources Impacts for the Jacumba Substation are presented in Section D.2.19.4.

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation communities, vegetation management, and type conversion; Class III for non-sensitive vegetation communities)

Vegetation Communities. Construction of the wind component would include grading for wind turbine pads, access roads, an underground power line right-of-way for interconnection systems, a switchyard, a new overhead 230 kV transmission line for approximately 10 miles, a new substation, maintenance facilities, and meteorological tower pads. All of these construction activities would result in temporary and/or permanent losses of native vegetation. The temporary crane pads, contour grading areas at each

turbine pad and meteorological tower site, the outside shoulders of all construction access roads, and interconnect and transmission line rights-of-way would be re-seeded and reclaimed to native vegetation once the construction period is completed.

- Turbine tower pad construction would require approximately 177 acres (assuming 2 MW turbines) of which approximately 6.5 acres would be permanently disturbed. Therefore, construction of the turbine tower pads would cause temporary and permanent loss of native vegetation.
- Improvements to existing access roads and construction of new access/spur roads would be necessary for the wind component. The length and resultant disturbance resulting from the improvement of existing access roads and construction of new access roads would be dependant upon the final siting of towers/turbines within the wind component sites. While the access/spur roads would be restored to widths of 16 to 24 feet once construction is completed from the required width of 30 to 40 feet for construction, an extensive network of access/spur roads would need to remain in place to allow access to each tower/turbine site resulting in an extensive permanent loss of native vegetation.
- Trenching for the underground power line interconnection systems from the wind turbines to the switchyard would be necessary. A minimum three-foot trench depth is assumed, requiring a 20 to 40-foot construction right-of-way depending upon topography and the presence of other physical obstacles. The length and area of disturbance resulting from turbine and switchyard interconnection installation would be dependant upon the final siting of towers/turbines. While these impacts would be temporary, impacts to native vegetation from trenching activities could be significant.
- A switchyard would be located near the southern end of the Campo Reservation, north of Interstate 8. The switchyard site would result in an approximate total disturbance of three acres. Depending upon switchyard siting, construction of new permanent access route might also be required. The construction of a switchyard and access road, if required, would cause permanent loss of native vegetation.
- A new 230 kV transmission line would be installed overhead for an approximate distance of 10 miles to connect the wind component to the existing 500 kV SWPL, at which point a new substation (i.e., the Jacumba Substation) would also need to be constructed. It is assumed that the component transmission line would follow the alignment of the Interstate 8 Alternative from MP I8-35 to I8-45.5, where the new substation would be constructed at MP I8-35. The new 230 kV/500 kV substation for the 500 kV transmission line interconnect would also result in the permanent disturbance of approximately 20 to 25 acres. Depending upon substation siting, construction of a new permanent access route might also be required. The construction of the transmission line would cause temporary and permanent losses of vegetation, whereas the substation would result in a permanent loss of native vegetation.
- If the Interstate 8 Alternative 500 kV transmission line is available, the wind component could connect with this transmission line using a substation within the Campo Reservation, and the new transmission line and Jacumba Substation described above would not be required. The Campo Reservation Substation would occur on land analyzed in this Biological Resources Impacts for Wind section.
- Grading and excavating for three new operation and maintenance facilities is assumed, equating to an approximate total disturbance of two acres, including parking areas. Each operation and maintenance site would include an approximately 5,000-square-foot storage facility. Depending upon facility siting, construction of new permanent access routes might also be required. The construction of the new operation and maintenance facilities and associated access routes would cause permanent loss of native vegetation.

- Meteorological tower pads would need to be graded and installed for the wind component. Upon completion, each meteorological tower pad would occupy approximately a 30-foot by 30-foot site (or approximately 900 square feet), including a concrete pad, drain rock surround, and guy wires. During the construction period, relatively flat temporary pads would be constructed at each pad location to allow for construction vehicle access, and foundation and tower installation. The total graded area for new towers is estimated to be approximately 1/2-acre per tower, or a total of approximately six acres of which 0.25 acres would be permanent disturbance. Construction activities would cause temporary and permanent losses to native vegetation.

As previously noted, the installation of the wind component facilities would result in the temporary and permanent loss of native vegetation. Although siting of tower/turbines, access roads, and other associated facilities has not been conducted for this component, it is anticipated that the permanent loss of native vegetation would be on the magnitude of 50 to 100 acres. Impacts to sensitive vegetation communities would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). These impacts would not be mitigable to less than significant levels (Class I) because of the potential acreage of impact and because adequate mitigation land may not be available to compensate for the impact. Implementation of Mitigation Measures B-1a, B-1c, B-1d, and B-1f through B-1j would help to reduce impacts to sensitive vegetation communities, but not to a level below significance. Impacts to non-sensitive vegetation communities would be adverse but less than significant (Class III).

Vegetation Management (Loss of Trees). No estimates are available as to how many trees or shrubs would be removed or trimmed as part of vegetation management for this component. However, there are native woodland and chaparral communities present in the project area that support trees and shrubs that would likely require either removal or trimming. The loss or trimming of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they typically do not support special status wildlife species. However, removal or trimming of a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II).

Likewise, removal or trimming of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 (Construction activities would result in a potential loss of nesting birds [violation of the Migratory Bird Treat Act]; Section D.2.12) for how construction activities (including tree/shrub removal) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act. The loss of native trees and shrubs would be a significant impact (Class I) for these reasons:

- It can have a substantial adverse effect on candidate, sensitive, or special status species (Significance Criterion 1);
- It can have a substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criterion 2);
- It can have a substantial adverse effect on federally protected water quality or wetlands (Significance Criterion 3);
- It can interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criterion 4); and
- It can conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criterion 5; see discussion in Section D.16).

Additionally, trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and 5 listed above. The loss and trimming of native trees is considered significant impacts that would not be mitigable to less than significant levels (Class I) because adequate mitigation land required by Mitigation Measure B-1a for restoration and/or acquisition may not be available. However, Mitigation Measure B-1a is required to reduce the impacts to the greatest extent possible.

Type Conversion. As discussed in Section D.15, the construction and operation of new transmission lines in areas with high fire risk could cause wildfires, and could reduce the effectiveness of fire fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of San Diego County is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. If the project were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would be significant (Class I) according to Significance Criterion 1 (substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criterion 2 (substantial adverse effect on a riparian habitat or other sensitive natural community).

Extensive mitigation for fire risk is presented in Section D.15. However, not all fires can be prevented. Although future fires may not cause type conversion in all instances, the impact must be considered significant because of the severity of potential habitat loss. This impact is not mitigable to less than significant levels (Class I). Implementation of the vegetation management program (described above) would reduce the fire risk of the project, although not to a less than significant level.

Mitigation Measures for Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1d **Perform protocol surveys.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-1j **Protect and restore vegetation.**

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

Construction activities associated with the wind component could result in adverse effects to jurisdictional waters during grading and vegetation removal (which could cause erosion, sedimentation and/or degradation of water quality) required for construction of wind turbine pads, access roads, excavation of trenches, and other associated facilities. These impacts would be significant according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) and Significance Criterion 3.b. if the project fails to provide an adequate buffer to protect the function and values of existing wetlands. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c, B-1g, and B-2a through B-2c.

Mitigation Measures for Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

B-1c Conduct biological monitoring.

B-1g Build access roads at right angles to streambeds and washes.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-2b Identify environmentally sensitive times and locations for tree trimming.

B-2c Avoid sensitive features.

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

The wind component would have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced during construction or operation/maintenance activities (Significance Criterion 2.b.), and the impact would be considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a, B-1j, B-2a, and B-3a.

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1j Protect and restore vegetation.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-3a Prepare and implement a Weed Control Plan.

Impact B-4: Construction activities would create dust that would result in degradation of vegetation (Class II)

Construction activities such as grading, excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact plants' photosynthetic capabilities and degrade the overall vegetation community. This would be a significant impact according to Significance Criterion 2.b. (substantial adverse effect on riparian or other sensitive vegetation communities) and Significance Criterion 2.c. (substantial adverse effect on riparian or other sensitive vegetation communities through the spread of fugitive dust) but would be mitigable to less than significant levels (Class II) with

implementation of Mitigation Measure B-1i that includes regular watering to control fugitive dust and a 15 mile-per-hour speed limit on dirt access roads to reduce dust.

Mitigation Measure for Impact B-4: Construction activities would create dust that would result in degradation of vegetation

B-1i Restrict the construction of access and spur roads.

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I)

Listed or sensitive plant species surveys were not conducted for the wind component, but as listed in the beginning of Section E.5.2 (Biological Resources Setting for Wind), seven species have moderate to high potential to occur; other species could occur as well. Because an assessment of impacts to special status plant species can not be done without survey data, the possibility exists that surveys would result in a finding of significant impacts according to Significance Criterion 1.a. (any impact to one or more individuals of a species that is federal or State listed as endangered or threatened) or Significance Criterion 1.b. (any impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species). Therefore, the impacts to special status plant species must be considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-1d, B-1f through B-1i, B-2a, B-2c, and B-5a through B-5d is required to, at least in part, compensate for impacts to special status plant species.

Mitigation Measures for Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants

B-1a Provide restoration/compensation for affected sensitive vegetation communities.

B-1c Conduct biological monitoring.

B-1d Perform protocol surveys.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1g Build access roads at right angles to streambeds and washes.

B-1h Comply with all applicable environmental laws and regulations.

B-1i Restrict the construction of access and spur roads.

B-2a Provide restoration/compensation for affected jurisdictional areas.

B-2c Avoid sensitive features.

B-5a Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies.

B-5b Delineate sensitive plant populations.

B-5c No collection of plants or wildlife.

B-5d Salvage sensitive species for replanting or transplanting.

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III)

Adverse effects to general (i.e., non-special status) wildlife are anticipated from construction of the wind component from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor

dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since the impacts would be to non-special status species, they would be adverse but less than significant, and no mitigation is required. However, these Mitigation Measures are recommended to reduce the disturbance to wildlife and reduce wildlife mortality: Mitigation Measures B-1a, B-1c, B-1f, B-1i, B-2a, B-2b, B-6a through B-6d, and B-7a.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I)

Listed or sensitive wildlife impacts could be caused by loss of habitat and/or accidental death of individuals during wind component construction. In addition, individuals near the construction area may temporarily abandon their territories due to disturbance from noise and human activity. These impacts would be significant according to Significance Criteria 1.a. (any impact to one or more individuals of a species that is federal or State listed as endangered or threatened) or 2.a. (impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species).

Because it is not possible to completely assess the impacts to listed (e.g., QCB that has moderate potential to occur) or sensitive species since surveys have not been completed, the impacts, at this point, are considered significant and not mitigable to less than significant levels (Class I). Most of the special status wildlife species' (listed at the beginning of Section E.5.2, Biological Resources Setting for Wind) habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (see Mitigation Measures for Impact B-1) would normally compensate for the potential loss of sensitive species and their habitats. However, since adequate land required by Mitigation Measure B-1a may not be available, the impacts to the wildlife species are considered significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a, B-1c, B-1f, B-1i, B-2a, B-2b, B-6a through B-6d, B-7a, and B-7i is required to compensate, at least in part, for impacts to listed or sensitive wildlife species.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1i **Restrict the construction of access and spur roads.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-6c **Protect mammals and reptiles in excavated areas.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

B-7i **Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/ minimization/compensation strategies.**

Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat (Class I)

The QCB has moderate potential to occur in the wind component because it occurs in USFWS Survey Area 2 for the species, suitable habitat is present. Since no protocol surveys for QCB were completed for this project, all potential QCB habitat is assumed to be occupied by the QCB. With the lack of definitive survey data, the project construction must be assumed to have a significant impact on this species according to Significance Criterion 1 (substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species). Since adequate land required by Mitigation Measure B-7i may not be available, the impacts are considered significant and not mitigable to less than significant levels (Class I). However, implementation of Mitigation Measures B-1a, B-1c, B-2a, and B-7i is required to, at least in part, compensate for impacts to the QCB.

Mitigation Measures for Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.**

B-1c **Conduct biological monitoring.**

B-2a **Provide restoration/compensation for affected jurisdictional areas.**

B-7i **Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/ minimization/compensation strategies.**

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act; Class II)

The wind component area contains a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation

and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird nest is fully protected against take pursuant to the federal Migratory Bird Treaty Act. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

The wind component would have a significant impact if it was to violate the Migratory Bird Treaty Act and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criterion 1.g). Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f through B-1i, B-2b, B-2c, B-6b, B-8a, and B-8b.

Mitigation Measures for Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1g **Build access roads at right angles to streambeds and washes.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-2c **Avoid sensitive features.**

B-6b **Survey areas for brush clearing.**

B-8a **Conduct pre-construction surveys and monitoring for breeding birds.**

B-8b **Removal of raptor nests.**

Impact B-9: Adverse Effects to Linkages or Wildlife Movement Corridors, the Movement of Fish, and/or Native Wildlife Nursery Sites (Class II for bat colonies; Class III linkages or wildlife movement corridors; No Impact fish)

Due to the nature of this type of project, the location of the wind component occurs primarily on ridgelines that do not contain drainages that carry perennial flows. Therefore, the wind component area is not expected to support fish and other species that are dependent on permanent water sources (No Impact). This is substantiated by the apparent lack of riparian or wetland vegetation present.

Due to the intermittent locations of construction activity in the transmission line ROW and its temporary nature, wildlife would not be physically prevented from moving around project equipment in the transmission corridor (No Impact). Construction of the wind facilities would occur primarily on ridgelines, and wildlife movement is often concentrated more in canyons, so construction of the wind facilities would adversely affect some wildlife movement because of the size of the wind facilities impact areas, but not to a significant level (Class III), and no mitigation is required.

During project operation, the widely spaced towers and turbines would not physically obstruct wildlife movement; wildlife could move under and around the towers and around the turbines. Additionally, the creation of permanent access roads may, in some cases, make wildlife movement through otherwise dense vegetation easier (No Impact). Bat nursery colonies would still be significantly impacted by the project if humans approach an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure such as a bridge is disturbed by construction.

These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. The impacts to bat nursery colonies would be significant according to Significance Criterion 4 which states that the project would impede the use of native wildlife nursery sites. This impact is significant but mitigable to less than significant levels (Class II) with implementation of Mitigation MeasuresB-1i, B-1g, B-2c, B-6d, and B-9a.

Mitigation Measures for Impact B-9: Adverse Effects to Linkages or Wildlife Movement Corridors, the Movement of Fish, and/or Native Wildlife Nursery Sites

B-1g **Build access roads at right angles to streambeds and washes.**

B-1i **Restrict the construction of access and spur roads.**

B-2c **Avoid sensitive features.**

B-6d **Reduce construction night lighting on sensitive habitats.**

B-9a **Survey for bat nursery colonies.**

Impact B-10: Presence of Transmission Lines May Result in Electrocution of, and/or Collisions by, Listed or Sensitive Bird Species (No impact for electrocution; Class I for collision for listed species; Class II for collision for non-sensitive species or daytime migration)

The risk of electrocution is the same for this component as for the SRPL Proposed Project discussed in Section D.2.14: No Impact.

The primary issue with respect to birds and transmission projects is birds colliding with the transmission towers or lines in migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. Mortality as a result of collision with the project features would be greatest where the movements of migrating birds are the most concentrated. Bird migration happens all along the east side of San Diego County's mountains but is most concentrated in the canyons and valleys that lead from southeast to northwest, such as Grapevine Canyon and San Felipe Valley (Unitt, 2007). Therefore, this transmission line does not occur in a highly utilized avian flight path.

Even so, since most birds migrate at night, there is no way to know how many birds and what species of birds could actually be impacted by collision with this transmission line. There is no way to know because much of the migration occurs at night when it cannot be seen, and birds that collide with transmission line features and fall to the ground are often taken away by predators/scavengers before morning. Therefore, as with the Proposed Project, it is assumed that some migrating species could be federal or State listed or of other special status, and their mortality would be a significant impact that is not mitigable to less than significant levels (Class I) according to Significance Criterion 1.a. (impact one or more individuals of a species that is federal or State listed), Significance Criterion 1.f. (directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife), and Significance Criterion 1.g. (killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Also, like the Proposed Project, for non-sensitive species or species that migrate during the day, collision would be significant according to Significance Criteria 1.f. and 1.g. but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-10a.

Mitigation Measure for Impact B-10: Presence of Transmission Lines May Result in Electrocution of, and/or Collisions by, Listed or Sensitive Bird Species

B-10a **Utilize collision-reducing techniques in installation of transmission lines.** There is no known highly utilized avian flight path; therefore, no marking of the overhead lines is required.

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class III)

Common ravens have been documented to prey on the desert tortoise and the FTHL (Liebezeit et al., 2002; Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003) that do not occur in the wind component area. The common raven has not been documented to prey on any other listed or sensitive wildlife in the wind component area (Liebezeit et al., 2002), although the predation may still occur on a limited basis and would be adverse but less than significant (Class III). No mitigation is required.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II special status wildlife and nesting birds; Class II non-sensitive wildlife)

Maintenance, including such activities as the use of access roads or brush clearing around wind component features, would result in disturbance to wildlife and wildlife mortality that would be significant impacts according to Significance Criteria 1.a., 1.f., 1.g., and 2.b that include any impacts to one or more listed species (1.a.); impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species (1.f.); violation of the Migratory Bird Treaty Act (1.g.); and substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (2.b.; this impact would degrade wildlife habitat). These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f, B-1h, B-1i, B-2b, B-3a, B-5c, B-6a, B-6b, B-12a, and B-12c.

Impacts to non-sensitive wildlife would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f, B-1h, B-1i, B-2b, B-3a, B-5c, B-6a, B-6b, and B-12a(CA).

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a.

Maintenance activities would cause disturbance to, and possible mortality of, QCB. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12c.

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

B-1f **Construction and survey activities shall be restricted based on final design engineering drawings.**

B-1h **Comply with all applicable environmental laws and regulations.**

B-1i **Restrict the construction of access and spur roads.**

B-2b **Identify environmentally sensitive times and locations for tree trimming.**

B-3a **Prepare and implement a Weed Control Plan.**

B-5c **No collection of plants or wildlife.**

B-6a **Littering is not allowed.**

B-6b **Survey areas for brush clearing.**

B-12a **Conduct maintenance activities outside the general avian breeding season.**

B-12c **Maintain access roads and clear vegetation in quino checkerspot butterfly habitat.**

Impact B-13: Operation of the wind component would lead to avian mortality from collision with turbines (Class I)

Operation of the wind component is expected to result in mortality of birds due to collision with wind turbines. Recent studies have shown that taller tower heights are likely to reduce raptor mortality due to an increase in ground to rotor clearance, especially for red-tailed hawks, golden eagles and American kestrels that utilize spaces closer to the ground for hunting prey. For example, golden eagles have often been observed hunting within three meters of the ground. Also, raptor use has been shown in general to be higher on the prevailing upwind side of ridges, and turbines sited away from the rim edge may contribute to lower raptor fatality rates. Ground disturbance around wind turbines (roads and work pads) increases the vertical/horizontal edge near turbines, which also may increase prey densities and raptor use. Also, ground disturbance that creates rock piles creates habitat for small mammals and reptiles which could then attract raptors to the turbine sites. Small mammals and reptiles may also be likely to burrow near the turbine bases where soil has been disturbed. Rodent control programs have been used in the past at wind project sites; however, recent studies suggest moderate levels (intermittent) of rodent control may increase raptor fatalities, and secondary impacts to terrestrial wildlife from rodent control are a concern. Associated facilities at wind projects include permanent meteorological towers. Studies have shown that guyed meteorological towers may kill more passerines per structure than wind turbines (Contra Costa, 2007).

Avian mortality would be significant according to Significance Criteria 1.f. (impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species) or 1.g. (violation of the Migratory Bird Treaty Act) and would be significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measure B-13a is required to, at least in part, compensate for impacts to birds from collision with turbines.

Mitigation Measure for Impact B-13: Operation of the wind component would lead to avian mortality from collision with turbines

B-13a **Implement measures to reduce avian impacts from turbine activities:** This mitigation measure includes the following.

- Increase ground to rotor clearance. Turbine tower heights shall be at least 55 meters at sites where the FAA will allow that height.
- Wherever feasible, turbines shall not be sited on or immediately adjacent to the upwind sides of ridge crests.
- Turbine construction shall minimize cutting into hill slopes in an attempt to achieve smooth rounded terrain, rather than sudden berms or cuts, to potentially reduce prey abundance.

- Rocks unearthed during the excavation process shall be used during construction of foundations or hauled off site and disposed of properly, and not be left in piles near turbines.
- Discourage small mammals and reptiles from burrowing under or near turbine bases by placing gravel at least 5 feet around each tower foundation.
- The wind component developer shall not participate in rodent control programs on leased lands and will discourage landowners from using poisoning for rodent control in the vicinity of the project.
- Only un-guyed meteorological towers shall be constructed for the wind project.
- Prior to obtaining a grading or building permit, the project applicant shall submit a final site plan for review and approval by the County Zoning Administrator and BLM demonstrating compliance with the standards described in this document.

  A scientifically defensible monitoring program shall be implemented to estimate the avian fatality rates from the new turbines and important covariates such as prey base and avian use. The following shall also be implemented.
- Standardized fatality monitoring and avian use and behavior studies shall be conducted for a minimum of three years.
- A technical advisory committee shall be formed to oversee the program and propose additional mitigation and/or additional monitoring depending on the results of the monitoring program.
- Should additional mitigation be necessary, potential measures may include off-site mitigation.

Impact B-14: Operation of the wind component would lead to bat mortality from collision with turbines (Class I)

Operation of the wind component is expected to result in some bat mortality from collision with wind turbines. Studies show that bat mortality from collision with wind turbines is highest during the late summer and fall migration season. Based on other studies in the west, some mortality of mostly migratory bats, especially hoary and Mexican free-tailed bats, is anticipated. Projected mortality levels are unknown and could be higher or lower based on such factors as regional migratory patterns, patterns of local movements through the project area, and the response of bats to turbines — both individually and collectively (Contra Costa, 2007).

Bat mortality would be significant according to Significance Criteria 1.f. (impacts that directly/indirectly cause the mortality of candidate, sensitive, or special status species) and would be significant and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measure B-14a is required to, at least in part, compensate for impacts to bats from collision with turbines.

Mitigation Measure for Impact B-14: Operation of the wind component would lead to bat mortality from collision with turbines

B-14a **Implement a scientifically defensible monitoring program to estimate bat fatality rates from new turbines.** The following shall also be implemented.

- Standardized fatality monitoring and bat use and behavior studies shall be conducted for a minimum of three years.

- A technical advisory committee shall be formed to oversee the program and propose additional mitigation and/or additional monitoring depending on the results of the monitoring program.
- Should additional mitigation be necessary, potential measures may include off-site mitigation.

Overall Impacts of Renewable Generation Alternative for Biological Resources

Solar Thermal. The loss of nearly 1,450 acres of sensitive vegetation communities (Impact B-1) at the solar thermal component would occur from site grading and excavation as well as construction and installation of a number of components, and would be a significant, unmitigable impact (Class I) because adequate mitigation land may not be available to compensate for the impact. Impacts to special status plant and wildlife species (Impacts B-5 and B-7) would be significant and not mitigable to less than significant levels (Class I).

Construction activities would result in adverse effects to jurisdictional waters and wetlands (Impact B-2) during grading and vegetation removal but would be mitigable to less than significant levels (Class II). Introduction of invasive, non-native plant species and increased levels of dust (Impact B 3, Impact B-4) would be mitigable to less than significant levels (Class II). Construction activities would disturb vegetation and have the potential to impact nesting birds (Impact B-8). Mitigation would reduce this impact to a less than significant level (Class II). Bat nursery colonies would be significantly impacted if humans or construction activities approach or disturb active bat nursery colony (Impact B-9); however, mitigation would reduce this impact to a less than significant level (Class II).

Mortality due to collision with the overhead transmission line option (Impact B-10) would result in an additional significant, unmitigable impact (Class I). The overhead transmission line option would also result in significant but mitigable to less than significant level (Class II) impacts to listed or sensitive species from ravens that nest on transmission towers (Impact B-11). Both transmission options would result disturbance to wildlife and wildlife mortality during maintenance activities (Impact B-12), and these impacts would be significant but mitigable to less than significant levels (Class II).

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant unmitigable impacts (Class I). Construction activities could impact birds nesting on rooftops. Mitigation measure B-8a would reduce this impact to a less than significant level (Class II).

Biomass/Biogas. The loss of 28 acres of vegetation communities at the Fallbrook Biomass Facility would occur from site grading and excavation as well as construction and installation of a number of components. The majority of impacts would be to the existing orchard; impacts to sensitive vegetation communities would be significant but mitigable (Class II). The impacts to special status plant species (Impact B-5) within this region must be considered significant and not mitigable to less than significant levels (Class I). Listed or sensitive (special status) wildlife species impacts (Impact B-7) would result from direct or indirect loss of known locations of individuals or direct loss of potential habitat along the same acreage. Impacts to listed species and burrowing owl would be significant and unmitigable (Class I); impacts to non-listed sensitive species would be significant, but mitigable (Class II).

Construction activities would result in adverse effects to jurisdictional waters and wetlands (Impact B-2) during grading and vegetation removal but would be mitigable to less than significant levels (Class II). Introduction of invasive, non-native plant species and increased levels of dust (Impact B 3, Impact B-4) would be mitigable to less than significant levels (Class II). Construction activities would disturb vege-

tation and have the potential to impact nesting birds (Impact B-8). Mitigation would reduce this impact to a less than significant level (Class II). Bat nursery colonies, wildlife movement corridors and linkages, and fish movement would be significantly impacted (Impact B-9). Mitigation would reduce this impact to a less than significant level (Class II).

Mortality due to collision with the new transmission lines that would be constructed (Impact B-10) would result in an additional significant, unmitigable impact (Class I). Impacts associated with raven predation on wildlife (Impact B-11) are adverse and less than significant (Class III). Maintenance of the biomass/biogas component would result in disturbance to wildlife and wildlife mortality (Impact B-12), and these impacts would be significant but mitigable to less than significant levels (Class II).

Wind. Although siting of tower/turbines, access roads, and other associated facilities has not been conducted for this component, it is anticipated that the permanent loss of native vegetation would be on the magnitude of 50 to 100 acres. An additional 20 acres of native vegetation would be lost due to the construction of the Jacumba Substation. Impacts to sensitive vegetation communities (Impact B-1) would be significant and not mitigable to less than significant levels because adequate mitigation land may not be available to compensate for the impact. Impacts to special status plant and wildlife species (Impacts B-5 and B-7) would be significant and not mitigable to less than significant levels (Class I).

Construction activities would result in adverse effects to jurisdictional waters and wetlands (Impact B-2) during grading and vegetation removal but would be mitigable to less than significant levels (Class II). Introduction of invasive, non-native plant species and increased levels of dust (Impact B 3, Impact B-4) would be mitigable to less than significant levels (Class II). Construction activities would disturb vegetation and have the potential to impact nesting birds (Impact B-8). Mitigation would reduce this impact to a less than significant level (Class II). Bat nursery colonies would be significantly impacted if humans or construction activities approach or disturb active bat nursery colony (Impact B-9). Mitigation would reduce this impact to a less than significant level (Class II).

Mortality due to collision with the overhead transmission line (Impact B-10) would result in an additional significant, unmitigable impact (Class I). The wind component would also result disturbance to wildlife and wildlife mortality during maintenance activities (Impact B-12), and these impacts would be significant but mitigable to less than significant levels (Class II). Lastly, the wind component would result in significant, unmitigable (Class I) impacts to avian species and bats due to collisions with turbines (Impacts B-13 and B-14).

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E.5.3 Visual Resources

Each of the four components of the New In-Area Renewable Generation Alternative is addressed in this section. The criteria by which environmental impacts would be considered significant are the same as those considered for the Proposed Project and are discussed in Sections D.2 through D.15.

Visual Resources Setting for Solar Thermal

The 1,450-acre site on which the proposed solar thermal collection field would be constructed is currently vacant, undeveloped desert land. The project site is flat topography, surrounded by agricultural and undeveloped desert land, and has distant views to and from the San Jacinto and Santa Rosa Mountains. The nearest residence to the proposed solar thermal collection site is located approximately 0.2 miles west of the site. The project site is not within viewing distance of an eligible or designated scenic highway (San Diego County, 1986).

The transmission line would be installed either underground (Option 1) or overhead (Option 2) through Borrego Springs and south to ABDSP. The Option 1 underground 138 kV line would be underground in Borrego Valley Road to Yaqui Pass Road/S3. From its intersection with SR78, it would be the same as the Partial Underground 230 kV ABDSP SR78 to S2 Alternative with the All Underground Option (see Section D.3.15.1) within ABDSP. From the intersection with S22 the route would continue underground in S2 for approximately 6 miles to the Warners Substation.

Option 2 would follow the existing Borrego-Narrows 60 kV corridor to Narrows Substation. Within ABDSP the Option 2 overhead transmission line route would be the same as the Overhead 500 kV in Existing ROW Alternative (see Section D.3.15.2), except it would require replacement of the existing 69 kV wood poles with tubular or lattice steel poles ranging in 90 to 110 feet in height. From the western Park boundary the route would follow the Proposed Project to MP 87.8 and then would continue west-northwest in the existing Narrows-Warners 69 kV corridor across undeveloped VID preserve land to Warners Substation.

The methodologies used for the baseline setting and impact analysis are the same as those used for the Proposed Project, which are addressed in Section D.3.1.2 (Approach to Baseline Analysis) and Section D.3.4.1 (Approach to Impact Assessment).

Visual Resources Impacts for Solar Thermal

Construction Impacts

Impact V-1: Short-term visibility of construction activities, equipment, and night lighting (Class II for the solar thermal component; Class III for Option 1 and 2 transmission lines)

Construction of the solar thermal component and associated transmission lines would occur over a 12 to 18-month period. During construction, on-site temporary visual impacts could occur as a result of construction equipment and activities occurring within the site in Borrego Springs which is vacant, undeveloped, flat desert land. As such, the construction activities would not be screened from view. Due to the relatively short duration of project construction and coupled with the implementation of Mitigation Measures V-1a, V-1b, and V-1c, impacts would be reduced to less than significant. (Class II). Construction activities along the transmission line routes would be transient and of short duration as construction progresses along the route. As a result, affected viewers would be aware of the

temporary nature of project construction impacts, which would decrease their sensitivity to the impact. Therefore, construction of the transmission line would result in a less than significant impact. (Class III). Please note the full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact V-1: Short-term visibility of construction activities, equipment, and night lighting

V-1a **Reduce visibility of construction activities and equipment.**

V-1b **Reduce construction night lighting impacts.**

V-1c **Prohibit construction marking of natural features.** [APM VR-4]

Impact V-2: Long-term visibility of land scars and vegetation clearance in arid and semi-arid landscapes (Class II)

Implementation of the project would result in installation of a new 1,450-acre solar thermal collection facility in undeveloped desert land. Land scars would surround the solar collectors, because permanent access roads would be required. Access roads for the transmission line already exist, so would not create significant new visual scars, but new spur roads and other temporary disturbance would occur. In the arid climate of this region, these types of disturbances are not easily recovered and therefore these impacts would be significant. Mitigation measures V-2a, V-2b, V-2c, V-2e, and G-1b would reduce these impacts to less than significant levels (Class II). However, if site-specific conditions indicate that the mitigation measures would not be effective in eliminating unnatural demarcations in the vegetation landscape and reducing the resulting visual impact to a level that would be less than significant, then Mitigation Measure V-2d (Construction by helicopter) would be required following consultations with the CPUC, BLM, ABDSP, and USFS as appropriate.

Mitigation Measures for Impact V-2: Long-term visibility of land scars and vegetation clearance in arid and semi-arid landscapes

V-2a **Reduce in-line views of land scars.**

V-2b **Reduce visual contrast from unnatural vegetation lines.**

V-2c **Reduce color contrast of land scars.**

V-2d **Construction by helicopter.**

V-2e **Minimize vegetation removal.** [APM BIO-23]

G-1b **Restrict vehicle travel and restore land.** [APM GEO-2]

Operational Impacts

Impact V-NW1: Increased structure contrast, industrial character, view blockage, and skylining (Class I for generation facility and Option 2 transmission line; No Impact for Option 1 transmission line)

Degradation of Visual Character. No scenic resources such as trees, rocks, historic buildings, or scenic highways would be destroyed, removed, or blocked by the Borrego Springs solar facility of the solar thermal component. However, the project would place metal, glass, and concrete industrial equipment over a large area of currently undeveloped, natural desert landscape, and would therefore result in substantial degradation of the existing visual character of the site. This impact would be significant and unavoidable (Class I).

Nighttime Lighting. Project operations would require onsite nighttime lighting for safety and security. To reduce offsite lighting impacts, lighting at the facility would be restricted to areas required for safety, security, and operation. Even if exterior lights are hooded, and/or lights are directed onsite so that light or glare would be minimized, the project would introduce a new source of night time lighting over a large area that currently has no onsite or adjacent night time lighting, resulting in a significant and unavoidable impact (Class I).

Glare. Although the parabolic solar collectors would be designed to focus reflective glare to the center of the trough, placement of reflective mirrors over a 1,450-acre area would introduce a new source of daytime glare in the area that would be visible from near and long distance vantages, particularly from the higher elevations of Anza-Borrego Desert State Park. Construction of a wall to surround the site would block near distance views of glare, however the size of the site would require a relatively tall wall to block longer distance views. Such a wall would also have the effect of limiting sun exposure to the solar collectors, thereby reducing efficiency and energy output of the system, and would therefore be infeasible. Impacts would be significant and unavoidable (Class I).

Transmission Line. The Option 1 transmission line would be installed entirely underground and would result in no visual impacts during operation (No Impact).

The Option 2 transmission component of this project would result in taller, upgraded transmission lines in and adjacent to Anza-Borrego Desert State Park. The visual impacts of this 138 kV transmission line would be less severe than those of the proposed Sunrise Powerlink 500 kV transmission line, but the 138 kV line would still require installation of steel poles in the Park where only wood poles currently exist. Given the proximity to designated Wilderness Areas, Tamarisk Grove Campground, and recreation areas, the impact would be significant and unmitigable (Class I). Mitigation measure V-3a would not make the impact less than significant, but it should be implemented to reduce the severity of the impact from the Option 2 line.

Mitigation Measure for Impact V-NW1: Increased structure contrast, industrial character, view blockage, and skylining

V-3a Reduce visual contrast of towers and conductors.

Visual Resources Setting for Solar Photovoltaic

PV system installations would be constructed on existing residential and commercial buildings primarily in areas characterized by urban development throughout San Diego County. Installation of these systems would result in placement of solar PV panels on rooftops of existing buildings. Installations would occur in a variety of environments, including rural areas, residential developments, commercial corridors, and industrial zones, each with a different visual character. San Diego County has an abundance of scenic and historical resources to be protected and enhanced. The approximate 4,000 square miles of land in San Diego County encompass three different regions: the deserts of the east; the central mountains, part of the California Coastal Range; and the valleys, mesas and plateau bounding the Pacific Ocean on the western edge of the County (San Diego County, 2007). Each of these regions has distinctive topography, climate, vegetation, wildlife, land use and lifestyle. Scenic resources throughout the County are varied and plentiful. Among the major scenic resources are the deserts; snow capped peaks; rugged mountains; coastal foothills, valleys and canyons; pine forests; citrus and avocado orchards; Pacific Ocean and adjacent beaches, bays and cliffs; early California missions; interesting architecture; and a multitude of breathtaking vistas.

Visual Resources Impacts for Solar Photovoltaic

Construction Impacts

Because construction would occur on existing developed landscapes, Impact V-2: (Long-term visibility of land scars and vegetation clearance in arid and semi-arid landscapes) would not occur.

Impact V-1: Short-term visibility of construction activities and equipment (Class III)

Construction activities would consist of a two to four person work crew assembling each PV system on the ground near existing structures and then installing them on the structure's rooftop. Such activities would be short-term, lasting approximately two to four days at each residential site and three to five weeks at commercial sites. These activities would not substantially degrade views of scenic vistas, scenic resources, or substantially degrade the existing visual character of a site. Because these activities occur in developed areas where such short-term construction projects are expected by viewers, impacts would be adverse but less than significant (Class III).

Operational Impacts

Impact V-NW2: Increased structure contrast and industrial character (Class III)

Depending on the specific layout of individual sites, PV systems may be visible to viewers from various vantage points, particularly longer distance views that would allow a viewer to observe rooftops. However, to the extent possible, PV systems are installed in such a manner that disturbance to the existing visual character of the surrounding area would be minimally affected. Solar PV systems are designed to absorb sunlight and would therefore not create daytime or nighttime reflective glare.

Once operational, PV systems up to 35 square feet in size would lie on rooftops of existing residential and commercial buildings. Since they would be installed on existing structures in areas characterized by urban development they would not adversely affect scenic vistas, nor would they damage naturally occurring scenic resources. Solar PV systems would lie flat on rooftops extending no more than a few inches from the roof surface and would not block views of scenic resources from any vantage point. Impacts would be less than significant (Class III).

Visual Resources Setting for Biomass/Biogas

Fallbrook Renewable Energy Facility: The Fallbrook Renewable Energy Facility would be a biomass facility located on approximately 28 acres of the 80-acre Pankey Ranch property on Pala Road, east of the intersection of Pala Road (Highway 76) and Interstate 15 and south of the San Luis Rey River in the Pala Mesa Valley. A residential development is located approximately 1200 feet from the proposed construction site on Riverview Ct. and Avocado Vista Lane. There is a farmhouse and related agriculture buildings approximately 1300 feet from the proposed site on Shearer Crossing, and the closest road view is approximately 1050 feet, also on Shearer Crossing. The facility would cover 28 acres and would require construction of an integrated facility housing the biomass delivery and processing area, storage, electricity generation, and office operations. Nearby, greenhouse structures would be erected to take advantage of excess heat from the facility for growing organic produce.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the existing Miramar Landfill Biogas Facility would be located on or near the existing Miramar Landfill, located north of Highway 52, at the north end of Convoy Street. The site is

already developed and surrounded by existing structures and paved areas. It is located next to the Miramar Marine Corps Air Station (MCAS Miramar) and the visual character of this site is a semi-industrial, open space although there is some commercial, military, and wetland land use nearby. State Highway 52 near the Miramar landfill is an eligible state scenic highway (although not officially designated). The Miramar landfill does not have any residences or public viewpoints within 2,500 feet of the landfill.

Visual Resources Impacts for Biomass/Biogas

Construction Impacts

Impact V-1: Short-term visibility of construction activities and equipment (Class III)

Fallbrook Renewable Energy Facility: This biomass alternative would involve constructing an integrated facility to house the biomass delivery and processing area, storage, electricity generation, and office operations. In addition there would be construction of a nearby greenhouse and the one mile of new transmission line necessary to meet up with the existing Via Monserate–Pala transmission line. These activities would be visible during construction, but the nearest residence and the nearest road are more than 1000 feet away. The Facility would be situated in what is now an orchard, and the natural tree cover and topography would offer cover for the construction. Therefore, impacts would be less than significant (Class III).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility would require constructing a facility to integrate biomass delivery and processing, a storage area for the prepared fuel, generation facilities, and office functions. The Miramar Landfill biogas facility would require erection of a prefabricated metal building to house additional generating equipment. These constructions would occur on or around the already existing Miramar Landfill that is set in an industrial setting with no residences within a 1000-foot radius. Therefore, impacts would be less than significant (Class III).

Operational Impacts

Impact V-3BM/BG: Increased structure contrast and industrial character (Class II for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Biomass facilities can be larger industrial buildings in agricultural areas with little industrial development. In flat areas, biomass facilities can be visible from a distance, and they can create steam plumes that can be visible for miles. Depending on site characteristics, adjacent and nearby uses, and the availability of sightlines from sensitive viewing populations, visual impacts could range from adverse but less than significant to significant. The Fallbrook Renewable Energy Facility is situated in an 80-acre orchard. The facility would not repeat the basic elements of the existing natural features in the landscape, and the terrain and topography of the orchard offers opportunities to either screen the structures from view or blend them effectively with the background. The Fallbrook Facility is situated away from the road and site plans include planting flowers and organic farming as means of both using the excess heat created by the facility and as means of blocking the facilities from the viewer.

The Fallbrook Biomass component requires one mile of new transmission line to meet up with the existing Via Monserate – Pala transmission line. This transmission would be situated in a primarily agricul-

tural and rural setting with little industrial character and would be visible to surrounding neighbors and roads. Therefore this would be a significant impact. Mitigation measure V-3a would be implemented to reduce this impact to less than significant (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility would be located on or near the existing Miramar Landfill that currently has permanent structures and significant industrial character. The new facilities would not substantially effect or damage scenic resources, nor would they degrade the existing visual character or quality of the site or its surrounding landscapes. There is an already existing transmission line at the existing Miramar Biogas Facility (No Impact).

Mitigation Measure for Impact V-3BM/BG: Increased structure contrast and industrial character (Class III)

V-3a Reduce visual contrast of towers and conductors.

Visual Resources Setting for Wind

The landscape along the wind component of the New In-Area Renewables Alternative would include the arid, sparsely vegetated foothills and the north-south trending ridge that forms the western boundary of McCain Valley, and the south-western facing foothills of the In-Ko-Pah Mountains. Views of the wind component would be available from numerous vantage points including Interstate 8, Canebrake Road, McCain Valley Road, and Carrizo Overlook. In addition, views may be available from dispersed recreation areas in McCain Valley, Cleveland National Forest, Sawtooth Mountains Wilderness area, In-Ko-Pah Mountains, Carrizo Gorge, and Sacatone Overlook.

The tribal section of the wind component could be viewed from Interstate 8, a third priority scenic route under the San Diego County Mountain Empire General Plan. In addition, two key viewpoints (KVPs 60 (Figure E.2.3-1A and B) and 61(Figure E.2.3-2A and B)) are considered representative of the visual impacts that would be experienced along this component. The locations of the KVPs are shown on Figure E.1.3-1. The results of the visual analysis are summarized in Appendix VR-E6-1 at the end of Section E.6.3.

A new 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL (about 10 miles to the south), at which point a new substation would also need to be constructed. It is assumed that the wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5. Views along the wind component transmission line include rolling grass and shrub-covered hills punctuated by groupings of oaks and backdropped by the low, rolling to angular form of Tecate Divide, which is lined by the prominent wind turbines. The dominant vertical forms of the wind turbines establish industrial character and compromise the coherence of a landscape that is predominantly rural in character. Skylining of the wind turbines exacerbates the prominence and visibility of these structures. The linear form of I-8 (an Eligible State Scenic Highway) is a prominent built feature. Views from the freeway are unobstructed and panoramic in scope.

A new substation would be built either on the Campo tribal lands or at MP I8-35 of the Interstate 8 Alternative.

Key Viewpoint 60–McCain Valley North (VRM)

Key Viewpoint 60 was established on McCain Valley Road, approximately 1.5 miles south of Cottonwood Campground in north McCain Valley (see Figure E.2.3-1A and B in Section E.2). This view is to the southwest across McCain Valley West toward the northern end of Tecate Divide, which forms the background horizontal ridgeline, transitioning to the southern extent of the Laguna Mountains. The north end of the Divide is absent the wind turbines that are so prevalent further south. Views from McCain Valley Road are unobstructed and panoramic. This location was selected to generally characterize the existing McCain Valley West landscape visible to visitors to Cottonwood Campground. Further, the western foothills of the In-Ko-Pah Mountains where the BLM section of the wind component would be located would also be visible from this location. The west valley landscape is predominantly natural appearing with minimal evidence of built modifications. Landform colors are predominantly light tan for soils with tan to reddish-brown hues for rocks. Landform textures appear smooth to granular while the vegetation is relatively continuous with a matte texture. Vegetation colors include tans to pale yellow for grasses with muted to light and dark greens and tans for the shrubs. The BLM scenic quality classification and viewer sensitivity are not available but the VRM Class Rating is II as identified in the current Eastern San Diego County Management Plan.

It should be noted that the existing Management Plan is currently being revised and the VRM Class for the McCain Valley West area is proposed to be changed to VRM Class IV.

Key Viewpoint 61–Carrizo Overlook (VRM)

Key Viewpoint 61 was established at Carrizo Overlook, just northeast of McCain Valley Road (see Figure E.2.3-2A and B in Section E.2). This view is to the southwest across McCain Valley West toward Tecate Divide, the distant north-south trending ridge that forms the western boundary of McCain Valley. Noticeable across that ridge is an existing wind farm development with the vertical wind turbine towers that appear like utility poles at this distance. Views from the overlook are unobstructed and panoramic. This location was selected to generally characterize the existing McCain Valley West landscape visible to visitors at Carrizo Overlook. Further, the western foothills of the In-Ko-Pah Mountains where the BLM site of the wind component would be located could also be visible from this location. The west valley landscape is predominantly natural appearing with minimal evidence of built modifications. Landform colors are predominantly light tan for soils with tan to reddish-brown hues for rocks. Landform textures appear smooth to granular while the vegetation is relatively continuous with a matte texture. Vegetation colors include tans to pale yellow for grasses with muted to light and dark greens and tans for the shrubs. The BLM scenic quality classification and viewer sensitivity are not available but the VRM Class Rating is II as identified in the current Eastern San Diego County Management Plan.

It should be noted that the existing Management Plan is currently being revised and the VRM Class for the McCain Valley West area is proposed to be changed to VRM Class IV.

Visual Resources Impacts for Wind

Construction Impacts.

Impact V-1: Short-term visibility of construction activities, equipment and night lighting (Class II for the wind farm; Class III for the transmission line)

Wind farm. There are numerous viewing opportunities of concern for the alternative sites as described above. The wind farm location is predominantly natural appearing with minimal evidence of built modification. Construction impacts on visual resources would result from the presence and visual intrusion of construction vehicles, equipment, materials, and work force at the wind farm, construction and storage yards. Construction impacts on visual resources would also result from the temporary use of night lighting if night lighting is not appropriately controlled at these construction sites. Views of construction activities and equipment would be visually intrusive from these locations. Construction of the wind farm could last between 9 and 18 months per phase and is project to last three phases. The resulting visual impacts would be significant but mitigable (Class II). Mitigation measures V-1a and V-1b and V-1c are required to reduce the impacts to levels that would be less than significant.

Transmission line. There are numerous viewing opportunities of concern for the transmission line as described above. However, construction activities would be transient and of relative short duration. As a result, affected viewers would be aware of the temporary nature of the impact and project construction impacts would generally constitute adverse, but less than significant (Class III) visual impacts. Although Impact V-1 for the transmission line would be less than significant, mitigation is recommended in compliance with NEPA requirements. Mitigation measures V-1a, V-1b and V-1c are recommended to reduce construction impacts.

Mitigation Measures for Impact V-1: Short-term visibility of construction activities, equipment and night lighting

V-1a **Reduce visibility of construction activities and equipment.**

V-1b **Reduce construction night lighting impacts.**

V-1c **Prohibit construction marking of natural features.** [APM VR-4]

Impact V-2: Long-term visibility of land scars and vegetation clearance in arid and semi-arid landscapes (Class I)

Unnatural and discordant demarcations in the vegetation landscape (land scarring) would occur along many areas of the wind component where it passes through undeveloped arid and semi-arid landscapes. The installation of new structures and construction of new access/spur roads would cause disturbance of soils and vegetation as vehicles and equipment access the wind turbine installation areas and equipment and materials are moved. This would be a significant impact. Mitigation measures V-2a through V-2c, V-2e and G-1b would reduce impacts. However, given the extensive network of permanent access and spur roads that would be required for the wind component primarily along ridge lines and their slopes, even with mitigation, Impact V-2 could not be reduced to an insignificant level (Class I).

Mitigation Measures for Impact V-2: Long-term visibility of land scars in arid and semi-arid landscapes

V-2a **Reduce in-line views of land scars.**

V-2b **Reduce visual contrast from unnatural vegetation lines.**

V-2c **Reduce color contrast of land scars.**

V-2e **Minimize vegetation removal.** [APM BIO-23]

G-1b **Restrict vehicle travel and restore land.** [APM GEO-2]

Operational Impacts

Impact V-NW3: Increased structure contrast, industrial character, view blockage, and skylining associated with 230 kV transmission line (Class I)

The wind component requires ten miles of new transmission line to meet up with the existing SWPL corridor. The openness of the terrain would allow extended in-line views of the transmission line from I-8 and would cause several structures to be visible in the same field of view. The transmission line would introduce structurally complex and prominent features with considerable industrial character into a predominantly rural landscape that is already host to prominent vertical features in the wind turbines along Tecate Divide. This would be a significant unmitigable impact (Class I). However, Mitigation Measure V-3a is still recommended to reduce the visual impact along this portion of the alternative in compliance with NEPA.

