

Executive Summary

ES.1 Introduction/Background

On July 12, 2002 the San Diego Gas and Electric Company (SDG&E) filed an application (Application Number A.02-07-022) with the California Public Utilities Commission (CPUC) to obtain a Certificate of Public Convenience and Necessity (CPCN) in order to construct the Proposed Miguel-Mission 230 kV #2 Project (Proposed Project). If approved, the Proposed Project would install a single 230 kV transmission circuit within the existing 35-mile SDG&E utility right-of-way (ROW) located between Miguel and Mission Substation, with portions of the project ROW located within the Cities of San Diego and Santee, unincorporated areas of San Diego County and Marine Corps Air Station (MCAS) Miramar property (See Figure ES-1). The project is composed of three major components: (1) the installation of a new 230 kV circuit on modified steel lattice structures; (2) relocation of the existing 138 kV and 69 kV circuits onto a new alignment of poles within the existing Miguel-Mission ROW; and (3) modification of the Miguel and Mission Substations to accommodate the new 230 kV circuit.

In addition, this EIR evaluates the potential impacts associated with a possible future 230 kV circuit that SDG&E plans to install along the same corridor between Miguel Substation and Fanita Junction. SDG&E has not requested authorization for this activity in this application. However, because it would occur in the same corridor as the Proposed Project, the construction and operation of this future 230 kV circuit was evaluated in this Environmental Impact Report (EIR) for California Environmental Quality Act (CEQA) purposes.

Just before this Draft EIR was released, SDG&E filed a new application (A.04-03-008) for the proposed "Otay Mesa Power Purchase Agreement Transmission Project." If the CPUC approves the power purchase agreement, this project will be evaluated by the CPUC in a separate comprehensive CEQA document. That project includes several components (described below)

- **Segment 1:** New 230 kV circuit installed on a vacant position on existing towers for four miles between Sycamore Canyon and Fanita Junction, along with the reconductor of an existing 138 kV line, replacement of various poles.
- **Segment 2:** Installation of a new overhead 230 kV circuit in a vacant position on modified towers for 24 miles from Fanita Junction to Miguel Substation. [Note: the modified towers referenced here are those that would be modified in the Miguel-Mission 230 kV #2 Project to accommodate the first 230 kV circuit.] It should be noted that Segment 2 for the Otay Mesa Power Purchase Agreement Transmission Project is the same as the reasonable foreseeable future project analyzed in this EIR.
- **Segment 3:** Installation of a new 10-mile overhead 230 kV circuit from Miguel to the Duke Energy South Bay (DESB) Power Plant Switchyard (63 new tubular steel poles).
- **Segment 4:** Modifications to 50 existing bridge tower structures to accommodate a new 230 kV circuit from the DESB switchyard to near the Main Street substation.
- **Segment 5:** Installation of an underground 230 kV line and associated facilities in city streets from Sicard Street to Old Town Substation.
- **Modifications** to the Miguel, Sycamore Canyon, and Old Town Substations.

SDG&E’s stated objectives for the Proposed Project are threefold:

- (1) Reduce transmission constraints on SDG&E’s electric system in accordance with Assembly Bill 970 (AB 970), which directs the California Public Utilities Commission (CPUC) to “undertake and identify those actions necessary to reduce or remove constraints on the State’s existing electrical transmission and distribution system”;
- (2) Provide reliability benefits and operational flexibility for SDG&E’s service territory to ensure safe and reliable energy supplies. The project has the potential to prevent overloads on various 138 kV and 69 kV circuits in the SDG&E service territory, and eliminate various remedial action schemes (RAS) that limit the ability of Miguel Substation to accept and transfer power from new generation sources into the existing transmission system. Elimination of existing RAS would allow for greater system reliability, greater operational flexibility, and more frequent maintenance of existing transmission facilities; and
- (3) Improve regional transmission system infrastructure in order to ensure that the electric system provides for better delivery of economic energy supplies and reliability for the State of California, and the Western Electric Coordinating Council (WECC) area. Infrastructure improvements would allow the reliable transfer of power from new merchant generating facilities south and east of Miguel Substation, increasing local, statewide, and regional access to additional generating capacity and improving the overall reliability of the State’s integrated transmission grid.