Mitigation Measure for Impact V-NW3: Increased structure contrast, industrial character, view blockage, and skylining associated with 230 kV transmission line

V-3a **Reduce visual contrast of towers.**

Impact V-NW4: Increased structure contrast, industrial character, view blockage, and skylining associated with substation development (Class I)

The impacts of the Jacumba Substation (evaluated as a connected action) are presented in Section D.3.12.4.

The Campo Substation would be visible in the middle distance from the adjacent residences and roads. While the number of viewers would be low, the duration of view would be extended. In addition, the substation would be highly visible at night in this rural setting. Combining the equally weighted moderate visual quality, high viewer concern, and moderate-to-high viewer exposure results in an overall moderate-to-high visual sensitivity of the visual setting and viewing characteristics. Any introduction of industrial character to the predominantly natural appearing existing landscape at the substation location or blockage of views to higher quality landscape features (valley floor, rocky ridges, distant mountains, or sky) would be perceived as an adverse visual change. The resulting viewer concern would be high and would constitute a significant unmitigable impact (Class I). However, Mitigation Measure V-3a, V-3b, and V-3c are still recommended to reduce the visual impact along this portion of the alternative in compliance with NEPA.

Mitigation Measures for Impact V-NW4: Increased structure contrast, industrial character, view blockage, and skylining associated with substation development

V-3a **Reduce visual contrast of towers (second bullet of mitigation only applies).**

V-3b **Use non-specular design to reduce conductor visibility and visual contrast.** [APM VR-2]

V-3c **Coordinate with affected property owners on structure siting.** [APM VR-5]

Impact V-NW5: Long-term visibility of wind component turbines and associated facilities from Interstate 8 (Class I)

The reservation section of the wind component could be viewed from Interstate 8, a third priority scenic route under the San Diego County Mountain Empire General Plan. However, the existing Kumeyaay wind farm is located within the proposed wind component area within Campo Reservation. Future development within the southern portion of the reservation would introduce additional industrial structures that would also be visible from Interstate 8, intensifying the industrialization of the area. This would be a significant impact.

While Mitigation Measure V-3a for the Proposed Project is recommended, the placement of wind tower/turbines is a function of wind patterns and topography (i.e., higher elevations) and it is likely that these structures would be visible from multiple viewpoints even with mitigation in place. Additionally, Mitigation Measures V-3b and V-3c are recommended, although implementation of these measures would not reduce the impact to less than significant (Class I).

Mitigation Measures for Impact V-NW5: Long-term visibility of wind component turbines and associated facilities from Interstate 8

V-3a **Reduce visual contrast of towers (second bullet of mitigation only applies).**

V-3b **Use non-specular design to reduce conductor visibility and visual contrast.** [APM VR-2]

V-3c **Coordinate with affected property owners on structure siting.** [APM VR-5]

Impact V-NW6: Increased structure contrast, industrial character, view blockage, and skylining when viewing the wind component turbines and associated facilities from nearby residences and public roads (Class I)

The wind component would be visible to rural residents located outside of the BLM and Reservation lands in which the wind component would be located. Further, the Jacumba Substation would also be visible to rural residences (See Section D.3.12.4). As discussed under Impacts V-NW3 and V-NW4, the wind component towers/turbines and associated facilities would be predominantly visible within this open space landscape. Some residents along Interstate 8 and to the east of Campo and Manzanita Reservations would also be able to view the existing wind turbine farm within Campo Reservation. Residents to the north and south of the BLM wind component area would also be able to view alternative facilities. This would be a significant impact. Mitigation measures V-3a, V-3b and V-3c are recommended, although implementation of these measures would not reduce the impact to less than significant. Given the inability of mitigation to reduce this impact to an insignificant level, Impact V-NW6 is considered to be a significant and unavoidable impact (Class I).

Mitigation Measures for Impact V-NW6: Increased structure contrast, industrial character, view blockage, and skylining when viewing the wind component turbines and associated facilities from nearby residences and public roads

V-3a **Reduce visual contrast of towers (second bullet of mitigation only applies).**

V-3b **Use non-specular design to reduce conductor visibility and visual contrast.** [APM VR-2]

V-3c **Coordinate with affected property owners on structure siting.** [APM VR-5]

Impact V-NW7: Inconsistency with BLM VRM Class II Management objective due to introduction of structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint 60 on McCain Valley Road South of Cottonwood Campground (VRM) (Class I or III)

Figure E.2.3-1A in Section E.2 presents the existing view to the southwest across the northern end of McCain Valley from Key Viewpoint 60 on McCain Valley Road, approximately 1.5 miles south of Cottonwood Campground. Portions of the wind component would be located within the undeveloped landscape along McCain Valley Road south of the KVP. The tribal wind component area is also visible from this viewpoint. As shown in Figure E.2.3-1A (Section E.2), there are no structures similar to the wind turbines of the alternative in the north McCain Valley area. The existing Kumeyaay wind turbines on Tecate Divide are further to the south down the Divide. The wind turbine structures would be prominent features in the landscape, a characteristic that is exacerbated by the skylining that would occur as a result of the relatively level terrain and the open, unobstructed sightlines to the wind turbines from McCain Valley Road. The wind turbines would also exhibit considerable industrial character. The resulting structural visual contrast (for form and line) would be moderate-to-strong. The overall level of change would be moderate-to-high.

The BLM's current Visual Resource Management (VRM) Class II objective requires the retention of existing landscape character and that the level of change be low. Management activities may be seen, but should not attract the attention of the casual observer. The moderate-to-high level of change that would occur would not meet the VRM Class II objective of a low degree of visual change (or less). The prominently visible structures would be noticeable and would attract the attention of the casual observer on McCain Valley Road. The complex structural forms and vertical to diagonal lines would not repeat the basic elements of the existing natural features in the landscape (flat to rolling landforms and horizontal to curvilinear line). Therefore, the wind component in north McCain Valley would not be consistent with the applicable VRM Class II management objective and the resulting visual impact would be significant (Class I). Mitigation measures V-3a, V-3b and V-3c are recommended, although implementation of these measures would not reduce the impact to less than significant.

It should also be noted that the existing Management Plan is in the process of being updated and the McCain Valley West area is proposed to be reclassified to a VRM Class IV area. Should this occur, the moderate-to-high level of change caused by the wind component would be consistent with the new VRM Class IV management objective and the resulting visual impact would be considered adverse but not significant (Class III).

Mitigation Measures for Impact V-NW7: Inconsistency with BLM VRM Class II Management objective due to introduction of structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint 60 on McCain Valley Road South of Cottonwood Campground (VRM)

V-3a **Reduce visual contrast of towers (second bullet of mitigation only applies).**

V-3b **Use non-specular design to reduce conductor visibility and visual contrast.** [APM VR-2]

V-3c **Coordinate with affected property owners on structure siting.** [APM VR-5]

Impact V-NW8: Inconsistency with BLM VRM Class II Management objective due to introduction of structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint 61 on at Carrizo Overlook (VRM) (Class I or III)

Figure E.2.3-2A in Section E.2 presents the existing view to the southwest from Key Viewpoint 61 at Carrizo Overlook, just northwest of McCain Valley Road. Portions of the wind component would be located within the undeveloped landscape of McCain Valley West, west of McCain Valley Road, and within the south-western foothills of the In-Ko-Pah Mountains. The existing Kumeyaay wind turbines on Tecate Divide are slightly noticeable along the distant horizon, but there are no other structures similar to the wind turbines of the wind component in the McCain Valley West area either to the north or west. The structures would be prominent features in the landscape, a characteristic that is exacerbated by the skylining that would occur as a result of the relatively level terrain and the open, unobstructed sightlines to the wind component project from Carrizo Overlook. The wind turbines would also exhibit considerable industrial character. The resulting structural visual contrast (for form and line) would be moderate-to-strong for the BLM wind component area. The overall level of change would be moderate-to-high.

The BLM's current Visual Resource Management (VRM) Class II objective requires the retention of existing landscape character and that the level of change be low. Management activities may be seen, but should not attract the attention of the casual observer. The moderate level of change that would occur would not meet the VRM Class II objective of a low degree of visual change (or less). The prominently visible structures would be noticeable and would attract the attention of the casual observer at the overlook. The complex structural forms and vertical lines would not repeat the basic elements of the existing natural features in the landscape (flat landform and horizontal line). Therefore, the wind component in McCain Valley West would not be consistent with the applicable VRM Class II management objective and the resulting visual impact would be significant (Class I). Mitigation measures V-3a, V-3b and V-3c are recommended, although implementation of these measures would not reduce the impact to less than significant.

It should also be noted that the existing Management Plan is in the process of being updated and the McCain Valley West area is proposed to be reclassified to a VRM Class IV area. Should this occur, the moderate-to-high level of change caused by the wind component would be consistent with the new VRM Class IV management objective and the resulting visual impact would be considered adverse but less than significant (Class III).

Mitigation Measures for Impact V-NW7: Inconsistency with BLM VRM Class II Management objective due to introduction of structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint 61 on at Carrizo Overlook (VRM)

V-3a **Reduce visual contrast of towers (second bullet of mitigation only applies).**

V-3b **Use non-specular design to reduce conductor visibility and visual contrast.** [APM VR-2]

V-3c **Coordinate with affected property owners on structure siting.** [APM VR-5]

Overall Impacts of Renewable Generation Alternative for Visual Resources

Solar Thermal. Construction of the solar thermal component would result in short-term impacts due to visibility of activities, equipment, and personnel, but these impacts would be less than significant (Class II). Operation of the solar thermal component would result in a significant, unmitigable (Class I) impact as a result of the additional glare from the generation facility and the Option 2 transmission line which would require installation of steel poles in the Park where only wood poles currently exist.

Solar Photovoltaic. Construction and operation of the Solar Photovoltaic (PV) component would result in no significant visual impacts. Construction at each site would last approximately one to four days for residential PV systems and up to five weeks for commercial systems and would not substantially degrade views of scenic vistas, scenic resources, or substantially degrade the existing visual character. Solar PV systems would lie flat on rooftops extending no more than a few inches from the roof surface and would not block views of scenic resources from any vantage point.

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant unmitigable visual impacts. These activities, while visible, would occur in areas where the nearest residences and roads are more than 1,000 feet away. The Fallbrook Renewable Energy Facility would be shielded from view by the terrain and topography of the site and the Miramar Facilities would occur in an area with permanent scaring and industrial character. The new transmission line associated with the Fallbrook biomass component would result in a significant but mitigable impact (Class II).

Wind. Construction of the wind component would result in a long-term unmitigable significant visual impact (Class I) because the wind turbines would be constructed on undeveloped arid and semi-arid landscapes that are not easily revegetated. Operation of the wind component would also result in a number of significant, unmitigable (Class I) visual impacts because it would introduce prominent industrial features (wind turbines) on both recreational BLM land and on tribal land. The wind turbines and associated facilities would be visible to nearby residences and public roads. In addition, the wind component would be inconsistent with BLM VRM Class II Management objectives due to the introduction of structure contrast, industrial character, view blockage, and skylining.

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E.5.4 Land Use

Land Use Setting for Solar Thermal

The 1,450-acre site on which the proposed solar thermal collection field would be constructed is privately owned land that is currently vacant, undeveloped desert. The project site has a land use designation of Multiple Rural Use, which is consistent with specific planning areas and utility corridors, and is also the same designation as the site of the existing Borrego Substation (SD Co., 2004). Land uses surrounding the Solar Thermal site are listed in Table E.5.4-1 below.

Table E.5.4-1. Land Uses Around the Solar Thermal Component Site

Jurisdiction(s)	Land Use Classifications+	Specific Land Uses*
County of San Diego	Industrial	De Anza Ready-Mix and Materials
County of San Diego	Parks and Recreation/Open Space	Miscellaneous open space
County of San Diego	Residential	Single-family Residence*
County of San Diego	Agriculture	*Abandoned* farm
County of San Diego	Parks and Recreation/Open Space	Miscellaneous open space
County of San Diego	Residential	Single-family Residence*
County of San Diego	Residential	Single-family Residence*
County of San Diego	Parks and Recreation/Open Space	Miscellaneous open space
County of San Diego	Parks and Recreation/Open Space	Miscellaneous open space
County of San Diego	Agriculture	Ellis Farms Ornamental Palms Nursery
County of San Diego	Agriculture	The Date Garden

* Sensitive Uses (3 single-family residences)

The Option 1 transmission line route would be located entirely underground in existing roadways though the center of Borrego Springs along Borrego Valley Road to Yaqui Pass Road/S3, passing residential receptors until it would enter ABDSP. Within ABDSP there would be only one sensitive receptor, the Park Ranger residence, which is located near Tamarisk Grove Campground and the intersection of SR78 with S3. After turning north-northwest along S2 for approximately 7 miles, the route would pass rural residential land uses for the last 4.1 miles to the intersection of S2 and S22. From that intersection to Warners Substation the route would cross through Vista Irrigation District lands and there would be no sensitive receptors.

The overhead Option 2 transmission line would be entirely overhead in an existing 69 kV transmission corridor. From its intersection with the proposed route (MP 69.9 of the Proposed Project), the land uses for this route would be the same as for the Overhead in Existing ROW Alternative and Proposed Project to MP 87.8 of the Proposed Project, west of ABDSP (see Section D.4). From that point to the intersection with S2, the route would pass rural residences near the town of Ranchita. The remaining approximately 6 miles to Warners Substation would be located on Vista Irrigation District land.

Local agencies are encouraged by state and regional agencies to incorporate renewable energy technologies in planning and development. The Solar Rights Act of 1978 authorizes cities and counties to require solar easements as a condition of subdivision approval to ensure each parcel or unit the ability to receive sunlight across adjacent parcels or units for any solar energy system. The Act precludes legislative bodies from enacting ordinances that would make the use of solar energy infeasible (OPR, 2003). Additionally, the energy element of the San Diego County General Plan includes several

goals and polices to encourage and promote the utilization of alternative passive and renewable energy resources, to maximize energy conservation, and to utilize new energy technologies, such as solar energy technologies (SD Co., 1990).

Land Use Impacts for Solar Thermal

Construction Impacts

Impact L-1: Construction would temporarily disturb nearby land uses (Class II)

The solar thermal component of the renewable generation alternative would be constructed on vacant, undeveloped land that is surrounded by open space and agricultural land uses. Refer to Section E.5.6 (Agriculture) for a discussion of agricultural impacts for solar thermal energy and Section E.5.5 (Wilderness and Recreation) for discussion of impacts to open space. Land Use impacts would occur during construction of the proposed solar collection field site, the transmission line corridor, and the aboveground utility connections required to transmit power from the solar collection field to the existing Borrego Substation along the existing Borrego Valley Road. There are no sensitive receptors in the immediate area of the solar thermal site.

Construction of the solar thermal energy facilities would create additional noise and dust in the area of as a result of heavy construction equipment on roads and the movement of building materials to and from construction staging areas. This potentially would result in temporary disturbances to other uses. Mitigation measures to reduce noise and air quality impacts such as those presented in Sections E.5.8 (Noise) and E.5.11 (Air Quality), respectively, would reduce, but not eliminate, disturbance. While this disturbance would be short-term and temporary at any one location, it potentially would be significant if construction is not carefully managed and area users kept informed. Thus, Mitigation Measures L-1a, L-1d, L-1e, and L-1f would be required to ensure that construction-related land use impacts would be less than significant (Class II). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact L-1: Construction would temporarily disturb the land uses it traverses or adjacent land uses

L-1a **Prepare Construction Notification Plan.**

L-1d **Provide advance notice and appoint public affairs officer.** [APM LU-1]

L-1e **Notify property owners and provide access.** [APM LU-4]

L-1f **Flag ROW boundary and environmentally sensitive areas.** [APM LU-6]

Operational Impacts

Impact L-2: Presence of a generation facility or transmission line would disrupt land uses at or near the facility or alignment (No Impact)

The upgraded 36-mile transmission line from Borrego Springs to Narrows and Warners Substations would be located underground in existing roadways in Option 1 or overhead in the same location as the existing 69 kV line in Option 2. It would therefore not conflict with any land use plans or divide an established community. The land use designation of the site of the proposed solar collection field is consistent with utility uses and therefore would not conflict with an established land use plan. The site is surrounded by open space and agricultural land uses. No sensitive uses would be located near the facilities, only vacant land. Once construction is complete, access to and around the area would be fully

restored. Given that there are no existing uses in the immediate area, no existing uses would be permanently altered. For these reasons, no operational land use impacts would occur due to solar thermal energy facilities (No Impact).

Land Use Setting for Solar Photovoltaic

PV system installations would be constructed on existing residential and commercial buildings primarily in areas characterized by urban development. PV system installations would likely occur on properties spanning a variety of land uses including residential, commercial, industrial, and public facilities.

Local agencies are encouraged by state and regional agencies to incorporate renewable energy technologies in planning and development. The Solar Rights Act of 1978 authorizes cities and counties to require solar easements as a condition of subdivision approval to ensure each parcel or unit the ability to receive sunlight across adjacent parcels or units for any solar energy system. The Act precludes legislative bodies from enacting ordinances that would make the use of solar energy infeasible (OPR, 2003). Additionally, the energy element of the San Diego County General Plan includes several goals and polices to encourage and promote the utilization of alternative passive and renewable energy resources, to maximize energy conservation, and to utilize new energy technologies, such as solar energy technologies (SD Co., 1990).

Land Use Impacts for Solar Photovoltaic

Construction Impacts

Impact L-1: Construction would temporarily disturb nearby land uses (Class III)

Assembly and installation of PV systems would involve work crews of less than five people for two to four days for residential sites and three to five weeks for commercial sites. These activities would utilize relatively small land areas immediately adjacent to or on top of the subject structure, would not require construction of any type of fences or barriers and would therefore not divide established physical communities. Construction activities would be performed consistent to the requirements of all applicable construction and/or land use plans and would therefore not conflict with any applicable land plans. As construction activities would be short-term, temporary and minor in scale, impacts to nearby land uses would be considered adverse but not significant (Class III).

Operational Impacts

Impact L-2: Presence of a generation facility or transmission line would disrupt land uses at or near the facility or alignment (No Impact)

Once operational, PV systems up to 35 square feet in size would lie on rooftops of existing residential and commercial buildings and would therefore not divide any established communities. Since state, regional, and local plans encourage utilization of renewable energy technologies, operation of solar PV systems would be consistent with applicable land use policies, plans, and regulations. Moreover, site selection would take into consideration any applicable land use or habitat conservation plans to ensure consistency with any such plan. Further, from an operational perspective, presence of the solar photovoltaic facilities would not disrupt actual use of surrounding properties or structures. Access to all uses would be fully restored once construction of the facilities is complete. No uses would be removed, and the nature and condition of any use would not change. In light of the aforementioned reasons, no land use-related impacts would occur (No Impact).

Land Use Setting for Biomass/Biogas

The project sites that could accommodate the biomass/biogas facilities would be placed on an existing orchard and on an existing landfill. Land uses surrounding the biomass/biogas facilities are described as follows:

- The Fallbrook Renewable Energy Facility. Surrounding land uses are primarily agricultural, commercial and residential. The facility itself would be constructed on 28 acres of an 80-acre citrus orchard. The Pankey Ranch is zoned as (A70) Limited Agriculture, (A72) General Agriculture. It has a General Plan Land Use Designation of (18) Multiple rural Use and (24) Impact Sensitive. The proposed use, a renewable energy facility would be classified as Major Impact Utilities and Facilities which would be permissible in the previously mentioned zoning and General Plan categories with the approval of a Major Use Permit. The Fallbrook facility would also require one mile of transmission line to meet up with the existing Via Monseratee–Pala transmission line. This transmission line would be adjacent to primarily agricultural land. (Envirepel, 2007) Table E.5.4-2 identifies specific land uses within or adjacent to this biomass/biogas alternative.
- The Miramar Renewable Energy Facility would be a new biomass facility developed at the existing Miramar Landfill. Like the Miramar Landfill, the Miramar Renewable Energy Facility is zoned AR 1-1 or rural cluster residential development which proposes a density that exceeds one dwelling unit per 10 acres but is not more than one dwelling unit per 4 acres with no potential for development on remainder of the premises as described in Section 143.0402 of the San Diego Municipal Code. The surrounding regions are zoned IL 2-1, mix of light industrial and office uses with limited commercial use, and IL 3-1, mix of light industrial, office and commercial uses. Table E.5.4-3 identifies specific land uses within or adjacent to this biomass/biogas alternative.
- The Miramar Landfill Biogas Facility: The Miramar Landfill is located on the Miramar Marine Corps Air Station. The closest residence to the Miramar landfill is 2,640 feet away. The landfill is located in close proximity to SR52 as well as residential communities. Table E.5.4-3 identifies specific land uses within or adjacent to this biomass/biogas alternative.

Table E.5.4-2. Proposed Fallbrook Renewable Energy Facility (Biomass) Location

Map No.	Jurisdiction(s)	Land Use Classifications+	Specific Land Uses*
1	County of San Diego	Parks and Recreation/Open Space	Miscellaneous open space
2	County of San Diego	Parks and Recreation/Open Space	Miscellaneous open space
3	County of San Diego	Residential, Agriculture	Single-family Residence*, Citrus orchard
4	County of San Diego	Residential, Agriculture	Single-family Residence*, Avocado orchard
5	County of San Diego	Residential	Single-family Residential* (Lake Rancho Viejo Homes)

*Sensitive Use

Table E.5.4-3. Potential Miramar Biogas and Renewable Energy Facility Locations Land Uses

Map No.	Jurisdiction(s)	Land Use Classifications+	Specific Land Uses*
1	City of San Diego	Commercial and Office	Holland Motor Homes
2	City of San Diego	Commercial and Office	La Mesa RV
3	City of San Diego	Public Facilities and Utilities	S.D. Air National Guard Station – 147th Combat Communications Squadron
4	City of San Diego	Commercial and Office	REI
5	City of San Diego	Parks and Recreation/Open Space	Soccer fields
6	City of San Diego	Commercial and Office	ROS (Remote Ocean Systems)
7	City of San Diego	Commercial and Office	S.D. Pension Consultants
8	City of San Diego	Industrial	SCP Diagnostics LLC
9	City of San Diego	Commercial and Office	Road Runner Sports
10	City of San Diego	Commercial and Office	Mr. Copy Solutions
11	City of San Diego	Industrial	Cox Communications
12	City of San Diego	Industrial	XO Communications
13	City of San Diego	Commercial and Office	HSBC
14	City of San Diego	Industrial	A-1 Self-Storage
15	City of San Diego	Commercial and Office	Neighborhood House Association
16	City of San Diego	Industrial	Sullivan Moving and Storage – United Van Lines
17	City of San Diego	Public Facilities and Utilities	Miramar Landfill
18	DoD (USMC)	Public Facilities and Utilities	MCAS Miramar

*No sensitive uses

Land Use Impacts for Biomass/Biogas

Impact L-1: Construction would temporarily disturb land uses at or near the alignment (Class II)

Fallbrook Renewable Energy Facility: This biomass component would occur on an existing citrus orchard, the Pankey Ranch. However, the County of San Diego has classified the site such that it is allowed to be used for a Renewable Energy Facility with the approval of a Major Use Permit. Construction impacts to land use would include the placement of the new equipment on site as well as temporary movement of construction traffic. Access roads would be constructed, but these and all other construction activities are expected to take place at the existing orchard without converting any other land. The installation and construction of the biomass Non-Wires alternatives would impact the land use at the orchard due to the permanent location of the new equipment. However, the applicant would be required to obtain applicable permits prior to construction and would comply with all local, state, and federal LORS.

The Fallbrook Facility would require one mile of new transmission line to meet up with the existing Via Monserate–Pala transmission line which would be adjacent to primarily agricultural lands and open space. Construction could create additional noise and dust in the area of as a result of heavy construction equipment on roads and the movement of building materials to and from construction sites. This could result in temporary disturbances to other uses. Mitigation measures to reduce noise and air

quality impacts could be implemented similar to those presented in Sections E.5.8 (Noise) and E.5.11 (Air Quality), respectively, but these measures would not eliminate the disturbance. While this disturbance would be short-term and temporary at any one location, it could be significant if construction is not carefully managed and area users kept informed. Thus, Mitigation Measures L-1a, L-1d, L-1e, and L-1f are recommended to ensure that construction-related land use impacts would be less than significant (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: This Biomass/biogas alternative would occur on an existing landfill and would not require additional land. Such sites have been previously disturbed lands and are occupied by similar land uses. Depending upon the specific location of such facilities, construction impacts to land use would include the placement of the new equipment on site as well as temporary movement of construction traffic. There are no access roads expected to be constructed and all construction activities are expected to take place at the existing landfill without converting new land. The installation and construction of the biomass/biogas Non-Wires alternatives would impact the land use at the landfill due to the permanent location of the new equipment. However, the applicant would obtain applicable permits prior to construction and would comply with all local, state, and federal LORS.

Construction could still create additional noise and dust in the area of as a result of heavy construction equipment on roads and the movement of building materials to and from construction sites. This could result in temporary disturbances to other uses. Mitigation measures to reduce noise and air quality impacts could be implemented similar to those presented in Sections E.5.8 (Noise) and E.5.11 (Air Quality), respectively, but these measures would not eliminate the disturbance. While this disturbance would be short-term and temporary at any one location, it could be significant if construction is not carefully managed and area users kept informed. Thus, Mitigation Measure L-1a, L-1d, L-1e, and L-1f are recommended to ensure that construction-related land use impacts would be less than significant (Class II).

Mitigation Measures for Impact L-1: Construction would temporarily disturb the land uses it traverses or adjacent land uses

L-1a **Prepare Construction Notification Plan.**

L-1d **Provide advance notice and appoint public affairs officer.** [APM LU-1]

L-1e **Notify property owners and provide access.** [APM LU-4]

L-1f **Flag ROW boundary and environmentally sensitive areas.** [APM LU-6]

Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment (No Impact)

Fallbrook Renewable Energy Facility: The Fallbrook component would require 1.0-mile of transmission line to reach the existing 69 kV circuit line. The proposed routes would traverse primarily agricultural land and open space, and once constructed would not physically divide these established uses but would traverse between and border them. The transmission line would not constitute a physical division of an established community. The proposed route would circumvent land uses and not bisect them. In addition, the transmission line would not establish a permanent barrier or obstacle between uses such that a perceived physical division would occur. While towers and lines would be present, travel or connections within the community would not be impeded so as to create a divide. In addition, the Fallbrook Renewable Energy Facility would have to compensate any of the landowners whose property would be traversed by the transmission line. The Fallbrook Biomass Facility would occur on an existing orchard and

would not divide or bisect and of the surrounding land uses. Also, the biomass plants that burn agricultural, wood, and municipal wastes could free up areas of land that might have otherwise been reserved for additional landfill waste piles reducing land use impacts associated with the biomass alternative. Thus, no operational land use impacts would occur (No Impact).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: There would be no significant land use impacts associated with biomass/biogas Non-Wires alternatives because these alternatives would take place on existing landfills and would not require additional land. These sites are previously disturbed lands and have similar land uses. The biomass plants that burn agricultural, wood, and municipal wastes could free up areas of land that might have otherwise been reserved for additional landfill waste piles reducing land use impacts associated with the biomass alternative. Presence of the facilities would not disrupt actual use of other properties or structures. Access to all uses would be fully restored once construction was complete. No surrounding uses would be removed and the nature and condition of any surrounding uses would not change. Thus, no operational land use impacts would occur (No Impact).

Land Use Setting for Wind

The wind component of the New In-Area Renewables Alternative north of Interstate 8 would be located within the Campo, La Posta, and Manzanita Reservations, and BLM land. The properties in which the wind component would be located are designated in the San Diego County General Plan as Tribal Lands, Rural (1 du/80 acres), and Open Space (recreation). The Rural designated areas are located within the reservation lands. Surrounding land uses for the reservation wind component area include Interstate 8 and rural residential (1 du/40 acres and 1 du/80 acres) and Campo Reservation lands to the south; rural residential (1 du/80 acres) to the east; BLM and Cleveland National Forest lands to the north; and rural residential (1 du/40 acres and 1 du/80 acres) and Cleveland National Forest to the west. The existing Kumeyaay Wind Farm Project is located within the Campo Reservation (see Figure E.5.1-6a).

Surrounding lands uses for the northern wind component area include rural residential (1 du/80 acres) to the south and north, the In-Ko-Pah Mountains Area of Critical Environmental Concern to the east, and BLM open space (recreation) lands to the west. The designated Peninsular Bighorn Sheep Critical Habitat is also located to the east and north of this alternative area.

A new 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL (about 10 miles to the south), and a new substation would also need to be constructed. It is assumed that the wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5, and the new substation would either be constructed on the Campo Reservation land or be constructed at MP I8-35. The general land use along this 10-mile portion is Open Space, Agricultural, Rural residential, and Tribal land. See Table E.1.4-1 for Jurisdiction, Land Use Classification and Specific Land Use for this ten mile ROW (Section E.1.4).

Land Use Impacts for Wind

Construction Impacts

Impact L-1: Construction would temporarily disturb land uses at or near the alignment (Class II for residences within 1,000 feet; Class III for residences further away)

This alternative would be located within lands used as tribal, open space/recreational, rural residential, and limited public and business facilities (transmission line only). Sensitive land uses within the alternative properties and surrounding areas include rural residences. Other land uses that could potentially be impacted by construction activities include public roadways. Refer to Section E.5.5 (Wilderness and Recreation) for an analysis of construction-related impacts to recreation and to Section E.5.9 for a discussion of construction-related impacts to public roadways.

Residential Land Uses. For those residences greater than 1,000 feet from the alternative facilities, including access roads, construction-related impacts would be considered adverse but not significant due to their distance from the alternative (Class III); however, if residences are located within 1,000 feet, construction impacts, although temporary, could be significant.

As is true for other alternatives discussed herein, construction of the alternative would create additional noise and dust as a result of heavy construction equipment on temporary and permanent access roads, moving building materials to and from construction staging areas. This could result in temporary disturbances, including those rural residential and limited public and commercial facilities detailed above and recreational users within the BLM lands. Mitigation measures to reduce noise and air quality impacts are presented in Sections E.5.8 and E.5.11, respectively, but these measures would not eliminate the disturbance. While this disturbance would be short-term and temporary at any one location, it would potentially be significant if construction is not carefully managed and residents kept informed. Thus, Mitigation Measure L-1a is recommended to ensure that construction-related land use impacts would not be significant (Class II).

Mitigation Measures for Impact L-1: Construction would temporarily disturb the land uses it traverses or adjacent land uses

L-1a Prepare Construction Notification Plan.

Operational Impacts

Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment (No Impact)

The wind component would include an approximate 10-mile transmission line and substation for connection of the alternative to the existing 500 kV SWPL. The transmission line would be entirely overhead. The 20 to 25 acres substation would be located within lands designated as Open Space or on Campo Reservation lands. Sensitive land uses near the facilities would include residential uses. Other land uses that could potentially be impacted by operation of the alternative include public roadways. Refer to Section E.5.5 for a discussion of operational impacts to wilderness/recreation and Section E.5.9 for discussion of operational impacts to public roadways.

Sensitive Land Uses

Residential Land Uses. From an operational perspective, presence of wind component facilities would not disrupt actual use of residential properties or structures. Access to all uses would be fully restored once construction was complete. The alternative would not remove any residences or cause the nature or condition of any use to change. Thus, no land use-related operational impacts would occur (No Impact).

Overall Impacts of Renewable Generation Alternative for Land Use

Solar Thermal. Construction and operation of the solar thermal energy facilities would result in no significant, unmitigable impacts (Class I). Construction would create noise and dust in the area of as a result of heavy construction equipment on roads and the movement of building materials, however with Mitigation Measures L-1a, L-1d, L-1e, and L-1f construction-related land use impacts would be less than significant (Class II). No operational land use-related impacts would occur.

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts (Class I). Construction activities would be temporary and minor in scale (Class III). No operational land use-related impacts would occur.

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant, unmitigable impacts (Class I). The Fallbrook Biomass component would occur on an existing orchard, however the County of San Diego has classified the site such that it may be used for a Renewable Energy Facility. The Miramar Biomass/biogas component would be sited on the Miramar Landfill will similar utility facilities. Construction would create noise and dust in the area as a result of heavy construction equipment and the movement of materials to and from construction staging areas, however with Mitigation Measures L-1a construction-related land use impacts would be less than significant (Class II). No operational land use impacts would occur.

Wind. Construction and operation of the wind component would result in no significant, unmitigable impacts (Class I). Construction would create noise and dust in the area as a result of heavy construction equipment and the movement of materials to and from construction staging areas, however with Mitigation Measures L-1a construction-related land use impacts would be less than significant (Class II). No land use-related operational impacts would occur.

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Figure Ap.LU. E.5-1 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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Figure Ap.LU. E.5-2 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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Figure Ap.LU. E.5-3 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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Figure Ap.LU. E.5-4 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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Figure Ap.LU. E.5-5 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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Figure Ap.LU. E.5-6 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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Figure Ap.LU. E.5-7 Land Use: New In-Area Renewable Generation, Borrego Peaker and Solar Thermal – Narrows-Warners 138 kV Upgrade Options

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E.5.5 Wilderness and Recreation

Wilderness and Recreation Setting for Solar Thermal

The solar collection field site is located on privately owned land in Borrego Springs, a town which is surrounded by Anza-Borrego State Park. The park offers 500 miles (804 km) of dirt roads, 12 wilderness areas and miles of hiking trails featuring washes, wildflowers, palm groves, cacti, ocotillo and sweeping vistas (California State Parks, 2007). The site would be 0.65 miles south of Santa Rosa Mountains Wilderness Area. The nearest recreational facility to the proposed solar collection field site is the Roadrunner Golf and Country Club located approximately 0.8 miles west of the site. The field would also be located approximately one mile northwest of the Old Springs Road Open Space.

- The Option 1 underground transmission line would be along SR78, an officially designated California State Scenic Highway. It would pass south and west of the San Felipe Hills WSA. Along SR78, this alternative would be underground immediately south of the Yaqui Well Primitive Camp Area and Tamarisk Grove Campground. The route would parallel the Pacific Crest Trail (PCT) as it generally runs northwest/southeast through the San Felipe Hills WSA along S2. Additionally, this alternative would traverse the San Dieguito River Park Planning area, an open space greenway and park system within the San Dieguito River Valley designed to protect natural waterways, cultural resources, and sensitive lands and resources while allowing compatible recreation and agricultural uses; however, the line would be underground in roadways.
- The Option 2 transmission line would be entirely within the existing Borrego-Narrows and Narrows-Warners 69 kV ROWs. Within ABDSP, the route would be contained within the existing BLM easement. The environmental setting for this alternative would be identical to the Proposed Project (refer to Section D.5.2.2), except ROW would not be located within State-designated Wilderness and the route would be located approximately 200 feet closer to Tamarisk Grove Campground. The final approximately six miles of the route would be on Vista Irrigation District preserve land.

Wilderness and Recreation Impacts for Solar Thermal

Construction Impacts

Physical demand impacts to recreational facilities are associated with population in-migration and growth, which increase the demand and use of public recreational facilities. Up to 75 workers would be temporarily relocated to the Borrego Springs area during the 12 to 18-month construction period, and would return home after completion of construction. Therefore, construction of this alternative is not growth inducing, would not significantly increase the demand for public recreational facilities, would not create or contribute to a need for new or altered public recreational facilities, and would not alter recreational land to population ratios described within the San Diego County Plan.

Impact WR-1: Construction activities would temporarily reduce access and visitation to recreation or wilderness areas (Class I)

The solar collection field site is located on privately owned land outside of the Anza-Borrego Park boundary. The field site is surrounded by Anza-Borrego State Park. The Park offers 500 miles (804 km) of dirt roads, 12 wilderness areas and miles of hiking trails featuring washes, wildflowers, palm groves, cacti, ocotillo and sweeping vistas (California State Parks, 2007). The Roadrunner Golf and Country Club located approximately 0.8 miles west of the site. Project construction activities would not require the use of roads that serve as the primary access to these recreational facilities. Therefore, construction activities would not affect access to established recreation areas.

The noise and presence of heavy equipment associated with project construction may temporarily reduce visitation to recreational areas. Recreationists may cancel or schedule their visits to avoid construction periods thereby resulting in temporarily reduced visitation where construction potentially would pose a safety hazard to trail users. As described in Section D.5.5.2, although this impact would be temporary, it is possible that the construction activities would occur throughout the entire duration of a person's visit to the park. In the reasonably foreseeable case that construction activities occur for the entire duration of a person's visit to the park, these impacts would not seem temporary. A complete overlap of the construction schedule and tourist season for ABDSP would cause a reduction in visitation and access to recreation and wilderness areas, resulting in a significant and unmitigable impact (Class I). Although mitigation measures would not reduce the severity of the impact of the transmission line options on recreation areas in ABDSP to a less than significant level, Mitigation Measures WR-1a (Coordinate construction schedule and activities with the authorized officer for the recreation area), WR-1b (Provide temporary detours for trail users), and WR-1c (Coordinate with local agencies to identify alternative recreation areas) would be required. The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact WR-1: Construction activities would temporarily reduce access and visitation to recreation or wilderness areas

WR-1a Coordinate construction schedule and activities with the authorized officer for the recreation area.

WR-1b Provide temporary detours for trail users.

WR-1c Coordinate with local agencies to identify alternative recreation areas.

Operational Impacts

Operation of the upgraded overhead or underground transmission line option would not require full time staff and would only require periodic inspection and maintenance on an as-needed basis. Such activities would be accomplished by existing staff and would not be growth inducing. Operation of the solar collection field would require two to four full time staff to operate the control system and perform routine cleaning and maintenance. These activities are not growth inducing and would therefore not increase the demand for public recreational facilities. As such, the Proposed Project would not create or contribute to a need for new or altered public recreational facilities and would not alter recreational land to population ratios described above within the San Diego County Plan.

Although construction of the solar thermal component would result in temporary impacts to recreational resources as described under Construction Impacts above, implementation of the component would not permanently preclude access to the existing recreational resources. Impact WR-3 (Presence of a transmission line would permanently preclude recreational activities) would not occur.

The solar thermal field and transmission upgrades would be constructed outside of and south of the Santa Rosa Mountains Wilderness Area, as illustrated in Figures E.5.1-1a and E.5.1-1d. Presence of the project would not require new ROW or construction of solar collectors within the WA. As such, wilderness land would not be lost, and Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would result in loss of wilderness land) would not occur.

Impact WR-2: Presence of a transmission line or substation would change the character of a recreation area, diminishing its recreational value (Class I for generation facility and Option 2 transmission line; No Impact for Option 1 transmission line)

The transmission line upgrades would occur to an existing 69 kV line, and the solar field would occupy 1,450 acres on privately owned land near the Borrego Substation, which is surrounded by Anza-Borrego State Park. The solar field is 0.65 miles south of Santa Rosa Mountains Wilderness Area and one mile from the Old Springs Road Open Space. Presence of the solar field and overhead transmission structures (Option 2) adjacent to the Park would diminish the value of the recreational experience due to visual and noise impacts as described in Section E.5.3 and E.5.8, resulting in significant and unmitigable impacts (Class I). Although it would not reduce the severity of the impact to less than significant levels, Visual Resources Mitigation Measures V-3a (Reduce visual contrast of towers and conductors) is presented in an effort to reduce recreation impacts to ABDSP and the Santa Rosa Mountains Wilderness Area. Use of the Option 1 transmission line would install the 138 kV line entirely underground and there would be no operational impacts to wilderness or recreation resources (No Impact).

Mitigation Measure for Impact WR-2: Presence of a transmission line or substation would change the character of a recreation area, diminishing its recreational value

V-3a Reduce visual contrast of towers and conductors.

Wilderness and Recreation Setting for Solar Photovoltaic

Solar PV system installations would occur on existing residential and commercial buildings throughout San Diego County, primarily in areas characterized by urban development. A wide array of recreational and wilderness areas exist within San Diego county including local, state, and national parks, beaches, forest, mountain ranges, lakes, and rivers.

Wilderness and Recreation Impacts for Solar Photovoltaic

Construction Impacts

Physical demand impacts to recreational facilities are associated with population in-migration and growth, which increase the demand and use of public recreational facilities. While workers would be required for construction, it is assumed these workers would come from within the local labor market and not result in any population increase (refer to the Socioeconomics analysis provided below). Because construction of this alternative is not growth inducing, installation of solar PV systems on existing buildings would not increase the demand for public recreational facilities. Therefore, the Proposed Project would not create or contribute to a need for new or altered public recreational facilities and would not alter recreational land to population ratios described above within the San Diego County Plan.

Impact WR-1: Construction activities would temporarily reduce access and visitation to recreation or wilderness areas (Class II)

Installation of the PV systems would create a number of temporary impacts that would diminish the recreation value of the preserve and parks for its duration. This would mainly be due to noise generated during construction activities that would negatively affect a visitor's enjoyment of these recreation areas. This impact would potentially occur where recreation areas in San Diego County border urban areas that would potentially install PV systems. Recreationists may be less likely to visit these resources during project construction. No temporary closures or temporary reduction of access are expected but

there could be a reduction in visitation, which would thus result in significant impacts. Construction-related impacts to recreation would be mitigated to a less than significant level through implementation of Mitigation Measures WR-1a (Coordinate construction schedule and activities with the authorized officer for the recreation area), and WR-1c (Coordinate with local agencies to identify alternative recreation areas) (Class II).

Mitigation Measures for Impact WR-1: Construction activities would temporarily reduce access and visitation to recreation or wilderness areas (Class II)

WR-1a Coordinate construction schedule and activities with the authorized officer for the recreation area.

WR-1c Coordinate with local agencies to identify alternative recreation areas.

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity. This activity is not growth inducing and would therefore not increase the demand for public recreational facilities. As such, the PV project would not create or contribute to a need for new or altered public recreational facilities and would not alter recreational land to population ratios described above within the San Diego County Plan. The PV units would be on existing built structures and their presence would not affect recreational or wilderness resources. Impact WR-2 (Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value), Impact WR-3: Presence of the transmission line would permanently preclude recreational activities), and Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would require reclassification of the affected land) would not occur.

Wilderness and Recreation Setting for Biomass/Biogas

The Fallbrook Renewable Energy Facility, the Miramar Renewable Energy Facility, and the Miramar Landfill Biogas Facility are not within any designated wilderness or designated recreational areas. The Fallbrook Facility is located on 28 acres of an existing citrus orchard and is surrounded primarily by agriculture and housing developments. The Miramar Facilities are located on or near the Miramar Landfill in a developed, industrial setting. Therefore, the biomass/biogas component is not expected to impact wilderness and/or recreational facilities in the general vicinity.

Wilderness and Recreation Impacts for Biomass/Biogas

Construction Impacts

Although there is potential for recreational users in the vicinity of the considered sites, construction would take place at the landfill and at the existing orchard where there is no wilderness or recreational activity. Therefore, there are no expected impacts to wilderness and/or recreation from the biomass/biogas Non-Wires alternatives. Impact WR-1 (Construction activities would temporarily reduce access and visitation to recreation or wilderness areas) would not occur. A one mile transmission line associated with the Fallbrook Facility would be necessary to meet up with the existing Via Montserat–Pala transmission line. This transmission line would be on agricultural and rural use land. Therefore it would not impact wilderness and/or recreation and Impact WR-1 would not occur.

Operational Impacts

This alternative would not increase local population or reduce areas of wilderness and recreation because the biomass/biogas component is not growth inducing and there would not be a demand for additional recreational facilities or parks; therefore, the biomass/biogas facilities would not violate the San Diego Local Park Plan. Operation of the biomass/biogas Non-Wires alternatives would not impact wilderness and recreation because the operation and maintenance of the alternative would take place at the landfill facility and at the existing orchard. Impact WR-2 (Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value), Impact WR-3: Presence of the transmission line would permanently preclude recreational activities), and Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would require reclassification of the affected land) would not occur.

Wilderness and Recreation Setting for Wind

The wind component towers/turbines and associated facilities north of Interstate 8 would be located within the Campo, La Posta, and Manzanita Reservations and on BLM lands. The BLM wind component section area is bordered by the In-Ko-Pah Mountains ACEC to the west, including the Carrizo Gorge Wilderness Area. The Sawtooth Mountains Wilderness area and the Sombrero Peak Wilderness area are located several miles north of the wind component The Cleveland National Forest is located approximately one mile northwest of the reservation wind component area.

The BLM wind component area would be located within BLM lands which include the Cottonwood Campground. However, this campground would be located approximately one mile north of the proposed wind component development area within BLM lands. This campground is open all year and has 25 developed campsites with fire rings, picnic tables, and vault toilets. Equestrian use is permitted in limited areas within the campground. Two trailheads, the Pepperwood Trail and Sombrero Peak Trail, are accessible from the campground and generally head north out of the campground (BLM, 2007f).

A new 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL (about 10 miles to the south), at which point a new substation would also need to be constructed. The substation would either be constructed on private land or on Reservation land and thus there are no wilderness or recreation areas associated with the proposed substation. It is assumed that the wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5. Starting at MP I8-35.5, the wind component transmission line would travel northwest of the SWPL toward CNF along the north side of Interstate 8. This segment east of CNF would be located approximately 0.25 miles southeast of the southern boundary of the Carrizo Gorge Wilderness Area, a 14,735-acre federal wilderness area (BLM, 2007c). Recreational opportunities within this wilderness area include hiking and camping. Additionally, the alternative would be located 0.7 miles southwest of the southern parcel of the Carrizo Gorge Wilderness Study Area, which is administered by BLM and is comprised of several roadless areas contiguous with the Carrizo Gorge Wilderness Area. Between MPs I8-36 and I8-37, the alternative route would traverse land owned by California Botanical Habitat, Inc., private property that does not provide recreational opportunities.

Wilderness and Recreation Impacts for Wind Component

Construction Impacts

Impact WR-1: Construction activities would temporarily reduce access and visitation to recreation or wilderness areas (Class II)

Construction of the wind component facilities north of Interstate 8 would involve the use of Canebrake Road and McCain Valley Road for construction vehicle access given the limited roadways in the area. Widening of these roadways would probably be necessary to accommodate construction vehicle sizes and necessary turnarounds. Canebrake Road and McCain Valley Road serve as access roads to BLM recreation areas, including Cottonwood Campground and Sombrero Peak Wilderness. The location of construction equipment along roadways may temporarily preclude or constrain access to these recreation areas.

The noise, dust, and presence of heavy equipment associated with project construction may temporarily reduce visitation to recreation areas. Recreationists may cancel or schedule their visits to avoid construction periods thereby resulting in temporarily reduced visitation, especially to Cottonwood Campground, and its associated trail heads. Similarly, visitor use of the designated Open Space (recreation) areas to be traversed or bordered by the transmission line and substation could be affected. Construction-related disturbances to recreational resources would result in significant impacts.

With implementation of mitigation measures WR-1a through WR-1c, the temporary reduction in access and visitation to recreational and wilderness areas is mitigable to less than significant levels (Class II).

Mitigation Measures for Impact WR-1: Construction activities would temporarily reduce access and visitation to recreation or wilderness areas (Class II)

WR-1a **Coordinate construction schedule and activities with the authorized officer for the recreation area.**

WR-1b **Provide temporary detours for trail users.**

WR-1c **Coordinate with local agencies to identify alternative recreation areas.**

Operational Impacts

The wind component and related facilities including the transmission line would be located near wilderness areas but would neither traverse any recreation or wilderness areas nor would it be constructed along any access routes to recreation areas. As such, Impact WR-3 (Presence of the transmission line would permanently preclude recreational activities) and Impact WR-3NW (Presence of wind tower/turbines and associated facilities would permanently preclude recreational activities) would not occur. As the wind farm and related facilities including the alternative transmission line would not traverse wilderness lands or wilderness study areas, Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would require reclassification of the affected land) and Impact WR-4NW (Presence of a wind tower/turbines and associated facilities in a designated wilderness or wilderness study area would require reclassification of the affected land) would not occur.

Impact WR-2: Presence of a transmission line or substation would change the character of a recreation area, diminishing its recreational value (Class III)

The wind component would include an approximate 10-mile transmission line and substation for connection of the alternative to the existing 500 kV SWPL. The transmission line would be primarily on private property and would not affect any designated recreational areas. Therefore, the impact would be less than significant (Class III).

The substation would be located either at the Campo Reservation and is considered as part of the wind farm area (See Impact WR-2B) or northwest of the town of Jacumba within private lands and therefore would have no permanent change to a recreation area or diminishment of its recreational value.

Mitigation Measures for Impact WR-2: Presence of a transmission line or substation would change the character of a recreation area, diminishing its recreational value

V-3a Reduce visual contrast of towers and conductors.

N-3a Respond to complaints of corona noise.

Impact WR-2NW: Presence of the wind towers/turbines and associated facilities would change the character of a recreation area, diminishing its recreational value (Class I)

The wind component turbines and associated facilities would be visible from the Carrizo Overlook, which provides vistas of the McCain Valley, Carrizo Canyon, and the Salton Sea (60 miles northeast, visible on a clear day). Additionally, the approximate 400-foot wind tower/turbines would be visible to visitors to the BLM open space/recreational area. This recreational area includes Cottonwood Campground, limited equestrian facilities, and access to the Pepperwood Trail and Sombrero Peak Trail trailheads. The turbines could also be visible at some locations within the In-Ko-Pah Mountains, Carrizo Gorge Wilderness, Sombrero Peak Wilderness, Sawtooth Mountains Wilderness, and Cleveland National Forest. Views of the wind tower/turbines from these recreational areas would be from a distance of approximately one to ten miles or greater. Since these recreational areas are valued for their solitude and expansive scenic setting, presence of wind turbines and facilities would be contrary to the expectations of many recreationists in these areas.

With the exception of the existing Kumeyaay wind farm area, the wind component would not be collocated with other industrial structures, and would therefore introduce new structurally complex, industrial features to a predominantly natural landscape. As described in Section E.5.3 (Visual Resources) long-term, operational visual impacts would be experienced by viewers within and outside of the alternative area. Additionally, the noise from the wind turbines would substantially elevate the ambient noise levels by more than 5 dBA within 500 feet of the edge of the wind turbine ROW in the natural areas along the alternative sites (Contra Costa County, 2007). Refer to Section E.5.8 for additional information on wind component noise impacts.

Some of the wind tower/turbines would be located within BLM lands designated as Open Space (recreation). For the reasons outlined above, significant and unavoidable operational impacts would permanently change the character this recreation area, diminishing its recreational value (Class I). While implementation of mitigation measures could reduce the impact of the wind turbines, transmission lines and structures on recreational areas, this impact cannot be mitigated to a less than significant level (Class I). Nevertheless, Mitigation Measures V-3a will be implemented to reduce impacts.

Mitigation Measures for Impact WR-2NW: Presence of the wind towers/turbines and associated facilities would change the character of a recreation area, diminishing its recreational value (Class I)

V-3a Reduce visual contrast of towers and conductors (second bullet of mitigation only applies).

Overall Impacts of Renewable Generation Alternative for Wilderness and Recreation

Solar Thermal. Construction activities would result in a significant unmitigable impact (Class I) by temporarily reducing access and visitation to the Anza-Borrego State Park. Mitigation measures WR-1a, WR-1b, and WR-1c would be required but would not reduce the impact to less than significant. Operation of the solar thermal component, specifically the presence of the solar field and overhead transmission structures, would diminish the value of the recreational experience, due to visual and noise impacts resulting in significant and unmitigable impacts (Class I). Visual Resources Mitigation Measures V-3a would be required. There would be no impacts with use of the underground transmission line option.

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts (Class I). Installation of the PV systems would create temporary impacts that would diminish the recreation value of preserve and parks in the near vicinity for its duration and would be mitigated to a less than significant level (Class II) through implementation of Mitigation Measures WR-1a, WR-1b, and WR-1c. Once installed, operation of the solar PV systems would have no impacts on wilderness and recreation.

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant, unmitigable impacts (Class I). Construction and operation would take place at a landfill and at an existing orchard where there is no wilderness or recreational activity.

Wind. Construction of the wind component would result in no significant, unmitigable impacts (Class I). The noise, dust, and presence of heavy equipment associated with project construction may reduce visitation to recreation areas but these impacts are reduced to less than significant (Class II) with Mitigation Measures WR-1a through WR-1c. Operation of the wind component would result in a significant, unmitigable impact (Class I) because the 400-foot wind towers/turbines and associated facilities would be visible from the Carrizo Overlook and would be visible to visitors to the BLM open space/recreational area.

E.5.6 Agriculture

Agriculture Setting for Solar Thermal

The site of the proposed solar collection field has a land use designation of Multiple Rural Use, which is consistent with agricultural uses (SDCGP, 2004). The Borrego Springs Area is located within the Desert Subregional Planning Area of the San Diego General Plan, which contains 4,824 acres of land in Williamson Act Contract (SDCGP, 2002). The closest land under Williamson Act Contract to the project site is located approximately 12 miles from the project site (SDCGP, 2002). The climate of Borrego Springs is classified as subtropical desert, and is characterized by high average summer maximum temperatures and short winters. The Borrego Springs area has a thriving citrus industry, including grapefruit, which does particularly well in this climate (SDCGP, 2002). The site of the solar collection field is not located within a designated agricultural land use designation (SDCGP, 2002). Furthermore, the site is not located within any mapped farmland designation by the DOC; however, the properties adjacent to the south and west of the site, across Borrego Valley Road, are designated Farmland of Local Importance and Farmland of Statewide Importance (California Department of Conservation, 2002).

Option 1 would occur entirely within existing roadways. Upgrades to the existing 36-mile overhead transmission line (under Option 2) would occur within an existing utility corridor that has been previously developed with, and is currently used as, an electrical transmission line.

Agriculture Impacts for Solar Thermal

Construction Impacts

Impact AG-1; Construction activities would temporarily interfere with Active Agricultural Operations (Class II)

No DOC Farmlands or Williamson Act lands would be directly impacted by the alternative site or transmission line; however, DOC-designated properties are located within a 500-foot geographic scope of the component. Also, no Active Agricultural Operations are known to exist within the project area; however, land in the area is locally designated for agricultural use. Thus, active agriculture would occur nearby.

Although the site would not be located within any mapped farmland designated by the DOC, the project area would be within a land use designation (Multiple Rural Use) that is consistent with agricultural uses. Therefore, there is the possibility that construction activities and equipment would interfere with agricultural operations and equipment should Active Agricultural Operations occur in the project vicinity. Construction activities would temporarily interfere with Active Agricultural Operations by damaging crops, impeding access to certain fields or plots of land, obstructing farm vehicles, or disrupting drainage and irrigation systems (including self-propelled irrigation rigs), all of which would result in the temporary reduction of agricultural productivity. Therefore, there would be a significant impact. Implementation of measures to minimize direct impacts to active agricultural operations and land use measures to reduce construction disturbance would reduce this impact to less than significant (Class II). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations

AG-1a **Avoid interference with agricultural operations.**

L-1d **Provide advance notice and appoint public affairs officer.** [APM LU-1]

L-1e **Notify property owners and provide access.** [APM LU-4]

L-1f **Flag ROW boundary and environmentally sensitive areas.** [APM LU-6]

Operational Impacts

Operation of the solar thermal component would not convert any land that is designated by the DOC as agricultural land or impact any lands designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance either on the site or with the transmission upgrades, which would occur in existing ROWs or underground in roadways (California Department of Conservation, 2002). No soils designated as agriculturally important would be affected. Impact AG-2 (Operation would permanently convert DOC Farmland to non-agricultural use), Impact AG-3 (Operation would permanently interfere with Active Agricultural Operations), and Impact AG-4 (Operation would permanently convert Williamson Act lands to non-agricultural use) would not occur. No mitigation would be required.

Agriculture Setting for Solar Photovoltaic

Solar PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development throughout San Diego County. However, agricultural uses exist throughout San Diego County, and, therefore, PV systems may also be installed on existing structures located on or immediately proximate to land used for agricultural purposes.

Agriculture Impacts for Solar Photovoltaic

Construction Impacts

Assembly and installation of PV systems would involve work crews of one to four people for one to four days at residential sites and three to five weeks at commercial sites. These activities would utilize small land areas immediately adjacent to the subject structure, would be minimally invasive, would be of relatively short duration, and would not convert any type of DOC Farmland or Active Agricultural Operation to a non-agricultural use.

Impact AG-1 (Construction activities would temporarily interfere with Active Agricultural Operations) would not occur. No mitigation would be required.

Operational Impacts

PV system installations would occur on existing residential and commercial buildings and would not be installed on agricultural lands. Neither Impact AG-2 (Operation would permanently convert DOC Farmland to non-agricultural use), Impact AG-3 (Operation would permanently interfere with Active Agricultural Operations), nor Impact AG-4 (Operation would permanently convert Williamson Act lands to non-agricultural use) would occur. Not mitigation would be required.

Agriculture Setting for Biomass/Biogas

The Fallbrook Renewable Energy Facility would be located on 28 acres of an 80-acre citrus orchard, surrounded primarily by open space and agriculture.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility would be located on the existing Miramar Landfill, located on the Miramar Marine Corps Air Station with no agriculture within a 1000-foot radius.

DOC Farmlands

The Fallbrook Renewable Energy Facility would be located on the Pankey Ranch, an 80-acre orchard situated in Fallbrook near Pala Road, and is surrounded primarily by agriculture land use and multiple rural use consistent with agriculture. The proposed Fallbrook Facility would be sited on Farmland of Local Importance, Farmland of Statewide Importance, Prime Farmland, and Unique Farmland. As such, the Fallbrook Facility would have a significant impact on agricultural land.

Agriculture Impacts for Biomass/Biogas

No farmland would be impacted by the Miramar renewable projects.

Approximately 28 acres of DOC Farmland would be permanently impacted by the Fallbrook Renewable Energy Facility.

Construction Impacts

Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations (Class II for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: The Fallbrook Renewable Energy Facility is located on a citrus orchard. Construction activities (including construction or expansion of temporary or permanent access roads, equipment and vehicle staging areas, material storage and assembly sites, and an increase in vehicle trips) would have temporary impacts (an increase in air emissions, dust, and noise) on surrounding agricultural. Construction activities could temporarily interfere with Active Agricultural Operations by damaging or removing crops or precluding planting; impeding access to certain fields or plots of land and obstructing farm vehicles and equipment; or disrupting drainage and irrigation systems, all of which could result in the temporary withdrawal of land from production, thereby reducing agricultural productivity on the affected land. Mitigation measure (AG-1a) would be required to ensure that Impact AG-1 would be less than significant (Class II).

Mitigation Measures for Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations

AG-1a Avoid interference with agricultural operations.

Agricultural Soils. During construction, soils would become compacted as a result of vehicles and construction equipment traversing them. Compaction of agricultural soils, left unaddressed, would impact subsequent Active Agricultural Operations. This would be a significant impact. Implementation of Mitigation Measure AG-1b would ensure that impacts to Active Agricultural Operations resulting from construction-related soil compaction would be less than significant by requiring that compacted soils

within DOC Farmland be restored. Implementation of Mitigation Measures AG-1a and AG-1b would mitigate impacts to Active Agricultural Operations as a result of soil compaction resulting from construction activities associated with the proposed route through Fallbrook to a less than significant level (Class II).

Mitigation Measures for Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations

AG-1b Restore compacted soil.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill which is adjacent to the Miramar Marine Corps Air Station to the north and to industrial operations to the southwest and southeast. As such there are no agricultural activities within a 1000-foot radius and therefore no impact on agricultural lands. No mitigation is required.

Operational Impacts

Impact AG-2: Operation would permanently convert DOC Farmland to non-agricultural use (Class I for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: The Fallbrook Facility is situated on 28 acres of DOC Farmland. Impacts to DOC Farmland would occur where the location of the Renewable Energy Facility, such as housing for the biomass delivery and processing area, storage, electricity generation, and office operations, as well as access roads, would permanently convert approximately 28 acres to non-agricultural use. The proposed Fallbrook Facility would surpass the 10-acre threshold for determining significance of impacts due to the conversion of DOC Farmland and would be a significant impact (Class I) and no feasible mitigation measures exist to mitigate this impact to a less than significant level.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill and would therefore not impact DOC Farmlands. No mitigation is required.

Impact AG-3: Operation would permanently interfere with Active Agricultural Operations (Class I for the Fallbrook Facility, No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: The Fallbrook Facility would permanently remove 28 acres of Active Agriculture Operation. As such, the proposed Fallbrook Facility would surpass the 10-acre threshold for determining significance of impacts due to the loss of land under Active Agricultural Operation. The proposed facility would significantly impact Active Agricultural Operations and convert DOC Farmland to non-agricultural uses. Therefore there would be a significant impact (Class I) and no feasible mitigation measures exist to mitigate this impact to a less than significant level.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill and will not be located on or adjacent to any active agriculture land. Therefore there would be no impact to active agriculture land. No mitigation is required.

Impact AG-4: Operation would permanently convert Williamson Act lands to non-agricultural use (No Impact)

Fallbrook Renewable Energy Facility: The Fallbrook Facility would be sited entirely on the Pankey Ranch which is not part of the Williamson Act lands and as such would not impact said lands. Therefore no mitigation is required.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill. The Miramar Landfill is not part of the Williamson Act lands and as such would not impact said lands. No mitigation is required.

Agriculture Setting for Wind

The wind component wind towers/turbines and associated facilities would be located within the Campo, La Posta, and Manzanita Reservations and BLM land. The landscape along the reservation portion of the wind component includes the arid, north-south trending ridge that forms the western boundary of McCain Valley. The northern wind component area is located within BLM lands designated as Open Space (recreation). The substation to connect the wind component to the SWPL is also located on lands designated as Open Space (recreation). The land upon which the wind component would be located is void of agricultural uses or operations given its topography, arid environment, and land ownership. No Williamson Act lands are included within the wind component area. In addition, the San Diego County General Plan and the San Diego Associations of Governments Regional Comprehensive Plan would apply to this component as well (See Section D.6.3 for details on these plans).

A new 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL (about 10 miles to the south). The wind component transmission line would follow the same route as the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5, and a new substation would potentially be constructed at MP I8-35. Active Agricultural Operations traversed by or adjacent to the new transmission line include forage crops between MP 33 and 35, and grazing operations between MP 39 and 40. Forage crops located between MP 33 and 35 include those crops used to feed livestock, such as hay. Grazing operations apply to calves and cattle that graze in unirrigated pastures.

Agriculture Impacts for Wind

The wind component transmission line would traverse or border lands used for grazing operations between MP I8-38 and I8-44.

Construction Impacts

Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations (Class II)

Active agricultural operation (forage crops and grazing operations) within this component would be impacted by construction activities including construction or expansion of temporary or permanent access roads, equipment and vehicle staging areas; and material storage and assembly sites. These construction activities could temporarily interfere with agricultural operations by impeding access to certain fields or plots of land, obstructing farm vehicles, all of which could result in the temporary reduction of agricultural productivity, which would be a significant impact without mitigation. Mitigation measures AG-1a, AG-1c, AG-1d, AG-3e, L-1d, L-1e, L-1f, would reduce this impact to less than significant level (Class II).

Mitigation Measures for Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations

AG-1a **Avoid interference with agricultural operations.**

AG-1c **Coordinate with grazing operators.**

AG-1d **Compensate farmers for lost crops along ROW.** [APM LU-3]

AG-3e **Install project facilities along borders.**

L-1d **Provide advance notice and appoint public affairs officer.** [APM LU-1]

L-1e **Notify property owners and provide access.** [APM LU-4]

L-1f **Flag ROW boundary and environmentally sensitive areas.** [APM LU-6]

Operational Impacts

Since the wind component facilities including the transmission line would be located within lands void of DOC designation and Williamson Act lands, Impacts AG-2, and AG-4 would not occur for this alternative (See Sections D.6.3 Applicable Plans, regulations, and standards and D.6.4 Significance criteria and approach to impact assessment for further information on DOC designation and Williamson Act).

Impact AG-3: Operation would permanently interfere with Active Agricultural Operations (Class I, II, III)

The wind component transmission line would potentially permanently remove land under Active Agricultural Operation, which would be significant and unmitigable (Class I) if the total amount of land converted by the transmission route exceeds the 10-acre significance criterion threshold established for permanent conversion of land under Active Agricultural Operation, as discussed in Section D.6.4.1. While the exact amount of Active Agricultural Operations that would be converted is not known at this time, it is assumed that this would be less than 10 acres of land. (See Section E.1.6 for the impacts to Active Agriculture Operations of the entire Interstate 8 Alternative.) Thus, associated impacts would be adverse but not significant (Class III) for the wind component transmission line and no mitigation would be required.

In addition to the permanent loss of land under Active Agricultural Operation, wind component transmission line would result in other adverse agricultural impacts in the vicinity of the project. These include (1) disrupting farming facilities or operations, (2) disrupting or altering aerial spraying practices, and (3) disrupting livestock grazing operations

Disruption of Farming Facilities or Operations. Under certain circumstances, the presence of new project components would permanently disrupt active farming operations in nearby areas, by dividing or fragmenting agricultural fields, obstructing access, impeding the delivery and use of water for livestock and irrigation, reducing the efficacy of windbreaks, and/or disrupting the operation of farm equipment.

Mitigation measure AG-3e would ensure that the location of proposed facilities are matched to existing facilities (where feasible and appropriate), and Mitigation Measure AG-3f would ensure that facilities are installed along the edges of private property (where feasible and appropriate). Incorporation of these mitigation measures would minimize impacts to farming operations through avoidance of areas to the greatest extent feasible. Implementation of Mitigation Measure AG-1a would ensure that impacts relating to the disruption of Active Agricultural Operations would be mitigated to a less than significant level (Class II).

Mitigation Measure for Impact AG-3: Operation would permanently interfere with Active Agricultural Operations (Disruption of Farming Facilities or Operations)

AG-1a Avoid interference with agricultural operations.

AG-3e Install project facilities along borders. [APM LU-7]

AG-3f Match structure locations. [APM LU-10]

Aerial Spraying Applications. Transmission lines and towers present a substantial obstacle for aerial spraying applicators to avoid, and require additional attention from the pilots. Thus, the presence of transmission lines and towers associated with the Interstate 8 Overhead/Underground Alternative would result in interference with agricultural operations, a significant impact. Implementation of Mitigation Measure AG-3b would ensure that aerial applicators would be notified of the project location and components in order to educate pilots to significant dangers that would exist as a result of development of the Proposed Project. However, even with implementation of Mitigation Measure AG-3b, hazards to aerial spraying would continue to pose safety hazards to aerial applicators, or can preclude spraying activities in certain areas. As such, impacts to aerial spraying applications would remain significant (Class I).

Mitigation Measure for Impact AG-3: Operation would permanently interfere with Active Agricultural Operations (Aerial Spraying Applications)

AG-3b Consult with and inform aerial applicators.

Disruption of Livestock Grazing Operations. Activities associated with grazing livestock, such as cattle movement, access to water, feeding, and shipping of livestock, would be permanently impeded by new access roads and towers, as well as associated routine maintenance activities. As such, presence of the Proposed Project would disrupt livestock grazing operations, a significant impact. Implementation of Mitigation Measure AG-1c would ensure that impacts to livestock grazing operations would be mitigated to a less than significant level (Class II).

Mitigation Measure for Impact AG-3: Operation would permanently interfere with Active Agricultural Operations (Disruption of Livestock Grazing Operations)

AG-1c Coordinate with grazing operators.

Overall Impacts of Renewable Generation Alternative for Agriculture

Solar Thermal. Construction and operation of the solar thermal component would result in no significant, unmitigable impacts (Class I). However, DOC-designated properties are within the 500-foot geographic scope of the component and the project area would be within a land use designation (Multiple Rural Use) that is consistent with agricultural uses. Therefore, there is the possibility that construction activities and equipment potentially would interfere with agricultural operations and equipment should Active Agricultural Operations occur in the project vicinity. Implementation of Mitigation Measures AG-1a, L-1d, L-1e and L-1f would reduce construction disturbance of this impact to less than significant (Class II).

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts (Class I). Assembly, installation, and operation of PV systems would utilize relatively small land areas immediately adjacent to the subject structure and would not convert any type of DOC Farmland or Active Agricultural Operation to a non-agricultural use.

Biomass/Biogas. Construction of the biomass/biogas component would result in no significant, unmitigable impacts (Class I). Operation of the biomass/biogas component would permanently convert 28 acres of DOC farmland to non-agricultural use, a significant unmitigable impact (Class I). The operation of this component would also permanently interfere with Active Agricultural Operations by permanently removing 28 acres of agriculture land, also a significant unmitigable impact (Class I). No impacts to agriculture would occur at the Miramar Biomass/Biogas Facility.

Wind. Construction could impact grazing operations within this component by impeding access to certain fields or plots of land, and obstructing farm vehicles (Class II). Operation of the wind component would result in a significant, unmitigable impact if it would permanently interfere with Active Agricultural Operations through interference of aerial spraying operations adjacent to the wind component transmission line (Class I).

Figure Ap.AG. E.5-1. New In-Area Renewable Generation, Pala Peaker and Potential Fallbrook Rewewable Energy Facilities

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Figure Ap.AG. E.5-2. New In-Area Renewable Generation, Solar Thermal – Narrows-Warners 138kV Upgrade Options

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Figure Ap.AG. E.5-3. New In-Area Renewable Generation, Solar Thermal – Narrows-Warners 138kV Upgrade Options

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Figure Ap.AG. E.5-4. New In-Area Renewable Generation, Solar Thermal – Narrows-Warners 138kV Upgrade Options

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Figure Ap.AG. E.5-5. New In-Area Renewable Generation, Solar Thermal – Narrows-Warners 138kV Upgrade Options

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Figure Ap.AG. E.5-6. New In-Area Renewable Generation, Potential Miramar Biogas and Renewable Energy Facilities and Miramar Peaker

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E.5.7 Cultural and Paleontological Resources

Cultural and Paleontological Resources Setting for Solar Thermal

The proposed solar collection field would be constructed on 1,450 acres of vacant, undeveloped desert land in Borrego Springs. One cultural resource, a prehistoric habitation site (CA-SDI-2367), was found within the proposed solar thermal site boundaries: at least one additional resource is located within the transmission line corridor from Borrego Substation to the ABDSP border. Numerous cultural resources are recorded within each of the option corridors (Option 1 and Option 2) within ABDSP. Appendix 9D presents maps illustrating paleontological sensitivity of the formations crossed by this component.

A cultural resources records search was conducted for the entire Solar Thermal site area and a 0.5-mile radius around it. The solar thermal site was not surveyed by SWCA and AE archaeologists. Class I cultural resources records search remains to be conducted for approximately eight miles of each of the options that would connect the solar collection field to Sunrise Powerlink alternatives. Cultural resources records searches were conducted for the 100 percent of the portions of each option within Sunrise Powerlink alternative alignments as well as surveys for some of these areas.

Of the linear alignments that would connect the Solar Thermal project area, Option 1 is 36.52 miles long and would occur entirely within existing roadways. From its intersection with SR78, it would join the Partial Underground 230 kV ABDSP SR78 to S2 Alternative including All Underground Option near MP 19.25 of the alternative (see Section D.7.19.1).

Option 2 would upgrade the existing 35.78-mile long overhead transmission line along a previously graded and artificially filled area that has been developed as an existing transmission corridor; however, the route would pass through numerous archaeological sites including a highly sensitive cultural district within ABDSP. The cultural setting for this alternative through ABDSP to MP 87.8 of the proposed route would be the same as for the Overhead 500 kV ABDSP within Existing ROW Alternative (see Section D.7.19.2) and the Proposed Project (see Section D.7.10 and D.7.11).

Paleontological Resources

- **Quaternary Alluvium.** Quaternary alluvium consists of partly dissected, mostly unconsolidated, poorly sorted sand, silt, clay, and gravel located at the margins of canyons and within valley floors. "Younger" alluvium is Holocene (10,000 years ago to Recent) in age and "Older alluvium" is Pleistocene (1.8 million years ago to 10,000 years ago) in age. Fossil localities in older alluvium deposits throughout southern California have yielded terrestrial vertebrates such as mammoths, mastodons, ground sloths, dire wolves, short-faced bears, saber-toothed cats, horses, camels, and bison. Younger alluvium is determined to have a low potential for paleontological resources but is often underlain by older alluvium, which is determined to have a high potential for paleontological resources.

Cultural and Paleontological Resources Impacts and Mitigation Measures for Solar Thermal

Construction Impacts

Construction activities would include grading of the entire 1,450-acre solar thermal site as well as some excavation and either removal of 69 kV wood poles and installation of 138 kV steel poles or trenching in existing roadways. One known cultural resource (CA-SDI-2367) is recorded within the solar thermal

site and numerous additional cultural resources are located within the transmission line portion of the project. There is also potential that additional unknown cultural or paleontological resources exist within the project area. Such resources conceivably would be adversely affected by ground disturbance associated with construction activities. Because there are known cultural resources within the project area as well as the potential for additional cultural or paleontological resources, the following impacts and mitigation measures have been identified to reduce impacts to a level below significance (Class II). However, there are sites with human remains and a TCP for which impacts would remain significant (Class I), even after mitigation. The full text of the mitigation measures appears in Appendix 12.

Impact C-1, Construction of the project would cause an adverse change to known historic properties (Class II)

There is one known cultural resource (CA-SDI-2367), an extensive temporary camp consisting of 20 or more camp sites, located within the Solar Thermal site that is potentially eligible for listing on the NRHP or CRHR (Table Ap.9B-106). Adverse construction impacts would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f. Additional cultural resources potentially eligible for listing on the NRHP or CRHR occur within Option 1 and Option 2 of the transmission line portion of the project.

Option 1 which includes the Partial Underground 230 kV ABDSP SR78 to S2 Alternative and the Partial Underground 230 kV ABDSP SR78 to S2 Alternative: All Underground Option contains eighteen cultural resources that are potentially eligible for listing on the NRHP or CRHR with one resource listed on the CRHR and eligible for NRHP inclusion (see Tables Ap.9B-50 and Ap.9B-54 in Appendix 9B). It is estimated that an additional 199 additional resources would be encountered during surveys conducted prior to construction. These sites might include lithic or ceramic scatters, temporary camps, bedrock milling locations, seasonal habitation sites, and prehistoric or historic transportation features. As discussed in Section D.7.9, adverse construction impacts would be mitigated to a level less than significant (Class II) by implementing Mitigation Measures C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f. For the full text of the Mitigation Measures, please see Appendix 12.

Option 2 which includes the Overhead 500 kV ABDSP within Existing ROW Alternative contains 51 cultural resources located in areas of direct impact (see Table Ap.9B-57 in Appendix 9B). Sites to be impacted include prehistoric habitation sites, temporary camps, bedrock milling features, ceramic and lithic scatters as well as rock features. D2-S-106, a Prehistoric District or Complex which contains human remains is presumed significant. As discussed in Section D.7.9, adverse construction impacts would be mitigated to a level less than significant (Class II) by implementing Mitigation Measures C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f. However, there are two cultural resources known to contain human remains. Impacts to these sites would remain significant (Class I). Site D2-S-106 or the entire area that includes the site may be eligible for the NRHP as a TCP, TCPs being a subset of historic properties. This potential TCP is too extensive to be spared from direct construction impacts and indirect visual intrusion of the Proposed Project. Thus, if a formal determination of NRHP-eligibility deems this resource to be a TCP, even with mitigation, impacts would remain Class I under Impacts C-1 and C-4.

Mitigation Measures for Impact C-1, Construction of the project would cause an adverse change to known historic properties

C-1a Inventory and evaluate cultural resources in Final Area of Potential Effect (APE).

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1e Monitor construction at known ESAs.

C-1f Train construction personnel.

Impact C-2, Construction of the project would cause an adverse change to sites known to contain human remains (Class I)

There are no known sites containing human remains within the solar thermal site boundaries however there are sites known to contain human remains within Option 1 and Option 2 of the transmission line portion of the project.

Option 1 contains one archaeological site (CA-SDI-17252) known to contain human remains would be adversely affected by construction (see Table Ap.9B-51 in Appendix 9B). Site CA-SDI-17252 would be located within or directly adjacent to an underground portion of the Partial Underground 230 kV ABDSP SR78 to S2 Alternative. Any adverse effect to human remains is considered a significant (Class I) impact. CR-APM-3 outlines procedures for the treatment of unanticipated discoveries during construction, but would not mitigate construction impacts to Native American human remains. Mitigation Measures C-1b, C-1c, C-1d, C-1e, C-1f, and C-2a would partially mitigate impacts to human remains; however, the impacts would still be considered significant (Class I). Impacts to Native American human remains are considered an adverse effect, even after mitigation (36 CFR 800).

Option 2 contains two archaeological sites (D2-S-106 and CA-SDI-4153 / 15204) known to contain human remains that would be adversely affected by construction (see Table Ap.9B-57 in Appendix 9B). Any adverse effect to human remains is considered a significant (Class I) impact. CR-APM-3 outlines procedures for the treatment of unanticipated discoveries during construction, but would not mitigate construction impacts to Native American human remains. Mitigation Measures C-1b, C-1c, C-1d, C-1e, C-1f, and C-2a would partially mitigate impacts to human remains; however, the impacts would still be considered significant (Class I). Impacts to Native American human remains are considered an adverse effect, even after mitigation (36 CFR 800).

Mitigation Measures for Impact C-2, Construction of the project would cause an adverse change to sites known to contain human remains

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1e Monitor construction at known ESAs.

C-1f Train construction personnel.

C-2a Properly treat human remains.

Impact C-3, Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or Class II)

Types of subsurface features that could be encountered at the solar thermal site and along the Option 1 and Option 2 transmission line routes include prehistoric resources such as buried living surfaces, trash deposits, hearths, agave roasting pits, burials and cremations. Historical resources that could be unearthed during project construction include refuse pits and privies. Buried archaeological resources may be encountered during vegetation removal at the solar thermal site, pole and pull site locations,

grading of access roads, or excavation associated with pole construction. Impacts to most unknown significant prehistoric and historic archaeological sites would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1c, C-1d, C-1f, C-2a and C-3a. However, as explained for Impact C-2, effects related to Native American human remains would be significant (Class I) even with mitigation.

Mitigation Measures for Impact C-3, Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1f Train construction personnel.

C-2a Properly treat human remains.

C-3a Monitor construction in areas of high sensitivity for buried resources.

Impact C-4, Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II)

Three or more portions of San Felipe Valley are likely NRHP-eligible as a TCP (which would be traversed by the Solar Thermal Option 1 transmission line). The We-nelsch Cultural Preserve is a traditional cultural landscape presumed NRHP-eligible; the Paroli Family Cemetery is still in use and may qualify as a NRHP-eligible TCP, and the ethnographic village site of *Ewiinally* village site (appears to be same as site D2-D-041) is a resource reputed to possess burials and cremated human remains that is important to local Native Americans including the Santa Ysabel Band of Diegueño Indians. In addition, the Sacred Lands File search conducted for the alternatives noted that lands sacred to Native Americans are present in the vicinity of the alternatives, in undisclosed locations. In addition, lands sacred to Native Americans are present in the vicinity in the Borrego Springs area and Native American consultation has indicated that one extensive portion of the Anza-Borrego Link for the Proposed Project (which would also be traversed by the Solar Thermal Option 2 transmission line), or at least a portion of the area including prehistoric site complex D2-S-106, is likely eligible for the NRHP as a Traditional Cultural Property (TCP) (see Section D.7.10). The BLM, as the Federal Lead Agency under NEPA and Section 106 of the NHPA would be required to initiate government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. That consultation will determine whether there are TCPs that potentially would be affected within the project area. Though impacts to TCPs are often significant (Class I), mitigation, as defined by NEPA (in King, 2003), can include "minimizing impacts by limiting the degree or magnitude of the action…," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute resources or environments," which when properly coordinated Native Americans or other traditional groups can reduce the impact to less than significant (Class II). Implementation of Mitigation Measures C-4a (Complete Consultation with Native Americans and other Traditional Groups) , C-4b (Conduct cultural resources survey of the entirety of the identified cultural landscape within a portion of the Anza-Borrego Link of the Proposed Project and prepare a report documenting the resources present as well as the ethnographic use of the area), and V-3a (Reduce visual contrast of towers and conductors) would potentially reduce impacts to TCPs to a level that is less than significant (Class II) but in some cases impacts to TCPs would remain significant (Class I), even after mitigation.

Mitigation Measures for Impact C-4, Construction of the project would cause an adverse change to Traditional Cultural Properties

C-4a Complete consultation with Native American and other Traditional Groups.

C-4b Conduct cultural resources survey of the entirety of the identified cultural landscape within a portion of the Anza-Borrego Link of the Proposed Project and prepare a report documenting the resources present as well as the ethnographic use of the area.

V-3a Reduce visual contrast of towers and conductors.

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II)

The potential to discover paleontological resources during construction of the Solar Thermal Alternative ranges from low to high potential (See paleontological sensitivity map in Appendix 9D). Areas determined to have paleontological sensitivity would be impacted by any construction-related grading and/or excavation in previously undisturbed areas.

The potential for construction activities to destroy or disturb significant paleontological resources is generally considered to be mitigable. Implementation of the following mitigation measures would reduce project effects to a level of less than significant (Class II).

Mitigation Measure for Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources

PAL-1a Inventory and evaluate paleontological resource in the Final APE.

PAL-1b Develop Paleontological Monitoring and Mitigation Plan.

PAL-1c Monitor construction for paleontology.

PAL-1d Conduct paleontological data recovery.

PAL-1e Train construction personnel.

Operational Impacts

There are no anticipated impacts to paleontological resources during operation of the Solar Thermal Alternative.

Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties (Class II)

Direct and indirect impacts may occur to historic properties within and in the vicinity of the project area as a result of operation and long-term presence of the solar thermal field and transmission line. Direct impacts potentially would result from maintenance or repair activities, while increased erosion and access potentially would result in indirect project impacts. These impacts are potentially significant, but can be mitigated to a level that is less than significant (Class II) by implementing site protection measures and monitoring procedures. Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (develop and implement Historic Properties Treatment Plan), C-2a (Properly treat human remains), C-4a (Complete consultation with Native American and other Traditional Groups), and C-5a (Protect and monitor NRHP and/or CRHR-eligible properties would reduce operational impacts to known historic properties to a less than significant level (Class II). However, impacts to sites with human remains or TCPs would remain significant (Class I).

Mitigation Measures for Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-2a Properly treat human remains.

C-4a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP and/or CRHR-eligible properties.

Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources (No Impact for Option 1, Class II for solar thermal facility and Option 2)

The presence of transmission lines and towers would result in indirect visual impacts to historic architectural resources. Indirect visual impacts to potentially NRHP- and/or CRHR-eligible built environment resources such as buildings, structures, and historic districts located near the Option 2 transmission line route should be avoided or minimized, where feasible. The Option 2 transmission line route includes the Tamarisk Grove Campground as well as the individual buildings previously recorded within it (P-37-017973; P-37-017972; P-37-017974) that have been recommended eligible for the NRHP and CRHR. Yaqui Well has been altered since its period of significance, but is likely still eligible for the NRHP and CRHR. As a result, the Overhead 500 kV ABDSP within Existing ROW Alternative would cause indirect adverse visual effects to these resources. These impacts are significant, and implementation of Mitigation Measure C-6a, C-6b, and V-3a would reduce impacts, but the impacts would remain significant (Class I). This conclusion is consistent with those reached in the Visual Resources section of the EIR. Key Viewpoint (KVP) 9 and KVP 32 would be impacted by Impact V-12 and Impact V-39, respectively. Tower location and screening would not completely reduce the visual intrusion of the Proposed Project.

Mitigation Measure for Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources

C-6a Reduce adverse visual intrusions to historic built environment properties.

Cultural and Paleontological Resources Setting for Solar Photovoltaic –

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development. Structures on which PV systems would be installed would vary in age from new to potentially more than 50 years old. Construction activities would consist of assembly of PV units on ground surfaces adjacent to the structures on which they would be installed. Once assembled the PV units would be installed on rooftops of existing residential and commercial structures.

Cultural and Paleontological Resources Impacts and Mitigation Measures for Solar Photovoltaic

Construction Impacts

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development and minimal ground disturbance would occur during assembly of the PV units. Therefore, Impact C-2 (Construction of the project could cause an adverse change to sites known to contain human remains), Impact C-3 (Construction of the project could cause an adverse

change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains), Impact C-4 (Construction of the project could cause an adverse change to Traditional Cultural Properties) and Impact PAL-1 (Construction of the project could destroy or disturb significant paleontological resources) would not occur.

Impact C-1, Construction of the project could cause an adverse change to known historic properties (Class II)

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development, which could include historic properties. Construction activities would utilize relatively small land areas and would be minimally intrusive (i.e., ground surface disturbance would not occur). It is possible that some structures considered for PV system installation could be in the vicinity of potentially historically or culturally significant resources; however, PV system design and site selection would be conducted so as to avoid installing PV systems on historic buildings. Implementation of Mitigation Measures C-1a and C-1f would ensure that impacts to cultural resources would be less than significant and significant resources would be avoided and protected.

Mitigation Measures for Impact C-1, Construction of the project could cause an adverse change to known historic properties

C-1a **Inventory and evaluate cultural resources in Final Area of Potential Effect (APE).**

C-1b **Avoid and protect potentially significant resources.**

C-1c **Develop and implement Historic Properties Treatment Plan.**

C-1d **Conduct data recovery to reduce adverse effects.**

C-1e **Monitor construction at known ESAs.**

C-1f **Train construction personnel.**

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity. Project design and site selection would be conducted so as to avoid installing PV systems on historic buildings therefore, Impact C-5 (Operation and long-term presence of the project could cause an adverse change to known historic properties) would not occur.

Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources (Class III)

The presence of solar PV systems can result in visual impacts to historic architectural resources. Indirect visual impacts to potentially NRHP and/or CRHR-eligible built environment resources such as buildings, structures, and historic districts would occur should solar PV systems be located on or near historic architectural resources. However, PV system design and site selection would be conducted so as to avoid installing PV systems on historic architectural resources. Therefore the impact would be adverse but less than significant and no mitigation is required.

Cultural and Paleontological Resources Setting for Biomass/Biogas

The three renewable energy facilities that are considered for the biomass/biogas non-wires alternatives are the Fallbrook Renewable Energy Facility, the Miramar Renewable Energy Facility, and the Miramar Landfill Biogas Facility.

Fallbrook Renewable Energy Facility. The Fallbrook Facility Area is generally located south of State Route 76 and east of Interstate 15 within San Diego County. Evidence of the prehistoric use of this region includes bedrock milling features that indicate the processing of acorns and other food resources, lithic and ceramic artifact scatters that indicate tool making and use, and seasonal and permanent habitation sites, typically near year-round water sources. Historic period occupation in the mountainous terrain is associated with ranching, but Native American reservations are also present in the vicinity. Historic period resources in this area typically include ranch fences and other structures, and water conveyance and storage systems such as wells, ditches, and dams. A full prehistoric and historic setting is provided in Appendix 9.

The Fallbrook Facility Area is approximately 80 acres and a cultural resources records search was conducted for its entirety and a 0.5-mile search radius around it. Based on GIS analysis, adequate previous cultural resources survey has been conducted for 99 percent (209 acres) of the Fallbrook Facility Area. No cultural resources have been identified within the Fallbrook Facility Area; however, nine cultural resources have been recorded outside of, but within 0.5-mile of the Fallbrook Facility Area. Cultural resources in the vicinity of the Fallbrook Facility Area include: five bedrock milling sites, some with lithic and/or ceramic artifacts present; an isolated ceramic shard; a pictograph site with rock shelter; a habitation site considered to be the ethnographic village of "Tonka;" and a site with standing historic period buildings atop the recorded location of the Rancho Monserate, a Mexican Period land grant whose buildings are no longer present.

Paleontological Setting. According to geologic mapping by Tan (2000), the FREF project site is variously underlain by active flood plain, channel, and wash deposits of Holocene age and granitic rocks (granodiorite) of Cretaceous age. Holocene age (10,000 years ago to Recent) sediments are generally too young to contain fossilized remains, and are determined to have a low paleontological resource potential. However, older sediments of Pleistocene age (1.8 million years ago to 10,000 years ago) may be present at an unknown depth and therefore, the paleontological sensitivity of the project area is determined to range from low to high. Since granitic rocks are plutonic in origin, they are determined to have no potential for paleontological resources.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility. Both the Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility are located at the existing Miramar Landfill, adjacent to the Miramar Military Base on industrialized and disturbed land. One cultural resource (CA-SDI-12138) has been recorded within the Miramar Renewable Energy Facility and another (CA-SDI-12139) within the Miramar Landfill Biogas Facility. However, the site records for both of these resources indicate that the sites were not relocated in 1995 and are likely destroyed. There is, however, the potential to encounter undiscovered cultural resources during project construction.

Paleontological Resources. The Miramar Biogas Facility and Potential Miramar Renewable Energy Facility Sites are located within the Coastal Plain Region of San Diego County and are underlain by various sedimentary units. The thickest deposition of sediments in San Diego County occurred during the Eocene Epoch (58 to 36 million years ago) when shallow seas transgressed and regressed along the ancient shoreline, depositing both marine and terrestrial sediments. These marine and terrestrial formations are divided into the La Jolla Group and the Poway Group respectively. The Miramar Biogas Facility Site is underlain by formational members if the Poway Group. The predominantly non-marine Poway Group is late Eocene in age and comprises the Stadium Conglomerate, the Mission Valley Formation, the Pomerado Conglomerate and the Friars Formation. All four formations are partially time equivalent and are considered to have a high potential for paleontological resources (Demere and Walsh, 1993).

The Potential Miramar Renewable Energy Facility Site is underlain by Quaternary terrace deposits composed of sand, gravel, and minor amounts of cobbles and boulders that were deposited by ancient river systems and are generally located above active stream channels. The exact age of these sediments is unknown, but they are likely associated with climatic events of the late Pleistocene (10,000 to 500,000 years ago). The coarse-grained nature of these sediments suggest that fossil preservation would be limited; however, fossils recovered from a few scattered localities include mammoths, ground sloths, mice, pond turtles, hawks, camel, deer, moles, wolves, horses, and rabbit. Quaternary terraces are determined to have a high potential for paleontological resources.

Cultural and Paleontological Resources Impacts and Mitigation Measures for Biomass/Biogas

Construction Impacts

Fallbrook Renewable Energy Facility: There are no known cultural resources located within the 211-acre Fallbrook Facility Area. There remains, however, the potential to encounter undiscovered cultural resources during project construction. Impact C-1 (Construction of the project could cause an adverse change to known historic properties) and Impact C-2 (Construction of the project could cause an adverse change to sites known to contain human remains) would not occur.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: One cultural resource (CA-SDI-12138) has been recorded within the Miramar Renewable Energy Facility and another (CA-SDI-12139) within the Miramar Landfill Biogas Facility. However, the site records for both of these resources indicate that the sites were not relocated in 1995 and are likely destroyed (Table Ap.9B-107 and 108). There is also the potential for the biomass/biogas non-wires alternative to impact unknown cultural and paleontological resources during project construction or operation. As a result, the following impacts and mitigation measures have been identified for these projects.

Impact C-1, Construction of the project would cause an adverse change to known historic properties (Class II)

One cultural resource (CA-SDI-12138) has been recorded within the Miramar Renewable Energy Facility and another (CA-SDI-12139) within the Miramar Landfill Biogas Facility. However, the site records for both of these resources indicate that the sites were not relocated in 1995 and are likely destroyed (Table Ap.9B-107 and 108). As a result, it is unlikely that either resource is eligible for listing on the NRHP or CRHR. However, because these resources are potentially eligible, adverse construction impacts would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f.

Mitigation Measures for Impact C-1, Construction of the project would cause an adverse change to known historic properties

C-1a **Inventory and evaluate cultural resources in Final Area of Potential Effect (APE).**

C-1b **Avoid and protect potentially significant resources.**

C-1c **Develop and implement Historic Properties Treatment Plan.**

C-1d **Conduct data recovery to reduce adverse effects.**

C-1e **Monitor construction at known ESAs.**

C-1f **Train construction personnel.**

Impact C-3: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II)

Fallbrook Renewable Energy Facility: Types of subsurface features that could be encountered within the Fallbrook Facility Area include prehistoric resources such as buried living surfaces, refuse deposits, hearths, and cremations. Historical resources that could be unearthed during project construction include refuse pits and privies. Buried archaeological resources may be encountered during vegetation removal, grading, or excavation associated with substation construction. Impacts to most unknown significant prehistoric and historic archaeological sites would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1c, C-1d, C-1f, C-2a and C-3a. However, effects related to Native American human remains, should any be discovered, would be significant (Class I) even with mitigation.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Installation and construction of the biomass/biogas non-wires alternatives could involve grading at the Miramar Landfill facilities. While, grading is not expected to directly or indirectly destroy any archaeological resources there is potential for unknown resources to be discovered during earth moving activities. Additionally, if human remains are discovered during construction activities, work in the area of the discovery must be stopped and proper investigation would need to occur by the County Coroner. If the remains are determined to be of Native American decent, the Native American Heritage Commission would need to be notified within 24 hours. Impacts to most unknown significant prehistoric and historic archaeological sites would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1c, C-1d, C-1f, C-2a and C-3a. However, effects related to Native American human remains would be significant (Class I) even with mitigation.

Mitigation Measures for Impact C-3: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1f Train construction personnel.

C-2a Properly treat human remains.

C-3a Monitor construction in areas of high sensitivity for buried resources.

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: To date, no TCPs have been identified within the Fallbrook Facility Area. However, the Sacred Lands File search conducted for the alternatives noted that lands sacred to Native Americans are present in the vicinity of the alternatives, in undisclosed locations. In addition, the ethnographic period village site (CA-SDI-682) and nearby pictographs (CA-SDI-314) are potentially eligible for NRHP/CRHR-listing as TCPs. The BLM, as the Federal Lead Agency under NEPA and Section 106 of the NHPA, has initiated government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. That consultation will determine whether there are TCPs that could be affected within the vicinity of this alternative. Though impacts to TCPs are often significant (Class I), mitigation, as defined by NEPA (in King, 2003), can include "minimizing impacts by limiting the degree or

magnitude of the action…," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute resources or environments," which when properly coordinated with Native Americans or other traditional groups can potentially reduce the impact to less than significant (Class II). Implementation of Mitigation Measure C-4a (Complete Consultation with Native Americans and other Traditional Groups) and V-3a (Reduce visual contrast of towers and conductors) would potentially reduce impacts to TCPs to a level that is less than significant (Class II), but in some cases impacts to TCPs would remain significant (Class I), even after mitigation.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: To date, no TCPs have been identified within the Miramar Facilities. However, the Sacred Lands File search conducted for the alternatives noted that lands sacred to Native Americans are present in the vicinity of the alternatives, in undisclosed locations. The BLM, as the Federal Lead Agency under NEPA and Section 106 of the NHPA, has initiated government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. That consultation will determine whether there are TCPs that could be affected within the vicinity of this alternative. Though impacts to TCPs are often significant (Class I), mitigation, as defined by NEPA (in King, 2003), can include "minimizing impacts by limiting the degree or magnitude of the action…," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute resources or environments," which when properly coordinated with Native Americans or other traditional groups can potentially reduce the impact to less than significant (Class II). Implementation of Mitigation Measure C-4a (Complete Consultation with Native Americans and other Traditional Groups) and V-3a (Reduce visual contrast of towers and conductors) would potentially reduce impacts to TCPs to a level that is less than significant (Class II), but in some cases impacts to TCPs would remain significant (Class I), even after mitigation.

Mitigation Measure for Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties

C-4a Complete consultation with Native American and other Traditional Groups.

V-3a Reduce visual contrast of towers and conductors.

Impact PAL-1: Construction of the project could destroy or disturb significant paleontological resources

Fallbrook Renewable Energy Facility: There is potential that unknown paleontological resources exist at the site and could be adversely affected by ground disturbance associated with construction activities. Any such impact would be considered significant, but would be reduced to a less than significant level with implementation of Mitigation Measures PAL-1a through PAL-1e.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: There is potential that unknown paleontological resources exist at the site and could be adversely affected by ground disturbance associated with construction activities. Any such impact would be considered significant, but would be reduced to a less than significant level with implementation of Mitigation Measures PAL-1a through PAL-1e.

Mitigation Measures for Impact PAL-1: Construction of the project could destroy or disturb significant paleontological resources

PAL-1a Inventory and evaluate paleontological resources.

PAL-1b Develop Paleontological Monitoring and Mitigation Plan.

PAL-1c Monitor construction for paleontology.

PAL-1d Conduct paleontological data recovery.

PAL-1e Train construction personnel.