The CPUC is the State lead agency, responsible for compliance with the California Environmental Quality Act (CEQA). A Draft Environmental Impact Report (EIR) has been prepared by the CPUC in compliance with CEQA Guidelines. The EIR discloses the environmental impacts expected to result from the construction and operation of SDG&E’s Proposed Project and mitigation measures, which, if adopted by the CPUC or other responsible agencies, could avoid or minimize significant environmental effects. In accordance with CEQA guidelines, the EIR also evaluates alternatives to the Proposed Project that could avoid or minimize the significant environmental effects. The EIR provides a comparison of the environmental effects of the Proposed Project and the alternatives, and identifies the Environmentally Superior Alternative.

The Miguel-Mission 230 kV #2 Project EIR is an information document only; and does not make a recommendation regarding the approval or denial of the project. The purpose of the EIR is to inform the public on the environmental setting and impacts of the Proposed Project and alternatives. The EIR will be used by the CPUC in conducting the proceedings to determine whether to grant SDG&E’s requested CPCN. This Executive Summary (ES) provides an overview of the Proposed Project and the alternatives considered, as well as the environmental findings and mitigation measures specified in the EIR.

Table ES-1. Environmentally Superior Alternative

Segment	Preferred Route
Miguel Substation to Jamacha Valley	Proposed Project
Jamacha Valley	Jamacha Valley 138 kV/69 kV Underground Alternative
Jamacha Valley to City of Santee	Proposed Project
City of Santee	City of Santee 138 kV/69 kV Underground Alternative
City of Santee to Mission Substation	Proposed Project

Summary of Draft EIR Conclusions. This EIR analyzes the environmental impacts of SDG&E’s Proposed Project along with alternatives that were developed as a result of public and agency input during the scoping process. Analysis is presented for five alternatives, including the No Project Alternative. As documented in detail in the Alternatives Screening Report (Appendix 2 to the Draft EIR), 11 additional route alternatives and 3 non-wire alternatives were considered but eliminated from detailed consideration. Based on comparison of the environmental impacts of the Proposed Project and alternatives, the Environmentally Superior Alternative is identified in Table ES-1. (See Section ES.4 for further details.)

The following sections provide the reader with a brief description of the Proposed Project and alternatives (including alternatives analyzed in detail and those eliminated from detailed consideration), a summary of environmental impacts in each environmental issue area, a summary of the comparison of alternatives, and tables listing all impacts identified in the Draft EIR.

1.1 Proposed Project

Description of the Proposed Project

Figure ES-1 is an overview of the transmission line route proposed by SDG&E. The major elements of SDG&E's Miguel-Mission 230 kV #2 Project are as follows:

- Installation of a 35-mile, single-circuit 230 kV transmission circuit between Miguel Substation and Mission Substation. For approximately 24 miles, between the Miguel Substation and Fanita Junction, the existing 138 kV/69 kV steel lattice tower structures would be replaced or modified to accommodate the 230 kV circuit. For the remaining 11 miles, between Fanita Junction and the Mission Substation, the existing structures would be reconducted and the new circuit would be installed in a vacant position;
- Relocation of the existing 138 kV and 69 kV circuits onto a newly constructed alignment of wood and steel pole structures within the existing SDG&E right-of-way between Miguel Substation and Fanita Junction; and
- Modifications to the Miguel and Mission Substations to accommodate the new 230 kV transmission line, including the installation of new circuit breakers, lengthening conduits for equipment power and control, new concrete foundations for equipment, and new steel support structures.

Most of the construction would take place within the existing SDG&E right-of-way. However, necessary substation modifications, staging and equipment storage areas, and construction access roads may cause impacts to previously undisturbed land. All cleared areas not needed for operations or maintenance following construction, including staging areas and access roads, would be restored to their pre-construction condition.

Environmental Setting of the Proposed Project

The proposed Miguel-Mission 230 kV #2 Project is located in the County of San Diego, with portions of the project ROW also located within the Cities of San Diego and Santee, unincorporated areas of San Diego County, and the federally owned MCAS Miramar property (see Figure ES-1). The Proposed Project area encircles the main urban areas of San Diego, following an existing 35-mile SDG&E ROW that passes through rough foothills, mesas, steep valleys, and ravines. A wide range of land uses are near or adjacent to the Proposed Project route, including commercial and industrial uses, residential developments, county and regional parks, a wildlife refuge, and golf courses. In addition, Sweetwater Reservoir, Lake Jennings, Santee Lakes, and the San Diego River are also located in close proximity to the Proposed Project route.