Operational Impacts

Impact C-5 and Mitigation Measures: Operation and long-term presence of the project would cause an adverse change to known historic properties (Class II for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Direct and indirect impacts would occur to historic properties within and in the vicinity of the project area during operation and long-term presence of the project. Direct impacts could result from maintenance or repair activities, while increased erosion and access could result in indirect project impacts. These impacts are significant, but can be mitigated to a level that is less than significant (Class II) by implementing site protection measures and monitoring procedures, as detailed in Mitigation Measure C-5a (Protect and monitor NRHP and/or CRHR-eligible properties), as well as implementation of Mitigation Measures C-3a (Consult agencies and Native Americans) and C-4a (Complete Consultation with Native Americans and other Traditional Groups).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Facilities would be located at an existing landfill that has no known cultural, historic, or paleontological resources on site. Therefore, Impact C-5 (Operation and long-term presence of the project could cause an adverse change to known historic properties) would not occur. No mitigation is required.

Mitigation Measures for Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-2a Properly treat human remains.

C-4a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP and/or CRHR-eligible properties.

Cultural and Paleontological Setting for Wind

Sites typically found in this mountainous region include bedrock milling features, ceramic and lithic artifact scatters. Temporary campsites and habitation sites also exhibit evidence of multiple past activities, and the presence of pottery suggests that food was prepared, stored and perhaps transported in ceramic vessels. Historic sites within the vicinity of the wind component include transportation routes and evidence of historic period ranching and mining. There are many isolated artifacts within the wind component; the majority of these isolated artifacts are prehistoric. Appendix 9D presents maps illustrating paleontological sensitivity of the formations crossed by the Wind component.

The cultural resources records search for the Wind Energy Alternatives resulted in the identification of three cultural resources within the Wind Energy project area. However, it must be noted that portions of the wind component area within Native American reservation lands were excluded from the records search as none of the reservations granted permission to SWCA for cultural resources records search in support of wind component analysis for the Sunrise Powerlink Project.

The three prehistoric sites identified with the Wind Energy component project area are: CA-SDI-2535 (Also known as "Wikwip," a rock art site with pictographs in a rock shelter, bedrock milling features, and lithic and ceramic artifacts scatters and presumed NRHP-eligible); CA-SDI-6779 (a bedrock milling site with ceramic scatter); and CA-SDI-8705 (a rock shelter with lithic and ceramic artifacts). An additional 42 cultural resources were identified outside the wind energy project area but within 0.5-mile including additional prehistoric rock art sites, habitation sites, bedrock milling sites, and rock shelters with evidence of occupation. It is highly probable that there are numerous sites within the reservations that comprise the majority of the wind component project area.

In addition, to date, SWCA and AE archaeologists completed intensive cultural resources survey for 33.2 percent (6.51 miles) of the 300-foot-wide study corridor of the BCD Alternative. The BCD Alternative the Wind component along MP BCD-7 through MP BCD-12. The following was found:

- Prehistoric sites identified within the BCD Alternative include three temporary camps, two lithic and ceramic artifact scatters, and one bedrock milling site.
- One multicomponent site, a lithic and ceramic artifact scatter with historical refuse present, was identified.
- One historical refuse scatter was identified.
- Eight of the resources, six prehistoric and two historical, are isolates, typically defined as three or fewer artifacts not associated with a defined, discrete archaeological site, and therefore not eligible for NRHP or CRHR inclusion.

All of the resources, with the exception of one prehistoric temporary camp, were identified during surveys conducted by SWCA and AE for this alternative on September 17, 2007.

A new 230 kV transmission line would be required to connect the Wind component to the existing 500 kV SWPL (about 10 miles to the south). The Wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5, and a new substation would be constructed either on the Campo Reservation land or at MP I8-35. Cultural and Paleontological Impacts of the Campo Reservation Substation are considered within the general Wind farm area. Detailed analysis of the Jacumba Substation Impacts can be found in Section D.7.16 Connected Actions and Indirect Effects. See the Interstate 8 Alternative, Section E.1.7, for the cultural setting for this subject 10-mile portion of the alternative.

Cultural and Paleontological Impacts for Wind

Construction Impacts

There are three known cultural resources are located within the wind component project area. There is also the potential to encounter undiscovered cultural resources during project construction. In addition, eight of the known cultural resources for the BCD Alternative are isolated artifacts (isolates) that do not require mitigation measures. Isolates, by definition, lack immediate cultural context and therefore lack the data potential that would be required to be considered eligible for NRHP or CRHR inclusion. As a result, project effects to isolates would not be considered adverse under NHPA, nor would they constitute significant impacts under CEQA. The remaining eight resources are potentially eligible for the NRHP and CRHR. Because known cultural resources that are potentially eligible for the NRHP or CRHR exist within areas of proposed direct impact, as well as the potential for encountering undiscovered cultural resources, the following impacts could occur during project construction or operation.

Impact C-1: Construction of the project could cause an adverse change to known historic properties (Class II)

There are three cultural resources located within the wind component that are potentially eligible for listing on the NRHP and CRHR (See Table 9B-109 in Appendix 9B). Additional resources, including isolates, could be encountered during additional survey prior to construction. As discussed in Section D.7.5.1, adverse construction impacts would be mitigated to a level less than significant (Class II) by implementing Mitigation Measures C-1a, C-1b, C-1c, C-1d, C-1e, and C-1f.

Mitigation Measures for Impact C-1: Construction of the project could cause an adverse change to known historic properties

C-1a Inventory and evaluate cultural resources in Final APE (APE).

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1e Monitor construction at known ESAs.

C-1f Train construction personnel.

Impact C-2: Construction of the project could cause an adverse change to sites known to contain human remains (Class I)

There is potential that unknown human remains exist at the wind component site. If human remains are encountered during the construction or any other phase of development, work in the area of the discovery must be halted in that area and directed away from the discovery. No further disturbance would occur until the County Coroner makes the necessary findings as to the origin pursuant to Public Resources Code 5097.98-99, Health and Safety Code 7050.5. If the remains are determined to be Native American, the Native American Heritage Commission (NAHC) would be notified within 24 hours as required by Public Resources Code 5097. Any such impact would be considered significant.

Mitigation Measures C-1b, C-1c, C-1d, C-1e, C-1f, C-2a, and C-2b would partially compensate for impacts to human remains and would outline procedures for the treatment of unanticipated discoveries during construction. However, the impacts would still be considered significant (Class I), in accordance with 36 CFR 800 which considers impacts to human remains an unmitigable adverse effect.

Mitigation Measures for Impact C-2: Construction of the project could cause an adverse change to sites known to contain human remains

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1e Monitor construction at known ESAs.

C-1f Train construction personnel.

C-2a Properly treat human remains.

Impact C-3: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II)

Types of subsurface features that could be encountered along the wind component include prehistoric resources such as buried living surfaces, refuse deposits, hearths, burials, and cremations. Historical resources that could be unearthed during project construction include refuse pits and privies. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, or excavation associated with tower construction. Impacts to most unknown significant prehistoric and historic archaeological sites would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1c, C-1d, C-1f, C-2a and C-3a. However, effects related to Native American human remains would be significant (Class I) even with mitigation.

Mitigation Measures for Impact C-3: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains

C-1c Develop and implement Historic Properties Treatment Plan.

C-1d Conduct data recovery to reduce adverse effects.

C-1f Train construction personnel.

C-2a Properly treat human remains.

C-3a Monitor construction in areas of high sensitivity for buried resources.

Impact C-4: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I or II)

To date, no TCPs have been identified within the wind component. However, the Sacred Lands File search conducted for the alternatives noted that lands sacred to Native Americans are present in the vicinity of the alternatives, in undisclosed locations. The BLM, as the Federal Lead Agency under NEPA and Section 106 of the NHPA has initiated government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. That consultation will determine whether there are TCPs that could be affected within this segment. Though impacts to TCPs are often significant (Class I), mitigation, as defined by NEPA (in King, 2003), can include "minimizing impacts by limiting the degree or magnitude of the action…," rectifying or reducing the impact, and/or "compensating for the impact by replacing or providing substitute resources or environments," which when properly coordinated Native Americans or other traditional groups can potentially reduce the impact to less than significant (Class II). Implementation of Mitigation Measure C-4a (Complete Consultation with Native Americans and other Traditional Groups) could potentially reduce impacts to TCPs to a level that is less than significant (Class II) but in some cases impacts may remain significant (Class I).

Mitigation Measure for Impact C-4: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-4a Complete consultation with Native American and other Traditional Groups.

Impact PAL-1: Construction of the project could destroy or disturb significant paleontological resources

There is potential that unknown paleontological resources exist at the site and could be adversely affected by ground disturbance associated with construction activities. Any such impact would be considered significant, but would be reduced to a less than significant level with implementation of Mitigation Measures PAL-1a through PAL-1e.

Mitigation Measures for Impact PAL-1: Construction of the project could destroy or disturb significant paleontological resources

PAL-1a Inventory and evaluate paleontological resources.

PAL-1b Develop Paleontological Monitoring and Mitigation Plan.

PAL-1c Monitor construction for paleontology.

PAL-1d Conduct paleontological data recovery.

PAL-1e Train construction personnel.

Operational Impacts

Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties (Class II)

Direct and indirect impacts may occur to historic properties such as any register-eligible archaeological sites within and in the vicinity of the project area during operation and long-term presence of the project. Direct impacts could result from maintenance or repair activities, while increased erosion and access could result in indirect project impacts. These impacts are potentially significant, but can be mitigated to a level that is less than significant (Class II) by implementing site protection measures and monitoring procedures, as detailed in Mitigation Measure C-5a (Protect and monitor NRHP and/or CRHR-eligible properties), as well as implementation of Mitigation Measures C-3a (Consult agencies and Native Americans) and C-4a (Complete Consultation with Native Americans and other Traditional Groups).

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-2a Properly treat human remains.

C-4a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP and/or CRHR-eligible properties.

Impact C-6: Long-term presence of the project could cause an adverse change to known historic architectural (built environment) resources (Class II)

The presence of the wind turbines may result in indirect visual impacts to historic architectural resources. Indirect visual impacts to potentially NRHP and/or CRHR-eligible built environment resources such as buildings, structures, and historic districts located near the alternative should be avoided or minimized, where feasible. If the resource cannot be avoided, then screening this or other built environment resources from the project could minimize the visual impact**.** These impacts are potentially significant, but can be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measure C-6a, which would reduce visual intrusions to historic built environment properties.

Mitigation Measure for Impact C-6: Long-term presence of the project could cause an adverse change to known historic architectural (built environment) resources

C-6a Reduce adverse visual intrusions to historic built environment properties.

Overall Cultural and Paleontological Impacts of In-Area Renewable Generation Alternatives

Solar Thermal

Construction of the Solar Thermal component in an undeveloped site would result in significant, unmitigable impacts (Class I) due to the possibility of encountering human remains, including buried Native American human remains. Mitigation Measures C-1b, C-1c, C-1d, C-1e, C-1f, and C-2a would partially compensate for the impacts and would outline procedures for the treatment of unanticipated discoveries but the impacts would still be considered significant. Construction of the component would result in significant unmitigable impacts (Class I) due to the possibility of encountering Traditional Cultural Properties as there are lands sacred to Native American within the vicinity of the Borrego Springs area. Though impacts to TCPs are often significant (Class I), implementation of Mitigation Measures C-4a, C-4b, and V-3a potentially reduce impacts to TCPs to a level that is less than significant (Class II). Operation of the Solar Thermal component would not result in any significant, unmitigable impacts; however the operation and maintenance of the solar thermal field may impact historic properties within the vicinity. Mitigation Measures C-1b, C-2a, C-4a, and C-5a would reduce operational impacts to known historic properties to a less than significant level (Class II).

Solar Photovoltaic

Construction of the solar photovoltaic would result in no significant, unmitigable impacts (Class I). Construction and operation could result in impacts to known historic properties but with implementation of the mitigation measures this impact is less than significant (Class II).

Biomass/Biogas

Construction and operation of the Biomass/Biogas component would result in no significant, unmitigable impacts (Class I). Construction of the component would involve grading and there is potential for unknown archaeological resources to be discovered during this activity. Mitigation Measures C-1c, C-1d, C-1f, C-2a and C-3a would be required to ensure the impact is less than significant (Class II).

Wind

Construction of the Wind component in an undeveloped site could result in significant, unmitigable impacts (Class I) due to the possibility of encountering human remains. Mitigation Measures C-1b, C-1c, C-1d, C-1e, C-1f, and C-2a would partially compensate for the impacts and would outline procedures for the treatment of such discoveries but the impacts would still be considered significant. Construction of the component would result in significant unmitigable impacts (Class I) due to the possibility of encountering Traditional Cultural Properties as there are lands sacred to Native American within the vicinity of the Wind component area. Though impacts to TCPs are often significant (Class I), implementation of Mitigation Measures C-4a, C-4b, and V-3a potentially reduce impacts to TCPs to a level that is less than significant (Class II). Operation of the Wind component would not result in any significant, unmitigable impacts; however, the operation and maintenance of the wind farm may impact historic properties within the vicinity. Mitigation Measures C-1b, C-2a, C-4a, and C-5a would reduce operational impacts to known historic properties to a less than significant level (Class II).

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E.5.8 Noise

Noise Setting for Solar Thermal

The solar collection field site and transmission lines are located within San Diego County and are subject to all applicable noise regulations designated by the County (see Section D.8.3 for a discussion of applicable regulations in San Diego County). The nearest residence to the proposed solar thermal collection site is located approximately 0.2 miles (approximately 1,000 feet) west of the site.

There are also sensitive receptors along the transmission line routes in Borrego Springs and west of the ABDSP boundary. Both transmission line routes would go through the ABDSP which has few noise sources. Results of a 24-hour survey conducted by SDG&E at Tamarisk Grove Campground (Ldn of 52.4 dBA) were typical of a natural area in proximity to a rural highway. Sound levels in Grapevine Canyon monitored over a 1 to 2 hour daytime period (Leq of 65.2 dBA) were higher relative to typical rural sound levels due to all terrain vehicle (ATV) activity in the area (SDG&E, 2006). Given the natural surroundings, existing noise levels within ABDSP away from traffic can be as low as 35 to 50 dBA.

The nearest noise-sensitive receptors to the transmission route options are the Tamarisk Grove and Yaqui Well campgrounds at the junction of SR78 and S3, near MP 74.8, and homes within and near Grapevine Canyon. Because recreational users of Anza-Borrego Desert State Park including hikers, campers, or other naturalists have unrestricted public access to areas within and at the edge of the Proposed Project ROW, the nearest noise-sensitive locations are at the edge of the ROW. Other portions of the transmission lines cross open space, and no noise-sensitive receptors are present. For a discussion of noise impacts related to wildlife see Section E.5.2.

Noise Impacts for Solar Thermal

Construction Impacts

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class III for Solar Thermal site; Class I for Option 1 and 2 transmission lines)

Construction activities for the proposed solar thermal component would generate noise from use of heavy construction equipment and construction-related traffic during the construction period. Noise-sensitive land uses are locations where people reside or where the presence of unwanted sound potentially would adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. Based on the anticipated equipment to be used during construction, typical noise levels generated by individual pieces of equipment are displayed in Table E.5.8-1. The nearest noise sensitive receptor to the proposed solar thermal collection site is located approximately 0.2

Table E.5.8-1. Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Dump truck	88
Jack hammer	88
Dozer	85
Pneumatic tools	85
Portable air compressor	81
Generator	81
Backhoe	80
Welding rig	71

Source Federal Transit Administration, 1995

miles (approximately 1,000 feet) west of the site. The nearest noise-sensitive receptors to the transmission route options are the Tamarisk Grove and Yaqui Well campgrounds at the junction of SR78 and S3, near MP 74.8, and homes within and near Grapevine Canyon (for Option 2).

The noise levels shown in Table E.5.8-1 represent noise levels at a distance of 50 feet. Because of sufficient distance to the Solar Thermal site, no nearby noise-sensitive receptors would be affected, and the construction noise impact would not cause any impact to be significant (Class III).

Construction noise would temporarily substantially increase ambient noise levels in the vicinity of the overhead and underground transmission line options and along all related transport access routes. Within ABDSP the San Diego County construction noise limit of 75 dBA would apply. Construction noise would adversely affect passive enjoyment of ABDSP and wildlife including listed or sensitive species (See Section E.5.2). Blasting is not anticipated in the overhead and underground transmission line options, although it may be necessary in the western portion of the overhead option due to hard rock conditions. Establishing best management practices, mitigation measure N-1a, in combination with the notification required by Mitigation Measure L-1a, would reduce the impact of construction noise to the extent feasible, but the substantial noise increase from construction would be significant and unavoidable (Class I). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement best management practices for construction noise.

Impact N-2: Construction activity would temporarily cause groundborne vibration (Class III for Solar Thermal site; Class II for Option 1 and 2 transmission lines)

Vibration levels from construction equipment and activities would be perceptible in the immediate vicinity of the construction sites. Perceptible vibration potentially would be experienced by residents or workers inside structures within 50 feet of trucks traveling over uneven surfaces and it could also be felt by wildlife in the area (for a discussion of noise impacts related to wildlife see Section E.5.2). Although not expected to be necessary for this Non-Wires project, the activities that would be most likely to cause groundborne vibration would be rock drilling or blasting. Because of sufficient distance, no nearby noise-sensitive receptors would be affected, and the construction noise impact would not cause any impact to be significant (Class III).

A significant groundborne vibration impact would occur in the immediate vicinity of construction sites for transmission line options, but with notification (Mitigation Measure L-1a) and a blasting plan that restores structures (Mitigation Measure N-2a), this impact would be reduced to a less than significant level (Class II).

Mitigation Measures for Impact N-2: Construction activity would temporarily cause groundborne vibration

L-1a Prepare Construction Notification Plan.

N-2a Avoid blasting where damage to structures could occur.

Operational Impacts

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class III)

Operation of the solar collection field to generate electricity and the underground transmission option (Option 1) would not generate noise. The long-term noise impacts that would occur as a result of the solar thermal component would be associated with two types of potential noise: noise from the corona effect of the upgraded transmission line (for the overhead Option 2 line only) and noise from activities for routine inspection and maintenance of the solar collection field. Corona noise from the 138 kV line would be approximately equivalent to background ambient noise levels, and would therefore not cause a significant increase in ambient noise over what would occur without the line. In addition, the incremental difference in corona noise from a 69 kV to 138 kV line would not be perceptible, and therefore, impacts would be less than significant (Class III). Although the impact would be less than significant and no mitigation is required, Mitigation Measure N-3a would help to further minimize any corona noise experienced at residences at the edge of the ROW to the extent feasible.

Mitigation Measures for Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components

N-3a Respond to complaints of corona noise.

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class III for Solar Thermal site; Class I for Option 1 and 2 transmission lines)

While the periodic maintenance activities that would occur at the solar generation and transmission facilities would generate noise during these activities, these activities would be infrequent. For the Solar Thermal site, this would not result in a notable noise increase. Periodic cleaning of solar collector mirrors would occur after sunset and would consist of a water spray truck driving a long the arrays of solar collectors and spraying water on them. Since the site is surrounded by open space and agricultural land uses, the closest residence is at least 1,000 feet from the western boundary of the solar collection field, and most of the cleaning activity would occur even farther from the nearby residence, noise from cleaning operations would not be audible to any nearby receptors. The nighttime limit of 45 dBA Leq established by the San Diego County Code of Regulatory Ordinances would not be exceeded, and the alternative would not conflict and would be consistent with the San Diego County noise standards. Wildlife in the area would be accustomed to noise in the developed area around Borrego Springs and would not be significantly affected by noise from maintenance (see also Section E.5.2). The noise impact resulting from Solar Thermal site maintenance would be less than significant (Class III).

Occasional transmission line inspection and maintenance activities would cause noise identical to construction noise, which would periodically cause a substantial increase in noise over conditions occurring without the alternative resulting in a significant and unavoidable impact along the transmission line ROW (Class I).

Noise Setting for Solar Photovoltaic

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development. Installations would occur in a variety of noise environments, including rural areas, residential developments, commercial corridors, and industrial zones. The ambient noise environment would vary greatly from one installation area to the next. Sources and levels of existing

noise would depend on factors such as land uses, population density, and proximity to roadways and other noise generating sources. Noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, wildlife and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise.

The Noise Element of the San Diego County General Plan allows for construction to occur Monday through Friday only between the hours of 7:00 a.m. to 7:00 p.m. The noise element of the San Diego County General Plan stipulates that it shall also be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 decibels between the hours of 7 a.m. and 7 p.m (SDCGP, 1975).

Noise Impacts for Solar Photovoltaic

Construction Impacts

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class II)

Construction activities would not require the use of heavy construction equipment such as bulldozers, backhoes, jack hammers, or dump trucks. Noise-generating construction activities would include the use of power and hand tools such as nail guns, power drills, and power saws that could produce sound levels greater than 75 decibels which would be considered significant. To ensure temporary construction noise would be reduced to the extent feasible, and comply with all applicable local noise ordinances and regulations, Mitigation Measures L-1a and N-1a, would be required for the solar PV construction to reduce this impact to a less than significant level (Class II). Mitigation measure N-1a would ensure the applicant shall comply with local noise rules, standards, and/or ordinances by implementing the noise-suppression techniques and variance standards set by local authorities (see Section D.8.4.3 for noise suppression techniques.)

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement best management practices for construction noise.

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity, which would not generate noise. There would be no transmission line so Impact N-3 (Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components) would not occur. This alternative would occur on existing residential and commercial buildings primarily in areas characterized by urban development with high ambient noise. Very little maintenance would be required once operation and Impact N-4 (Routine inspection and maintenance activities would increase ambient noise levels) would not occur.

Noise Setting for Biomass/Biogas

The Fallbrook Renewable Energy Facility: The Fallbrook Renewable Energy Facility would be a biomass facility located on approximately 80 acres of Pankey Ranch property on Pala Road, approximately one mile east of the intersection of Pala Road (Highway 76) and Interstate 15 and south of the San Luis Rey River in the Pala Mesa Valley. This area involves activities related to dispersed and limited residential uses, roads, industry, and agriculture provide ambient noise levels generally below 50 Ldn. Near industrial uses and roads, noise levels over 70 Ldn can occasionally occur.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill which is adjacent to the Miramar Marine Corps Air Station to the north and to industrial operations to the southwest and southeast. As stated in the San Diego Draft General Plan for 2007, MCAS Miramar operates jet fighters, transport, and helicopter aircraft and requires constant training for military readiness. Noise from MCAS Miramar can affect more areas than from civilian airports and helicopter noise can be an annoyance as such events last longer and pulsate. The Air Installations Compatibility Use Zones (AICUZ) study shows that adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels (San Diego, 2007).

Noise Impacts for Biomass/Biogas

Construction Impacts

The proposed biomass/biogas facilities would cause construction and operational noise that could affect nearby receptors, but a groundborne vibration impact (Impact N-2) would not occur.

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class I, No Impact)

The Fallbrook Renewable Energy Facility: Construction of the proposed renewable energy facility in Fallbrook would require grading of 10 acres. Construction noise impacts would be similar to those of transmission line construction. Intensive grading and access road construction would occur and access road traffic would be within 500 feet of a residential area, therefore there would be a significant impact. Mitigation Measures L-1a and N-1a, would be required for the biomass construction to reduce this impact, but it would remain significant and unavoidable due to the proximity of noise-sensitive receptors (Class I).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill which is adjacent to the Miramar Marine Corps Air Station to the north and to industrial operations to the southwest and southeast. As stated in the San Diego Draft General Plan for 2007, MCAS Miramar operates jet fighters, transport, and helicopter aircraft and requires constant training for military readiness. Noise from MCAS Miramar can affect more areas than from civilian airports and helicopter noise can be an annoyance as such events last longer and pulsate. The Air Installations Compatibility Use Zones (AICUZ) study shows that adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels. Therefore, any construction noise would not cause an increase in ambient noise levels above existing levels at noise-sensitive locations, given the existing noise levels in the Miramar area, and no mitigation is required.

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement best management practices for construction noise.

Operational Impacts

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class II, No Impact)

The Fallbrook Renewable Energy Facility: The Fallbrook Renewable Energy Facility would introduce permanent noise sources such as transformers, reactors, circuit breakers, and other equipment to an existing rural and natural setting. The Fallbrook component has been designed so outside noise levels will not exceed 88 dBA at 100 feet. Operational noise would originate from truck engine as a result hauling operations coming from and going to the facility, a significant impact. All other operations of the facility are internal to the main structure, and include significant noise abatement designs for material grinding equipment. The activity and equipment at the power plant would be required to comply with the San Diego County noise limitations, but the substantial noise increase from the operation of this facility would be significant. Mitigation measures related to proper power plant design (see Section E.6.8) would reduce this impact to a less than significant level (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing Miramar Landfill which is adjacent to the Miramar Marine Corps Air Station to the north and to industrial operations to the southwest and southeast. As stated in the San Diego Draft General Plan for 2007, MCAS Miramar operates jet fighters, transport, and helicopter aircraft and requires constant training for military readiness. Noise from MCAS Miramar can affect more areas than from civilian airports and helicopter noise can be an annoyance as such events last longer and pulsate. The Air Installations Compatibility Use Zones (AICUZ) study shows that adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels. Therefore operation noise of the facilities would not increase the existing ambient noise level above the existing conditions and no mitigation is required.

Mitigation Measure for Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components

N-3d Incorporate noise reduction features with power plant design.

N-3e Verify proper power plant noise control.

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class III, No Impact)

The Fallbrook Renewable Energy Facility: Routine inspection and maintenance of the new Fallbrook Renewable Energy Facility would cause minor noise at the facility and along the access road to the facility. The light-duty crew trucks that would be used during inspection activities would typically generate noise levels under 75 dBA at 50 feet. These operational activities would not cause any local ordinance to be violated or any substantial change in existing noise levels at Noise-Sensitive receptors (Class III).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility will be located on or around the existing

Miramar Landfill which is adjacent to the Miramar Marine Corps Air Station to the north and to industrial operations to the southwest and southeast. As stated in the San Diego Draft General Plan for 2007, MCAS Miramar operates jet fighters, transport, and helicopter aircraft and requires constant training for military readiness. Noise from MCAS Miramar can affect more areas than from civilian airports and helicopter noise can be an annoyance as such events last longer and pulsate. The Air Installations Compatibility Use Zones (AICUZ) study shows that adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels. Therefore any inspection and maintenance activities would not increase the ambient noise level above the existing conditions and no mitigation is required.

Noise Setting for Wind

The noise setting for the wind component is presented below. A new 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL (about 10 miles to the south). The wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5, and a new substation would be constructed either on the Campo Reservation land or at MP I8-35. (See Section D.8.12.4 for detailed analysis of the Jacumba Substation, MP I8-35.)

Ambient Noise Levels. Generally low noise levels occur in the wind component area. Rural areas or unpopulated lands are the quietest. Unpopulated natural areas are expected to be as low as 35 to 50 dBA, and ambient levels tend to be below 50 dBA in open areas. Near I-8 noise levels are the highest (over 80 dBA).

Noise-Sensitive Receptors. Sensitive noise receptors within the alternative area include limited rural residences (1 du/80 acres) within the Campo, La Posta, and Manzanita Reservations, and open space/ recreational users within the BLM lands. Wildlife would also be sensitive noise receptors (See Section E.5.2 for details on noise impacts related to wildlife.) Surrounding land uses to the wind component sites also include rural residential and open space/recreational uses. The setting is otherwise rural and natural without noise-sensitive uses.

Noise Impacts for Wind

Construction Impacts

Impact N-1: Construction noise would substantially disturb sensitive receptors or violate local rules, standards, and/or ordinances (Class I)

Construction of the wind component would substantially increase ambient noise levels in the vicinity of the alternative properties and construction access routes. This construction noise impact would be temporary, but by substantially increasing noise for tribal lands and recreational uses, a significant impact. By implementing Mitigation Measures L-1a and N-1a, the impact of construction noise could be reduced to the extent feasible, but the substantial noise increase from construction would be significant and unavoidable (Class I).

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors or violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement best management practices for construction noise.

Impact N-2: Construction activity would temporarily cause groundborne vibration (Class III)

Vibration levels from construction equipment and activities might be perceptible to receptors in the immediate vicinity of the construction sites. Perceptible vibration could be experienced by residents or workers inside structures within 50 feet of trucks traveling over uneven surfaces. The activities that would be most likely to cause groundborne vibration would be rock drilling or blasting. The level of groundborne vibration that could reach sensitive receptors would depend on what equipment is used, the soil conditions surrounding the construction site, and distance of the sensitive receptors to the drilling/blasting sites. The temporary groundborne vibrations that could result from construction are considered adverse but insignificant (Class III).

To minimize the effects of groundborne vibrations on sensitive receptors, several mitigation measures are available. For example, Mitigation Measure N-2a, requires management of blasting and its effects on nearby land uses and structures. Blasting plans would include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. Additional measures that would further reduce impacts include Mitigation Measure L-1a, which requires notification to residences and sensitive receptors, including land managers of recreational areas.

Mitigation Measures for Impact N-2: Construction activity would temporarily cause groundborne vibration

L-1a Prepare Construction Notification Plan.

N-2a Avoid blasting where damage to structures could occur.

Operational Impacts

Operational Impact N-3 (Permanent noise levels would increase due to corona noise from operation of the transmission line and noise from other project components) is addressed in Section D.8.12.4 for the proposed Jacumba Substation. The proposed Campo Substation would be considered part of the Wind turbine operations, as it is located on the site designated for the wind farm.

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission line and noise from other project components (Class I for transmission line, Class III for the substation, Class II for wind turbines)

The wind component 230 transmission line would cause a permanent noise increase due to audible corona. Depending on the ultimate configuration and location of the lines, levels up to and possibly over 40 dBA are expected. The nighttime limit of 45 dBA Leq established by the San Diego County Code of Regulatory Ordinances would not be exceeded with the addition of the future 230 lines, but a substantial (more than 5 dBA) increase would occur for nearby noise-sensitive receptors such as the within the tribal reservations. For noise-sensitive residential and recreational uses, this would be a significant increase. There are few options for mitigating this noise source. Mitigation measure N-3a would help to minimize the nuisance to the extent feasible. The impact would occur for noise-sensitive receptors at the edge of the transmission line ROW where natural existing noise levels could be as low as 35 dBA, and this increased noise would be an infrequent but significant and unavoidable impact (Class I).

Noise would be created by the new wind turbine generators due to the rotation of the blades and operation of the generator. Wind turbine generator noise would be minimized through the use of current industry standard turbine technology. Generally, the three-blade upwind orientation and lower rotational

speeds of new turbines create less noise than older turbine systems. The "upwind" configuration, i.e., the blades spin on the upwind side minimizes the low frequency noise by eliminating the wind shadow "thumping" and vibration caused by blades passing behind the tower, which was common on many older downwind machines. As sound spreads out from a noise source, the underlying physics of sound propagation determines that the sound will reduce by 6 dB for each doubling of distance away from the source. In arrangements of new wind turbines where a string of multiple turbines may be parallel with the lot line, a steady sound pressure level of 65 dBA is met at a distance of 170 feet from the property line (Contra Costa County, 2007). The San Diego Mountain Empire Plan, Industrial Goal, Policy and Recommendation 11 states:

> *"Deny future industrial or commercial development which adversely impacts the Mountain Empire Subregional area, such as wind turbine generators, for any of the following reasons: …c) Noise pollution emanating from the site exceeding 65 (decibels) dBs at the property line, as it creates great human discomfort and adversely affects the tranquility of the rural environment;…."*

Sensitive land uses within the alternative properties and surrounding areas include rural residences and open space/recreational users. Operational noise from the wind turbines would cause a significant noise impact to the neighboring residents and residents within the reservations. Mitigation measure N-3b (Perform Operational Noise Study) would reduce the operational noise impact experienced by residences to an insignificant level (Class II). Noise from maintenance activities is discussed under Impact N-4.

Mitigation Measure for Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission line and noise from other project components

N-3a **Respond to complaints of corona noise.**

N-3b **Perform Operational Noise Study.** As part of facility design, an Operational Noise Study shall be conducted to determine the potential noise levels to be experienced by residents located within the reservation lands and along the boundaries of the reservation and BLM lands in which the planned wind component turbines would be located. The analysis shall be based on the planned siting of the wind turbines (number turbines and their alignment) and type of turbines to be used, and shall determine the distance from the turbines at which the operational noise level is reduced to 65 dB. The Operational Noise Study shall be reviewed and approved by San Diego County prior to land use clearance. If the siting of turbines results in reservation residence(s) being located within a 65 dB noise contour for the wind component turbines or the sound level exceeds 65 dB at the property boundaries, the turbine(s) at this location(s) shall be moved until the residence(s) and/or property lines fall outside of the 65 dB noise contour. Final siting of wind component turbines shall be subject to approval by San Diego County.

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class I)

Inspection and maintenance including transmission line insulator washing and access road repair would involve occasional truck, or earthmoving equipment activity along the transmission line ROW. Maintenance activities for the transmission line would occasionally involve noise at levels identical to construction. As such, maintenance would periodically cause a substantial increase in noise, which would be a significant impact.

Maintenance activities associated with the wind component towers/turbines and associated facilities would include primarily ground-level inspections and occasional helicopter use for repairs. Ground level inspections would involve vehicle travel to the turbine sites. As presented in the description for the wind component, it is anticipated that maintenance access to the nacelle will be in the form of ladders inside the towers. Helicopters might be used for repairs involving heavy equipment. These maintenance activities would cause occasional noise. During this activity, light-duty helicopters would generate noise levels of under 80 dBA at 200 feet, and crew trucks would cause levels of approximately 75 dBA at 50 feet. Access road repair may also involve occasionally increased noise from sources like a water truck or earthmoving equipment. Helicopters and other equipment within 200 feet of sensitive receptors would periodically cause a substantial increase in noise over conditions occurring without the wind component that would be significant. Because the need for emergency response cannot be predicted, advance notification or restricting the noise from work to daytime hours would not be practical, resulting in a significant and unavoidable impact (Class I).

Overall Impacts of Renewable Generation Alternative for Noise

Solar Thermal. Construction of the solar thermal component with transmission line options would result in significant, unmitigable impacts during construction (Impact N-1, Class I). Construction noise would disturb residences, schools, hospitals, guest lodging, libraries, and some recreation areas within the vicinity, and Mitigation Measures L-1a and N-1a would be required (Class I). Construction would temporarily cause groundborne vibration from construction equipment and activities, but Mitigation Measures L-1a and N-2a would reduce this impact to a less than significant level (Impact N-2, Class II). Operation of the solar thermal component would not result in significant impacts, except for occasional maintenance along the transmission line (Impact N-4, Class I).

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts (Class I). Construction noise including the use of power and hand tools could produce significant noise. Mitigation measures L-1 and N-1a would reduce this impact to a less than significant level (Impact N-1, Class II).

Biomass/Biogas. Construction of the proposed renewable energy facility in Fallbrook would result in significant unmitigable impacts to the surrounding residential area (Impact N-1, Class I). Mitigation measures L-1a and N-1a would be required to reduce this impact to the extent feasible. The Fallbrook Renewable Energy Facility would introduce permanent noise to an existing rural and natural setting. The substantial noise increase from the operation of this facility would be reduced to less than significant with proper power plant design (Impact N-3, Class II). Construction and operation of the Miramar Biomass/Biogas facility would result in no noise impacts at any noise-sensitive location.

Wind. Construction and operation of the wind component would result in significant, unmitigable impacts (Class I). Construction of the wind component would result in impacts to tribal and recreational uses, and Mitigation Measures L-1a and N-1a would be required (Impact N-1, Class I). Operation of the Wind farm would result in a significant impact that would be reduced to less than significant (Impact N-3, Class II) with Mitigation Measure N-3b for proper location of turbines. Operation of the wind component transmission line would result in corona noise, a significant, unmitigable impact (Class I).

E.5.9 Transportation and Traffic

Transportation and Traffic Setting for Solar Thermal

The solar collection field is located in Borrego Springs in northeastern San Diego County. The site is located along Borrego Valley Road, approximately one mile north of Palm Canyon Drive. Major roadways in the vicinity include (San Diego County, 2007a):

- **Borrego Valley Road.** A local north-south roadway located adjacent to the site.
- **Yaqui Pass Road–State Route 3.** A north-south major roadway located approximately 1.0 miles south of the site.
- **Palm Canyon Drive–State Route 22.** An east-west major roadway located approximately 2.2 miles north of the site.
- **Highway SR78.** An east-west highway approximately 6.5 miles south of the site.

Underground construction with the Option 1 transmission line would occur along Borrego Valley Road, Yaqui Pass Road/S3, SR78, and S2. Overhead construction with the Option 2 transmission line would occur adjacent to Borrego Valley Road, SR78, Grapevine Canyon Road, S22 and S2 to Warners Substation, which is located along SR79.

Transportation and Traffic Impacts for Solar Thermal

Construction Impacts

Construction impacts related to the disruption of rail traffic or operations (Impact T-6) would not occur because there are no rail operations in the solar thermal area. Impacts related to the conflict with planned transportation projects (Impact T-8) would not occur, because there are no known transportation projects within the solar study area that would conflict with the project's construction activities.

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class II)

Construction of the solar thermal field and transmission upgrades would result in roadway closures at locations where the construction activities, especially transmission line stringing (from Option 2) or underground trenching, would be located within ROWs of public streets and highways. The transmission upgrades would require either trenching in roadways (Option 1) or transmission line stringing over several roads listed above (Option 2). In addition, delivery of large equipment and materials via truck may require temporary closures. Temporary closures of this nature would likely occur for a limited time (few minutes to an hour).

Prior to conducting work within or above a road ROW, an encroachment permit or similar authorization would be required by the applicable jurisdictional agency at locations where the construction activities would occur within or above the public road ROW. The specific requirements of the applicable transportation agency may require traffic safety measures at encroachment locations, including detouring all traffic off the roadway at the construction location or implementation of a controlled continuous traffic break while stringing operations are performed. Encroachment permits would also restrict road closures to off-peak periods to avoid excessive traffic congestion, where necessary. The specific agency requirements would be included as stipulations in the required encroachment permits. Implementation of Mitigation

Measures T-1a (Restrict lane closures),T-1b (Prepare detour plans) , and T-1c (Obtain required permits) would reduce the impacts of temporary road and lane closures to a less than significant level (Class II). This is because road and lane closures would be restricted and detour plans would allow for traffic to be rerouted around the construction zone reducing traffic delays. The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow

T-1a **Restrict lane closures**.

T-1b **Prepare detour plans.** [T-APM-2b]

T-1c **Obtain required permits.** [T-APM-2a]

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

Both overhead and/or underground construction activities would interfere with emergency response by ambulance, fire, paramedic, and police vehicles. The roadway segments that would be most impacted would be two-lane roadways, which provide one lane of travel per direction. On roadways with multiple lanes, the loss of a lane and the resulting increase in congestion would lengthen the response time required for emergency vehicles passing through the construction zone. Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked by the construction zone. The implementation of Mitigation Measure T-2b, requiring coordination in advance with emergency service providers to avoid restricting movements of emergency vehicles, would minimize this impact because emergency service providers would be aware of any potential delays, lane closures, and/or roadway closures in order to develop alternative routes and adjust service areas and destinations as necessary to maintain emergency service coverage and response times.

Mitigation Measure for Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

T-2b **Coordinate with Emergency Service Providers.** [T-APM-4a]

Impact T-3: Construction would temporarily disrupt bus transit services (Class II)

Overhead transmission line stringing would potentially affect transit operation within the project vicinity, during both overhead and underground transmission line installation. Construction of the solar thermal field and transmission upgrades has the potential to cause schedule delays and bus stop closures and/or temporary bus stop relocations. If necessary, bus stops will be temporarily relocated or buses will be rerouted until construction in the vicinity is complete. The implementation of Mitigation Measure T-3b, requiring consultation with transit services and school districts at least one month prior to construction to coordinate construction activities adjacent to bus stops, would minimize this impact because school districts and transit systems will be able to develop alternative routes and/or bus stops avoiding the construction zone.

Mitigation Measure for Impact T-3: Construction would temporarily disrupt bus transit services (Class II)

T-3b **Consult with bus and transit services.** [T-APM-5a]

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II)

Pedestrian and bicycle circulation potentially would be affected by transmission line upgrade activities and solar collector construction if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked. Implementation of Mitigation Measure T-4a and WR-1b would ensure that SDG&E would maintain safe pedestrian and bicycle access and/or design alternative routes through the construction zone. With these measures, impacts would be less than significant (Class II) because alternative pedestrian and bicycle routes would be established around the construction zone for safe passage as well as temporary detours for trail users, pedestrians and bicycles within and around ABDSP.

Mitigation Measures for Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety

T-4a Ensure pedestrian and bicycle circulation and safety.

WR-1b Provide temporary detours for trail users.

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

There is potential for unexpected damage to roads by vehicles and equipment to occur from construction vehicles (overhead line trucks, crew trucks, concrete trucks, etc.) that would be entering and leaving roads within the project area. Implementation of Mitigation Measure T-5a was developed to reduce the impacts that construction vehicles and equipment potentially would have on roads to less than significant levels (Class II) by requiring SDG&E to employ physical road improvements such as construction/modification of roadways and repaving roadways.

Mitigation Measures for Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area

T-5a Repair damaged roads.

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class II)

Construction activities potentially would result in short-term elimination of a limited amount of parking spaces in the construction zone. Staging areas potentially would be used for temporary parking. Additionally, construction would potentially impact several local roads along the transmission line route for both Option 1 and Option 2 (see Impact T-1 above), especially if trenching occurs under the Option 1 transmission component (Class II). In areas with no major roadways, no special parking impacts would occur. Implementation of Mitigation Measures T-7a and T-7b would limit the potential impacts to less than significant because construction parking would comply with the County of San Diego Department of Public Works Traffic Guidelines and would provide advance notice in the event there would be any short-term elimination of parking spaces.

Mitigation Measures for Impact T-7: Construction would result in the short-term elimination of parking space

T-7a Notify public of potential short-term elimination of parking spaces.

T-7b Comply with county parking restrictions. [T-APM-6b]

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class III)

Construction of the solar thermal project would temporarily increase traffic (project trip generation) on the regional and local roadways through construction worker commute trips, project equipment deliveries, and hauling materials such as support structures and poles, concrete, fill, and excavation spoils. Most roadways affected by the solar project would operate at LOS A with the addition of the project traffic. No roadways would operate at a LOS "C" or "D" or lower. Because the additional traffic on regional and local roadways would not decrease the LOS impacts to regional and local roadways, this impact would be less than significant (Class III). However, to ensure that regional traffic is not unnecessarily impacted during construction in compliance with NEPA, Mitigation Measure T-9a is recommended, but not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.2.

Mitigation Measures for Impact T-9: Construction would generate additional traffic on the regional and local roadways

T-9a Prepare Construction Transportation Plan.

Impact T-10: Underground Construction Could Restrict Access to Properties and Businesses (Class II)

The Option 1 transmission line would install the 138 kV line within the Borrego Valley Road, Yaqui Pass Road/S3, SR78, and S2 ROWs. Underground construction on any portion of these roads could restrict access to properties and other neighboring roadways. In addition, trenching operation may disrupt State Park officials from accessing portion of ABDSP. With implementation of Mitigation Measure T-10a, which would require that construction crews quickly lay a temporary steel plate trench bridge upon request in order to ensure property and roadway access to residents and State Park officials, impacts would be less than significant (Class II).

Mitigation Measures for Impact T-10: Underground Construction Could Restrict Access to Properties and Businesses

T-10a Ensure access to properties and businesses. [T-APM-10a]

Operational Impacts

Operation of the upgraded transmission line would not require full time staff and would only require periodic inspection and maintenance on an as-needed basis. Such activities would likely involve one to two trucks traveling along the transmission line route. Operation of the solar collection field would require two to four full time staff to operate the control system and perform routine cleaning and maintenance. These activities would generate no more than four trips during peak hours and would not impact area intersections and roadways. No impacts would occur.

Transportation and Traffic Setting for Solar Photovoltaic

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development throughout San Diego County. The transportation network in San Diego County consists of Interstate Highways, State Highways, prime arterials, major roads, collector roads, and rural roads, all of which would potentially be utilized by construction worker vehicles. Implementation of the PV alternative would require 500 workers per year installing individual PV

systems throughout San Diego County over three years. Assuming two workers per vehicle working every day Monday through Friday, 250 round-trip vehicle trips would be added to the regional roadway system throughout the county each day. Construction workers are expected to come from the local population. On an average weekday in San Diego County, there are an estimated 5,287,000 vehicle trips. An additional 250 trips per day for PV installation would represent less than 0.01% increase in vehicle trips per day. (Caltrans: 2000-2001 California Statewide Household Travel Survey)

Transportation and Traffic Impacts for Solar Photovoltaic

Construction Impacts

Implementation of the solar PV component would consist of one to four workers in one to two vans or trucks traveling to individual residences and commercial sites to install PV systems on rooftops. Construction activities would last one to four days at any individual residential location and three to five weeks at any individual commercial location. Such activities would have no effects on air traffic patterns because the solar PVs would not penetrate any air space. Implementation of the solar PV component would not impact road and lane closures that would temporarily disrupt traffic flow (Impact T-1) because lane closures are not expected. Emergency access would not be restricted (Impact T-2) because installation of the solar PVs would not block or close lanes or roadways. Bus transit services (Impact T-3) would not be disrupted because the solar PV installation would not restrict bus or transit service operations. Bicycle and pedestrian pathways (Impact T-4) would not be impacted because no bicycle or pathways are expected to be restricted or closed due to installation of the solar PVs. Construction impacts related to the disruption of rail traffic or operations (Impact T-6) would not occur because the installation of solar PVs would not cross railroad ROWs. Impacts related to the conflict with planned transportation projects (Impact T-8) would not occur, because the project's installation would not impact any known transportation projects. Impact T-10 (Underground construction could restrict access to properties and businesses) would not occur because there would be no underground construction with the Solar PV component.

Impact T-5: Construction vehicles and equipment would cause physical damage to roads in the project area (Class II)

There is potential for damage to roads by vehicles and equipment to occur from construction vehicles that would be entering and leaving roads within the project area and assembling PV systems in parking lots. Implementation of Mitigation Measure T-5a would reduce the impacts that construction vehicles and equipment could have on roads to less than significant levels (Class II) by requiring the applicant to restore roadways to previous conditions and/or improved conditions.

Mitigation Measure for Impact T-5: Construction vehicles and equipment would cause physical damage to roads in the project area

T-5a Repair damaged roads.

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class III)

Construction activities would result in short-term elimination of a few parking spaces, because vehicles would park in commercial parking lots, driveways, or along streets. Assembly of the PV units could occur in parking lots, which could cause the short-term elimination of spaces (one to four days at any individual location). Impacts to parking spaces would be less than significant (Class III). However, to

ensure that parking is not unnecessarily impacted during construction, Mitigation Measure T-7a is recommended, but not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.2.

Mitigation Measure for Impact T-7: Construction would result in the short-term elimination of parking spaces

T-7a Notify public of potential short-term elimination of parking spaces.

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class III)

Construction of this alternative would require 500 workers per year for three years who would be dispersed in groups throughout the project area and would not typically be working at the same place at any one time. Traffic volumes vary greatly throughout the county, but tend to be higher in areas of concentrated urban development. Some construction travel would be required during peak travel hours and could contribute to increased congestion or levels of service. It is possible that project-related construction traffic could contribute to congestion at heavily traveled and/or narrow roadway segments. However, it is not expected that project related traffic will decrease the LOS on roadways within the Proposed Project route.

At any single location, this impact would be short-term (one to four days at any residential site, 3 to 5 weeks at any commercial site) and would only require one to four workers in one or two vans. Because impacts related to project construction traffic would not decrease the LOS on roadways, they would not cause an increase that would be substantial in relation to the existing traffic load. Impacts to regional and local roadways would be less than significant (Class III). However, to ensure that regional traffic is not unnecessarily impacted during construction, Mitigation Measure T-9a is recommended, but not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.2.

Mitigation Measure for Impact T-9: Construction would generate additional traffic on the regional and local roadways

T-9a Prepare Construction Transportation Plan.

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity which would have no effects on any traffic and transportation facilities, patterns or plans. No impacts would occur.

Transportation and Traffic Setting for Biomass/Biogas

The Fallbrook Renewable Energy Facility: The Fallbrook Renewable Energy Facility would be a biomass facility located on approximately 80 acres of Pankey Ranch property on Pala Road, approximately one mile east of the intersection of Pala Road (Highway 76) and Interstate 15. In addition, Shearer Crossing would be impacted by the construction of this renewable energy facility and associated transmission lines.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility are located at the Miramar landfill

near Highway SR52 on the Miramar Marine Corps Air Station. In addition to Highway SR52, Convoy Street, and Clairemont Mesa Boulevard would be impacted by the construction of the biomass/biogas Non-Wires alternatives.

Transportation and Traffic Impacts for Biomass/Biogas

Increased traffic during construction would impact local roadways and thoroughfares in the project vicinity; these impacts would be temporary. There are no railroads or air transportation facilities that would be affected by the biomass/biogas Non-Wires alternatives.

Construction Impacts

The Fallbrook Renewable Energy Facility: Construction would occur at the Pankey Ranch property or along adjacent agricultural land, and thus would not impact bus and transit services (Impact T-3) or bicycle and pedestrian pathways (Impact T-4) because there are no known routes or paths that would be crossed or closed during construction. Impact T-1 (Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow) would not occur because work would take place within the Pankey Ranch property or along adjacent agricultural lands and lane closures of public roadways/highways are not expected. Construction impacts related to the disruption of rail traffic or operations (Impact T-6) would not occur because there are no rail operations on the ranch property or within the vicinity of the proposed transmission line routes. Impacts related to the conflict with planned transportation projects (Impact T-8) would not occur, because there are no known transportation projects within the study area that would conflict with the project's construction activities.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction would occur at an existing landfill facility and would not extend into navigational air space of the Montgomery Field or MCAS Miramar; thus, construction at the landfill facility would have no effects on air traffic patterns. Additionally, construction of the biomass/biogas facility would not impact bus and transit services (Impact T-3) or bicycle and pedestrian pathways (Impact T-4) because there are no known routes or paths that would be crossed or closed during construction. Impact T-1 (Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow) would not occur because work would take place within the existing landfill facilities and lane closures of public roadways/highways are not expected. Construction impacts related to the disruption of rail traffic or operations (Impact T-6) would not occur because there are no rail operations near the biomass/biogas sites. Impacts related to the conflict with planned transportation projects (Impact T-8) would not occur, because there are no known transportation projects within the study area that would conflict with the project's construction activities.

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

The Fallbrook Renewable Energy Facility: Construction activities could interfere with emergency response by ambulance, fire, paramedic, and police vehicles along Pala Road or Pankey Road. However, Mitigation Measure T-2b would ensure the applicant coordinate in advance with all emergency service providers in order to develop alternative routes and adjust service areas and destinations as necessary to maintain emergency service coverage and response times. With the implementation of Mitigation Measure T-2b, the impact would be less than significant (Class II)

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction activities could interfere with emergency response by ambulance, fire, paramedic, and police vehicles within the Miramar Landfill area. However, Mitigation Measure T-2b would ensure the applicant coordinate in advance with all emergency service providers in order to develop alternative routes and adjust service areas and destinations as necessary to maintain emergency service coverage and response times. With the implementation of Mitigation Measure T-2b, the impact would be less than significant (Class II)

Mitigation Measure for Impact T-2: Construction would temporarily disrupt the operation of emergency service providers

T-2b Coordinate with Emergency Service Providers. [T-APM-4a]

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

The Fallbrook Renewable Energy Facility: Unexpected damage to roads by vehicles and equipment could occur from construction vehicles that would be entering and leaving roads within the project area and within the ranch property. Implementation of Mitigation Measure T-5a was developed to reduce the impacts that construction vehicles and equipment could have on roads to less than significant levels (Class II) by requiring roadways to be are restored to previous conditions and/or improved conditions. Mitigation measure T-5a will require the applicant to employ physical road improvements such as construction/modification of roadways and repaving roadways. Mitigation measure T-5a would reduce the impacts that construction vehicles and equipment could have on roads to less than significant levels (Class II) by requiring physical roadway improvements to areas that are noticeably damaged.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Unexpected damage to roads by vehicles and equipment could occur from construction vehicles that would be entering and leaving roads within the project area and within the landfill facilities. Implementation of Mitigation Measure T-5a was developed to reduce the impacts that construction vehicles and equipment could have on roads to less than significant levels (Class II) by requiring roadways to be restored to previous conditions and/or improved conditions. Mitigation measure T-5a will require the applicant to employ physical road improvements such as construction/modification of roadways and repaving roadways. Mitigation measure T-5a would reduce the impacts that construction vehicles and equipment could have on roads to less than significant levels (Class II) by requiring physical roadway improvements to areas that are noticeably damaged.

Mitigation Measure for Impact T-5, Construction vehicles and equipment would potentially cause physical damage to roads in the project area

T-5a Repair damaged roads.

Impact T-7, Construction would result in the short-term elimination of parking spaces (Class III)

The Fallbrook Renewable Energy Facility: Construction activities would result in short-term elimination of a limited amount of parking spaces near the Pankey Ranch property. However, the ranch property itself, once cleared, could be used for temporary parking. Impacts to parking spaces would be less than significant (Class III). However, to further ensure that parking is not unnecessarily impacted during construction, Mitigation Measure T-7a is recommended, but not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.2.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction activities would result in short-term elimination of a limited amount of parking spaces near the Miramar Landfill. Impacts to parking spaces would be less than significant (Class III). However, to further ensure that parking is not unnecessarily impacted during construction, Mitigation Measure T-7a is recommended, but not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.2.

Mitigation Measure for Impact T-7, Construction would result in the short-term elimination of parking spaces

T-7a Notify public of potential short-term elimination of parking spaces.

Impact T-9, Construction would generate additional traffic on the regional and local roadways (Class II)

The Fallbrook Renewable Energy Facility: Construction of the biomass project would temporarily increase traffic (project trip generation) on the regional and local roadways through construction worker commute trips, project equipment deliveries, and hauling materials for the generation facilities. This increase would be short-term and is not expected to decrease the LOS on roadways along the project route. Implementation of Mitigation Measure T-9a would ensure that a TCP is developed in order to reduce traffic delays during peak house and reduce additional traffic generation impacts to less than significant (Class II).

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction of the biogas/biomass project would temporarily increase traffic (project trip generation) on the regional and local roadways through construction worker commute trips, project equipment deliveries, and hauling materials for the generation facilities. This increase would be short-term and is not expected to decrease the LOS on roadways along the project route. Implementation of Mitigation Measure T-9a would ensure that a TCP is developed in order to reduce traffic delays during peak house and reduce additional traffic generation impacts to less than significant (Class II).

Mitigation Measure for Impact T-9, Construction would generate additional traffic on the regional and local roadways (Class II)

T-9a Prepare Construction Transportation Plan.

Impact T-10: Underground construction could restrict access to properties and businesses (No Impact for the Fallbrook Facility; Class III for the Miramar Facilities)

The Fallbrook Renewable Energy Facility: No underground construction will occur during the construction of the Fallbrook Facility.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Installation of the pipeline interconnections for gas collection would be underground, but it would occur on private property, within the Miramar Landfill. Encroachment permits would be required to address possible traffic and ingress/egress restrictions to properties. The specific agency requirements would be included as stipulations in the required encroachment permits. General requirements for encroachment permits include the applicant must be responsible to design, locate and construct underground facilities in a manner that will minimize any interference with pedestrian traffic and designing alternate routes to avoid the construction zone. Impacts from underground construction would be temporary and within private property. Therefore, these impacts would be adverse but less than significant (Class III).

Operational Impacts

Normal operations of the biomass/biogas Non-Wires alternatives would not include increase traffic volumes on local roadways or thoroughfares because the approximately 60 full-time personnel (based on Fallbrook Landfill expected operational personnel) will not decrease the existing LOS on roadways nor will operational and maintenance activities generate significant traffic on roadways. Long term operation and maintenance of the biomass facilities includes delivery of biomass materials, hauling wastes generated during operations, and delivery of biomass fuel supply trucks. It is expected that the additional volume of traffic on roadways will be less than 1 percent (based on Fallbrook Landfill estimates). Therefore, no traffic impacts are expected during the operation of the biomass/biogas Non-Wires alternatives.

Transportation and Traffic Setting for Wind

The wind turbines and associated underground power lines would connect at a new switchyard just north of Interstate 8 in the southeast area of the Campo Reservation. While the exact siting of the wind component towers/turbines and associated facilities is not known, it is assumed that the local roadway network would be used for access to construction areas and the transportation of equipment and materials. Table E.5.9-1 lists the roads that potentially could be impacted by the wind component.

A 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL transmission line (about 10 miles to the south), and a new substation would also need to be constructed either within the Campo Reservation land or at MP I8-35 northwest of the town of Jacumba. For detailed analysis of the Jacumba Substation impacts please see Section D.9.12.4, Connected Actions and Indirect Effects. It is assumed that the wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5. The transmission line would be entirely overhead.

Table E.5.9-1. Public Roadways Along the Alternative Route – Wind Component

Roadway	Jurisdiction	Classification	Existing # of Lanes	Traffic Volumes	
				Year	ADT
State Facilities					
Interstate 8	Caltrans	Freeway	4	2005	27,000
Local Roadways					
McCain Valley Road	San Diego County	Rural LC	2	ND	—
Manzanita-Cottonwood Road	San Diego County	None	2	ND	—
Canebrake Road	San Diego County	None	2	ND	—
Old Mine Road	San Diego County	None	2	ND	—
Black Wood Road	San Diego County	None	2	ND	—
Hubble Road	San Diego County	None	2	ND	—
Cross Road	San Diego County	None	2	ND	—
Williams Road	San Diego County	None	2	ND	—
Tusil Road	San Diego County	None	2	ND	—
Beverly Avenue	San Diego County	None	2	ND	—

Source: California Department of Transportation; County of San Diego; County of Imperial; Linscott, Law & Greenspan Engineers.
N/A = Not applicable; ND = Data not available; ADT = Average Daily Traffic

Transportation and Traffic Impacts for Wind

Construction activities would not cause a temporary disruption to rail traffic or operations (Impact T-6) because there are not rail operations within the wind component. The wind component would not have impacts related to the conflict with planned transportation projects (Impact T-9) because there are no known planned transportation projects in the area.

Construction Impacts

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class II)

Construction of the wind tower/turbines and associated facilities could result in roadway closures at locations where the delivery of construction materials would require lane closures on public streets and highways. These roadways would be used for equipment, material, and work crew transport to the construction sites.

Prior to conducting work within or above a road ROW, an encroachment permit, including a TMP or similar authorization, would be required by the applicable jurisdictional agency. The specific requirements of the applicable transportation agency would require traffic safety measures appropriate for that particular project area at encroachment locations, including detouring all traffic off the roadway at the construction location or implementation of a controlled continuous traffic break. Encroachment permits would also restrict road closures to off-peak periods to avoid excessive traffic congestion, where necessary. The specific agency requirements would be included as stipulations in the required encroachment permits. Additionally, Mitigation Measure T-1a, requiring the development of Detour Plans for any potential long-term lane closures, is recommended to further reduce traffic impacts. Impacts to lane closure along the wind component would be temporary and mitigated to an insignificant level (Class II) by the implementation of Mitigation Measure T-1a and acquiring an encroachment permit.

Mitigation Measure for Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow

T-1a Restrict lane closures.

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class III)

Construction activity associated with the wind component could interfere with emergency response by ambulance, fire, paramedic and police vehicles if roadways are blocked, lanes are closed or access to residences and businesses is restricted. Roadway segments that would be most impacted would be two-lane roadways (e.g., Canebrake Road) that provide one lane of travel per direction. Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked by the construction zone. Disruption of emergency service providers would be a significant impact without mitigation. Mitigation measure T-2b, which requires advance coordination with emergency service providers in order to develop alternative routes and adjust service areas and destinations as necessary to maintain emergency service coverage and response times, would mitigate this impact to a less than significant level (Class II) because emergency service providers would be aware of any potential delays, lane closures, and/or roadway closures prior to construction activities and would be able to maintain emergency service coverage.

Mitigation Measure for Impact T-2: Construction would temporarily disrupt the operation of emergency service providers

T-2b Coordinate with Emergency Service Providers. [T-APM-4a]

Impact T-3: Construction would temporarily disrupt bus transit services (Class III)

Local bus service, as well as local school bus routes could potentially be impacted by the wind component. Construction activities would potentially cause transit and school bus schedule delays if roadways need to be shut-down for prolonged length of time, resulting in a significant impact without mitigation. Implementation of Mitigation Measure T-3b, which requires consultation with the transit systems and affected school districts at least one month prior to construction to coordinate construction activities, would mitigate this impact to less than significant (Class II) because prior consultation with the bus and transit services would allow alternative routes and stops to be planned eliminating delays from construction.

Mitigation Measure for Impact T-3: Construction would temporarily disrupt bus transit services

T-3b Consult with bus and transit services. [T-APM-5a]

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II)

Pedestrian and bicycle movement would be affected by construction activities if pedestrians and bicyclists are unable to pass through the construction zone or if established pedestrian and bicycle route are blocked. Mitigation measures T-4a and WR-1b will be implemented to reduce this impact to less than significant (Class II). Implementation of Mitigation Measures T-4a and WR-1b would ensure that safe alternative routes are designed either through or around the construction zone facilitating safe passage around the construction zone.

Mitigation Measures for Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety

T-4a Ensure pedestrian and bicycle movement and safety.

WR-1b Provide temporary detours for trail users.

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

Unexpected damage to roadways may occur from construction activities, construction vehicles, and transport of equipment along the roadways that would be used for construction of the wind component. Construction traffic or equipment movement would be considered a significant impact if there is an increase in the wear on roadways, resulting in noticeable deterioration of roadway surfaces or other features in the road ROW. Mitigation measure T-5a would require implementation of physical road improvements such as construction/modification of roadways and repaving roadways, thereby reducing this impact to less than significant (Class II).

Mitigation Measure for Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area

T-5a Repair damaged roads.

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class III)

Construction activities may result in short-term elimination of parking spaces immediately adjacent to the construction ROW and at construction staging areas. However, the reservation and BLM property itself, once cleared, could be used for temporary parking. Impacts to parking spaces would be less than significant (Class III). However, to further ensure that parking is not unnecessarily impacted during construction, Mitigation Measure T-7a is recommended, but not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.2.

Mitigation Measure for Impact T-7: Construction would result in the short-term elimination of parking spaces

T-7a Notify public of potential short-term elimination of parking spaces.

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class II)

Construction activities may result in a temporary increase of traffic on the regional and local roadways from construction worker commute trips, project equipment deliveries, and hauling materials to the alternative project area. Impacts to the regional and local traffic would be adverse but implementation of Mitigation Measure T-9a would reduce impacts to less than significant (Class II) because a Constructions Transportation Plan (CTP) would be prepared which would include measures for alternative routes as well as limiting road and lane closures to off peak hours. With the implementation of Mitigation Measure T-9a traffic congestion would be reduced. It is not expected that construction generated additional traffic will decrease the LOS on roadways within the construction zone.

Mitigation Measure for Impact T-9: Construction would generate additional traffic on the regional and local roadways

T-9a Prepare Construction Transportation Plan.

Impact T-10: Underground construction could restrict access to properties and businesses (Class II)

Installation of the power line interconnections between the turbine sites and switchyard, and transmission line would be underground. The impacts associated with underground construction would be similar to Impact T-1. Encroachment permits would be required to address possible traffic and ingress/egress restrictions to properties. The specific agency requirements would be included as stipulations in the required encroachment permits such as developing at TMP. Impacts properties and businesses from lane closure along the wind component would be temporary and mitigated to an insignificant level (Class II) with implementation of Mitigation Measures T-1a and T-1b.

Mitigation Measures for Impact T-10: Underground construction could restrict access to properties and businesses

T-1a Restrict lane closures.

T-1b Prepare detour plans. [T-APM-2b]

Operational Impacts

Operation of wind facilities is not expected to generate additional traffic on roadways or cause traffic delays or lane closures; therefore, wind would have no operational impacts on traffic. Additionally, there are no airports within five miles of the Boulevard, Crestwood, or Glencliff Substations; therefore, the wind facility would not obstruct any airport influence areas (generally 2 miles).

Overall Impacts of Renewable Generation Alternative for Transportation and Traffic

Solar Thermal. Construction and operation of the solar thermal component would result in no significant, unmitigable impacts. Potential impacts to emergency service providers, bus transit services, and rail operations were consider less than significant because the applicant would coordinate with the appropriate providers prior to construction so that alternative routes and plans could be designed, avoiding the construction zone or allowing for efficient access through the constructions zones. The solar thermal component has the potential to temporarily disrupt pedestrian and bicycle movement during construction. Mitigation measure T-4a and WR-1b were developed to provide temporary pedestrian access through detours or safe areas along construction zones.

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts. There is potential for damage to roads by vehicles and equipment to occur from construction vehicles entering and leaving roads and assembling PV systems in parking lots. Mitigation measure T-5a would reduce the impacts to less than significant levels (Class II).

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant, unmitigable impacts. There is potential for damage to roads by vehicles and equipment to occur from construction vehicles entering and leaving roads. Mitigation measure T-5a would reduce the impacts to less than significant levels (Class II). Construction of the facilities would temporarily increase traffic on the local roadways. Mitigation measure T-9a would reduce this impact to a less than significant level (Class II).

Wind. Construction and operation of the wind component would result in no significant, unmitigable impacts. The wind component would result in the lane closures where the delivery of construction materials would require lane closures on public streets and highways. However, Mitigation Measure T-1a would reduce any impacts because work would be conducted outside peak traffic volumes and peak tourist seasons. The wind component would temporarily disrupt pedestrian and bicycle circulation during construction. Mitigation measure T-4a would provide temporary pedestrian access, through detours or safe areas along construction zones. The wind component would also cause damage to roads from construction equipment. Mitigation measure T-5a would restore damaged roads to pre-construction conditions. The wind component operation would have a less than significant impact on traffic, circulation, and/or the level of service on roadways

E.5.10 Public Health and Safety

This section deals with the use of, and potential impacts to persons dealing with, hazardous materials associated with construction and operational activities with the solar thermal component of the In-Area Renewables Alternative. Health and safety impacts relating to seismic events, flooding, and fire hazards are evaluated in the Geology, Mineral Resources, and Soils (Section E.5.13), Water Resources (Section E.5.12), and Fire and Fuel Management (Section E.5.15) sections of this analysis, respectively.

Public Health and Safety Setting for Solar Thermal

The solar collection field site consists of 1,450 acres of vacant, undeveloped desert land. Surrounding properties consist of open space and agricultural uses. The transmission line upgrades would occur within an existing utility corridor or within existing roadways.

Database Search. Four new environmental databases (EDR 2007k, 2007o, 2007p, and 2007r) and the EDR database provided by the applicant for the project (EDR, 2006a) were reviewed for the solar thermal component and its related components (EDR, 2007k). Based on review of the EDR environmental databases, there are no known contaminated sites and only one hazardous material site within 0.25 miles of the solar thermal component site and associated transmission line routes with potential to impact the project. The site is summarized in Table E.5.10-1.

Table E.5.10-1. Identified Hazardous Material Sites within 0.25 Miles of the solar thermal component

EDR Map ID[1]	Site Name	Site Address	Database Lists[2]	Comments
1	County of San Diego Borrego Springs Site #37/ Borrego Springs Road Station	1550 Rango Way, Borrego Springs	UST, HIST UST, SWEEPS UST, SD Co. HMMD, HAZNET	County maintenance yard with 5 active fuel tanks, 3 diesel and two unleaded gasoline. Periodically disposes of oil containing waste and other inorganic solid waste.

Source: EDR, 2007o.

1 EDR Environmental Information Data Site I.D.

2 STATE AND LOCAL DATABASES

UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies
HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.
HAZNET: Facility and Manifest Data, data is extracted from the copies of hazardous waste manifests received each year by the DTSC.
SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.
SD Co. HMMD: San Diego County Hazardous Materials Management Division Database

Option 1 – Underground 138 kV Line. Magnetic fields would be generated by placing a new 138 kV underground in a roadway. An underground line generally has a peak field value directly above the duct bank and it would fall off extremely rapidly due to the cables being in close proximity to each other. See Section D.10.20 for a discussion of magnetic field strengths for the underground portions of the 230 kV line for the Proposed Project.

Option 2 – Overhead 138 kV Line. The profile of magnetic fields that would be generated by upgrading an existing 69 kV transmission line to 138 kV is much more difficult to characterize compared to an underground line because the conductor configuration influences field strengths and can vary significantly. Other circuits nearby, adjacent to or on the same line influence the profile. Also, the ROW width is not standardized for a given voltage. See Section D.10.20 for a discussion of field strengths for the overhead 230 kV line for the Proposed Project.

Public Health and Safety Impacts for Solar Thermal

Construction Impacts

Construction would not occur in agricultural lands so Impact P-2 (Residual pesticides and/or herbicides would be encountered during grading or excavation in agricultural areas) would not occur. Impacts P-4 (encountering unexploded ordnance) would not occur as there are no military lands within the project area.

Impact P-1: Improper handling and/or storage of hazardous materials during construction would cause soil or groundwater contamination (Class II)

Hazardous materials that would be used during project construction include gasoline, diesel fuel, oil, and lubricants for construction equipment, and small quantities of solvents and paint. Delivery and fueling of HTF oil into the solar thermal system would also occur. HTF oil is classified as non-hazardous by the federal government, but is regulated as a hazardous material by the State of California. When refueling is required, a mobile fuel truck will be brought onsite to fuel each device. Any fuel spilled would be promptly cleaned up, and contaminated soil disposed of in accordance with the applicable state and federal requirements. Non-hazardous solid waste generated at project site during construction would be taken offsite for recycling or disposal to the nearest permitted Class III landfill. Paints and solvents would be stored in flammable material storage cabinets. Construction personnel would be trained in handling these materials. The most likely incidents involving these hazardous materials would be associated with minor spills or drips. Small spills and drips can be easily cleaned up.

Mitigation measures similar to SDG&E's APMs for the Proposed Project would be implemented as part of these future projects, including: Mitigation Measures P-1c (Personnel trained in proper use and safety procedures for the chemicals used), P-1d (Personnel trained in refueling of vehicles), P-1e (Preparation of environmental safety plans including spill prevention and response plan), P-1f (Applicant's and/or General Contractor environmental/health and safety personnel), P-1g (Proper storage and disposal of generated waste), and H-2c (Proper disposal and clean-up of hazardous materials) would reduce the likelihood of spills. Coupled with implementation of Mitigation Measures P-1a (Implement Environmental Monitoring Program) and P-1b (Maintain emergency spill supplies and equipment), impacts of hazardous material spills, such as HTF oil, would be reduced to less than significant (Class II).The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact P-1: Improper handling and/or storage of hazardous materials during construction would cause soil or groundwater contamination

P-1a **Implement Environmental Monitoring Program.**

P-1b **Maintain emergency spill supplies and equipment.**

P-1c **Personnel trained in proper use and safety procedures for the chemicals used.** [HS-APM-1]

P-1d **Personnel trained in refueling of vehicles.** [HS-APM-2]

P-1e **Preparation of environmental safety plans including spill prevention and response plan.** [HS-APM-3]

P-1f **Applicant's and/or General Contractor environmental/health and safety personnel.** [HS-APM-8]

P-1g **Proper storage and disposal of generated waste.** [HS-APM-10]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

Impact P-3: Unanticipated preexisting soil and/or groundwater contamination would be encountered during excavation or grading (Class II)

Although unknown contamination is unlikely due to the relatively undeveloped nature of the surrounding area, there is a potential for unknown contamination to have occurred along and near roadways due to illegal dumping and from the County Maintenance yard (see Table E.5.10-1), a potentially significant impact (Class II). Ground disturbance for the solar field and along either transmission line route potentially would encounter unanticipated contamination. Implementation of mitigation measures similar to SDG&E's APMs for the Proposed Project (i.e., Mitigation Measures P-2b, P-2c, and P-2d), coupled with Mitigation Measures P-3a and P-3b, which would ensure that laboratory data is properly interpreted by trained personnel regarding contamination levels for reporting to the appropriate regulatory agency and documentation that these measures are properly implemented, would reduce the impact from encountering unknown contamination to less than significant (Class II).

Mitigation Measures for Impact P-3: Unanticipated preexisting soil and/or groundwater contamination would be encountered during excavation or grading

P-2b **Stop work if contamination is detected.** [HS-APM-15]

P-2c **Cordon off contaminated areas.** [HS-APM-16]

P-2d **Notification of regulatory agencies.** [HS-APM-17]

P-3a **Appoint individuals with correct training for sampling, data review, and regulatory coordination.**

P-3b **Documentation of compliance with measures for encountering unknown contamination.**

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

Operational Impacts

Impact P-5: Soil or groundwater contamination would result from accidental spill or release of hazardous materials during operation and maintenance (Class II)

Once operational, the solar collection field would require a synthetic oil for use as HTF within the parabolic collection troughs and the solar boiler. The HTF is defined as a "Hazardous Chemical" by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and an "Environmental Hazardous Substance, Liquid, N.O.S." as defined by the U.S. Department of Transportation. The HTF is regulated as a hazardous material by the State of California. HTF oil would be circulated within a vacuum sealed compartment; however, solar thermal parabolic trough plants in California have reported some leakages of the synthetic heat transfer fluid oil contained in the collector field to transport the heat from the collectors to the steam cycle plant. Leakages have been controlled by new interconnection elements (ball joints) and contaminated soil can be recovered by bacteriological decontamination. Research and development of the past years has lead to various new systems that don't need the synthetic oil any more, but directly use water and steam as heat transfer fluid. In the event of a spill of HTF oil, with implementation of Mitigation Measure P-5a, contaminated soil would be recovered by indigenous bacteria in the soil that decomposes the oil (bio-remediation). Finally, research and development of the past years has lead to various new systems that don't need the synthetic oil any more, but directly use water and steam as heat transfer fluid.

Gasoline, diesel fuel, oil, and lubricants would also be required for vehicles during routine cleaning and maintenance activities. The most likely incidents involving these hazardous materials would be associated with minor spills or drips, but larger spills could also occur. Small spills and drips can be easily

cleaned up, so impacts from these minor releases during construction are considered to result in less than significant health safety risks. Mitigation measures similar to SDG&E's APMs for the Proposed Project would be implemented as part of the solar thermal component to minimize impacts of any spill, including: Mitigation Measure P-1c (Personnel trained in proper use and safety procedures for the chemicals used), Mitigation Measure P-1e (Preparation of environmental safety plans including spill prevention and response plan), Mitigation Measure P-1g (Proper storage and disposal of generated waste), and Mitigation Measure H-7a (Develop Hazardous Substance Control and Emergency Response Plan for project operation). These measures would reduce the likelihood of spills and would reduce any significant impacts of spills to less than significant levels (Class II).

Mitigation Measure for Impact P-5: Soil or groundwater contamination would result from accidental spill or release of hazardous materials during operation and maintenance

P-1c **Personnel trained in proper use and safety procedures for the chemicals used.** [HS-APM-1]

P-1e **Preparation of environmental safety plans including spill prevention and response plan.** [HS-APM-3]

P-1g **Proper storage and disposal of generated waste.** [HS-APM-10]

P-5a **Include HTF in spill response plans and remediate contaminated soil**. Specific mention of heat transfer fluid (HTF) oil spill prevention and response shall be included in all project environmental safety plans, including the project Risk Management Plan (RMP) (in accordance with the California Accidental Release Prevention Program [CalARP] regulations), Hazardous Material Business Plan (HMBP) (submitted to the local Certified Unified Program Agency [CUPA] and the San Diego County Fire Department), and Hazardous Substance Control and Emergency Response Plan (see Mitigation Measure H-7a). In the event of a HTF oil spill, contaminated soil shall be removed to an on-site bio-remediation facility until the HTF oil concentrations have been reduced to acceptable levels as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

Field Related Public Concerns

This discussion applies to all renewable components, except the solar photovoltaic component. As described in Sections D.10.23 through D.10.25, there are a five impacts related to electric and magnetic fields. The impact discussions for these issues presented in those sections would apply equally to the renewable alternatives, because all involve transmission lines. Those impacts and relevant mitigation measures are summarized below; for additional discussion, please see Sections D.10.23 to D.10.25.

- **Impact PS-1**: Transmission line operation causes radio and television interference (Class II). Two mitigation measures are recommended for this impact (see Appendix 12 for full text of all mitigation measures):
  - **Mitigation Measure PS-1a** (Limit the conductor surface electric gradient) and PS-1b (Document and resolve electronic interference complaints)
- **Impact PS-2**: Transmission line operation causes induced currents and shock hazards in joint use corridors (Class II). One mitigation measure is recommended:
  - **Mitigation Measure PS-2a** (Implement grounding measures).

The remaining three impacts (listed below) are found to have less than significant impacts, requiring no mitigation:

- **Impact PS-3**: Electric fields can affect cardiac pacemakers (Class III)
- **Impact PS-4**: Project structures can be affected by wind and earthquakes (Class III)
- **Impact PS-5**: Transmission or substation facilities can suffer an outage from terrorism or wildfire (Class III)

Public Health and Safety Setting for Solar Photovoltaic

PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development. Construction activities would consist of assembly of PV units on ground surfaces adjacent to the structures on which they would be installed. Once assembled the PV units would be installed on rooftops of existing residential and commercial structures. These activities would utilize relatively small land areas and would be minimally intrusive (i.e., ground surface disturbance would not occur). Private residences generally do not contain large quantities of hazardous materials. Some commercial structures may store or use large quantities of hazardous materials (such as gasoline filling stations, automotive repair shops and heavier industrial facilities).

Public Health and Safety Impacts for Solar Photovoltaic

Construction Impacts

Construction, should it occur on agricultural lands, would not involve grading or excavation so Impact P-2 (Residual pesticides and/or herbicides could be encountered during grading or excavation in agricultural areas) would not occur. Impacts P-4 (encountering unexploded ordnance) would not occur as the Solar PV installation would occur on or near existing structures. Construction activities would not disturb ground surfaces, which would preclude the potential to disturb known or unknown subsurface contaminants, Impact P-7. Impact P-3 (Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading) also would not occur as there would be no excavation or grading during the installation process.

Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class III)

Construction activities would not require the use of heavy construction equipment such as bulldozers, backhoes, jack hammers, or dump trucks. Construction activities would include the use hand tools and power tools such as nail guns, drills, and saws. Hazardous materials that would be used during project construction include gasoline, oil, and lubricants for construction equipment, and possibly small quantities of solvents and paint. The most likely incidents involving these hazardous materials would be associated with minor spills or drips. Small spills and drips can be easily cleaned up, so impacts from these minor releases during construction are considered adverse but less than significant (Class III). However, to ensure that soil or groundwater contamination does no unnecessarily occur during construction in accordance with NEPA, Mitigation Measures P-1a and P-1b are recommended, but are not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.5.1.

Mitigation Measures for Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class III)

P-1a Implement Environmental Monitoring Program.

P-1b Maintain emergency spill supplies and equipment.

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity which would have no effects on hazardous materials or public health and safety. No impacts would occur. Impact P-5 (Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance).

Field Related Public Concerns. As described in Sections D.10.23 through D.10.25, there are five impacts related to electric and magnetic fields. The impact discussions for these issues presented in for the Proposed Project would apply equally to the renewable alternatives, because all involve transmission lines. Those impacts and relevant mitigation measures are presented for the solar thermal component above; for additional discussion, please see Sections D.10.23 to D.10.25.

Public Health and Safety Setting for Biomass/Biogas

The Fallbrook Renewable Energy Facility: This site is located in a rural area on land used for agricultural purposes (orchards). Based on review of the EDR database search (EDR, 2007gg), there are no hazardous material sites within 0.25 miles of the proposed Fallbrook Renewable Energy Facility with the potential to impact the project.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: The proposed Miramar Facilities would be located at the San Diego Metro Biosolids Center (sludge processing facility), which is located near the southwestern perimeter of the South Miramar Landfill. Other land uses in the area of the project are primarily undeveloped open space and military to the north and the 52 freeway and the community of Kearny Mesa located to the south.

Based on review of the EDR database search (EDR, 2007hh), there are no hazardous material sites within 0.25 miles of the proposed Miramar Facilities with the potential to impact the project.

Public Health and Safety Impacts for Biomass/Biogas

Construction Impacts

Impacts P-4 (encountering unexploded ordnance) would not occur as the facilities would be built on already disturbed land.

Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class II)

The Fallbrook Renewable Energy Facility: The applicant would be required to prepare a Hazardous Materials Business Plan (HMBP) and submit the HMBP to the local Certified Unified Program Agency (CUPA) and the San Diego County Fire Department. Hazardous materials that would be used during project construction include gasoline, oil, and lubricants for heavy equipment and machinery. Spills could occur and cause soil contamination, a significant impact. Mitigation measures P-1a and P-1b would

reduce environmental impacts in the event a spill does occur, reducing the impact to less than significant (Class II).

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: The applicant would be required to prepare a Hazardous Materials Business Plan (HMBP) and submit the HMBP to the local Certified Unified Program Agency (CUPA) and the San Diego County Fire Department. Hazardous materials that would be used during project construction include gasoline, oil, and lubricants for heavy equipment and machinery. Spills could occur during construction and cause soil contamination, a significant impact. Mitigation measures P-1a and P-1b would reduce environmental impacts in the event a spill does occur, reducing the impact to less than significant (Class II).

Mitigation Measures for Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class II)

P-1a **Implement Environmental Monitoring Program.**

P-1b **Maintain emergency spill supplies and equipment.**

Impact P-2: Residual pesticides and/or herbicides could be encountered during grading or excavation in agricultural areas (Class II for the Fallbrook Facility; No Impact for the Miramar Facilities)

The Fallbrook Renewable Energy Facility: The potential presence of residual pesticide and herbicide contamination of the soil and/or groundwater in the Pankey Ranch represents a significant impact due to health hazards to construction workers and the public stemming from exposure to pesticide or herbicide contaminated soil and/or groundwater. The impact would be significant as pesticide and herbicide contamination is not always readily apparent by visual or olfactory indicators. Mitigation measures P-2a, P-2b, P-2c, and P-2d are required to reduce this impact to less than significant (Class II).

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Construction of the Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility would not occur in agricultural land so Impact P2 would not occur and no mitigation is necessary.

Mitigation Measures for Impact P-2: Residual Pesticides and/or Herbicides could be encountered during grading or excavation in agricultural areas

P-2a **Test for residual pesticides/herbicides in agricultural areas.**

P-2b **Stop work if contamination is detected.** [HS-APM-15]

P-2c **Cordon off contaminated areas.** [HS-APM-16]

P-2d **Notification of regulatory agencies.** [HS-APM-17]

Impact P-3: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading (Class II)

The Fallbrook Renewable Energy Facility: Ground disturbance for the facilities could encounter unanticipated contamination on the Pankey Ranch property. Implementation of Mitigation Measures P-3a and P-3b would reduce this impact to less than significant (Class II).

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Ground disturbance for the facilities could encounter unanticipated contamination on the Miramar Landfill property. Potential types of impacts that may result from biomass/biogas fuel sources include infection by microorganisms found in the wastes. Implementation of Mitigation Measures P-3a and P-3b would reduce this impact to less than significant (Class II).

Mitigation Measures for Impact P-3: Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading (Class II)

P-3a **Observe exposed soil.**

P-3b **Documentation of compliance with measures for encountering unknown contamination.**

Impact P-8: Landfill gasses could accumulate in excavations resulting in explosions or exposure of workers to toxic gasses (No Impact for the Fallbrook Facility; Class II for the Miramar Facilities)

The Fallbrook Renewable Energy Facility: There is no landfill associated with the Fallbrook Facility and therefore not potential to encounter landfill gasses.

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Landfill gas is produced by the anaerobic decomposition of the organic matter in solid waste, and typically contains 40 to 50 percent methane (CH_4) gas which is explosive when it reaches a 5 to 15 percent range of concentration in the air and cause a safety issue due to its explosive potential (Gregory Canyon EIR, 2003, p. 6). In addition, landfill gasses could accumulate in enclosed spaces during project operation, resulting in suffocation.

The Miramar Facilities would be located near the southwestern perimeter of the South Miramar Landfill. The South Miramar Landfill was operated until 1973 and is unlined which may allow for migration of landfill gasses into the surrounding formations and soil. Toxic gasses that have migrated from the landfill could accumulate in excavations for construction of the project and could result in explosions or exposure of workers to these toxic gasses, a significant impact. Implementation of measures such as Mitigation Measures P-8a and 8b would reduce the impact to less than significant (Class II). In addition, the biomass/biogas Non-Wires alternatives will install a landfill gas collection system which will meet the requirements of Title 27, Article 6, Gas Monitoring and Control at Active and Closed Disposal Sites.

Mitigation Measures for Impact P-8: Landfill gasses could accumulate in excavations resulting in explosions or exposure of workers to toxic gasses

P-8a **Verify Presence of Landfill Gases.** To assess the possibility that contamination from this landfill could affect the facility construction zone, a record search shall be completed to determine whether contamination could extend into proposed trenching or excavation areas. If records cannot confirm a gas-free landfill perimeter adjacent to the project, a soil vapor survey consisting of driving probes at the affected excavation areas should be conducted. Vapor samples should be tested for methane, other flammable gases and volatile organic compounds. Laboratory test results should be reported to the San Diego County Hazardous Materials Division (HMD) and include an assessment of the contamination potential in the excavation areas. A copy of the San Diego County HMD approval letter must be provided to the CPUC prior to start of construction.

P-8b **Implement Personnel Safety and Monitoring Measures.** If laboratory tests indicate the presence of landfill gasses in the construction areas, a Health and Safety Plan shall be developed by a licensed industrial hygienist and a gas monitoring program will be implemented by the applicant or their contractors. A copy of the Health and Safety Plan and monitoring program shall be submitted to the San Diego County HMD and CPUC for approval prior to start of construction.

Operational Impacts

During operation the biomass/biogas Non-Wires alternatives could pose a potential fire risk during the burning of the biogas/biomass and/or if the combustible gases were to ignite. This impact is discussed under Fire and Fuels Management in Section E.5.15 below.

Field Related Public Concerns. As described in Sections D.10.23 through D.10.25, there are five impacts related to electric and magnetic fields. The impact discussions for these issues presented in for the Proposed Project would apply equally to the renewable alternatives, because all involve transmission lines. Those impacts and relevant mitigation measures are presented for the solar thermal component above; for additional discussion, please see Sections D.10.23 to D.10.25.

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II)

The Fallbrook Renewable Energy Facility: Gasoline, diesel fuel, oil, and lubricants would also be required for vehicles during routine cleaning and maintenance activities. The most likely incidents involving these hazardous materials would be associated with minor spills or drips. Small spills and drips can be easily cleaned up, so impacts from these minor releases during construction are considered to result in less than significant health safety risks. Hazardous materials, including various water treatment and cleaning chemicals, and dry granular urea for NOx control and fuel stability, would be stored and used onsite. The applicant would be required to prepare a Risk Management Plan (RMP) in accordance with the California Accidental Release Prevention Program (CalARP) regulations. The RMP would include details on injury and illness prevention, fire response, safety, and facility standard operating procedures. As required under federal and California regulations, a Hazardous Material Business Plan (HMBP) would be prepared and submitted to the local Certified Unified Program Agency (CUPA) and the San Diego County Fire Department. Still any spill or release of hazardous material would be a significant impact. Mitigation measures P-1a, P-1b, P-1c, P-1d, and P-1e would ensure that impacts to workers and the public would be adverse but less than significant (Class II).

The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility: Gasoline, diesel fuel, oil, and lubricants would also be required for vehicles during routine cleaning and maintenance activities. The most likely incidents involving these hazardous materials would be associated with minor spills or drips. Small spills and drips can be easily cleaned up, so impacts from these minor releases during construction are considered to result in less than significant health safety risks. Hazardous materials, such as those required for water treatment and cleaning chemicals, and dry granular urea for NOx control and fuel stability, would potentially be stored and used onsite. Any spill or release of hazardous material would be a significant impact. Mitigation measures P-1a, P-1b, P-1c, P-1d, and P-1e would ensure that impacts to workers and the public would be adverse but less than significant (Class II).

Mitigation Measures for Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class III)

P-1a **Implement Environmental Monitoring Program.**

P-1b **Maintain emergency spill supplies and equipment.**

P-1c **Personnel trained in proper use and safety procedures for the chemicals used.**

P-1d **Personnel trained in refueling of vehicles.**

P-1e **Preparation of environmental safety plans including spill prevention and response plan.**

Field Related Public Concerns. As described in Sections D.10.23 through D.10.25, there are five impacts related to electric and magnetic fields. The impact discussions for these issues presented in for the Proposed Project would apply equally to the renewable alternatives, because all involve transmission lines. Those impacts and relevant mitigation measures are presented for the solar thermal component above; for additional discussion, please see Sections D.10.23 to D.10.25.

Public Health and Safety Setting for Wind

The wind component turbine sites would be located north of Interstate 8 with Campo Reservation and BLM lands. A new 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL transmission line (about 10 miles to the south), and a new substation would also need to be constructed. The wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5.The substation would be constructed either on Campo Reservation Land or at MP I8-35, the Jacumba Substation. Section D.10.12.4 analyses the proposed Jacumba Substation at MP I8-35 in detail. Three new environmental databases (EDR 2007g, 2007l, and 2007m) were reviewed for the wind component and its related elements. Based on review of the EDR environmental databases, there are no known contaminated or hazardous material sites within 0.25 miles of the wind component site and associated transmission line route and substation.

Public Health and Safety Impacts for Wind

Construction Impacts

As the wind component would not traverse any lands currently or historically used for military purposes; therefore, no UXO could be encountered during construction (Impact P-4).

Impact P-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities (Class II)

Hazardous materials such as vehicle fuels and oils would be used and stored during construction activities for the wind component, resulting in a potential for soil contamination from improper handling, spills, or leaks. Spills and leaks of hazardous materials during construction activities could potentially result in soil or groundwater contamination. Additionally, helicopters may be used to support construction activities in areas where access is limited or where there are environmental constraints to accessing the construction area with standard construction vehicles and equipment. All helicopter construction and maintenance activities would be based at a fly yard. Refueling activities for the helicopters could potentially result in soil contamination from improper handling and storage of helicopter fuel at the staging areas or during refueling, a potentially significant impact.

Ground disturbance for the wind component and associated facilities would consist primarily of excavation for the following facilities: tower/turbine structures, meteorological towers, switchyard, underground interconnection systems between the tower/turbines and switchyard, transmission line, substation, and operation and maintenance facilities. Grading of new access/spur roads would also be required.

Soil or groundwater contamination resulting from the improper handling and/or storage of hazardous materials is generally considered to be mitigable to less than significant levels. Mitigation measures P-1a, P-1b, P-1g, H-2b, and H-2c are recommended. With the implementation of the recommended mitigation, Impact P-1 would be reduced to an insignificant level (Class II).

Mitigation Measures for Impact P-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities

P-1a **Implement Environmental Monitoring Program.**

P-1b **Maintain emergency spill supplies and equipment.**

P-1g **Proper storage and disposal of generated waste.** [HS-APM-10]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

Impact P-2: Residual pesticides and/or herbicides could be encountered during grading or excavation in agricultural areas (Class II)

The wind component transmission line traverses Active Agricultural Operations including forage crops between MP 33 and 35, and grazing operations between MP 39 and 40 which may use pesticides and herbicides. This represents a significant impact due to health hazards to construction workers and the public stemming from exposure to pesticide or herbicide contaminated soil and/or groundwater. The impact would be significant as pesticide and herbicide contamination is not always readily apparent by visual or olfactory indicators. Mitigation measures P-2a, P-2b, P-2c, and P-2d are required to reduce this impact to less than significant (Class II).

Mitigation Measures for Impact P-2: Residual Pesticides and/or Herbicides could be encountered during grading or excavation in agricultural areas

P-2a **Test for residual pesticides/herbicides in agricultural areas.**

P-2b **Stop work if contamination is detected.** [HS-APM-15]

P-2c **Cordon off contaminated areas.** [HS-APM-16]

P-2d **Notification of regulatory agencies.** [HS-APM-17]

Impact P-3: Previously unknown soil and/or groundwater contamination could be encountered during excavation or grading (Class II)

Although unanticipated contamination along the wind component is unlikely due to the primarily undeveloped nature and open space recreation uses of the surrounding areas, there is a slight potential for unknown contamination to have occurred along and near area roads due to illegal dumping which results in a potential to encounter contamination where the wind component crosses these roads.

Impacts associated with previously unknown soil and/or groundwater contamination are generally considered to be mitigable to less than significant levels. Mitigation measure P-3a, P-2b, P-2c, and P-2d are recommended. Incorporation of these measures would reduce the impact to an insignificant level (Class II).

Mitigation Measures for Impact P-3: Previously unknown soil and/or groundwater contamination could be encountered during excavation or grading

P-3a **Observe exposed soil.**

P-2b **Stop work if contamination is detected.** [HS-APM-15]

P-2c **Cordon off contaminated areas.** [HS-APM-16]

P-2d **Notification of regulatory agencies.** [HS-APM-17]

Impact P-6: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites (Class II)

Contamination along the wind component is unlikely due to the primarily undeveloped nature and open space recreation uses of the surrounding areas. For the alternative transmission line, the environmental database review indicates that several sites with current or past known contamination (undergoing site assessment, remediation, or case closed) are listed along the I-8 Alternative between MP I8-35 to MP I8-45.5, as listed in Table E.1-12. The presence of these contaminated sites adjacent to the alignment results in a significant potential for contaminated soil and/or groundwater to be encountered during grading for access roads, and excavation for tower foundations and trenches for project construction.

Mitigation includes investigation of known contaminated sites prior to construction and disposal of hazardous waste in accordance with federal, State, and local regulations. Mitigation measuresP-6a and P-6b are recommended. With the implementation of the noted measures, Impact P-6 would be reduced to an insignificant level (Class II).

Mitigation Measures for Impact P-6: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites

P-6a **Evaluate contaminated sites.**

P-6b **Conduct Environmental Database Review.** An environmental database review shall be conducted for the wind component facilities north of Interstate 8 (wind tower/turbine locations, access/spur roads, underground interconnection routes, switchyard site, and operation and maintenance facility sites). The results of the environmental database review and recommended measures shall be provided to San Diego County for review and approval prior to land use clearance. Any identified sites shall be evaluated in accordance with Mitigation Measure P-6a.

Operational Impacts

The wind turbines would require construction of an overhead transmission line from MP I8-35 to MP I8-45.

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II)

Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation of maintenance of the wind tower/turbines, and other associated facilities. This impact would be significant without mitigation. However, implementation of mitigation measures listed below would reduce impacts to soil and groundwater to a less than significant level (Class II).

Mitigation Measures for Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance

P-1c **Personnel trained in proper use and safety procedures for the chemicals used.**

P-1e **Preparation of environmental safety plans including spill prevention and response plan.**

P-1g **Proper storage and disposal of generated waste.**

Field Related Public Concerns. As described in Sections D.10.23 through D.10.25, there are five impacts related to electric and magnetic fields. The impact discussions for these issues presented in for the Proposed Project would apply equally to the renewable alternatives, because all involve transmis-

sion lines. Those impacts and relevant mitigation measures are presented for the solar thermal component above; for additional discussion, please see Sections D.10.23 to D.10.25.

Overall Impacts of Renewable Generation Alternative for Public Health and Safety

Solar Thermal. Construction and operation of the solar thermal component would result in no significant unmitigable impacts (Class I). Improper handling of hazardous materials used in project construction and operation would cause soil or groundwater contamination, but Mitigation Measures P-1a through P-1g and H-2c would reduce the impact to a less than significant level (Class II). Unknown contaminants may be found during excavation for the solar field and transmission line; however Mitigation P-2b, P-2c, P-2d and P-3a and P-3b would reduce these impacts to a less than significant level (Class II). Transmission line operation would cause radio and television interference and induced currents and shock hazards in joint use corridors; Mitigation Measures PS-1a, PS-1b, and PS-2a would reduce these impacts to a less than significant level (Class II).

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts.

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant unmitigable impacts (Class I). Improper handling of hazardous materials used in project construction would cause soil or groundwater contamination, but Mitigation Measures P-1a through P-1g and H-2c would reduce the impact to a less than significant level (Class II). Residual pesticides and herbicides could be encountered at the Fallbrook Renewable Energy Facility. Mitigation measures P-2a through P-2d would reduce this impact to a less than significant level. Unknown contaminants may be found during excavation for the biomass/biogas facilities and transmission line; Mitigation P-2b, P-2c, P-2d and P-3a and P-3b would reduce these impacts to a less than significant level (Class II).

Wind. Construction and operation of the wind component would result in no significant unmitigable impacts (Class I). Improper handling of hazardous materials used in project construction and operation would cause soil or groundwater contamination, but Mitigation Measures P-1a through P-1g and H-2c would reduce the impact to a less than significant level (Class II). Unknown or contaminants may be found during excavation for the solar field and transmission line; however, Mitigation Measures P-2b, P-2c, P-2d, P-3a and P-3b would reduce these impacts to a less than significant level (Class II). Soil or groundwater contamination could be mobilized during construction along I-8 but Mitigation Measure P-6b would reduce this impact to a less than significant level.