Project Route

Beginning at the Miguel Substation located in Bonita, the existing project ROW crosses the San Diego National Wildlife Refuge Otay-Sweetwater Unit to the northeast near the Sweetwater Reservoir and continues along the northwestern slopes of Mother Miguel and San Miguel Mountains. The route crosses

Campo Road (State Route 94), continuing northeast to a point just north of the intersection of Steele Canyon Road and Jamul Drive, in Jamacha Valley. At this point the ROW turns due north and crosses Cottonwood at Rancho San Diego Golf Club and Willow Glen Drive, continuing north-northeast along a ridge paralleling Jamacha Valley on the west until it crosses Dehesa Road and passes through the unincorporated community of Granite Hills.

From Granite Hills, the project ROW heads in a northerly direction along a ridgeline, passing the community of Lakeview on the west. After the ROW crosses Interstate 8, it proceeds northwest, running adjacent to the community of Lakeside.

As the ROW passes the Los Coches Substation, it continues along the western boundary of the Lake Jennings campground and then heads north, crossing the San Diego River. Once across the river, the ROW continues north before turning west along the southern boundary of Louis A. Stelzer County Park. The route crosses State Route 67 and passes through the residential community of Eucalyptus Hills, the City of Santee and the Santee Lakes Regional Park and Campground. Continuing west, the ROW enters the southeast corner of MCAS Miramar and continues to Fanita Junction, where it turns southwest, passing the community of Tierrasanta. The ROW then crosses Interstate 15, turning west for a short distance before entering the Mission Substation.

1.2 Summary of Public Involvement Activities

The CEQA EIR process for the Miguel-Mission 230 kV #2 Project began with the CPUC's issuance of the Notice of Preparation of an EIR.

- The CPUC issued the NOP on September 5, 2003, and distributed it to the State Clearinghouse (SCH No. 2003091025) and federal, State, and local trustees and agencies that may be affected by the Proposed Project. There were 1,178 copies of the NOP mailed out to members of the public. In addition, the NOP was sent to 12 federal agency departments, 25 State agency departments, nine county departments, seven city departments, 16 Native American groups, and 11 special districts (e.g., school and water districts). A copy of the NOP is available in the Scoping Report, which may be viewed on the Internet, as described in Section H.2.3.
- Two scoping meetings were held prior to the selection of alternatives and the preparation of the analysis documented in this EIR. The scoping meetings were held at the following locations and times: September 15, 2003, at 5:30 p.m. at the Spring Valley Branch Library in Spring Valley and September 16, 2003, at 7:00 p.m. at the Santee City Hall in Santee.
- Thirty-four members of the public (8 in Spring Valley and 26 in Santee), including representatives of organizations and government agencies, attended the two CPUC scoping meetings.
- Approximately 63 letters and emails were received during the NOP scoping period (September 5 to October 5, 2003) from public agencies and private citizens. In December 2003, a comprehensive Scoping Report was issued summarizing concerns received from the public and various agencies. Commenting agencies and scoping meeting attendees were notified via postcard that the Scoping Report was on the CPUC's website available for review.
- An EIR email address was created along with a telephone hotline for project information, as well as an Internet site, used to post all the public environmental documents (including this DEIR) and to announce upcoming public meetings.

Figure ES-1. Project Location

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1.3 Areas of Controversy / Public Scoping Issues

Private citizens and homeowners provided the majority of the comments during the Scoping process. A total of 63 written and 14 verbal comments were received during the scoping process from federal, State, local, and county government agencies, school districts, non-profit organizations, and concerned members of the public. In addition to private individuals, comments were received from the following organizations:

- Preserve Wild Santee
- Santee Citizens for Safe Power.

Comments were also received from the following government agencies:

- Cajon Valley Union School District
- City of San Diego
- City of Santee
- County of San Diego Department of Parks and Recreation
- County of San Diego Department of Planning and Land Use
- Miramar Marine Corps Air Station
- Otay Water District
- Padre Dam Municipal Water District.

The issues raised during the public scoping process are described in detail in the Scoping Report (available on the CPUC's CEQA Project website), and are summarized below.