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E.5.11 Air Quality

Air Quality Setting for Solar Thermal

The air quality setting for the solar thermal component is similar to that of the Anza-Borrego Link, which is described in Section D.11.2.2. The solar thermal component is wholly within San Diego County, administered by the SDAPCD.

Air Quality Impacts for Solar Thermal

Construction Impacts

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I)

Construction activities would have the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the solar thermal site and along the transmission line routes. In addition, fugitive dust emissions would result from grading, excavation, and construction activities. Mobile-source emissions, primarily NOx, would result from the use of construction equipment, such as excavators, bulldozers, wheeled loaders, and cranes.

Construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. The total amount of construction, the duration of construction, and the intensity of construction activity would have a substantial effect upon the amount of construction emissions, the concentrations, and the resulting impacts occurring at any one time. Exact construction scenarios are unavailable at this level of alternative analysis, and no emission forecasts are provided for the expected construction scenarios. However, construction is assumed to last approximately 18 to 24 months and would include earth moving machinery, generators, a water truck for dust control and a crane for transport and erection of heavy equipment. This type of construction activity would result in emissions over the thresholds for a significant impact. Implementation of Mitigation Measures AQ-1a (suppress dust at all work or staging areas and on public roads) and AQ-1b (use low-emission construction equipment), as well as the relevant APMs identified for the remainder of the Proposed Project (Mitigation Measures AQ-1d through AQ-1g) would reduce the impact but not to a less than significant level (Class I). In addition, use of BLM land for the transmission line from the solar thermal component would require the applicant to either complete a full conformity determination for the solar thermal plant and transmission line as a whole or adopt additional mitigation (Mitigation Measure AQ-1h) to reduce project emissions to below the *de minimis* levels. (See Table D.11-9 for the General Conformity Threshold Levels for the San Diego Air Basin.) The impact of substantial dust and exhaust emissions during construction would also be significant and unavoidable (Class I). The full text of all mitigation measures is presented in Appendix 12.

Mitigation Measures for Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants

AQ-1a **Suppress dust at all work or staging areas and on public roads.**

AQ-1b **Use low-emission construction equipment.**

AQ-1d **Implement dust reduction measures.** [AQ-APM-2]

AQ-1e **Prevent transport of mud and dust.** [AQ-APM-3]

AQ-1f **Encourage carpooling.** [AQ-APM-4]

AQ-1g **Minimize vehicle idling.** [AQ-APM-5]

AQ-1h **Obtain NOx and particulate matter emission offsets.**

Operational Impacts

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Operation of the solar collection field would not involve combustion of any fuels and would not produce any air emissions, except possibly leaks of HTF. There would be some level of HTF vapor emissions from valve packing and pump seals during normal operation. Although the scent of these vapor emissions may be evident, the resulting concentrations would be within permissible levels defined by OSHA, and interconnection elements (e.g., ball joints) and steps taken to minimize fluid spills would reduce the chance of leakages. The nearest residential land use would be sufficiently distant (approximately 1,000 feet) so that low concentrations of routine odors would cause an adverse but less than significant impact.

Regular cleaning and maintenance activities would require driving a water truck around the collection field to spray the reflective mirrors. Operation of the water truck would create a small amount of occasional emissions but would not be expected to contribute to a violation of any air quality standards, and it would not require a substantial number of new vehicle trips compared to the existing conditions. The incremental increase of emissions that would be caused by vehicular traffic for inspection and maintenance activities would be minor and less than the thresholds for operation significance in Table D.11-8. Direct emissions from vehicular traffic for maintenance activities would cause an adverse but less than significant impact, and mitigation measures are not required (Class III).

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class IV)

The solar thermal facility and associated transmission line would facilitate decreased operation of existing power plants delivering energy to the Warners Substation, which would lead to reduced emissions from fossil fuel-fired power plants. Demand for electricity would not change as a result of the solar thermal facility, and power generated in response to the demand would occur regardless of whether the renewable project moves forward. The solar thermal facility and associated transmission line would enable reductions of CO_2 and other pollutant emissions that would otherwise occur from fossil fuel-fired power plants. The solar thermal facility would generate electricity without burning any carbon-based fuel and would thus generate essentially no greenhouse gases per megawatt-hour of output. Reduced emissions from fossil fuel-fired power plants would be a beneficial impact of this component (Class IV).

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class III)

Developing the solar thermal component of this alternative would cause greenhouse gas (GHG) emissions during construction that would be offset by the indirect net decrease in CO_2 emissions from power plants described in Impact AQ-3. Greenhouse gas emissions that would occur as a result of construction activities would be above the level of GHGs that occur in the baseline conditions shown in Table D.11-2, in Section D.11. Operational-phase GHG emissions would also occur with routine maintenance

and inspections of the solar collectors and transmission line and with direct fugitive emissions of sulfur hexafluoride (SF_6) as part of the electrical switchgear. Overall, the construction-phase and routine operational-phase emissions including SF_6 fugitives would eventually be offset by the GHG emissions that would be avoided by generating solar power, which would reduce emissions from fossil-fueled power plants. Net reductions of GHG emissions from the solar thermal component would cause this impact to be adverse for the construction phase but less than significant overall (Class III).

Air Quality Setting for Solar Photovoltaic

The air quality setting for the solar photovoltaic component is across San Diego County as described in Section D.11 (Air Quality), and this entire component is within San Diego County, where air quality management is administered by the SDAPCD.

Air Quality Impacts for Solar Photovoltaic

Construction Impacts

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Construction activities would consist of assembly of PV units on ground surfaces adjacent to the structures on which they would be installed with a duration of one to four days per unit. Once assembled the PV units would be installed on rooftops of existing residential and commercial structures. These activities would utilize relatively small land areas and would be minimally intrusive (i.e., ground surface disturbance would not occur), and installing solar PV systems would not typically require the use of heavy construction equipment such as bulldozers, backhoes, jack hammers, or dump trucks. These activities would therefore not generate substantial quantities of construction-phase equipment exhaust emissions and would not generate fugitive dust. The emissions from workers making individual commuter trips to installation sites would be less than significant (Class III).

Operational Impacts

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity, which would not generate emissions. Occasional maintenance would be necessary on the installations throughout San Diego County, but this would not be expected to contribute to a violation of any air quality standards, and it would not require a substantial number of new vehicle trips compared to the existing conditions. The incremental increase of emissions that would be caused by vehicular traffic for inspection and maintenance activities would be minor and less than the thresholds for operation significance in Table D.11-8. Direct emissions from vehicular traffic for maintenance of the PV systems would cause an adverse but less than significant impact, and mitigation measures are not required (Class III).

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class IV)

The Solar PV component would facilitate decreased operation of existing power plants delivering energy to San Diego County, which would lead to reduced emissions from fossil fuel-fired power plants. Demand for electricity would not change as a result of the Solar PV component, and power generated in response to the demand would occur regardless of whether the renewable project moves forward. The Solar PV component would enable reductions of CO_2 and other pollutant emissions that would otherwise occur from fossil fuel-fired power plants. The Solar PV component would generate electricity without burning any carbon-based fuel and would thus generate essentially no greenhouse gases per megawatt-hour of output. Reduced emissions from fossil fuel-fired power plants would be a beneficial impact of this component (Class IV).

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class III)

Developing the Solar PV component of this alternative would cause greenhouse gas (GHG) emissions during manufacture, delivery, and installation of the systems that would be offset by the indirect net decrease in CO_2 emissions from power plants described in Impact AQ-3. Greenhouse gas emissions that would occur as a result of construction activities would be above the level of GHGs that occur in the baseline conditions shown in Table D.11-2, in Section D.11. Minor operational-phase GHG emissions would also occur with occasional maintenance of the solar systems. Overall, the GHG emissions related to deploying the Solar PV component would eventually be offset by the GHG emissions that would be avoided by generating solar power, which would reduce emissions from fossil-fueled power plants. Net reductions of GHG emissions from the Solar PV component would cause this impact to be adverse for the construction phase but less than significant overall (Class III).

Air Quality Setting for Biomass/Biogas

The air quality setting for the biomass/biogas component is across San Diego County as described in Section D.11. The Fallbrook Renewable Energy Facility and the Miramar landfill are in the SDAPCD (see Figure D.11-1 in Section D.11 Air Quality). These existing locations are governed by the rules and regulations of the SDAPCD governing new stationary sources of air pollution, including New Source Review described in Section D.11.3.3.

Air Quality Impacts for Biomass/Biogas

Construction Impacts

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I)

Fallbrook Renewable Energy Facility: Installation and construction of this facility in the Biomass component of the Non-Wires alternative would impact air quality in the surrounding area with construction traffic exhaust, worker commute traffic exhaust, heavy construction equipment exhaust, and dust emissions; however, the construction emissions would vary from day to day as well as with weather changes. Construction-phase emissions would include criteria pollutants and toxic air contaminants.

Exact construction scenarios are unavailable, and no emission forecasts are provided for the expected construction scenarios. This type of construction activity would result in emissions over the thresholds for a significant impact. Implementation of Mitigation Measures AQ-1a (suppress dust at all work or staging areas and on public roads) and AQ-1b (use low-emission construction equipment), as well as the relevant APMs identified for the remainder of the Proposed Project (Mitigation Measures AQ-1d through AQ-1g) would reduce the impact but not to a less than significant level (Class I). Please see Appendix 12 for the full text of the mitigation measures.

Miramar Renewable Energy Facility, and the Miramar Landfill Biogas Facility: Installation and construction of this facility in the biomass/biogas component of the Non-Wires alternatives would impact air quality in the surrounding area with construction traffic exhaust, worker commute traffic exhaust, heavy construction equipment exhaust, and dust emissions; however, the construction emissions would vary from day to day. Construction-phase emissions would include criteria pollutants and toxic air contaminants.

Exact construction scenarios are unavailable and no emission forecasts are provided for the expected construction scenarios. This type of construction activity would result in emissions over the thresholds for a significant impact. Implementation of Mitigation Measures AQ-1a (suppress dust at all work or staging areas and on public roads) and AQ-1b (use low-emission construction equipment), as well as the relevant APMs identified for the remainder of the Proposed Project (Mitigation Measures AQ-1d through AQ-1g) would reduce the impact but not to a less than significant level (Class I).

Mitigation Measures for Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I)

AQ-1a **Suppress dust at all work or staging areas and on public roads.**

AQ-1b **Use low-emission construction equipment.**

AQ-1d **Implement dust reduction measures.** [AQ-APM-2]

AQ-1e **Prevent transport of mud and dust.** [AQ-APM-3]

AQ-1f **Encourage carpooling.** [AQ-APM-4]

AQ-1g **Minimize vehicle idling.** [AQ-APM-5]

AQ-1h **Obtain NOx and particulate matter emission offsets.**

Operational Impacts

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Fallbrook Renewable Energy Facility: Operational and maintenance activities would involve new vehicle trips for workers operating and occasionally repairing the facilities. Few permanent employees would be associated with biomass/biogas facilities. As such, direct emissions from maintenance activities would cause a negligible, less than significant impact (Class III).

Miramar Renewable Energy Facility, and the Miramar Landfill Biogas Facility: Operational and maintenance activities would involve new vehicle trips for workers operating and occasionally repairing the facilities. Few permanent employees would be associated with biomass/biogas facilities. As such, direct emissions from maintenance activities would cause a negligible, less than significant impact (Class III).

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class I)

Emissions of criteria pollutants and toxic air contaminants associated with biomass/biogas generator operations would occur as a result of the combustion of the biomass/biogas fuel and any auxiliary natural gas, or other fuels required for power generation. Pollutant emissions associated with electricity generation would be similar to those that occur with any type of combustion, and they would be subject to permitting through the SDAPCD New Source Review program. Similar to other renewable energy sources, the biomass/biogas component would facilitate decreased operation of existing power plants that deliver energy to San Diego County, which would lead to reduced emissions from fossil fuel-fired power plants. As exact operational scenarios are unavailable at this level of analysis, no emission forecasts are provided for the biomass/biogas facilities.

The emissions due to biomass/biogas fuel-fired power plant operation are generally unavoidable. Direct impacts of criteria pollutants could cause or contribute to a violation of the ambient air quality standards. Significant impacts would occur for PM10 and ozone because emissions of particulate matter and precursors and ozone precursors would contribute to existing violations of the PM10 and ozone standards. Biomass/biogas facility emissions could also adversely affect visibility and vegetation in federal Class I areas or State wilderness areas, which would significantly deteriorate air quality related values (AQRVs) in the wilderness areas. Toxic air contaminants from routine operation would also cause health risks that could locally adversely affect sensitive receptors. Additional mitigation would be required for offsetting any emissions of PM10 and ozone precursors (Mitigation Measure AQ-3a). This would be achieved for ozone precursors through New Source Review requirements; however, since emission trading programs for PM10 and PM10 precursors (including SO_2) are not formally active in San Diego County, the impact of the emissions would remain significant and unavoidable (Class I).

Mitigation Measure for Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants

AQ-3a **Offset emission increases of PM10 and ozone precursors.** The power plant operator shall achieve emission reductions in PM10, PM2.5, or particulate matter precursors and ozone precursors to fully offset the emission increases associated with biomass/biogas or fossil fuel-fired electrical generation facilities.

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class III)

Building and operating the biomass/biogas facilities under this alternative would cause greenhouse gas (GHG) emissions during the construction-phase and during transport or cultivation of biomass/biogas fuel. These direct GHG emissions would be offset by the indirect decreases in CO_2 emissions from displaced fossil-fuel power plants mentioned in Impact AQ-3. Direct CO_2 emissions created by combustion of biomass/biogas would be balanced by avoiding the CO_2 and methane that would otherwise escape to the atmosphere during decomposition of the fuel feedstock. This benefit is unique to biomass/biogas power plants, which use a fuel that would naturally produce GHG emissions if not used in the power plant. The direct GHG emissions from biomass/biogas facilities would not exceed the CPUC Greenhouse Gas Emissions Performance Standard of 0.5 metrics tons (1,100 lb) of CO_2 per megawatt-hour. Overall, the GHG emissions related to building and operating the biomass/biogas component would eventually be offset by the GHG emissions that would be avoided by generating power from the renewable feedstock. Net reductions of GHG emissions would cause this impact to be adverse for the construction phase but less than significant overall (Class III).

Air Quality Setting for Wind

The air quality setting for the wind component, including the potential substation, is similar to that of the Anza-Borrego Link, which is described in Section D.11.2.2. The wind component is wholly within San Diego County, administered by the SDAPCD.

Air Quality Impacts for Wind

Construction Impacts

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I)

Construction activities to develop the wind component would generate dust and exhaust emissions from crews operating the heavy-duty off-road equipment and on-road mobile sources at separate locations. General construction, structure foundation excavation, structure delivery and setup, transmission installation, and fugitive dust from travel along the transmission ROW could each occur simultaneously on any given day of construction.

Construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. The duration of construction would be dependant upon whether concurrent or phased construction of each of the wind component areas occurs. The total amount of construction, the duration of construction, and the intensity of construction activity influence the amount of construction emissions and the resulting impacts occurring at any one time. As exact construction scenarios are unavailable at this level of analysis, no emission forecasts are provided for the expected construction scenarios.

This type of construction activity would result in emissions over the thresholds for a significant impact. The construction equipment and emissions from motor vehicles used to mobilize the workforce and materials for construction would result in temporary significant ozone and particulate matter impacts. Excavation activities would also release emissions as a result of construction vehicle operations. Further, particulate matter would be released into the air in the form of fugitive dust. Mitigation measures that would reduce construction equipment impacts include Mitigation Measures AQ-1a (suppress dust at all work or staging areas and on public roads) and AQ-1b (use low-emission construction equipment), as well as the relevant APMs identified for the remainder of the Proposed Project (Mitigation Measures AQ-1d through AQ-1g). (Please see Appendix 12 for the full text of the mitigation measures.) While the recommended mitigation measures would reduce construction impacts, the construction-phase emissions would be significant and unavoidable (Class I).

Mitigation Measures for Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants

AQ-1a **Suppress dust at all work or staging areas and on public roads.**

AQ-1b **Use low-emission construction equipment.**

AQ-1d **Implement dust reduction measures.** [AQ-APM-2]

AQ-1e **Prevent transport of mud and dust.** [AQ-APM-3]

AQ-1f **Encourage carpooling.** [AQ-APM-4]

AQ-1g **Minimize vehicle idling.** [AQ-APM-5]

AQ-1h **Obtain NOx and particulate matter emission offsets.**

Operational Impacts

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Dust and exhaust emissions generated during operation, maintenance, and inspection activities of the wind component would be created by new vehicle trips to patrol and repair the alternative facilities. A minor increase in dust and exhaust emissions from the mobile sources would occur when compared to the existing conditions. The incremental increase of emissions that would be caused by vehicular traffic for inspection and maintenance activities would be less than the thresholds for operation significance in Table D.11-8. Direct emissions from vehicular traffic for maintenance activities would cause an adverse but less than significant impact, and mitigation measures are not required (Class III).

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class IV)

The wind component and associated transmission line would facilitate decreased operation of existing power plants delivering energy to San Diego County, which would lead to reduced emissions from fossil fuel-fired power plants. Demand for electricity would not change as a result of the wind component, and power generated in response to the demand would occur regardless of whether the renewable project moves forward. The wind component and associated transmission line would enable reductions of CO_2 and other pollutant emissions that would otherwise occur from fossil fuel-fired power plants. The wind component would generate electricity without burning any carbon-based fuel and would thus generate essentially no greenhouse gases per megawatt-hour of output. Reduced emissions from fossil fuel-fired power plants would be a beneficial impact of this component (Class IV).

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class III)

Developing the wind component of this alternative would cause greenhouse gas (GHG) emissions during construction and installation of the facility that would be offset by the indirect net decrease in CO_2 emissions from power plants described in Impact AQ-3. Greenhouse gas emissions that would occur as a result of construction activities would be above the level of GHGs that occur in the baseline conditions shown in Table D.11-2, in Section D.11. Minor operational-phase GHG emissions would also occur with occasional maintenance of the wind facility. Overall, the GHG emissions related to deploying the wind component would eventually be offset by the GHG emissions that would be avoided by generating wind power, which would reduce emissions from fossil-fueled power plants. Net reductions of GHG emissions from the wind component would cause this impact to be adverse for the construction phase but less than significant overall (Class III).

Overall Impacts of Renewable Generation Alternative for Air Quality

Solar Thermal. The air quality impacts during construction of the solar thermal component would be significant and unavoidable with implementation of mitigation measures similar to those required for the Proposed Project (Class I). Operation of the component would result in no significant, unmitigable impact.

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts (Class I) nor in any significant and mitigable impacts (Class II).

Biomass/Biogas. The air quality impacts during construction of the biomass/biogas component would be significant and unavoidable with implementation of mitigation measures similar to those required for the Proposed Project (Class I). Operation of the Biomass/Biogas facilities could contribute to local violations of PM10 and ozone ambient air quality standards and cause toxic air contaminant emissions that could adversely affect sensitive receptors; this impact would require additional mitigation for the PM10 and ozone impacts, but the impact would remain significant and unavoidable (Class I).

Wind. The air quality impacts during construction of the wind component would be significant and unavoidable with implementation of mitigation measures similar to those required for the Proposed Project (Class I). Operation of the component would result in no significant, unmitigable impacts.

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E.5.12 Water Resources

Water Resources Setting for Solar Thermal

The Borrego Water District (BWD) provides potable water, sewer service, and flood control to the community of Borrego Springs, California and other areas of the surrounding Borrego Valley (Borrego Water District, 2007). The BWD draws its water from the Borrego Valley Aquifer, which was estimated in 1993 to contain a storage volume of approximately 1,900,500 acre-foot of water (Borrego Water District, 2002). The BWD's annual water usage from the aquifer is approximately 22,300 acre-foot, while the aquifer's annual recharge is approximately 4,800 acre-foot (Borrego Water District, 2002). Therefore the Borrego Valley Aquifer is in overdraft and has been for the past 50 years(Borrego Water District, 2002). If the current level of water use continues, the overdraft will substantially deplete all water supplies in about 95 years (Borrego Water District, 2002). However, build out of 75 percent of the allowed residential lots and the addition of 1,000 more acres of agriculture would reduce that to approximately 52 years depending upon the rate of the growth(Borrego Water District, 2002).

Operation of the solar collection field would require water or an HTF oil to generate steam in the solar boiler as well as for cleaning of the solar collection troughs. Approximately 80 gallons of water (60 gallons to produce steam and 20 gallons to wash mirrors) is required per one MWh of electricity produced (NREL, 2007). Deionized water is used to spray clean the solar mirrors on a periodic basis, determined by a reflectivity monitoring program. This operation is generally done at night and involves a water truck spraying deionized water on the mirrors in a drive-by fashion. Rinsate from the washing operation is expected to evaporate on the mirror surface with no appreciable runoff.

Stormwater drainage facilities within San Diego County are regulated and operated by the County of San Diego Department of Public Works Watershed Protection (Stormwater and Flood Control) Department (DPWWP, 2007). The County of San Diego Standard Urban Stormwater Mitigation Plan for Land Development and Public Improvement Projects (SUSMP) is intended to help implement one part of the County's stormwater program (DPWWP, 2007). The SUSMP only addresses land development and capital improvement projects. It is focused on project design requirements and related post-construction requirements, not on the construction process itself. The solar field would be graded from the south to the north with a 0.5 percent slope. The solar field area runoff would drain by sheet flow, but due to the planned 0.5 percent slope, future stormwater runoff velocities are expected to be lower than at present.

All but the extreme northeastern corner of the solar thermal site is within the (FEMA) designated 100-year flood hazard area of Coyote Creek. The 100-year flood depth is predicted as approximately one foot, with flow velocities 5 feet per second. The site is over the Borrego Valley Groundwater Basin which generally has a depth to groundwater greater than 110 feet.

The new transmission line from the Borrego Substation to Warners Substation would cross desert watercourses similar to those of the Anza-Borrego Link of the Proposed Project (Section D.12.2.2) and/or the Partial Underground Alternative (with Option 1).

Water Resources Impacts for Solar Thermal

Construction Impacts

Impact H-1: Construction activity would degrade water quality due to erosion and sedimentation (Class II)

Construction activities would include site preparation and installation of operating components at both the solar collection field site and along either transmission line route. Water would be used during grading activities to minimize dust emissions. The water used for dust suppression is not expected to infiltrate to groundwater or flow offsite and, therefore would not impact groundwater quality. Degradation of water quality due to erosion and sedimentation is considered mitigable to less than significant levels (Class II), with adoption of mitigation measures similar to the APMs listed in Table D.12-6. These measures include Mitigation Measures H-1c through H-1i below, which implement the following requirements: minimize disturbance to waterways to the extent feasible, placement of structures shall avoid watercourses to the extent feasible, establishment of exclusion zones along waterways, and construction of waterway crossings during low flow periods. A Stormwater Pollution Prevention Plan for construction would be required by the RWQCB. Mitigations measure H-1a (Prepare substation grading and drainage plan; construct during the dry season) would also apply. With implementation of Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, and H-1i in place, Impact H-1 would be less than significant (Class II). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measure for Impact H-1: Construction activity Would degrade water quality due to erosion and sedimentation

H-1a **Prepare substation grading and drainage plan; construct during the dry season.**

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

Impact H-2: Construction activity would degrade water quality through spills of potentially harmful materials (Class II)

Accidental spills or disposal of harmful materials used during construction potentially would wash into and pollute surface waters or groundwater. Materials that potentially would contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. This impact would apply to all watercourses near the solar field and along the route.

The dry nature of the surface streams is such that should material spills occur, these would easily be cleaned up prior to water quality being contaminated. Groundwater basins in the area generally have groundwater deep enough that direct disturbance during construction is unlikely. Should spills reach groundwater basins this would result in a significant impact. However, degradation of water quality through the spill of potentially harmful materials is mitigable to less than significant levels (Class II). Mitigation is required, similar to SDG&E's APMs for the Proposed Project, which include: (1) The prohibition

of storage of fuels and hazardous materials within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells; (2) prohibition of disposal of hazardous materials onto the ground, underlying groundwater, and any surface water; (3) removal of potentially hazardous materials to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials; and (4) in the event of a release of hazardous materials, the release will be promptly cleaned up in accordance with applicable regulations. The construction SWPPP will address best management practices for material spills. With Mitigation Measures H-1c, H-1d, H-1e, H-1f, H-1g, H-1h, H-1i, H-2a, H-2b, and H-2c in place, as well as accidental spill Mitigation Measures P-1a though P-1g for Public Health and Safety (see Impact P-1 in Section E.5.10), impacts would be less than significant.

Mitigation Measures for Impact H-2: Construction activity would degrade water quality through spills of potentially harmful materials

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

P-1a **Implement Environmental Monitoring Program.**

P-1b **Maintain emergency spill supplies and equipment.**

P-1c **Personnel trained in proper use and safety procedures for the chemicals used.** [HS-APM-1]

P-1d **Personnel trained in refueling of vehicles.** [HS-APM-2]

P-1e **Preparation of environmental safety plans including spill prevention and response plan.** [HS-APM-3]

P-1f **Applicant's and/or General Contractor environmental/health and safety personnel.** [HS-APM-8]

P-1g **Proper storage and disposal of generated waste.** [HS-APM-10]

Impact H-3: Excavation would degrade groundwater quality in areas of shallow groundwater (Class II)

Impact H-3 is a potential impact to the Borrego Valley Area basin. This is a small possibility, due to the expected depth to groundwater. Depth to groundwater is reported as more than 110 feet below the ground surface in the Borrego Valley basin and excavation for the solar thermal field and transmission poles would be above groundwater depth.

Implementation of mitigation similar to SDG&E APMs for the Proposed Project would be required, including (1) Proper disposal of excavated groundwater contaminated by construction (water will be treated or disposed away from the natural groundwater or surface water); (2) ensure that materials that could contaminate groundwater are kept at least 200 feet from wells; and (3) determine the depth of ground-

water prior to construction, avoiding shallow groundwater where possible, and developing methods for avoiding impacts where shallow groundwater cannot be avoided. With Mitigation Measures H-1c, H-2a and H-3a in place (similar to SDG&E APMs,) Impact H-3 is less than significant (Class II).

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-3a **Detect and avoid groundwater with project excavations.** [WQ-APM-11]

Impact H-4: Groundwater dewatering for project construction would deplete local water supplies. (Class II)

Tower construction in the Borrego Valley groundwater basin potentially would result in a local and temporary drawdown of groundwater levels, which potentially would temporarily reduce the yield of any nearby water supply wells. This impact is unlikely in the Borrego Valley basin because the depth to groundwater is at least 110 feet, deeper than the maximum excavation. Should dewatering occur, it would be a significant impact. Mitigation measure H-4a would require identification of these wells and provision of alternate water supplies during the period of depletion. This would reduce the effects of this impact to less than significant (Class II).

See Impact S-3 (Project construction would increase the need for public services and facilities) under Socioeconomics, Public Services, and Utilities Impacts for Solar Thermal in Section E.5.14 for a discussion of the Borrego Water District (BWD) water supply and water usage for dust control and other construction activities.

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4a **Avoid using source water and provide alternative sources where avoidance is not possible.** [WQ-APM-6]

Operational Impacts

Impact H-5: Creation of new impervious areas would cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Existing site topography of the project site would be maintained to the extent possible so that stormwater runoff would flow per the existing drainage patterns except around equipment, where it would be collected in a retention basin. Stormwater would be allowed to infiltrate or evaporate unless contaminated. If contaminated, stormwater would either be treated or disposed of in accordance with state and local water discharge regulations. Rinsate from the washing operation is expected to evaporate on the mirror surface with no appreciable runoff. As any new site development or project related features (including the steel poles for the overhead transmission upgrades option) would be designed to not significantly alter existing drainage patterns, cause significant erosion or siltation, or affect the operation of existing stormwater drainage systems, less than significant stormwater drainage impacts would occur as part solar collection field operations. New impervious areas would be minimal and insignificant with regard to the overall watershed, resulting in no significant increase in runoff or flooding (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse would result in flooding, flood diversions, or erosion (Class I)

Most of the solar thermal site is subject to Impact H-6 as a result of being in the floodplain. Whereas the depth of flooding is not great enough to result in severe damage to properly designed site facilities, the potential extent of flooding on this property is such that the project potentially would serve as a diversion of flood flows to the detriment of adjacent property, primarily agriculture and the Borrego Substation. Flood diversion potentially would occur from such project features as a perimeter chain-link fence. Because site design is not known at this time, it is assumed that flow diversions will occur, and that these will be significant and unavoidable (Class I). The Option 1 underground line would not impact floodplains or watercourses. Mitigation measure H-6 is proposed for impacts associated with transmission towers. However, this does not mitigate the Class I designation for the solar thermal site.

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse would result in flooding, flood diversions, or erosion

H-6a **Scour protection to include bank erosion and effects to adjacent property.**

Impact H-7: Accidental releases of contaminants from project facilities would degrade water quality (Class II)

Solar thermal collection fields convert solar radiation to electricity by using sunlight to heat a fluid, such as oil (HTF or heat transfer fluid), which is then used to generate steam. Such HTF oil is classified as non-hazardous by the federal government, but is regulated as a hazardous material by the State of California. Thus oil and other contaminants from new equipment potentially would be released accidentally and contaminate local surface water or groundwater. Such a release is unlikely since the solar fields do not normally contain hazardous or potentially contaminating materials exposed to storm-water. Mitigation measure H-2c (Proper disposal and clean-up of hazardous materials) requires clean-up of spills and proper storage and disposal of contaminants. However, Mitigation Measure H-2c does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, absent mitigation, Impact H-7 would be significant. Mitigation measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation and Mitigation Measure P-5a ensures that HTF oil is addressed within the Plan. With Mitigation Measure H-7a, which would address HTF among other contaminants based on implementation of Mitigation Measure P-5a, Impact H-7 would be less than significant (Class II).

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities would degrade water quality

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.** A Hazardous Substance Control and Emergency Response Plan shall be prepared for project operation, and a copy shall be kept at the thermal site and at all substations. This plan shall address spill containment and clean-up procedures and responsibilities.

P-5a **Include HTF in spill response plans and remediate contaminated soil.**

Impact H-8: Underground portions of the power line could be exposed during flow events causing damage to the line or to adjacent property (Class II for Option 1 transmission line only)

During flow events the stream channel bed can become scoured to the point where objects buried beneath them could be exposed. The depth of scour is generally greater with larger magnitude flood events. Exposure of the buried line (under Option 1) could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line under Option 1 crosses below stream beds, the burial depth should be great enough to protect against scour. This could lead to a substantial impact along this alternative, particularly along San Felipe Creek at Sentenac Canyon, and in some of the crossings of larger washes. In Sentenac Canyon and possibly other areas where the line would be adjacent to San Felipe Creek (See Environmental Setting for the ABDSP Partial Underground SR78 to S2 Alternative), the Impact H-8 risk would take the form of potential lateral erosion that could expose the transmission line.

Whereas the roadway would provide some protection, these desert roadway watercourse crossings are typically at-grade or with relatively small culverts which could be overtopped or bypassed by large floods, resulting in scour damage to the roadway as well as the power line. Mitigation measure H-8a, which is to be applied to San Felipe Creek and any other stream or wash crossing capable of scour as determined by engineers during the design analysis, will ensure proper burial of the power line and thereby render Impact H-8 less than significant (Class II).

Mitigation Measure for Impact H-8: Underground portions of the power line could be subject to damage from stream scour at locations where the line crosses stream channels

H-8a Bury power line below 100-year scour depth.

Impact H-9: Project construction or operation would potentially impact local water supply (Class II)

Operation of the solar collection field facility would require water or an HTF oil for steam generation as well as routine cleaning of the collector mirrors. Water to generate steam would be contained within a closed boiler system and would only require periodic replacement. Approximately 20 gallons of water per MWh would be required to clean collector mirrors and approximately 60 gallons to produce steam are required per one MWh of electricity produced. Frequency of cleaning are dictated by the tradeoff between performance gain and maintenance cost, however for analysis purposes, one monthly cleaning was assumed. It is estimated that approximately 300,000 gallons of water would be required annually for operation. Since the BWD water supply and distribution is currently in overdraft and is projected to be depleted within the next 50 to 90 years, the use of extra water for operation of the solar collection field would contribute to the depletion of the Borrego Valley Aquifer, resulting in a significant impact. This impact could be reduced to a less than significant level by requiring water offsets, which potentially would take the form of purchasing existing land with water use and then retiring the water use, or by trucking water in from a different source. The applicant could bring in water from either the Imperial Irrigation District (IID) or the Vista Irrigation District (VID). The IID delivers up to 3.1 million acre feet of water per year of which 3% is used for municipalities, industrial and other uses. The VIV delivers up to 22,828 acre-foot per year, of which 10% is used for industrial and commercial uses. As such, the required 300,000 gallons of water would be less than 0.001 percent of the water capacity for industry for both the IID and the VID. With implementation of Mitigation Measure H-9a, Impact H-9 is less than significant (Class II).

H-9a **Offset water for operation of Solar Thermal plant.** Water necessary for operations, approximately 300,000 gallons, would need to be offset to avoid contributing to the depletion of the Borrego Valley Aquifer. This could potentially be through purchasing existing land with water use and then retiring the water use or by trucking water in from a different source.

Water Resources Setting for Solar Photovoltaic

Solar PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development. Construction activities would consist of assembly of PV units on ground surfaces adjacent to the structures on which they would be installed. Once assembled the PV units would be installed on rooftops of existing residential and commercial structures. These activities would utilize relatively small land areas and would be minimally intrusive (i.e., ground surface disturbance would not occur).

Water Resources Impacts for Solar Photovoltaic

Construction Impacts

Construction activities such as assembly and wiring would occur on ground surfaces such as driveways, parking lots, and landscaped areas. Installation would occur on rooftops of existing buildings. Assembly and installation activities would not generate dust and would not require water for dust control or any other use. These activities would not create any wastewater or runoff. Temporary construction activities on ground surfaces or rooftops would not affect groundwater supply or recharge, drainage patterns, stream courses, or flood flows. Impact H-1 (Construction activity could degrade water quality due to erosion and sedimentation), Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater), and Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) would not occur.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Construction may require small quantities of gasoline, oil, and lubricants for construction equipment, and possibly small quantities of solvents and paint, but any spills would be cleaned up immediately and would therefore not degrade surface or groundwater quality. To ensure that water quality is not unnecessarily impacted during construction, in compliance with NEPA, Mitigation Measures H-2b and H2c are recommended, but are not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.5.1.

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

H-2b **No storage of fuels and hazardous materials near sensitive water resources.**

H-2c **Proper disposal and clean-up of hazardous materials.**

Operational Impacts

No new impervious surfaces would be created because the units would be installed on already impervious surfaces, therefore, Impact H-5 (Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream) would not occur. Once installed on rooftops,

operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity, which would have no effects on groundwater, water drainage, or create wastewater. Impact H-6 (Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion), Impact H-7 (Accidental releases of contaminants from project facilities could degrade water quality), Impact H-8 (Underground portions of the power line could be subject to damage from stream scour at locations where the line crosses stream channels) would also not occur because there would be no transmission towers, contaminants, or underground portions of power lines associated with this component. Impact H-9: Project construction or operation would potentially impact local water supply would also not occur because the operation of the Solar PVs would require very little water.

Water Resources Setting for Biomass/Biogas

Biogas technology, converting landfill gas to energy, requires negligible amounts of water for the engines or combustion turbines to burn landfill gas and produce electricity. On the other hand, biomass technology requires similar amounts of water per unit of electricity generated as fossil fuel power plants (EPA: Clean Energy). Biomass power plants require water for the boilers to burn the biomass waste, steam production to create energy, and for cooling.

Fallbrook Renewable Energy Facility: The biomass facility access road would traverse the San Luis Rey River. The facility site would be located less than 400 feet from the San Luis Rey River.

The Miramar landfill considered for the biomass/biogas Non-Wires alternative does not intersect any waterbodies; however, there are wetlands and other water resources in the surrounding areas.

Water Resources Impacts for Biomass/Biogas

Construction Impacts

Because the biomass/biogas sites listed generally have no groundwater basins, Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) would not occur.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II for the Fallbrook facility; Class III for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Construction activities would include site preparation and installation of operating components at an existing orchard. Water would be used during grading activities to minimize dust emissions. The water used for dust suppression is not expected to infiltrate to groundwater or flow offsite and, therefore is not expected to impact groundwater quality. However, should erosion and sedimentation occur during construction, this would be considered a significant impact. Mitigation measures H-1c, H-1d, H-1e, H-1f, and H-1h are recommended to reduce this impact to a less than significant level (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Construction activities would include site preparation and installation of operating components at an existing landfill. Water would be used during grading activities to minimize dust emissions. The water used for dust suppression is not expected to infiltrate to groundwater or flow offsite as construction would occur on an already compacted, industrial site. Therefore is not expected to impact groundwater quality (Class III). To ensure that water quality is not unnecessarily impacted during construction, in compli-

ance with NEPA, Mitigation Measures H-1c, H-1d, H-1e, H-1f, and H-1h are recommended, but are not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.5.1.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Fallbrook Renewable Energy Facility: Accidental spills or disposal of harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. This impact would apply to all watercourses near the landfills, including the San Luis Rey River but are considered to be mitigable to less than significant levels. Mitigation measures H-2a, H-2b, H-2c, and H-1h would ensure that Impact H-2 is less than significant (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Accidental spills or disposal of harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. This impact would apply to all watercourses near the landfill. The dryness of the area, the depth to groundwater, and Mitigation Measures H-2a, H-2b, H-2c, and H-1h would ensure that Impact H-2 is less than significant (Class II).

Mitigation Measure for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Fallbrook Renewable Energy Facility: Excavation for the generation facilities could encounter local groundwater which could be closely associated with surface flows. Groundwater contamination in this area could affect surface flows but are generally considered to be mitigable to less than significant levels. Mitigation measures H-2a and H-3awould ensure impacts would be less than significant (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Excavation for the generation facilities could encounter local groundwater which could be closely associated with surface flows. Groundwater contamination in this area could affect surface flows. Mitigation measures H-2a and H-3awould ensure impacts would be less than significant (Class II).

Mitigation Measures for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-2a **Groundwater testing and treatment before disposal.** [WQ-APM-8]

H-3a **Detect and avoid groundwater with project excavations.** [WQ-APM-11]

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II for the Fallbrook Facility; Class III for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Existing site topography of the orchard would be maintained to the extent possible so that stormwater runoff would flow per the existing drainage patterns. Where excess stormwater runoff would inundate the landfill's existing drainage basin the applicant will construct a drainage basin specifically for the stormwater runoff of the biomass facility (Envirepel, 2007.) If contaminated, stormwater would either be treated or disposed of in accordance with state and local water discharge regulations. These impacts are adverse but are generally considered to be mitigable to less than significant levels (Class II.) Mitigation Measure H-5a(FB) is recommended.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Existing site topography would be maintained to the extent possible so that stormwater runoff would flow per the existing drainage patterns. Where excess stormwater runoff would inundate the landfill's existing drainage basin the applicant will construct a drainage basin specifically for the stormwater runoff of the biomass/biogas Non-Wires alternatives. If contaminated, stormwater would either be treated or disposed of in accordance with state and local water discharge regulations. New impervious areas would be minimal and insignificant with regard to the overall watershed, resulting in no significant increase in runoff or flooding (Class III).

Mitigation Measure for Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class II, Class III)

H-5a **Install substation runoff control.**

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Fallbrook Renewable Energy Facility: As described with respect to the Imperial Valley Link of the Proposed Project, encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. Impact H-6 is likely to occur near the San Luis Rey River which borders the Fallbrook site. With implementation of Mitigation Measures H-1d and H-6a impacts would be mitigable to a less than significant (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: As described with respect to the Imperial Valley Link of the Proposed Project, encroachment of a project structure into a flow path could result in flooding of or erosion damage to the encroaching structure, diversion of flows

and increased flood risk for adjacent property, or increased erosion on adjacent property. The Miramar biomass/biogas facilities are bordered by the Miramar Landfill and MCAS Miramar. Impact H-6 is likely to occur only where biogas and biomass facilities are constructed in or closely adjacent to a watercourse. The facilities would be constructed at existing properties removed from floodplains and watercourse. With implementation of Mitigation Measures H-1d and H-6a impacts would be less than significant (Class II).

Mitigation Measures for Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1d **Avoid watercourses to the maximum extent possible.**

H-6a **Scour protection to include bank erosion and effects to adjacent property.**

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Fallbrook Renewable Energy Facility: Oil and other contaminants from new equipment could be released accidentally and contaminate local surface water or groundwater. Such a release is unlikely; although the biogas and biomass facilities handle waste, they do not normally contain hazardous or potentially contaminating materials exposed to stormwater, as implementation of Mitigation Measure H-2c requires clean-up of spills and proper storage and disposal of contaminants. However, Mitigation Measure H-2c does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, absent mitigation, Impact H-7 would be significant. Mitigation measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Oil and other contaminants from new equipment could be released accidentally and contaminate local surface water or groundwater. Such a release is unlikely; although the biogas and biomass facilities handle waste, they do not normally contain hazardous or potentially contaminating materials exposed to stormwater as implementation of Mitigation Measure H-2c requires clean-up of spills and proper storage and disposal of contaminants. However, Mitigation Measure H-2c does not adequately address how spills would be contained or minimized, nor does it require advance planning on spill clean-up. This issue would be addressed by the SWPPP for construction (see Impact H-2), but not for project operation. Therefore, absent mitigation, Impact H-7 would be significant. Mitigation measure H-7a requires development of a Hazardous Substance Control and Emergency Response Plan for project operation. With Mitigation Measure H-7a, Impact H-7 would be less than significant (Class II).

Mitigation Measures for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

Water Resources Setting for Wind

The wind component is in an area with climate and terrain typical of the Central Link, but tending to be dry in the eastern portion similar to the desert area. The area is in a natural condition, hilly, with dry, ephemeral watercourses predominating. North of Interstate 8 there are no major watercourses crossed by the wind component; however, an unnamed creek is located near McCain Ranch within the Manzanita Reservation. In addition, unnamed springs are scattered through the wind component area. There may be other incidental water courses that were not identified. The wind component areas border the western and northern boundaries of the Cottonwood Valley Groundwater Basin and the Campo Valley Groundwater Basin is located to the south of Interstate 8. Depth to groundwater in the hills bordering the noted basins, where the wind component would be located, well exceeds 50 feet.

A 230 kV transmission line would be required to connect the wind component substation to the existing 500 kV SWPL transmission line (about 10 miles to the south), and a new substation would also need to be constructed either on Campo Reservation land or at MP I8-35, which would be the Jacumba Substation. Section D.12.12.4 has detailed analysis of the Jacumba Substation at MP I8-35. The wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5. The wind component transmission line would be overhead and would have four unnamed water crossings.

Water Resources Impacts for Wind

Construction Impacts

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the wind tower/turbines, access/spur roads, switchyard, substation, and operation and maintenance facilities, and related transmission line would require excavation and grading. In addition, construction of the underground interconnections from the tower/turbines to the switchyard would require trench excavation and grading. Ground disturbing activities which lead to this impact would be extensive, particularly in areas where existing roads are not sufficient for access. Disturbance of soil during construction could result in soil erosion and lowered water quality through increased turbidity and sediment deposition into local streams.

Degradation of water quality due to erosion and sedimentation would be mitigable to less than significant levels (Class II). Mitigation includes preparation of a Storm Water Pollution Prevention Plan (H-1a), placement of structures and roadways shall avoid watercourses to the extent feasible (H-1d), establishment of exclusion zones along waterways (H-1e), installation of sedimentation control measures (H-1f), and construction of waterway crossings during low flow periods (H-1g).

Mitigation Measure for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

H-1a **Prepare substation grading and drainage plan; construct during the dry season.**

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-1e **Identify and mark sensitive areas for avoidance.** [WQ-APM-3]

H-1f **Develop and implement construction Best Management Practices.** [WQ-APM-4]

H-1g **Stream crossings at low flow periods.** [WQ-APM-5]

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class III)

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area or spill or leak include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids.

Because of the limited waterways and depth to groundwater in the wind component area, degradation of water quality through the spill of potentially harmful materials is adverse but insignificant (Class III) and no mitigation is required.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (No Impact for wind component; Class II for transmission line)

The wind component areas north of Interstate 8 border the western and northern boundaries of the Cottonwood Valley Groundwater Basin and the Campo Valley Groundwater Basin is located to the south of Interstate 8. The potential Jacumba Substation site would be located in the Coyote Wells Valley Groundwater Basin. Since the depth to groundwater in these basins exceeds 50 feet, which is below the maximum depth of tower construction, there is no possibility of encountering and degrading groundwater during construction. However, a portion of the wind component transmission line traverses the Campo Valley Groundwater Basin where the depth to groundwater may be as shallow as 15 feet.

In the Campo Valley Groundwater Basin, degradation of groundwater quality would be a significant impact without mitigation (Class II). Mitigation measures H-1c, H-1d, H-2b, H-2c, and H-1h are recommended.

Mitigation Measures for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

H-1c **Minimize construction and maintenance disturbance to riparian areas.** [WQ-APM-1]

H-1d **Avoid watercourses to the maximum extent possible.** [WQ-APM-2]

H-2b **No storage of fuels and hazardous materials near sensitive water resources.** [WQ-APM-9]

H-2c **Proper disposal and clean-up of hazardous materials.** [WQ-APM-13]

H-1h **Compliance with NPDES regulations.** [WQ-APM-14]

Impact H-4: Groundwater dewatering for project construction could deplete local water supplies (No Impact for the wind component; Class II for transmission line)

The wind component areas north of Interstate 8 border the western and northern boundaries of the Cottonwood Valley Groundwater Basin and the Campo Valley Groundwater Basin is located to the south of Interstate 8. The potential Jacumba Substation site would be located in the Coyote Wells Valley Groundwater Basin. Since the depth to groundwater in these basins exceeds 50 feet, which is below the maximum depth of tower construction, there is no need to dewater excavations so that construction can proceed. As a result, no depletion of local groundwater would occur. However, a portion of the alternative transmission line traverses the Campo Valley Groundwater Basin where the depth to groundwater may be as shallow as 15 feet. Dewatering for transmission line construction in the Campo Valley Groundwater Basin could result in a local and temporary drawdown of groundwater levels which could temporarily reduce the yield of nearby water supply wells, resulting in a significant impact without mitigation.

Implementation of Mitigation Measure H-4a, which requires identification of wells and provision of alternate water supplies during the period of depletion, would reduce this impact to a less than significant level (Class II.)

Mitigation Measure for Impact H-4: Groundwater dewatering for project construction could deplete local water supplies

H-4a **Avoid using source water and provide alternative sources where avoidance is not possible.** [WQ-APM-6]

Operational Impacts

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of the switchyard, substation, operation and maintenance facilities, tower foundations, underground interconnections, transmission line, and access/spur roads could result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural areas, and increased flood peaks are a common occurrence in developed areas. There may be small local increases in runoff by this process, but the total area affected would be very small in comparison to the total watershed. Further, this area is very sparsely developed, and any small increase in runoff would not have an appreciable impact. Impact H-5 is less than significant (Class III) and no mitigation is required.

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Encroachment of alternative tower/turbine structures or associated facilities into a flow path or floodplain could result in flooding of or erosion damage to the encroaching structure, diversion of flows and increased flood risk for adjacent property, or increased erosion on adjacent property. This impact is likely to occur only where wind towers or other permanent project features are constructed in or closely adjacent to a watercourse. Placement of towers in watercourses is unlikely for the reason that wind tower/turbines would be sited along hill tops and ridges where optimum wind conditions exist. However, alternative access roads could traverse a flow path or floodplain.

Impacts to water resources from flooding or erosion caused by locating wind component structures or associated facilities in a floodplain or watercourse would be significant without mitigation. Implementation of mitigation measures presented below would reduce this impact to less than significant levels (Class II).

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-1i **Construction routes to avoid and minimize disturbance to stream channels.** [WQ-APM-15]

H-6a **Scour protection to include bank erosion and effects to adjacent property.**

H-8a **Bury power line below 100-year scour depth.**

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Oil and other contaminants could be used to maintain the wind towers/turbines, associated facilities, and the equipment used for maintenance. These contaminants would likely be stored at the operation and maintenance facilities. During their use or storage, oil or other contaminants could be released accidentally and contaminate local surface water or groundwater. Contamination of groundwater in the area is unlikely given the depth to groundwater in the wind component area. Further, unless the operation and maintenance facilities or substation are located near waterways, the potential to degrade surface water is nominal. Finally, as previously noted, wind tower/turbines would likely be sited on ridges and hill top where optimum wind conditions exist.

Degradation of water quality from the accidental release of contaminants would be a significant impact without mitigation. Implementation of Mitigation Measure H-7a would reduce this impact to less than significant (Class II.)

Mitigation Measure for Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

Impact H-8: Underground portions of the power line could be subject to damage from stream scour at locations where the line crosses stream channels (Class II)

During flow events stream channel beds can become scoured to the point where objects buried beneath them could be exposed. The depth of scour is generally greater with larger magnitude flood events. The wind component would include the undergrounding of power line interconnections between the wind turbines and the switchyard. While there are limited waterways in the alternative area, the burying of an interconnection under a waterway may be required. Exposure of the buried power line could result in damage to the line or in damage to adjacent property as the exposed line exacerbates the potential for local scour. At places where the buried power line interconnections or transmission line cross below stream beds, the burial depth should be great enough to protect against scour.

The potential for underground portions of the wind component to be subject to damage from scour is mitigable to less than significant levels (Class II) with implementation of Mitigation Measures H-6a and H-8a, both requiring that the power lines be buried below the 100-year scour depth.

Mitigation Measure for Impact H-8: Underground portions of the power line could be subject to damage from stream scour at locations where the line crosses stream channels

H-6a Scour protection to include bank erosion and effects to adjacent property.

H-8a Bury power line below 100-year scour depth.

Overall Impacts of Renewable Generation Alternative for Water Resources

Overall impacts of renewable generation are similar to the Proposed Project, with construction-related impacts to water quality, especially through erosion and sedimentation, predominating. For the most part, as with the Proposed Project, these impacts are less than significant (Class III) or can be mitigated to a level below significance (Class II). However, a new impact is added for renewable generation: Impact H-9 (Project construction or operation would potentially impact local water supply). In the case of the solar thermal component, this impact can be mitigated to less than significant (Class II).

Solar Thermal. Construction of the solar thermal component would result in no significant unmitigable impacts (Class I). Degradation of water quality due to erosion, sedimentation, accidental spills or disposal of harmful materials is considered mitigable to less than significant levels. Mitigations measure H-1a and H-1c through H-1i, H-2a, H-2b, and H-2c, as well as accidental spill Mitigation Measures P-1a though P-1g for Public Health and Safety would reduce this impact to less than significant (Class II). Operation of the solar thermal plant could result in flooding, flood diversions or erosion as it is located in a floodplain a significant, unmitigable impact (Class I). Mitigation measure H-6 is proposed for impacts associated with transmission towers.

Power plant operation could substantially deplete local water supplies, an impact that can be mitigated to less than significant (Class II).

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant unmitigable impacts (Class I) and no significant and mitigable impacts (Class II).

Biomass/Biogas. Construction and operation of the Biomass/Biogas facilities would result in no significant unmitigable impacts (Class I). However, the Fallbrook Biomass facility would be located near a waterway, and construction and operation could result in degradation of water quality due to erosion, sedimentation, accidental spills or disposal of harmful materials is considered mitigable to less than significant levels with implementation of Mitigation Measures H-1c through H-1f, and H-1h (Class II). Groundwater quality could also be degraded during construction of the facility but Mitigation Measures H-2a, H-2b, H-2c and H-1h would reduce this impact to a less than significant level (Class II). The Fallbrook facility could cause increased runoff, and could result in flooding, flood diversions, or erosion. Mitigations measures H-5a, H-1d and H-6a would mitigate such impacts to a less than significant level. Both the Fallbrook and Miramar facilities could result in accidental contamination of water quality; but Mitigation Measures H-7a would mitigate the impact to a less than significant level (Class II).

Wind. Construction and operation of the Biomass/Biogas facilities would result in no significant unmitigable impacts (Class I). Degradation of water quality due to erosion, sedimentation, accidental spills or disposal of harmful materials is considered mitigable to less than significant levels with Mitigation Measures H-1a and H-1d through H-1g. Groundwater quality could also be degraded during construction of the facility but Mitigation Measures H-1d, H-2b, H-2c, and H-1h would reduce impacts to groundwater quality to less than significant (Class II). The Wind farm and transmission line could result in flooding, flood diversions, or erosion. Mitigations Measures H-5a, H-1i, H-6a and H-8a would mitigate such impacts to a less than significant level. The operation of the Jacumba Substation could result in accidental contamination of water quality but Mitigation Measures H-2c and H-7a would mitigate the impact to a less than significant level (Class II).

E.5.13 Geology, Mineral Resources, and Soils

Geology, Mineral Resources, and Soils Setting for Solar Thermal

San Diego County can be divided into three distinct geomorphic regions: the Coastal Plain region as exposed west of the Peninsular Ranges, the Peninsular Range region, and the Salton Trough region as exposed east of the Peninsular Ranges (San Diego County, 2002). The project site is located in Borrego Valley within the Peninsular Range region. The Peninsular Ranges Region is underlain primarily by plutonic (i.e., granitic) rocks that formed from the cooling of molten magmas deep within the earth's crust during early middle Cretaceous Period (140 to 90 million years ago). Borrego Valley is a north-south trending valley in the Santa Rosa Mountains (on the eastern edge of the Peninsular Range province) that is bounded on the east by the Coyote Creek segment of the San Jacinto Fault Zone. Borrego Valley is filled by Quaternary alluvial deposits derived from the surrounding mountains.

The Solar Thermal site and transmission lines are located in a seismically active area of southern California, located between the Elsinore and the very active San Jacinto Fault Zones. The site is approximately 18 miles east of the Julian Segment of the Elsinore fault and only about 2.5 miles west of the Coyote Creek Segment of the San Jacinto fault. As a result strong to severe groundshaking may be expected at the site in the event of a large earthquake, with estimated PGAs ranging from 0.7 to 0.8g. An earthquake of this size on the San Jacinto fault in San Diego County would cause severe damage in Borrego Valley (San Diego County, 2002). The geologic settings for the transmission line upgrade options are similar to the ABDSP Partial Underground SR78 to S2 Alternative (see Section D.13.15.1) for Option 1, which crosses and parallels the Earthquake Valley Fault along S2, and the Anza-Borrego Link for the Proposed Project (see D.13.2.1) for Option 2.

According to the San Diego County General Plan Conservation Element, the project site is not located within any resource conservation areas (San Diego County, 2002).

Geology, Mineral Resources, and Soils Impacts for Solar Thermal

Construction Impacts

As described above, the solar collection field site and transmission upgrade routes were not identified within a resource conservation area, therefore impacts to mineral resources would not be expected to occur (Impact G-9: Construction activities would interfere with access to known mineral resources).

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II)

Construction of the solar collection field would require grading of the entire 1,450-acre site to achieve a consistent slope. Dust control activities associated with grading of the solar collector field site and transmission lines would be implemented to reduce the potential for soil erosion and windblown dust over the property boundary and along either route. Some excavation would also be necessary to construct foundations for project infrastructure. Excavation and grading during construction potentially would loosen soil or remove stabilizing vegetation and expose areas of loose soil. These areas, if not properly stabilized during construction, potentially would be subject to increased soil loss and erosion by wind and stormwater runoff. Implementation of Mitigation Measures G-1a (Limit modification of access roads), G-1b (Implement erosion control procedures), G-1c (Avoid new disturbance, erosion, and degradation), and G-1d (Restore surfaces for erosion control and revegetation) would reduce the

amount of erosion that would result from construction by limiting construction traffic and grading of existing roads in areas with sensitive soils, planning construction to minimize new ground disturbance, using Best Management Practices (BMPs), such as sand bags and road bars, to control water erosion. In accordance with the Clean Water Act, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented, also including BMPs, in order to minimize construction impacts on surface and groundwater quality. The SWPPP would be prepared once the proposed action is approved and after final design of the alternative is complete. Upgrading of the overhead 36.5-mile transmission line would not likely require grading, but the underground line option would require a continuous trench in roadways. Therefore, a SWPPP would also be prepared for the entire route to prevent erosion and slope stability related impacts. Impacts would be significant; however, with the implementation of Mitigation Measures G-1a, G-1b, G-1c, and G-d all impacts would be reduced to a less than significant impact (Class II). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact G-1: Erosion would be triggered or accelerated due to construction activities

G-1a **Limit modification of access roads.** [GEO-APM-1]

G-1b **Implement erosion control procedures.** [GEO-APM-2]

G-1c **Avoid new disturbance, erosion, degradation.** [GEO-APM-5]

G-1d **Restore surfaces for erosion control and revegetation.** [GEO-APM-6]

Impact G-2: Unique geologic features would be damaged due to construction activities (Class II)

Construction activities such as grading and excavation from the solar site and the overhead Option 2 transmission line route would cause damage to desert pavement (Option 1 would be located entirely within roadways), which is a special concern in the desert areas of the site and route. Therefore there would be a significant impact. Desert pavement is a unique geologic/soil feature that takes thousands of years to form and protects the underlying silty and sandy soils from excessive wind and water erosion. Damage to desert pavement would result in an extreme acceleration of erosion as well as damage a unique geologic feature. At least one soil association along this segment of the overhead route, the Rositas-Orita-Carrizo-Aco (s994), is known to include areas of desert pavement. Therefore, Mitigation Measure G-2a would be implemented to protect desert pavement in areas underlain by the Rositas-Orita-Carrizo-Aco soil association and other desert soils with potential for desert pavement. Implementation of Mitigation Measure G-2a would reduce erosion impacts associated with damage to desert pavement areas to less than significant (Class II).

Mitigation Measures for Impact G-2: Unique geologic features would be damaged due to construction activities

G-2a **Protect desert pavement.**

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (No Impact for Solar Thermal site; Class II for Transmission line options)

Due to the largely flat topography in the Borrego Springs Valley floor where the solar thermal facilities would be located, Impact G-7 (effects of landslides, earthflows, debris flows and/or rock fall) would not occur. Additionally the underground option would occur entirely in paved roadways, which would not require grading (No Impact).

Construction consisting of grading and excavation along the foothills between would cause slope instability for the overhead transmission line option (Option 2) resulting in a significant impact. Destabilization of natural or constructed slopes would potentially occur as a result of construction activities due to excavation and/or grading operations. Excavation operations associated with tower foundation construction, trench excavation for vaults and underground conduits, and grading operations for temporary and permanent access roads and work areas would potentially result in slope instability, resulting in landslides, soil creep, or debris flows. Slope failures would cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public, a significant impact. To ensure that slope instability impacts would be reduced to less than significant (Class II), implementation of Mitigation Measures G-6a, G-6b, and G-6c are required along the overhead route to delineate areas of unstable slopes near and within work areas and to minimize the potential from construction-triggered slope failures by avoidance or implementation of slope stabilizing design measures.

Mitigation Measure for Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.**

G-6b **Place structures in stable areas.** [GEO-APM-4]

G-6c **Avoid or remove unstable slope elements.** [GEO-APM-8]

Operational Impacts

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II)

Corrosive subsurface soils may exist in places along the transmission route and solar field. Corrosive soils potentially would have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils potentially would deteriorate, eventually leading to structural failures. Expansion potential for the soils along the segment ranges from low to high. Expansive soils can also cause problems to structures. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types identified within this segment of the project area have moderate to high clay contents and many have moderate to high shrink-swell potential. Expansive soils would potentially cause differential and cyclical foundation movements that can cause damage and/or distress to structures and equipment. In addition, potential impacts associated with loose sands or other compressible soils include excessive settlement, low foundation-bearing capacity, and limitation of year-round access to project facilities. This would result in a potential for damage to structures and facilities from unidentified expansive and corrosive soils. This would cause a significant impact to the structures. Collapse of project structures could result in power outages, damage to nearby roads or structures, and injury or death to nearby people, a significant impact.

Application of standard design and construction practices and implementation of Mitigation Measure G-3b (Avoid structure placement in high shrink/swell areas), which is similar to SDG&E's GEO APM 3 (see Table D.13-11), would partially reduce the adverse affects of problematic soils by avoiding placement of structures in areas of high shrink/swell potential, to the extent feasible. Coupled with implementation of Mitigation Measure G-3a (Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design), which would delineate locations of high shrink/swell (expansive) soils and the presence, absence, and location of corrosive soils, would reduce the potential for adverse affects of problematic soils to less than significant (Class II).

Mitigation Measure for Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils

G-3a Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design.

G-3b Avoid structure placement in high shrink/swell areas. [GEO-APM-3]

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class II)

Moderate to severe groundshaking is expected in the event of an earthquake on the faults in the project area. It is likely that the project facilities would be subjected to at least one moderate or larger earthquake occurring close enough to produce severe to strong groundshaking in the area. Solar Thermal structures and underground cables would be designed to withstand geologically induced stresses. Additionally, appropriate pole design accounting for lateral wind loads and conductor loads would likely exceed any creditable seismic loading, minimizing potential damage to tower structures from groundshaking. However, to ensure that project structures are not damaged by strong to severe groundshaking resulting in power outages, damage to nearby roads or structures, and injury or death to nearby people, Mitigation Measure G-4a would be implemented to reduce impacts to less than significant (Class II).

Potential for liquefaction in the solar thermal site area is low because of deep groundwater levels (> 150 feet) in the alluvium-filled Borrego Valley. Elsewhere along the overhead transmission route alluvial areas are limited to shallow deposits over bedrock that even if saturated are not likely to liquefy (gravely and bouldery alluvium of less than 50 feet in depth). However, during large storms or a wet season, the water table may rise temporarily. Pockets of finer grained alluvial deposits in areas where the transmission line crosses, and where it would be located within active river washes and streams, may be moderately susceptible to liquefaction if a strong earthquake occurs while the valley floor sediments are saturated. Seismically induced slope failures such landslides and rockfalls would potentially be triggered by groundshaking from a large earthquake on nearby faults and could along the slopes where poles are close to the base of the mountains. Also, strong to severe groundshaking would potentially result in liquefaction-related ground failures along the underground Option 1 where the alignment crosses river washes and streams and seasonally perched groundwater could liquefy should an earthquake occur while sediments were saturated. This potentially would result in damage to transmission structures should a large earthquake occur during the periods when these soils are saturated, a significant impact. However, to ensure that impacts associated with seismically induced ground failures would be mitigated to less than significant levels (Class II), implementation of Mitigation Measures G-4b (Conduct geotechnical investigations for liquefaction) and G-6a (Conduct geotechnical surveys for landslides and protect against slope instability) are required prior to final project design to ensure that people or structures are not exposed to hazards associated with strong to severe seismic groundshaking.

Mitigation Measure for Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure

G-4a Reduce effects of groundshaking.

G-4b Conduct geotechnical investigations for liquefaction.

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults (Class II)

Project facilities would be subject to hazards of surface fault rupture at crossing of active faults. Fault crossings, where multiple feet of displacement are expected along active faults, are best crossed as overhead lines with towers placed well outside the fault zone to allow for the flex in the conductor lines to absorb offset. The Solar Thermal site, Borrego Substation to Narrows Substation and Narrows Substation transmission line are not located in areas of known surface fault rupture hazard.

Project facilities would be subject to hazards of surface fault rupture at crossing and paralleling of the Earthquake Valley Fault (along S2) with the underground Option 1 line, and it would be subject to fault ruptures in areas where the alignment is with Alquist-Priolo zones for nearby active faults. Fault crossings, where multiple feet of displacement are expected along active faults, are best crossed as overhead lines with towers placed well outside the fault zone to allow for the flex in the conductor lines to absorb offset, however, direct burial of the 138 kV line, which would not require a concrete duct bank, allows for greater give in the cable in the event of an earthquake, which reduces reliability concerns. Collapse of project structures in Option 2 would result in power outages, damage to nearby roads or structures, and injury or death to people, a significant impact. Mitigation measure G-5a (Minimize project structures within active fault zones) is required for fault crossings to minimize the length of transmission line within fault zones and prevent placement of pole structures on active fault traces (for the overhead line), reducing the impact to less than significant levels (Class II). Impacts associated with overhead active fault crossings would be reduced to less than significant levels (Class II) with implementation of Mitigation G-5a because conductors would be able to distribute fault displacements over a comparatively long span and towers would be less likely to collapse in the event of an earthquake if not placed directly on an active fault trace.

Mitigation Measure for Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults

G-5a Minimize project structures within active fault zones.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (No Impact for solar thermal site and Option 1 transmission line; Class II for Option 2 transmission line)

Due to the largely flat topography in the Borrego Springs Valley floor where the solar thermal facilities would be located, Impact G-7 would not occur. Additionally the underground option would occur entirely in paved roadways, which would not require grading (No Impact).

Slope instability including landslides, earth flows, debris flows, and rockfall during project operation has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy project components. The area where landslides would potentially cause damage to project structures is along the slopes where poles are close to the base of the mountains. Slope failures would cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public, therefore the alternative would result in a significant impact. To ensure that slope instability impacts would be reduced to less than significant (Class II), implementation of Mitigation Measures G-6a, G-6b, and G-6c are required.

Mitigation Measure for Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.**

G-6b **Place structures in stable areas.** [GEO-APM-4].

G-6c **Avoid or remove unstable slope elements.** [GEO-APM-8]

Geology, Mineral Resources, and Soils Setting for Solar Photovoltaic

Solar PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development. Such development would have been subject to local, regional, and state laws, codes and ordinances to protect against or avoid hazards related to fault rupture and ground shaking. Construction activities such as assembly and wiring would occur on ground surfaces such as driveways, parking lots, and landscaped areas. Installation would occur on rooftops of existing buildings.

Geology, Mineral Resources, and Soils Impacts for Solar Photovoltaic

Construction Impacts

Construction activities such as assembly and wiring would occur on ground surfaces such as driveways, parking lots, and landscaped areas. Installation would occur on rooftops of existing buildings. These activities would not expose workers to any more risk of injury from fault rupture, ground shaking, liquefaction, and landslides than occurs from ordinary daily life activities in San Diego County. Construction would be minimally intrusive (i.e., ground surface disturbance would not occur) and would not result or contribute to erosion. Impact G-1 (Erosion could be triggered or accelerated due to construction activities) and Impact G-6 (Excavation or grading during construction could cause slope instability) would not occur. Because there would be no ground disturbance, impacts to mineral resources would not be expected to occur (Impact G-7, Construction activities would interfere with access to known mineral resources).

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity, which would have no physical effects on geology, mineral resources, or soils. Impact G-2 (Project structures could be damaged by problematic soils), Impact G-3 (Project structures could be damaged by seismically induced groundshaking and/or ground failure), Impact G-4 (Project structures could be damaged by surface fault rupture at crossings of active faults), and Impact G-7 (Project structures could be damaged by landslides, earthflows, debris flows and/or rock fall) would not occur.

Geology, Mineral Resources, and Soils Setting for Biomass/Biogas

Fallbrook Renewable Biomass Facility. The Fallbrook Renewable Biomass facility is located south of the San Luis Rey River on agricultural land used for orchards.

Geology. The Fallbrook Renewable Biomass facility is located on the San Luis Rey River flood plain and is entirely underlain by Quaternary alluvium (Qal). A general description of the characteristic of this unit is presented in Table D.13-1.

Slope Stability. This site is relatively flat and is therefore not expected to experience any slope stability issues.

Soils. The Fallbrook Renewable Biomass facility is located near the boundary of two soil associations, the Elder-Tujunga-Salinas association (s1001) and the Sesame–Rock Outcrop–Cienba association (s1010). The Elder-Tujunga-Salinas association consists primarily of sand and sandy loam formed on alluvial fans and terraces with a hazard of erosion of slight for both off-road/off-trail and for on on-road/on-trail. Shrink/swell (expansive) potential of the Elder-Tujunga-Salinas association at the site varies from low to moderate. Corrosive potential of these soils ranges from low to moderate for both uncoated steel and concrete. The Sesame–Rock Outcrop–Cienba association is primarily coarse sandy loam formed in material weathered from granitic rocks with a hazard of erosion for both off-road/off-trail and on-road/on-trail ranging from not rated to very severe. Shrink/swell (expansive) potential of these soils varies from low to moderate. Corrosive potential of these soils is moderate for uncoated steel and ranges from low to moderate for concrete. No soils with desert pavement are mapped at this site.

Mineral Resources. There are no known active mineral resource sites or BLM claims at the Fallbrook Renewable Biomass facility; therefore, there would be no impacts related to accessibility of mineral resources.

Seismicity. The Fallbrook Renewable Biomass facility does not cross nor is in close proximity to any active faults. The site may experience moderate groundshaking from earthquakes on regional faults with estimated PGAs at the site ranging from 0.4 g to 0.5g. The site is underlain by Quaternary alluvium and is in close proximity to the San Luis Rey River and thus would likely be susceptible to liquefaction-related phenomena in areas underlain by saturated sandy deposits. However, due to the flat terrain would not be susceptible to earthquake induced landslides.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility. The Miramar Landfill Biomass facility is located north of the community of Kearney Mesa near the south western edge of the Miramar Landfill.

Geology. The Miramar Landfill Biomass facility is located on an elevated marine terrace. Geologic units expected to underlie the site include: Pleistocene Lindavista Formation (Qm) and Eocene Poway Group (Ec). A general description of the characteristic of these units is presented in Table D.13-1.

Slope Stability. This site is relatively flat and is therefore not expected to experience any slope stability issues.

Soils. The Miramar Landfill Biomass facility is located near the boundary of two soil associations, the Redding-Olivenhain association (s997) and the Marina-Urban Land-Chesterton association (s1002). No soils with desert pavement are mapped at this site. Hazard of erosion for these soils for off-road/off-trail ranges from slight to very severe and for on on-road/on-trail ranges from slight to severe. Shrink/swell (expansive) potential of the soils associations at the site varies from low to high. Corrosive potential of these soils ranges from moderate to high for uncoated steel and from low to moderate for concrete. The basic characteristics of these soil associations are presented in Table D.13-2.

Mineral Resources. There are no known active mineral resource sites or BLM claims at the Miramar Landfill Biomass facility; therefore, there would be no impacts related to accessibility of mineral resources.

Seismicity. The Miramar Landfill Biomass facility does not cross nor is in close proximity to any active faults. The site may experience moderate groundshaking from earthquakes on regional faults with estimated PGAs at the site ranging from 0.3 g to 0.4g. This site is underlain by consolidated sedimentary bedrock units and would not be susceptible to liquefaction-related phenomena and due to the flat terrain would also not be susceptible to earthquake induced landslides.

Geology, Mineral Resources, and Soils Impacts for Biomass/Biogas

Construction Impacts

Construction activities would occur within an existing disturbed landfill, therefore impacts to mineral resources would not be expected to occur (Impact G-9: Construction activities would interfere with access to known mineral resources).

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II)

Fallbrook Renewable Energy Facility: Excavation and/or grading for the biogas/biomass facilities would potentially loosen soil and accelerate erosion. Dust control activities associated with grading of the field site and transmission lines would be implemented to reduce the potential for soil erosion and windblown dust over the property. Some excavation would also be necessary to construct foundations for project infrastructure. Excavation and grading during construction potentially would loosen soil or remove stabilizing vegetation and expose areas of loose soil. This is especially true as the land is currently an orchard and has tree roots that stabilize the soil. Such areas, if not properly stabilized during construction, potentially would be subject to increased soil loss and erosion by wind and storm-water runoff, a potentially significant impact. Mitigation measures G-1a, G-1b, G-1c, and G-1d would minimize erosion. In addition, a Stormwater Pollution Prevention Plan (SWPPP) that would limit erosion from the construction site would be required in accordance with the Clean Water Act. Implementation of such measures would result in a less than significant impact (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Excavation and/or grading for the biogas/biomass facilities would potentially loosen soil and accelerate erosion. Mitigation measures G-1a, G-1b, G-1c, and G-1d would minimize erosion. In addition, a Stormwater Pollution Prevention Plan (SWPPP) that would limit erosion from the construction site would be required in accordance with the Clean Water Act. Implementation of such measures would result in a less than significant impact (Class II).

Mitigation Measures for Impact G-1: Erosion would be triggered or accelerated due to construction activities

G-1a **Limit modification of access roads.** [GEO-APM-1]

G-1b **Implement erosion control procedures.** [GEO-APM-2]

G-1c **Avoid new disturbance, erosion, degradation.** [GEO-APM-5]

G-1d **Restore surfaces for erosion control and revegetation.** [GEO-APM-6]

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (Class II for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Destabilization of natural or constructed slopes would potentially occur as a result of construction activities due to excavation and/or grading operations. Construction consisting of grading and excavation within the hillsides surrounding the proposed Fallbrook facility would potentially cause slope instability, triggering rock-falls or landslides. Slope instability including landslides, earth flows, and debris flows has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy project components. This would cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public, therefore the alternative would result in a significant impact.

The potential for excavation or grading to cause slope instability is generally considered to be mitigable to less than significant levels (Class II). Mitigation measure G-6a, G-6b, and G-6c for the proposed facilities are also recommended.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Due to the largely flat topography in the Miramar Landfill and the already disturbed terrain where the Biomass and Biogas facilities would be located, Impact G-6 (Project structures potentially would be damaged by landslides, earthflows, debris flows and/or rock fall) would not occur. No mitigation is required.

Mitigation Measures for Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.**

G-6b **Place structures in stable areas.** [GEO-APM-4]

G-6c **Avoid or remove unstable slope elements.** [GEO-APM-8]

Operational Impacts

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II)

Fallbrook Renewable Energy Facility: Corrosive subsurface soils may exist within the landfills where the biomass facilities and pipelines would be built. Corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures. Expansion potential for the soils along the segment ranges from low to high. Expansive soils can also cause problems to structures. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types at these landfill sites have moderate to high clay contents and many have moderate to high shrink-swell potential. This would result in a potential for damage to structures and facilities from unidentified expansive and corrosive soils and would potentially cause injury or death to workers and/or the public, therefore the alternative would result in a significant impact. Accordingly, implementation of Mitigation Measure G-3a (Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design) is required to ensure that impacts associated with problematic soils are reduced to less than significant levels (Class II).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Corrosive subsurface soils may exist within the landfills where the biogas/biomass facilities and pipelines would be built. Corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures. Expansion potential for the soils along the segment ranges from low to high. Expansive soils can also cause problems to structures. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Some of the natural soil types at these landfill sites have moderate to high clay contents and many have moderate to high shrink-swell potential. This would result in a potential for damage to structures and facilities from unidentified expansive and corrosive soils and would potentially cause injury or death to workers and/or the public, therefore the alternative would result in a significant impact. Accordingly, implementation of Mitigation Measure G-3a (Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design) is required to ensure that impacts associated with problematic soils are reduced to less than significant levels (Class II).

Mitigation Measures for Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils

G-3a Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design.

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class II)

Fallbrook Renewable Energy Facility: Moderate to severe groundshaking is expected in the event of an earthquake on the faults in the project area. It is likely that the project facilities would be subjected to at least one moderate or larger earthquake occurring close enough to produce severe to strong groundshaking in the area. Project structures would be designed to withstand geologically induced stresses. However, to ensure that project structures are not damaged by strong to severe groundshaking, Mitigation Measure G-4a would be implemented to reduce impacts to less than significant (Class II).

Generally, the areas around the potential biomass/biogas facilities have no to low potential for liquefaction as they are primarily underlain by older igneous and consolidated sedimentary bedrock units. However, there may be local pockets that could become saturated and could potentially liquefy in the event of a large earthquake. This could result in damage to project structures should a large earthquake occur during the periods when these soils are saturated, a significant impact. However, to ensure that impacts associated with strong groundshaking and seismically induced ground failures would be less than significant (Class II), Mitigation Measure G-4b (Geotechnical Investigations for Liquefaction) shall be implemented prior to final project design to ensure that people or structures are not exposed to hazards associated with strong seismic groundshaking.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Moderate to severe groundshaking is expected in the event of an earthquake on the faults in the project area. It is likely that the project facilities would be subjected to at least one moderate or larger earthquake occurring close enough to produce severe to strong groundshaking in the area. Project structures would be designed to withstand geologically induced stresses. However, to ensure that project structures are not damaged by strong to severe groundshaking, Mitigation Measure G-4a would be implemented to reduce impacts to less than significant (Class II).

Generally, the areas around the potential biomass/biogas facilities have no to low potential for liquefaction as they are primarily underlain by older igneous and consolidated sedimentary bedrock units. However, there may be local pockets that could become saturated and could potentially liquefy in the event of a large earthquake. This could result in damage to project structures should a large earthquake occur during the periods when these soils are saturated, a significant impact. However, to ensure that impacts associated with strong groundshaking and seismically induced ground failures would be less than significant (Class II), Mitigation Measure G-4b (Geotechnical Investigations for Liquefaction) shall be implemented prior to final project design to ensure that people or structures are not exposed to hazards associated with strong seismic groundshaking.

Mitigation Measures for Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure

G-4a Reduce effects of groundshaking.

G-4b Conduct geotechnical investigations for liquefaction.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II for the Fallbrook Facility, No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Slope instability including landslides, earth flows, debris flows, and rock fall has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy associated alternative components. Given the moderate to steep slopes throughout the Fallbrook area where the existing facility is located, slope instability presents a potential significant impact. The potential for project structures to be damaged by landslides, earthflows, debris flows, and/or rock fall is generally considered to be mitigable to less than significant levels (Class II). Mitigation measure G-4a, G-6a, and G-6b for the Proposed Project are recommended.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Due to the largely flat topography and the already disturbed and graded terrain in the Miramar Landfill area where the Biomass and Biogas facilities would be located, Impact G-7 would not occur.

Mitigation Measures for Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall

G-4a **Reduce effects of groundshaking.**

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.**

G-6b **Place structures in stable areas.** [GEO-APM-4]

Geology, Mineral Resources, and Soils Setting for Wind

With the exception of the alternative transmission line and substation, the wind component facilities would be located on the north-south trending slopes that traverse the Campo and Manzanita Reservations, and BLM lands along the western foothills of the In-Ko-Pah Mountains. The La Posta Quartz Diorite (gr_4) geologic unit underlies the wind component sites north of Interstate 8. These units are described in Table E.1.13-1.

A 230 kV transmission line would be required to connect the wind component to the existing 500 kV SWPL transmission line (about 10 miles to the south), and a new substation would also need to be constructed either on Campo Reservation land or at MP I8-35 northwest of the town of Jacumba, the Jacumba Substation. For detailed analysis of the Jacumba Substation, please see Section D.13.12.4.The wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5. See the Interstate 8 Alternative, Section E.1.13 for the geologic, mineral resources, and soil settings for this subject 10-mile portion of the alternative.

Slope Stability. This alignment does not cross any mapped landslides and the granitic and metamorphic terrain underlying the slopes in the area are not prone to landslides, although it may be susceptible to rock-fall and soil slides in steep areas.

Soils. Two soil associations are mapped underlying the wind component sites include s1014 and s1016. Basic characteristics of these soils are presented in Table D.13-2. The Tollhouse–Rock Outcrop–La Posta (s1014) and the Sheephead–Rock Outcrop–Bancas (s1016) associations are formed in material weathered from the underlying granitic and metamorphic rocks. Hazard of erosion for these soils for off-road/off-trail ranges from slight to very severe and for on roads/trails ranges from slight to severe. Shrink/swell (expansive) potential of this soil association varies from low to moderate. Corrosive potential of soils along the wind component route are moderate for uncoated steel and low to moderate for concrete.

Mineral Resources. No known active mines, mineral resource sites, or BLM mining claims are located within the wind component area that are in close enough proximity to be affected by the wind component.

Seismicity – Fault Rupture. The wind component sites do not cross any known active faults and are thus not likely to experience damage due to fault rupture and/or offset. No active faults are located in the immediate vicinity of this component.

Seismicity – Groundshaking. The wind component would be susceptible to groundshaking from an earthquake on nearby active faults, i.e., the Elsinore or Laguna Salada faults, or on any of the other significant active faults in the vicinity of this alignment. The wind component sites would only experience minor groundshaking (peak ground acceleration of 01.-0.3g).

Seismicity – Liquefaction. The majority of the wind component area has no potential for liquefaction as it is primarily underlain by igneous and metamorphic bedrock. The component sites would have a moderate potential for liquefaction in the areas where the alignment crosses and is within the active washes and flood plains of the unnamed creek near McCain Ranch, where local pockets of saturated and loose sandy soils are located. These local pockets of loose sandy soils would potentially liquefy in the event of a large earthquake.

Earthquake – Induced Landslides. Most accounts of historical earthquakes in this area describe damaging landslides resulting from earthquake groundshaking (SCEC, 2006). Since most of the wind component area does cross through areas with significant slopes; the area may be susceptible to landslides or rock-falls in the event of a large earthquake on nearby faults.

Geology, Mineral Resources, and Soils Impacts for Wind

Construction Impacts

The wind component does not cross any known unique geological features such as desert pavement (Impact G-2) and therefore there are no significant impacts to such features. No impacts associated with this alternative would occur from construction activities interfering with access to known mineral resources (Impact G-9).

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II)

Excavation and grading for wind tower foundations, trenching for underground power and transmission lines, access/spur roads, switchyard, substation, and operation and maintenance facilities would potentially loosen soil and accelerate erosion. Soils comprising the wind component sites have an erosion hazard for off-road/off-trail ranges from slight to very severe and for on roads/trails ranges from slight to severe. Therefore, there would be a significant impact.

Available mitigation includes limiting grading of existing roads in areas with sensitive soils; using of Best Management Practices (BMPs) such as sand bags and road bars, to control water erosion; and limiting construction traffic to minimize erosion. In addition, a Stormwater Pollution Prevention Plan (SWPPP) that would limit erosion from the construction site would be required in accordance with the Clean Water Act. Implementation of such measures would result in a less than significant impact (Class II).

Mitigation Measures for Impact G-1: Erosion would be triggered or accelerated due to construction activities

G-1a **Limit modification of access roads.** [GEO-APM-1]

G-1b **Implement erosion control procedures.** [GEO-APM-2]

G-1d **Restore surfaces for erosion control and revegetation.** [GEO-APM-6]

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (Class II)

Destabilization of natural or constructed slopes could occur as a result of construction activities due to excavation and/or grading operations. Construction consisting of grading and excavation within the hillsides forming the wind component area would potentially cause slope instability, triggering rock-falls or landslides. Slope instability including landslides, earth flows, and debris flows has the potential to undermine foundations, cause distortion and distress to overlying structures. This would cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public. Therefore there would be a significant impact.

The potential for excavation or grading to cause slope instability is mitigable to less than significant levels (Class II). Available mitigation includes avoiding placing structures in unstable areas, and removing or stabilizing boulders upslope of structures thus reducing the threat of possible slope failures or rock falls.

Mitigation Measures for Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading

G-3b **Avoid structure placement in high shrink/swell areas.** [GEO-APM-3]

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.**

G-6b **Place structures in stable areas.** [GEO-APM-4]

Operational Impacts

The the wind component and potential Campo Substation, transmission line and potential Jacumba Substation do not cross any known active faults. As such, Impact G-5 (adverse effects as a result of surface fault rupture at crossings of active faults) would not occur.

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II)

Soils comprising the wind component sites have moderate potential for corrosion to uncoated steel and a low to moderate potential for corrosion to concrete. Expansion potential for the soils varies from low to moderate. Corrosive and expansive subsurface soils may exist in places along the proposed route which would potentially damage project structures. This would cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public. Therefore there would be a significant impact.

The potential for project structures to be damaged by problematic soils is mitigable to less than significant levels (Class II) through application of standard design and construction practices and implementation of mitigation. Mitigation Measure G-3b includes application of standard design and construction practices, and reducing the adverse affects of problematic soils by avoiding placement of structures in areas of high shrink/swell potential, to the extent feasible. Mitigation Measure G-3a is also recommended.

Mitigation Measures for G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils

G-3a Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design.

G-3b Avoid structure placement in high shrink/swell areas. [GEO-APM-3]

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class II and III)

The wind component area would experience moderate groundshaking in the event of a large earthquake on major faults in the region. Seismically induced groundshaking would potentially damage project structures. Therefore there would be a significant impact. However, appropriate turbine design accounting for lateral wind loads would likely exceed any creditable seismic loading from moderate groundshaking, thus minimizing potential damage to turbine structures from groundshaking related to earthquakes on faults in the region of the wind component. Therefore there would result in a less than significant impact (Class III).

Moderate groundshaking would potentially result in seismically induced ground failures, including liquefaction and slope failures along the wind component. Where the alternative alignment crosses and is within active washes and flood plains of the unnamed creek near McCain Ranch or Campo Creek (transmission line only), local pockets of saturated and loose sandy soils could potentially liquefy in the event of a large earthquake. Seismically induced slope failures such as landslides and rockfalls would potentially occur along the moderate to steep slopes that comprise the wind component area. This would potentially result in damage to project structures. Therefore there would be a significant impact.

The potential for project structures to be damaged by seismically induced groundshaking and/or ground failure is mitigable to less than significant levels (Class II). Mitigation includes placement of structures in geologically stable areas and avoidance of fault lines where feasible. Mitigation measures G-4a, G-4b, and G-5a are also recommended.

Mitigation Measures for Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure

G-4a Reduce effects of groundshaking.

G-4b Conduct geotechnical investigations for liquefaction.

G-5a Minimize project structures within active fault zones.

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II)

Slope instability including landslides, earth flows, debris flows, and rock fall has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy associated components. Given the moderate to steep slopes that comprise the wind component area, there is a potential for slope instability which would cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public. Therefore, there is a significant impact

The potential for project structures to be damaged by landslides, earthflows, debris flows, and/or rock fall is mitigable to less than significant levels (Class II). Mitigation includes ensuring that project structures are located outside of areas with unstable slopes and that boulders are removed from slopes or stabilized. Mitigation measure G-6a is also recommended.

Mitigation Measure for Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall

G-3b **Avoid structure placement in high shrink/swell areas.** [GEO-APM-3]

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.**

Overall Impacts of Renewable Generation Alternative for Geology, Mineral Resources, and Soils

Solar Thermal. Construction and operation of the solar thermal component would result in no significant, unmitigable impacts (Class I). Construction would trigger erosion and damage desert pavement, a unique geological feature; Mitigation Measures G-1a through G-1d, and G-2a would reduce these impacts to less than significant levels (Class II). Implementation of Mitigation Measures G-6a, G-6b, and G-6c are required along the overhead transmission route to delineate areas of unstable slopes near and within work areas and to minimize the potential from construction-triggered slope failures by avoidance or implementation of slope stabilizing design measures (Class II). Problematic soils, seismically induced groundshaking, and landslides or the like could expose people or structures to adverse effects. Mitigation Measures G-3a, G-3b, G-4a, G-4b, G-6a, and G-6b would reduce these effects to less than significant levels (Class II). The solar thermal field and transmission lines cross the Earthquake Valley Fault and could be damaged by surface fault rupture. Mitigation measure G-5a would reduce this impact to less than significant levels (Class II).

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant unmitigable impacts (Class I) and no significant and mitigable impacts.

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant, unmitigable impacts (Class I). Implementation of Mitigation Measures G-4a, G-6b, and G-6c are required along the overhead transmission route to delineate areas of unstable slopes near and within work areas and to minimize the potential from construction-triggered slope failures by avoidance or implementation of slope stabilizing design measures (Class II). Problematic soils, seismically induced groundshaking, and landslides could expose people or structures to adverse effects. Mitigation measures G-3a, G-3b, G-4a, G-4b, G-6a, and G-6b would reduce these effects to less than significant levels (Class II).

Wind. Construction and operation of the wind component would result in no significant, unmitigable impacts (Class I). Construction could result in an increase in erosion; however, Mitigation Measures G-1a and G-1d would reduce this impact to a less than significant level (Class II). Problematic soils, seismically induced groundshaking, and landslides could expose people or structures to adverse effects. Mitigation measures G-3a, G-3b, G-4a, G-4b, G-6a, and G-6b would reduce these effects to less than significant levels (Class II).

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E.5.14 Socioeconomics, Public Services, and Utilities

Socioeconomics, Public Services, and Utilities Setting for Solar Thermal

Construction workers are expected to come from within San Diego County. Baseline socioeconomic data for San Diego County is provided in Table E.5.14-1. For purposes of this analysis, U.S. Census Year 2000 data is supplied for population, housing, and employment.

Table E.5.14-1. Year 2000 U.S. Census Data – San Diego County

Population	2,813,833
Housing	1,040,149
Vacant units	45,472 (4.4%)
Employment	1,407,152
In construction trades	107,450 (8.7%)

Source: U.S. Census Bureau, 2007

Borrego Springs is an active resort area with a large number of hotels, motels, and recreational camping parks (Borrego Springs Chamber of Commerce, 2007). A total workforce of 75 workers would be necessary to construct the solar thermal component of the New In-Area Renewables Alternative, while the average daily workforce would fluctuate throughout the 12 to 18 months construction duration. The socioeconomic setting for Option 1 is the same as the Partial Underground 230 kV ABDSP SR78 to S2 Alternative with the All Underground ABDSP Option (see Section D.14.15.1). The socioeconomic setting for Option 2 overhead transmission line route would be to the same as the Overhead 500 kV in Existing ROW Alternative (see Section D.14.15.2).

Socioeconomics, Public Services, and Utilities Impacts for Solar Thermal

Construction Impacts

Construction activities for this alternative are expected to last 12 to 18 months, with a total construction workforce of approximately 75 workers. Construction activities may be staffed by workers from within San Diego County, but outside of Borrego Springs. Given the relatively isolated location of Borrego Springs, construction workers potentially would be temporarily housed in the Borrego Springs area rather than commute from home daily. As described above, Borrego Springs is a resort area containing a large number of hotel, motels, and recreational vehicle campgrounds that would be available to temporarily house construction workers associated with the solar thermal component. Therefore, the project is not expected to directly induce growth as a result of construction worker in-migration, which would impact available local housing.

Impact S-1: Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments (Class I for revenues; Class IV for economic benefits)

Revenue from Business Operations. Project construction activities would create a number of temporary conditions that may dissuade recreationists from visiting the Park. For example, noise, dust, and traffic (and associated vehicle emissions) generated during construction negatively affect a visitor's enjoyment of the recreation area, and along the upgraded corridor south to Narrows Substation. The location of construction equipment may temporarily preclude access to recreation areas, especially in the vicinity of Borrego Springs. Construction period disturbances to recreational activities may temporarily reduce access and visitation to portions of ABDSP, resulting in potentially significant impacts to businesses related to the tourism industry within ABDSP and surrounding Borrego Springs.

These issues and potential impacts that could reduce visits are analyzed extensively in this document in Sections E.5.3 (Visual Resources), E.5.4 (Land Use), E.5.5 (Wilderness and Recreation), E.5.8 (Noise), and E.5.9 (Transportation and Traffic). As mentioned in the discussion of socioeconomic impacts within the Anza-Borrego Link for the Proposed Project (Section D.14.6), implementation of Mitigation Measures WR-1a (Coordinate construction schedule and activities with the authorized officer for the recreation area), WR-1b (Provide temporary detours for trail users), WR-1c (Coordinate with local agencies to identify alternative recreation areas) in Section D.5 (Wilderness and Recreation) would minimize construction-related impacts to ABDSP. By reducing impacts that would affect the recreational experience, the measures would also reduce impacts on the related tourism industry. With the implementation of the Mitigation Measures, associated local business revenue impacts would be reduced. Nonetheless, a complete overlap of the alternative's construction schedule and tourist season for ABDSP would cause a reduction in visitation and access to recreation and wilderness areas, resulting in a significant and unmitigable impact to Wilderness and Recreation (see Impact WR-1 in Section E.5). Likewise, this impact would result in significant and unmitigable impacts to businesses related to the tourism industry and at the ABFI Visitors' Center (Class I).

Economic Benefit. Employment of construction personnel potentially would benefit local businesses around Borrego Springs and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations in Imperial and San Diego Counties, creating new temporary and permanent employment in these counties. A limited number of construction personnel would require temporary housing, likely in local hotels, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy (Class IV). No mitigation would be required.

Mitigation Measures for Impact S-1: Project construction and/or transmission line presence would cause a substantial change in revenue for businesses

WR-1a **Coordinate construction schedule and activities with the authorized officer for the recreation area.**

WR-1b **Provide temporary detours for trail users.**

WR-1c **Coordinate with local agencies to identify alternative recreation areas.**

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (Class II)

Construction of solar field and Option 2 transmission upgrade would not be within any roadways, thereby avoiding any utilities in roads and the project is located in open space or within an existing transmission corridor. The project would not cross any active agricultural lands so it would not disrupt any underground irrigation pipes. However, the transmission line would replace an existing 69 kV line, which potentially would cause a disruption in service. Installation of new towers and circuits would occur with the existing system in service. The cutover would involve a switching maneuver that would interrupt service momentarily. Electrical systems are designed with redundant means to provide service. If it is necessary to take a particular circuit out of service, SDG&E would first ensure that a redundant feed is available as not to interrupt service. In addition, Option 1 would be installed underground in roadways. Clearances and depths would meet requirements set forth with Rule 33.4 of CPUC GO-128.

Some service disruptions during construction would be unavoidable at a few locations along the ROW. These disruptions would likely occur while the transmission line is installed in the trench and the interrupted utility is reconnected around the new transmission line. As described above, intentional service interruption during construction could be unavoidable and without notification of the public would sig-

nificantly hinder activities in the surrounding areas. These impacts are considered potentially significant, but can be mitigated to less than significant levels (Class II) with the implementation of Mitigation Measures S-2a, S-2b, and S-2c below. The full text of the mitigation measures appears in Appendix 12.

Mitigation Measure for Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident

S-2a **Notify public of utility service interruption.**

S-2b **Protect underground utilities.**

S-2c **Coordinate with utility providers.** [PSU-APM-1, PSU-APM-2]

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III for water and sewer, solid waste and public services; Class III for emergency services)

Water and Sewer. Water would be required during project construction for dust abatement and cleaning of construction equipment. The source potentially would be to the same as that for the Imperial Valley Link of the Proposed Project, which would receive its water from IID canals, or the Anza-Borrego and Central Links, which would receive their water from a temporary batch plant supplied by VID wells. Therefore, the alternative would not affect the Borrego Water District (BWD) water supply, which is projected to be depleted within the next 50 to 90 years. The amount of water required depends on the length of access roads used, weather conditions, road surface conditions, and other site-specific conditions. Access roads for the existing 69 kV line potentially would likely be used for the transmission line, although new spur roads to the individual towers may be needed because the span for a higher voltage line would be longer. Dust suppression efforts would occur on each day that grading activities take place and when construction vehicles use unpaved access roads and the amount of water would be similar to the Proposed Project (27,000 gallons/day) for dust control.

Water consumption for this purpose would also vary depending on the recommended implementation of typical air quality mitigation measures that would require implementation of a Fugitive Dust Control Plan (see Sections D.11 and E.5.11, Air Quality) that may specify the use of soil binders on unpaved roads, staging areas, and parking areas, which would substantially minimize water use. Water would also be needed to make the concrete used during project construction and is often used to lubricate the auger during boring operations. Comparatively small amounts of potable water would be needed for sanitary and drinking purposes. The applicant would receive its water from VID and/or IID's non-agricultural water supply and for this contract to occur IID and/or VID has likely determined that it would not affect its ability to serve customer demands. Water use during project construction would be a fraction of the total water supply of VID or IID and would not change its ability to serve the project area demands. Therefore, the water demand for construction of the underground alternative would not be a significant impact (Class III) on the regional water supply, and no mitigation is recommended. Although impacts to the regional water supply would not be significant and no mitigation is required, to further reduce adverse effects of the cumulative volume of water from both the solar thermal site and transmission line upgrades, Mitigation Measure S-3b (Use reclaimed water) would be recommended for implementation to reduce water usage for construction.

Solid Waste. Solar field construction would generate waste largely in the form of soil from earthwork and transmission line upgrades would generate waste largely in the form of soil from tower foundation excavations and disposal of the existing 69 kV wood poles. Some percentage of excavate would be clean and dry and potentially would be 'spread' along the ROW and/or solar site. As described in Section B.4.9 (Removal of Facilities and Waste Disposal), the conductor would be coiled and hauled off-

site to a recycling facility. Existing wood poles would be cut at ground level, leaving the embedded portion in place. The wood poles, insulators, cross arms and all other associated hardware would be disposed of at an approved off-site location.

The closest landfills would be the Borrego Landfill (2449 Palm Canyon Road) that allows a maximum of 50 tons/day of waste and has a remaining capacity of 459,856 cubic yards; the Ramona Landfill (20630 Pamo Road) that allows a maximum of 295 tons/day and has a remaining capacity of 690,000 cubic yards; and the Salton City Solid Waste Site (3 miles west of SR86 and 3 miles south of Salton City) that allows a maximum permitted throughput of 50 tons/day and has a remaining capacity of 9,078 cubic yards (CIWMB, 2007). All three accept construction/demolition and mixed municipal waste and the Borrego and Ramona Landfills also accept agricultural, sludge (biosolids), tires, and wood waste. Due to the number and capacity of landfills serving the project area, capacity for materials generated from construction of the solar thermal component would be available over the 18 to 24 months of construction. Because the exact amount of material recycling is unknown, the total amount of waste requiring landfill disposal is unknown, but it would likely be similar to the Anza-Borrego Link (Section D.14.6) of the Proposed Project. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills. Therefore, construction waste would not substantially affect the remaining capacities of local landfills to serve local demands. Although impacts to solid waste facilities would not be significant (Class III) and no mitigation is required, to further reduce adverse effects of the cumulative volume of waste from all of the individual links, Mitigation Measure S-3a (Recycle construction waste) would be recommended for implementation with the solar thermal component to ensure that maximum recycling activities would occur.

Public Services. *Construction Workers Demands*. Because of the large available labor pool in San Diego and Imperial Counties and nearby areas, few construction workers are expected to temporarily relocate to the area (see Impact S-1CA). Therefore, they would not generate additional population that potentially would exceed the capacity of local public service providers. Nor would the solar thermal project result in any long-term requirements that would place a permanent increased demand on emergency service providers that would result in new or expanded facilities. Therefore, the temporary addition of construction personnel would not substantially increase any demands on schools or hospitals or lower the level of service for fire protection or police protection in the long-term and it would not require the construction or expansion of facilities or services (Class III).

Fire Hazards. Section D.15 and E.5.15 (Fire and Fuels Management) discusses how temporary construction activities would result in an increase for potential fire hazards and potentially would increase temporary demands for fire protection services.

Emergency Services. Construction of the project and equipment could impede emergency access through the area. With implementation of Mitigation Measure S-3d, the applicant would be required to coordinate construction schedules, lane closures, and other activities associated with installation of the transmission lines with emergency and police services to ensure that disruption to response times and access is minimized as not to significant affect response times. Impacts to emergency access are discussed under Section E.5.9 (Transportation and Traffic), which concludes that such impacts would be less than significant. Therefore, any significant impacts to emergency access and/or public services and facilities would be reduced to be less than significant (Class II).

Mitigation Measure for Impact S-3: Project construction and operation would increase the need for public services and facilities

S-3a **Recycle construction waste.**

S-3b **Use reclaimed water.**

S-3d **Coordinate construction schedule with emergency services.** [PSU-APM-3]

Operational Impacts

Operation of the solar collection field would require one to four full-time staff. It is anticipated that such staff would be drawn from the local workforce and, therefore, no additional housing demand would be needed to support any possible labor force needed during operations. Thus, no substantial growth would be directly or indirectly induced with the solar thermal component.

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class II)

During operation and maintenance, periodic washing of the solar thermal surfaces would be required. Operation of the solar collection field facility would require water for steam generation as well as routine cleaning of the collector mirrors. Water to generate steam would be contained within a closed boiler system and would only require periodic replacement. Approximately 20 gallons of water per MWh would be required to clean collector mirrors. It is estimated that approximately 300,000 gallons, would be required annually for operation. Transmission line maintenance would be similar to that of the Proposed Project.

The applicant would have to negotiate with IID or VID to purchase its water and truck it to the site or purchase water offsets, because BWD would not have adequate supply since it is currently in overdraft. In order for this contract to occur IID and/or VID would have to determine that it would not affect its ability to serve customer demands. As the water needed for the solar thermal component is less than 0.001 percent of either water districts' supply for industries, it is unlikely that either the IID or the VID would believe the component would affect its ability to serve customer demands. With implementation of Mitigation Measure H-9a, the water demand for construction of the solar thermal collector field and transmission line upgrades would be a less than significant impact (Class II) on the regional water supply. See also Impact H-9 (Project construction or operation would potentially impact local water supply) under Water Resources above.

H-9a **Offset water for operation of Solar Thermal plant.**

Impact S-4: Property tax revenues from project presence would substantially benefit public agencies (Class IV)

Local property tax revenues are a function of tax rates levied within the affected jurisdictions. The applicant's property taxes would increase as a result of the alternative. The State of California Board of Equalization (BOE) assesses infrastructure facilities annually. Dispersion of property tax revenue is determined based upon the location of the taxable property. Any increase in property tax revenue as a result of the solar thermal component would be a beneficial impact to the local economy. Impact S-4 (Property tax revenues from project presence would substantially benefit public agency) would only occur on private property. BLM and ABDSP would receive no tax revenue from the installation of the transmission line on BLM or State lands, because local tax revenues do not accrue on federal or State lands. However, BLM does collect fees annually for ROW Grants (see the discussion in Section D.14.6).

The solar thermal project would not result in an adverse change in public resource revenue. Furthermore, it would not preclude or limit the operations of any public agency or result in a change in revenue to any public agencies. Increases to public agency revenues as a result of the solar thermal component of this alternative are considered a beneficial (Class IV) impact. Therefore, no mitigation measures are required.

Impact S-5: Presence of the project would decrease property values (Class III)

The solar thermal field would be in a rural area near Borrego Springs with no existing houses nearby. Therefore, the solar thermal field would not impact property values. The transmission upgrades would either be entirely underground (Option 1) or would occur within an existing corridor (Option 2). Incremental effects on property values that may result from the changes within the corridor resulting from this project would be very small, would diminish over time, and would be very difficult to quantify. Based on the studies discussed under Impact S-5 in Section D.14.5, it is concluded that the aboveground transmission line associated with Option 2 of the solar thermal component would not generate effects that would significantly impact property values (Class III). It should be noted that implementation of mitigation measures in the Visual Resources section (Section E.3), such as Mitigation Measures V-3a (Reduce visual contrast of towers and conductors) would help to reduce the visual impacts of the project.

Socioeconomics, Public Services, and Utilities Setting for Solar Photovoltaic

Solar PV system installations would occur on residential and commercial buildings throughout San Diego County. Baseline socioeconomic data for San Diego County is provided in Table E.5.14-1 above. For purposes of this analysis, U.S. Census Year 2000 data is supplied for population, housing, and employment.

Socioeconomics, Public Services, and Utilities Impacts for Solar Photovoltaic

Construction Impacts

Construction activities for the Solar PV component of the All In-Area Renewables Alternative are expected to take three years, with a total construction workforce of approximately 500 construction workers (SCE, 2007). Construction activities would consist of assembly, wiring, and installation of solar PV units on existing buildings. The applicant anticipates that construction activities would be staffed by local construction workers. As shown above in Table S-1, San Diego County had a Year 2000 U.S. Census construction workforce of 107,450. The number of workers required for construction activities would account for a minimal number of available construction workers available within the area of construction. Therefore, the project is not expected to directly induce growth as a result of construction worker in-migration, which could impact available local housing. Furthermore, the proposed PV systems would be installed on existing buildings so no housing would be displaced as a result of construction.

Impact S-1: Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments (Class III for revenues; Class IV for economic benefits)

Revenue from Business Operations. Construction activities would be minimally intrusive and would only require the presence of one to four workers and one to two vehicles at each site for one to four

days and would not prevent access to businesses. Construction activities would not require the use of heavy construction equipment such as bulldozers, backhoes, jack hammers, or dump trucks. Noise-generating construction activities would include the use of power and hand tools such as nail guns, power drills, and power saws that could produce sound levels greater than 75 decibels. These issues and potential impacts are analyzed extensively in this document in Sections E.5.3 (Visual Resources), E.5.9 (Transportation and Traffic), E.5.4 (Land Use), and E.5.10 (Public Health and Safety). Where impacts for these issue areas are found to be less than significant or have been mitigated to less than significant levels, any associated local business revenue impacts would not be significant (Class III). Therefore, no specific mitigation measures are recommended outside of those presented in Sections E.5.3 (Visual Resources), E.5.9 (Transportation and Traffic), E.5.4 (Land Use), and E.5.10 (Public Health and Safety) to mitigate potential impacts that could result in a substantial change to local business revenues.

Economic Benefit. Employment of construction personnel could be beneficial to local businesses in San Diego County and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations in San Diego County, creating new temporary and permanent employment in these counties. A limited number of construction personnel would require temporary housing, likely in local hotels, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy (Class IV). No mitigation would be required.

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (Class II)

Construction of solar PV units would not require any ground disturbance and the units would be installed on existing rooftops so the chance of an accidental disruption would be minor. Integration of the PV unit into the buildings' electrical system, however, could cause an accidental disruption of service. The potential for construction to disrupt the existing utility systems is generally considered to be mitigable to less than significant levels (Class II). Mitigation measures S-2a, S-2b, and S-2c for the Proposed Project are recommended to reduce this impact to less than significant.

Mitigation Measure for Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident

S-2a **Notify public of utility service interruption.**

S-2b **Protect underground utilities.**

S-2c **Coordinate with utility providers.** [PSU-APM-1, PSU-APM-2]

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III, Class II)

Solid Waste, Water, and Sewer. Construction activities would be minimally intrusive and would only require the presence of one to four workers and one to two vehicles at each site for one to four days and would not prevent access to businesses. Construction activities would not require the use of heavy construction equipment such as bulldozers, backhoes, jack hammers, or dump trucks. Minimal water would be required (used only for cleaning the solar panels and general clean-up of area if needed) and solid waste generated over the short duration of the installations and it would be a fraction of the providers' capabilities in San Diego County. A few gallons of water per panel would be required for maintenance throughout the lifetime of the panel, however washing of the panels is generally only required after long periods without any rain. Impacts would be less than significant (Class III).

Public Services. *Construction Workers Demands*. Because of the large available labor pool in San Diego County and nearby areas, few construction workers are expected to temporarily relocate to the area. Therefore, they would not generate additional population that could exceed the capacity of local public service providers. Nor would the alternative result in any long-term requirements that would place a permanent increased demand on emergency service providers that would result in new or expanded facilities. Therefore, the temporary addition of construction personnel would not substantially increase any demands on schools or hospitals or lower the level of service for fire protection or police protection in the long-term and it would not require the construction or expansion of facilities or services (Class III).

Fire Hazards. Sections D.15 and E.5.15 (Fire and Fuels Management) discusses how temporary construction activities would result in an increase for potential fire hazards and could increase temporary demands for fire protection services.

Emergency Services. Construction of the project and equipment could impede emergency access through the area or in the areas on the ground where the units are being assembled. Impacts to emergency access are discussed under Sections D.9 and E.5.9 (Transportation and Traffic), and would be reduced to less than significant levels. Therefore, impacts to emergency access and/or public services and facilities would be less than significant (Class II) with the incorporation of recommended mitigation.

Mitigation Measure for Impact S-3: Project construction would increase the need for public services and facilities

S-3d **Coordinate construction schedule with emergency services.** [PSU-APM-3]

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity and would require any full time or part time workers. Periodic inspection or maintenance would be performed by local workers on an as needed basis and would not induce population growth. The installation would occur on existing buildings at the agreement of the owner and PV systems are generally installed in such a manner that disturbance to the existing visual character of the surrounding area would be minimally affected. Solar PV systems are designed to absorb sunlight and would therefore not create daytime or nighttime reflective glare. Therefore, there would be no negative impact on property values. Impact S-5 (Presence of the transmission line would decrease property values) would not occur because there would be no transmission lines associated with the Solar component. No new land would be purchased for this alternative and therefore, Impact S-4 (Property tax revenues from project presence would substantially benefit public agencies) would not occur because the property tax rate would not increase.

Socioeconomics, Public Services, and Utilities Setting for Biomass/Biogas

The Fallbrook Renewable Energy Facility is located in Fallbrook, California near the intersection of I15 and Pala Road. The Miramar Renewable Energy Facility and the Miramar Landfill Biogas Facility are located at or near the Miramar Landfill. The biomass/biogas component of the Non-Wires alternative would not increase population growth in these areas nor would they increase conversion of land to landfill uses.

Socioeconomics, Public Services, and Utilities Impacts for Biomass/Biogas

Construction Impacts

The short-term construction impacts to socioeconomics associated with the biomass/biogas component of the Non-Wires alternatives would not induce substantial population growth in the area either directly or indirectly because of the limited time frame of construction and the limited amount of construction workers necessary for building the facilities; nor, would the biomass/biogas Non-Wires alternative displace substantial numbers of existing housing or persons.

Impact S-1: Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments (Class IV)

Fallbrook Renewable Energy Facility

Revenue from Business Operations. Construction of the biomass facility would occur within a citrus orchard that is no longer producing and that is scheduled for removal and development. As such it is not expected to interfere with orchard revenues. Any issues and potential impacts that may arise are analyzed extensively in this document in Sections E.3 (Visual Resources), E.9 (Transportation and Traffic), E.4 (Land Use), and E.10 (Public Health and Safety). Therefore, no specific mitigation measures are recommended outside of those presented in Sections E.3 (Visual Resources), E.9 (Transportation and Traffic), E.4 (Land Use), and E.10 (Public Health and Safety) to mitigate potential impacts that could result in a substantial change to local business revenues.

Economic Benefit. Employment of construction personnel could be beneficial to local businesses in San Diego County and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations in San Diego County, creating new temporary and permanent employment in these counties. A limited number of construction personnel would require temporary housing, likely in local hotels, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy (Class IV).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility

Revenue from Business Operations. Construction of the biogas/biomass facility would occur within an existing landfill and is not expected to interfere with landfill operations or revenues. Any issues and potential impacts that may arise are analyzed extensively in this document in Sections E.3 (Visual Resources), E.9 (Transportation and Traffic), E.4 (Land Use), and E.10 (Public Health and Safety). Therefore, no specific mitigation measures are recommended outside of those presented in Sections E.3 (Visual Resources), E.9 (Transportation and Traffic), E.4 (Land Use), and E.10 (Public Health and Safety) to mitigate potential impacts that could result in a substantial change to local business revenues.

Economic Benefit. Employment of construction personnel could be beneficial to local businesses in San Diego County and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations in San Diego County, creating new temporary and permanent employment in these counties. A limited number of construction personnel would require temporary housing, likely in local hotels, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy (Class IV). Also use of the landfill's biogas and/or biomass for energy production through a supply contract could be economically beneficial to the landfill facility and could allow for a longer operational life. No mitigation would be required.

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (No Impact for the Fallbrook Facility, Class II for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Construction of the biomass facility would occur within an existing citrus orchard. As ground disturbing activities will occur on 28 acres of an 80-acre orchard, it is unlikely that they will disrupt any utilities within the area that would not have already been disturbed by the orchard root system. However, to ensure that utility systems are not unnecessarily impacted during construction, in compliance with NEPA, Mitigation Measures S-2a, S-2b, and S-2c are recommended, but are not required because the impact is less than significant without mitigation. Please see the explanation of mitigation for less than significant impacts in Section D.1.5.1.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Construction of the biogas/biomass facility would occur within an existing landfill. Ground disturbing activities, including pipeline construction for a biogas facility, could accidentally disrupt utilities to the landfill. The potential for construction to disrupt the existing utility systems is generally considered to be mitigable to less than significant levels (Class II). Mitigation measures S-2a, S-2b, and S-2c for the Proposed Project are recommended to reduce this impact to less than significant.

Mitigation Measures for Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident

S-2a **Notify public of utility service interruption.**

S-2b **Protect underground utilities.**

S-2c **Coordinate with utility providers.** [PSU-APM-1, PSU-APM-2]

Impact S-3: Project construction would increase the need for public services and facilities (Class III, Class II)

Fallbrook Renewable Energy Facility

Solid Waste, Water, and Sewer. Solid waste would be disposed of at the nearest landfill facility to where the alternative is being built. Recycling will be implemented where practical. It is expected that water used during construction activities would be supplied through on site water resources from shallow wells. Municipal water supplies will not be available to the site, either for drinking water or reclaimed water. Water would be used during construction activities to reduce dust emissions. As exact construction scenarios are unavailable at this level of alternative analysis, no water usage forecasts are provided for the expected construction scenarios. Although the amount of water required for construction activities and solid waste generation is not known, it is not expected to significantly impact local water supplies as Municipal water supplies will not be available for the site (Class III).

Public Services. *Construction Workers Demands*. Because of the large available labor pool in San Diego County and nearby areas, few construction workers are expected to temporarily relocate to the area. Therefore, they would not generate additional population that could exceed the capacity of local public service providers. Nor would the alternative result in any long-term requirements that would place a permanent increased demand on emergency service providers which would result in new or expanded facilities. Therefore, the temporary addition of construction personnel would not substantially increase any demands on schools or hospitals or lower the level of service for fire protection or police protection in the long-term and it would not require the construction or expansion of facilities or services (Class III).

Fire Hazards. Sections D.15 and E.5.15 (Fire and Fuels Management) discusses how temporary construction activities would result in an increase for potential fire hazards and could increase temporary demands for fire protection services.

Emergency Services. Construction of the project and equipment could impede emergency access through the area. Mitigation measure S-3d would ensure that disruption to response times and access is minimized. Impacts to emergency access are discussed under Sections D.9 and E.5.9 (Transportation and Traffic), and would be reduced to less than significant levels. Therefore, impacts to emergency access and/or public services and facilities would be less than significant (Class II) with the incorporation of recommended mitigation.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility

Solid Waste, Water, and Sewer. Solid waste would be disposed of at the landfill facility where the alternative is being built. It is expected that water used during construction activities would be supplied through existing water sources available at the landfill, and would be monitored and measured by the Environmental Management Representative (Miramar, 2007). Water would be used during construction activities to reduce dust emissions and would use primarily reclaimed water (Miramar, 2007). As exact construction scenarios are unavailable at this level of alternative analysis, no water usage forecasts are provided for the expected construction scenarios. Although the amount of water required for construction activities and solid waste generation is not known, it is not expected to significantly impact local water supplies (Class III).

Public Services. *Construction Workers Demands*. Because of the large available labor pool in San Diego County and nearby areas, few construction workers are expected to temporarily relocate to the area. Therefore, they would not generate additional population that could exceed the capacity of local public service providers. Nor would the alternative result in any long-term requirements that would place a permanent increased demand on emergency service providers which would result in new or expanded facilities. Therefore, the temporary addition of construction personnel would not substantially increase any demands on schools or hospitals or lower the level of service for fire protection or police protection in the long-term and it would not require the construction or expansion of facilities or services (Class III).

Fire Hazards. Sections D.15 and E.5.15 (Fire and Fuels Management) discusses how temporary construction activities would result in an increase for potential fire hazards and could increase temporary demands for fire protection services.

Emergency Services. Construction of the project and equipment could impede emergency access through the area. Mitigation measure S-3d would ensure that disruption to response times and access is minimized. Impacts to emergency access are discussed under Sections D.9 and E.5.9 (Transportation and Traffic), and would be reduced to less than significant levels. Therefore, impacts to emergency access and/or public services and facilities would be less than significant (Class II) with the incorporation of recommended mitigation.

Mitigation Measure for Impact S-3: Project construction would increase the need for public services and facilities

S-3d **Coordinate construction schedule with emergency services.** [PSU-APM-3]

Operational Impacts

The alternative would occur at an existing orchard and an industrial landfill facility and would not impact property values (Impact S-5).

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III)

Fallbrook Renewable Energy Facility: Solid Waste, Water, and Sewer. Solid waste would be disposed of at the nearest landfill facility to where the alternative is being built. Recycling will be implemented where practical. It is expected that water used during construction activities would be supplied through on site water resources from shallow wells. Municipal water supplies will not be available to the site, either for drinking water or reclaimed water. The Fallbrook Renewable Energy Facility project below ground cooling system design incorporates recirculation designs using conventional heat exchangers, not aboveground evaporative cooling as conventional plants. The water used on site is for drinking, facility maintenance, landscape irrigation, fire emergency, boiler make-up water and emissions scrubbing equipment. Although the amount of water required for operation activities and solid waste generation is not known, it is not expected to significantly impact local water supplies as it will come from on site wells (Envirepel, 2007) (Class III).

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Solid Waste, Water, and Sewer. Solid waste would be disposed of at the landfill facility where the alternative is being built. It is assumed that water usage at the facilities would not significantly impact local waster supplies because it is the responsibility of water purveyors to ensure a reliable water supply to customers and the biomass/biogas Non-Wires alternatives would use existing water sources provided by the municipality, which includes using reclaimed water for operation activities such as dust control, or other non-potable uses (Miramar, 2007). Therefore, with implementation of the mitigation measures, operational activities would result in less than significant impacts to existing water sources (Class III)

Impact S-4: Property tax revenues and/or fees from project presence would substantially benefit public agencies (Class IV for the Fallbrook Facility, No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Operation of the project will have a positive impact on fiscal resources in the region. The project will bring sales tax and property tax to the County of San Diego, as well as operations payrolls, and purchases of materials and supplies from local area businesses. The Envirepel business plan that gave birth to the facility provides for after tax revenues from the operation of the facility to be re-invested into the agricultural community of North San Diego County providing much needed support of the agricultural businesses and infrastructure needs of the local school districts.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Because the alternatives would occur at an existing industrial landfill facility they should not impact tax revenues (No Impact.)

Socioeconomics, Public Services, and Utilities Setting for Wind

With the exception of the alternative transmission line, jurisdictions crossed by the wind component sites include the Campo, La Posta, and Manzanita Reservations, BLM, and County of San Diego. Demographics, housing, and public services and utilities providers' information would be the same as the Proposed Project in San Diego County, which is described in Section D.14.2.

A new 230 kV transmission line would be required to connect the wind component Substation to the existing 500 kV SWPL transmission line (about 10 miles to the south), and a new substation would also need to be constructed either on the Campo Reservation land or at MP I8-35, the Jacumba Substation. See Section D.14.12.4 for detailed analysis of the Jacumba Substation. It is assumed that the wind component transmission line would follow the Interstate 8 Alternative alignment from MP I8-35 to I8-45.5. See the Interstate 8 Alternative, Section E.1.14 for the socioeconomic setting for this subject 10-mile portion of the alternative.

Socioeconomics and Utilities Impacts for Wind

Construction Impacts

Impact S-1: Project construction would cause a change in revenue for businesses (Class III for revenues; Class IV for economic benefits)

Revenue from Business Operations. With the exception of the alternative transmission line, no businesses are located within the wind component sites; therefore, no impact from construction would result. A few business uses occur along the transmission line route, especially around the town of Boulevard, but the alternative would not require the removal or relocation of any business uses. Impacts on local businesses could result from degradation of views, views of construction equipment and activity, vehicular or pedestrian access restrictions, land use, air quality, and noise effects, or health and safety concerns (such as EMF). These issues are analyzed in this document in Sections E.5.3 (Visual Resources), E.5.4 (Land Use), E.5.8 (Noise), E.5.9 (Transportation and Traffic), and E.5.10 (Public Health and Safety). Where impacts for these issue areas are found to be less than significant or have been mitigated to less than significant levels, any associated loss of local business revenue impacts would not be significant. In addition, most of the impacts would be short-term construction impacts that have been found to not be significant (Class III). Therefore, no additional mitigation measures are recommended outside of those presented in Sections E.5.3 (Visual Resources), E.5.9 (Transportation and Traffic), E.5.4 (Land Use), and E.5.10 (Public Health and Safety) to mitigate potential impacts that could result in a substantial change to local business revenues.

Economic Benefit. Employment of construction personnel would be beneficial to local businesses and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations in Imperial and San Diego Counties, creating new temporary and permanent employment in these counties. A limited number of construction personnel would require temporary housing, likely in local hotels, and would purchase food, beverages, and other commodities, which would provide economic benefit to the local economy (Class IV).

Impact S-2: Construction would disrupt the existing utility systems or cause a co-location accident (Class II)

Construction of the wind component towers/turbines and related infrastructure has the potential to disrupt existing utilities during excavation, as a result of potential accidents. Therefore, there would be potential for service interruptions of these utilities during construction of the wind component.

Installation of the alternative transmission line and substation would occur with the existing SWPL which is in service, and interconnection to the SWPL would be required. Therefore, there would be potential for SWPL service interruptions. Electrical systems are designed with redundant means to provide service. If it is necessary to take a particular circuit out of service the applicant would first ensure that a redundant feed is available.

The potential for construction to disrupt the existing utility systems is considered to be mitigable to less than significant levels (Class II). Implementation of Mitigation Measures S-2a through S-2c would reduce this impact to less than significant.

Mitigation Measures for Impact S-2: Construction would disrupt the existing utility systems or cause a co-location accident

S-2a **Notification of utility service interruption.**

S-2b **Protection of underground utilities.**

S-2c **Coordinate with utility providers.** [PSU-APM-1, PSU-APM-2]

Impact S-3: Project construction would increase the need for public services and facilities (Class III for water and sewer, and solid waste; Class III for public services)

Water and Sewer. Water would be required during construction of the wind component for dust abatement and cleaning of construction equipment. The amount of water required depends on the length of access roads used, weather conditions, road surface conditions, and other site-specific conditions. Dust suppression efforts would occur on each day that grading activities take place and on unpaved access roads. Water consumption for this purpose would also vary depending on the implementation of the air quality Mitigation Measure AQ-1a (suppress dust at all work or staging areas and on public roads) that specifies the use of soil binders on unpaved roads, staging areas, and parking areas, which would substantially minimize water use. Non-potable water would be used for dust control when available. Water would also be needed to make the concrete used during project construction. Comparatively small amounts of potable water would be needed for sanitary and drinking purposes.

Once constructed, the wind component would require small amounts of water for maintenance activities. Water use during alternative construction would be a small fraction of the total water supply for the jurisdictions affected by the wind component and would not change the ability of the water suppliers identified previously in serving the project area demands

Solid Waste. A percentage of excavation would be clean and dry, and would be spread along the construction ROW. Under this alternative there would be no structures removal. The closest landfills near the wind component include the (CIWMB, 2007):

- Allied Imperial Landfill (104 East Robinson Road) that allows a maximum permitted throughput of 1,135 tons/day and has a remaining capacity of 2,105,500 cubic yards;
- Imperial Solid Waste Site (1705 West Worthington Road) that allows a maximum permitted throughput of 207 tons/day and has a remaining capacity of 183,871 cubic yards;
- Las Pulgas Landfill (Camp Pendleton) that allows a maximum permitted throughput of 270 tons/day and has a remaining capacity of 9,150,000 cubic yards;
- Ramona Landfill (20630 Pamo Road) that allows a maximum of 295 tons/day and has a remaining capacity of 690,000 cubic yards; and
- Sycamore Sanitary Landfill (8514 Mast Boulevard) that allows a maximum of 3,965 tons/day and has a remaining capacity of 47,388,428 cubic yards. The Sycamore Sanitary Landfill accepts asbestos, contaminated soil, mixed municipal waste, sludge (biosolids), agricultural, dead animals, tires, shreds, and wood waste (including treated wood).

Due to the number and capacity of landfills serving the alternative area, capacity for materials generated from construction would be available. Because the exact amount of material recycling is unknown, the total amount of waste requiring landfill disposal is unknown. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills.

As the waste generated by construction would occur over an extended period and would be dispersed among the various landfills serving the alternative area, the daily waste exported off site would be a fraction of the maximum daily throughput for any of the landfills listed above and the landfills have adequate remaining capacity. The Sycamore Sanitary Landfill would accept any contaminated soil, if encountered (Section E.5.10, Public Health and Safety, discusses impacts in the event that contaminated soil is encountered). Therefore, construction waste generated by the wind component would not substantially affect the remaining capacities of local landfills to serve local demands (Class III). Although impacts to solid waste facilities would not be significant (Class III) and no mitigation is required, to further reduce adverse effects of the cumulative volume of waste, Mitigation Measure S-3a is recommended for implementation to ensure that maximum recycling activities would occur.

Public Services. Neither construction nor operation of the wind component is expected to result in a direct increase in the local population, leading to long-term demands to local public services (see also Section H [Growth-Inducing Effects] for a complete discussion of population impacts). Nor is the wind component expected to result in any long-term requirements that would place a permanent increased demand on emergency service providers that would result in new or expanded facilities. The temporary addition of construction personnel would not substantially increase any demands on schools or hospitals or lower the level of service for fire protection or police protection in the long-term.

However, as described in Section D.15 (Fire and Fuels Management), temporary construction activities would result in an increase for potential fire hazards and could increase temporary demands for fire protection services. Available mitigation includes S-3d, coordinating construction schedules, lane closures, and other activities with installation of the wind component with emergency and police services to ensure that disruption to response times and access is minimized. Preparation of a project-specific Fire Prevention and Response Plan (FPRP), which would be reviewed by pertinent regulatory authorities, is also recommended. With the implementation of this mitigation, the impact would be less than significant (Class II).

Mitigation Measures for Impact S-3: Project construction would increase the need for public services and facilities

AQ-1a **Suppress dust at all work or staging areas and on public roads.**

S-3a **Recycle construction waste.**

S-3d **Coordinate construction schedule with emergency services.** [PSU-APM-3]

Operational Impacts

Impact S-4: Property tax revenues from project presence would substantially benefit public agencies (Class IV)

Local property tax revenues are a function of tax rates charged within the affected jurisdictions. Property taxes for the alternative sites are expected to increase as a result of the wind component. The State of California Board of Equalization (BOE) assesses infrastructure facilities annually. Dispersion of property tax revenue is determined at a local level based upon the location of the taxable property. Any increase in property tax revenue as a result of the wind component would result in a beneficial impact to the local economy as a result of tax revenue spending.

Therefore, the wind component would not result in an adverse change in public resource revenue. Furthermore, the alternative would not preclude or limit the operations of any public agency or result in a change in revenue to any public agencies. Potential changes to public agency revenues as a result of the wind component are considered a beneficial (Class IV) impact.

Impact S-5: Presence of the project would decrease property values

The wind component would include a 10-mile transmission line to connect the alternative to the existing SWPL. During the public scoping process for the proposed SRPL project, the public expressed a great deal of interest and concern regarding the potential impacts of transmission line projects on property values. As such, the discussion of Impact S-5 under the Imperial Valley Link (see Section D.14.5.1) addresses in detail the issues associated with the potential for impacts on property values and industrial facilities such as transmission lines in an effort to provide the reader with detailed background information based on extensive literature review and the property value issues of past similar projects.

The data that would be required to conduct a detailed analysis of the wind component impacts to property values are unavailable as they would be based on future property values. However, the conclusions of the studies discussed in Section D.14.5.1 state that overhead transmission lines can, in some instances, reduce the value of nearby properties. Likewise, a similar impact as a result of the presence of wind towers/turbines could occur.

Overall Impacts of Renewable Generation Alternative for Socioeconomics, Public Services, and Utilities

Solar Thermal. Construction period disturbances to recreational activities may temporarily reduce access and visitation to portions of ABDSP, resulting in potentially significant impacts to businesses related to the tourism industry (Class I). Construction activities would disrupt the existing utility systems and increase the need to public services and facilities. Mitigation measures S-2a, S-2b, S-2c, S-3a, S-3b, and S-3d would reduce these impacts to a less than significant level (Class II). Operation could result in a significant, unmitigable impact (Class I) if the applicant was unable to purchase water with IID or VID as it would deplete local supplies.

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would result in no significant, unmitigable impacts (Class I) and no significant and mitigable impacts (Class II).

Biomass/Biogas. Construction and operation of the biomass/biogas component would result in no significant, unmitigable impacts (Class I). Construction of the Miramar facilities could, however, disrupt utilities in the existing landfill. Mitigation measures S-2a, S-2b, and S-2c would mitigate this impact to a less than significant level (Class II).

Wind. Construction and operation of the wind component would result in no significant, unmitigable impacts (Class I). Construction activities could disrupt the existing utility systems and increase the need to public services and facilities. Mitigation measures S-2a, S-2b, S-2c, AQ-1a, S-3a, and S-3d would reduce these impacts to a less than significant level (Class II).

E.5.15 Fire and Fuels Management

Fire and Fuels Management Setting for Solar Thermal

As discussed in Section D.15.2.3 (Imperial Valley Link and Eastern Anza-Borrego Link) the segment of the Proposed Project that includes the entire Imperial County portion and the San Diego County portion up to the proposed Narrows Substation do not warrant fireshed evaluations due to a low potential for wildfire occurrence in this desert landscape. This portion would also include the solar thermal component site, as it is located along the eastern portion of the San Diego County, adjacent to the Narrows Substation. The western portion of the transmission line upgrades would be located within the PFS-1 Ranchita and PFS-2 San Felipe Firesheds, which are described in Sections D.15.2.4 and D.15.2.5, respectively.

Fire and Fuels Management Impacts for Solar Thermal

Construction Impacts

Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)

Construction activities associated with the solar thermal component would include, but not be limited to, use of vehicles and heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors and solar collectors. Additional heavy equipment, vehicles, and tools would be used for preparation of staging areas and new roads. The use of heavy equipment along with the personnel required to construct, repair, and maintain the 36-mile transmission line introduce the potential for a variety of wildfire ignition sources to surrounding vegetation fuels and combustible materials (such as diesel fuel and herbicide) associated with project activities.

The Option 1 underground 138 kV line would be underground in Borrego Valley Road to Yaqui Pass Road/S3. From its intersection with SR78, it would be the same as the Partial Underground 230 kV ABDSP SR78 to S2 Alternative with the All Underground ABDSP Option (see Section D.15.17.1) within ABDSP. From the intersection with S22 the route would continue underground in S2 for approximately six miles to the Warners Substation.

Option 2 would follow the existing Borrego-Narrows 60 kV corridor to Narrows Substation. Within ABDSP the Option 2 overhead transmission line route would be similar to the Overhead 500 kV in Existing ROW Alternative (see Section D.15.17.2), except it would require replacement of the existing 69 kV wood poles with tubular or lattice steel poles ranging in 90 to 110 feet in height. From the western Park boundary the route would follow the Proposed Project to MP 87.8 and then would continue west-northwest in the existing Narrows-Warners 69 kV corridor across undeveloped VID preserve land to Warners Substation.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

Project-related ignitions within the solar thermal transmission line corridor in the Ranchita and San Felipe Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The solar thermal component would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Ranchita and San Felipe Firesheds. This increase can be mitigated to a level that is less than significant (Class II) in these moderate-risk firesheds through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Ensure coordination for emergency fire suppression, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in the firesheds by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of reducing the potential number of homes and acres burned as a result of construction in this fireshed. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction-related or maintenance-related fire to a less than significant level due to the low population density in these firesheds.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction-related and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction-related or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire

F-1a Develop and implement a Construction Fire Prevention Plan.

F-1b Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.

F-1c Ensure coordination for emergency fire suppression.

F-1d Remove hazards from the work area.

F-1e Contribute to defensible space grants fund.

Operational Impacts

Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact for the solar thermal facility and Option 1; Class I for Option 2)

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The Ranchita and San Felipe Firesheds are moderate-risk and high-risk firesheds, respectively, based on wildfire history and fuels present; however, due to the rural nature of the firesheds, there are a small number of homes at risk (see Section D.15.4 and D.15.5). Any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting many homes and acres at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact for Option 2 because certain ignition sources are unavoidable with the presence of an overhead transmission line. Option 1 and the solar thermal facility would present no ignition risk as they do not contain overhead transmission components (No Impact). Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I) if an ignition were to occur during Santa Ana wind conditions. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire

F-2a Establish and maintain adequate line clearances.

F-1e Contribute to defensible space grants fund.

Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact for the solar thermal facility and Option 1, Class I for Option 2)

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase

in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. Option 1 and the solar thermal facility would not have overhead transmission components, and would not create obstacles to wildfire containment (No Impact). The creation of wildfire containment conflict areas by the Option 2 transmission line in the Ranchita and San Felipe Firesheds is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting

F-3a Construct and maintain fuelbreaks.

F-3b Prepare and implement a Multi-agency Fire Prevention MOU.

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the transmission line and solar thermal facility will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the transmission line ROW and solar thermal site will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the solar thermal facility and transmission line.

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

B-3a Prepare and implement a Weed Control Plan.

Fire and Fuels Management Setting for Solar Photovoltaic

Solar PV system installations would occur on existing residential and commercial buildings primarily in areas characterized by urban development. Such development would have been subject to local, regional, and state laws, codes and ordinances to protect against or avoid hazards related to fire management. Construction activities such as assembly and wiring would occur on ground surfaces such as driveways, parking lots, and landscaped areas. Installation would occur on rooftops of existing buildings.

Fire and Fuels Management Impacts for Solar Photovoltaic

Construction Impacts

Construction activities such as assembly and wiring would occur on ground surfaces such as driveways, parking lots, and landscaped areas. Installation would occur on rooftops of existing buildings. These activities would not expose workers to any more risk of injury from fire than occurs from ordinary daily life activities in San Diego County. Construction would be minimally intrusive (i.e., ground surface disturbance would not occur). Construction activities would include the use hand tools and power tools such as nail guns, drills, and saws. Impact F-1 (Construction and/or maintenance activities would significantly increase the probability of a wildfire) would not occur due to the urban setting in which the solar PVs will be sited and the minimally intrusive nature of the construction activities.

Operational Impacts

Once installed, operation of the solar PV systems would involve passive absorption of sunlight and conversion of sunlight to electricity, which would have no physical effects on wildfire fuels. Impact F-2 (Presence of the overhead transmission line would increase the probability of a wildfire) and Impact F-3 (Presence of the overhead transmission line would reduce the effectiveness of firefighting) would not occur as there would not be transmission lines in this alternative. Impact F-4 (Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread) would not occur above baseline conditions as the operation of the solar PV panels would occur on rooftops in urban environments.

Fire and Fuels Management Setting for Biomass/Biogas

Fallbrook Renewable Energy Facility: The Fallbrook renewable energy facility would be located on the site of an existing orchard. The risk of wildfires being ignited on a maintained orchard with no wildland fuels is minimal. The site of this facility falls under the jurisdiction of the North County Fire Protection District. This district has six fire stations. The district's primary service area is roughly 90 square miles with an estimated population of 45,000 people, and includes the communities of Fallbrook, Rainbow, and Bonsall. There are 60 full-time emergency services personnel, 14 support personnel, 20 reserve firefighters, and 33 volunteer firefighters.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: Landfill fires, both surface and subsurface, do occur. California has reported over 25 subsurface landfill fires since 1992. Most of the incidents are small fires or rapid oxidation events resulting from internal combustion and are usually handled by the operating facility and the local or state regulatory agency. Seldom do the subsurface events become surface fires that spread to wildland areas, requiring large-scale environmental responses. (CIWMB, 2007) As the Miramar biomass/biogas facilities will occur on an already existing landfill, they will not to contribute to an increase in landfill fires, and consequently, wildfires.

Fire and Fuels Management Impacts for Biomass/Biogas

Construction Impacts

Construction activities will occur on an 80-acre citrus orchard or on or near the existing Miramar Landfill in urban and suburban environments. Any construction within Fallbrook and the Miramar Landfill is subject to the San Diego County Fire Codes and the risk of Impact F-1 (Construction and/or maintenance activities would significantly increase the probability of a wildfire) is negligible (No Impact).

Operational Impacts

The Miramar Facility would not require additional transmission lines as it would be adjacent to the existing Miramar Biogas Facility. The Fallbrook Facility would require approximately one mile of overhead transmission line to connect with the existing Monserate–Pala transmission line, however this would occur adjacent to existing agriculture land in a rural environment and the risk of the project resulting in a catastrophic wildfire is negligible. Impact F-2 (Presence of the overhead transmission line would increase the probability of a wildfire) would not occur. The project would not create obstacles to wildfire containment (defined as 1.5-mile segments of very high conflict index values), due to its short length. Impact F-3 (Presence of the overhead transmission line would reduce the effectiveness of fire-fighting) would not occur.

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II for the Fallbrook Facility; No Impact for the Miramar Facilities)

Fallbrook Renewable Energy Facility: Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the facility and transmission lines will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007).

The introduction and spread of specific invasive plants within the transmission line ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the biomass transmission line.

Miramar Renewable Energy Facility and Miramar Landfill Biogas Facility: As the Miramar facilities would be developed on already disturbed land in an urban setting, there is no potential for the project to increase non-native plant introduction and spread into adjacent wildlands above baseline conditions (No Impact).

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

B-3a Prepare and implement a Weed Control Plan.

Fire and Fuels Management Setting for Wind

The wind facilities, including turbines, access and spur roads, 10-mile 230 kV transmission line, and switching station would be located within the La Posta Fireshed, described in Section E.1.15. Fire-prone chaparral vegetation dominates in this fireshed, and the fireshed exhibits all of the prerequisite elements for outbreaks of damaging wildfires, including severe weather, abundant fuels, and rugged topography. This is a high-risk fireshed with numerous homes at risk of damage and loss during wildfire events.

The transmission line would be located in the La Posta and Boulevard Firesheds, and the Jacumba Substation would be located entirely in the Boulevard Fireshed, described in Section E.1.15. The dominant vegetation type in the Boulevard Fireshed is extremely sparse desert chaparral. The sparse vegetation limits the spread of wildfires started in this area. As a result, the wildfire history indicates that only small portions of the region have burned in wildfire events over the last 50 years. However, cheatgrass and Sahara mustard have started to invade the fireshed; these fire-adapted weeds can quickly spread, altering the plant community and contributing to type-conversion. Exotic grass-dominated landscapes are prone to ignite more easily and spread fires more rapidly than desert vegetation.

Fire and Fuels Management Impacts for Wind

Construction Impacts

Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class II)

Construction activities associated with the wind turbines, access roads, and switching station in the La Posta Fireshed would include but not be limited to, use of heavy equipment for vegetation removal and grading and excavation for placing underground conduit or steel poles. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the facilities introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions have the potential to escape initial attack containment and become catastrophic fires. Because the sites have heavy fire fuels, steep topography, and exposure to high winds including Santa Ana winds, they have a high burn probability and a high potential for an ignition to escape.

Wind turbine and facilities maintenance activities would include the periodic use of vehicles and presence of personnel for inspections, and could also include the use of heavy equipment for repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

Construction activities associated with erecting wind turbines and building roads and a switching station would require construction and maintenance activities and thereby create a significant risk of a fire with potentially damaging impacts to communities, firefighter health and safety, and natural resources in the Boulevard and La Posta Firesheds. This increase can be mitigated to a level that is less than significant (Class II) in these moderate-risk and high-risk firesheds through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Ensure coordination for emergency fire suppression, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a (Develop and implement a Construction Fire Plan) and F-1b (Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice) would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of reducing the potential acres burned and the number of homes at risk in these two firesheds. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction-related or maintenance-related fire to a less than significant level.

Mitigation Measure F-1c (Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads) would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d (Remove hazards from the work area) would reduce the severity of construction-related and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction-related or maintenance-related ignition.

Mitigation Measure F-1e (Contribute to defensible space grants fund), would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire

F-1a Develop and implement a Construction Fire Prevention Plan.

F-1b Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.

F-1c Ensure coordination for emergency fire suppression.

F-1d Remove hazards from the work area.

F-1e Contribute to defensible space grants fund.

Operational Impacts

Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. The wind component would traverse extremely high fire risk landscapes, and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting many acres and many homes at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I).

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

Project equipment and personnel would introduce a variety of wildfire ignition sources that could result in wildfire ignition. Operation and maintenance activities associated with the wind facilities would include the use of maintenance vehicles. Wildfires ignited during project operation and maintenance would have the same behavior as fires started by construction activities, as discussed under Impact F-1 above. The resulting impacts to the nearby communities would also be the same. Operation and maintenance activities would be less frequent and much smaller in scale than construction activities (monthly and yearly basis rather than daily basis); however, these activities would be long-term activities, supplying ongoing sources of potential wildfire ignitions for many decades.

Due to the extreme wildfire risk in this area, even a single ignition that escaped containment could have devastating consequences for communities, firefighters, and natural resources. This impact is thus considered significant and unavoidable (Class I). Mitigation measures F-2a, Complete and implement SDG&E Draft Fire Plan, and F-2b, Prepare and implement a Multi-agency Fire Prevention MOU, are required to prevent wildfires to the extent possible, and to aid in the suppression of all fires within the project influence area.

Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire

F-2a Establish and maintain adequate line clearances.

F-1e Contribute to defensible space grants fund.

Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Wildfire Containment Conflict Model results for the Interstate 8 Alternative (Section E.1.15.2), including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figures E.1.15-20 through E.1.15-23) for the Interstate 8 Alternative identifies three specific areas where the overhead transmission line would restrict wildfire containment to a very high degree, two of which would be relevant to the wind component transmission line from MP 18-35 to I8-45. The conflict areas are located at MP I8-41.5 to I8-43.5 in the Boulevard Fireshed and MP I8-44 to I8-47 on the border between the Boulevard and La Posta Firesheds in a high fire risk area with heavy fuels and historical fire containment boundaries. The nearby access roads and moderate topography indicate that the conflict exists in a defensible landscape where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in this area would be obstructed by the presence of the overhead transmission line and the proximity of parallel existing lines. Firefighting suppression tactics, maneuverability and approach distances are greatly restricted by the indefensible island created between collocated and parallel transmission lines. This indefensible landscape is a swath of land where firefighting is tactically very difficult or simply too dangerous (due to a combination of minimum approach distances and rates of wildfire spread that can reach up to 300 feet per minute).

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires

ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the wind component transmission line is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting

F-3a Construct and maintain fuelbreaks.

F-3b Prepare and implement a Multi-agency Fire Prevention MOU.

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the wind component and transmission lines will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the transmission line ROW will adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the San Diego County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the San Diego County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the wind component transmission line.

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

B-3a Prepare and implement a Weed Control Plan.

Overall Impacts of Renewable Generation Alternative for Fire and Fuels Management

Solar Thermal. Construction of the solar thermal component would present a significant but mitigable (Class II) risk of ignition of a catastrophic wildfire (Impact F-1, Construction and/or maintenance would significantly increase the probability of a wildfire) because construction would take place in moderate-risk and high-risk firesheds with exposure to Santa Ana winds and a low-density WUI. This impact could be mitigated by discontinuing construction during severe fire weather, coordinating with fire agencies, fuel reduction, and making financial contributions for the maintenance of defensible space around at-risk homes. Operation of Option 2 of the solar thermal component would result in a significant, unavoidable impact (Class I) for Impact F-2 (Presence of the overhead transmission line would increase the probability of a wildfire) because certain ignitions are unavoidable and could take place during severe weather conditions. Option 2 would also have a significant, unavoidable impact (Class I) for Impact F-3 (Presence of the overhead transmission line would reduce the effectiveness of firefighting), due to the potential creation of very high wildfire containment conflict zones. Option 1 and the solar thermal facility would have no impacts associated with overhead transmission lines, as they do not contain an overhead component. The solar thermal component would create a significant but mitigable impact (Class II) on fire frequency and rate of wildfire spread through the introduction of non-native plants. This impact can be mitigated by following a strict weed-control protocol.

Solar Photovoltaic. Construction and operation of the solar photovoltaic component would have no wildfire-related impacts due to the nature of its being sited on disturbed areas without wildland fuels present. This component would create a significant but mitigable impact (Class II) on fire frequency and rate of wildfire spread through the introduction of non-native plants. This impact can be mitigated by following a strict weed-control protocol.

Biomass/Biogas. Construction and operation of the biomass/biogas component would have no wildfire-related impacts due to the nature of its being sited on disturbed areas without wildland fuels present. This component would create a significant but mitigable impact (Class II) on fire frequency and rate of wildfire spread through the introduction of non-native plants. This impact can be mitigated by following a strict weed-control protocol.

Wind. Construction of the wind component would present a significant but mitigable (Class II) risk of ignition of a catastrophic wildfire (Impact F-1, Construction and/or maintenance would significantly increase the probability of a wildfire) because construction would take place in moderate-risk and high-risk firesheds with exposure to Santa Ana winds and a low-density WUI. This impact could be mitigated by discontinuing construction during severe fire weather, coordinating with fire agencies, fuel reduction, and making financial contributions for the maintenance of defensible space around at-risk homes.

Operation of the wind component would result in a significant, unavoidable impact (Class I) for Impact F-2 (Presence of the overhead transmission line would increase the probability of a wildfire) because certain ignitions are unavoidable and could take place during severe weather conditions. Option 2 would also have a significant, unavoidable impact (Class I) for Impact F-3 (Presence of the overhead transmission line would reduce the effectiveness of firefighting), due to the creation of two significant wildfire containment conflict zones. The wind component would create a significant but mitigable impact (Class II) on fire frequency and rate of wildfire spread through the introduction of non-native plants. This impact can be mitigated by following a strict weed-control protocol.

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