- **Purpose and Need.** The purpose and need for the Proposed Project was addressed in numerous comments received from individuals living in Santee, El Cajon, and Lakeside. Public comments expressed concern that SDG&E had not provided: (1) adequate justification for project need; (2) an adequate description of future use for the transmission line; (3) an adequate description of future growth in the area and impact on energy supply and demand; (4) information on energy sources and markets; and (5) a sufficiently detailed explanation on what is causing the demand for the Proposed Project. Many residents from the Cities of Santee and El Cajon questioned whether the need for electricity in other parts of the State outweighed the quality of life of local residents directly impacted by the Proposed Project.
- **Human Environment Issues and Concerns.** Nearly all of the public and agency comments raised strong concerns regarding the potential impacts of the Proposed Project on the human environment, most often expressing concerns with health risks associated with increased EMF emissions, visual, noise, scenic impacts, and impacts to property values. Other concerns dealt with construction impacts, safety issues and fire risk, conflicts with planned uses, traffic and transportation, utilities and services, recreation, and overall quality of life.
- **Natural Environment Issues and Concerns.** Comments from organizations, individuals, and government agencies addressed issues and concerns with the potential impacts that the Proposed Project would have on the natural environment, particularly impacts to plants, wildlife, and habitats. Preserve Wild Santee, the City of San Diego and the County of San Diego expressed concerns that the Proposed Project would affect: (a) coastal sage scrub habitat, (b) federal and State protected wildlife species, and (c) existing Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) areas, including the San Diego County Multiple Species Conservation Program (MSCP) Subarea Plan. The City of San Diego indicated concern that approximately half of Subsection F (see Figure 1-5 of the PEA, July 2002) would be located within the City of San Diego's Multi-habitat Planning Area (MHPA), which was established by the City's MSCP. The

City of San Diego also expressed concern that the proposed transmission line could impact areas within Mission Trails Regional Park, an area that contains a variety of sensitive upland and wetland habitat types and associated flora and fauna.

- **Alternatives.** Many comments from individuals and organizations and a number of government agencies suggested alternatives, including the No Project Alternative, alternative tower designs, and alternative routes. The most frequently discussed alternatives included a complete underground route, or a route that was partially underground at locations close to certain neighborhoods or cities (e.g., City of Santee). Modification of overhead routes was also suggested, including the avoidance of additional or new poles, increasing distance between new towers and homes and schools, or changing the location (side of the street, elevation) of towers to avoid causing impacts to sensitive receptors.

Several comments suggested alternative tower designs that may reduce EMF levels by grouping wires or by moving the wires to certain sides of towers/poles. Other suggestions included using the most visually pleasing poles available, painting poles brown or with a subtle and harmonious color, and use only existing towers as much as possible. These alternatives were put forth in an effort to minimize visual and aesthetic impacts on the environment. Several comments from government agencies and the majority of comments from organizations and individuals expressed preferences for alternative routes.

- **Environmental Review and Decision Making Process.** A few suggestions and comments were made regarding the adequacy of the environmental review and decision-making process. Individuals and agencies addressed the following issues: (a) the efficacy of the CPUC's review and the fairness and completeness of the environmental review process in general; (b) the need for the Draft EIR to provide full disclosure of human health risks; (c) the need for a full evaluation of the project alternatives in the Draft EIR; and (d) establishment of a public relations program by SDG&E to inform residents about the project schedule, construction schedule, and other project activities, as appropriate.

ES.2 Alternatives

Alternatives to SDG&E's Proposed Project are identified and evaluated in accordance with CEQA Guidelines. CEQA Guidelines (Section 15126(a)) state:

An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

CEQA Guidelines (Section 15364) define feasibility as:

. . . capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Alternatives to the Proposed Project were suggested during the scoping period (September-October 2003) by the general public, and federal, State and local agencies after SDG&E filed its Application for a CPCN. Other alternatives were developed by EIR preparers, or presented by SDG&E in its PEA. In total, approximately 16 alternatives were identified that range from minor routing adjustments to SDG&E's proposed 230 kV project route to entirely different transmission line routes (see Figure ES-2). In addition, this EIR also evaluates the alternative energy technologies and the non-wires alternatives.

Figure ES-2. Overview of Alternative Routes

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Alternatives to the Proposed Project were screened according to CEQA guidelines to determine those alternatives to carry forward for analysis in the EIR and alternatives to eliminate from detailed consideration. The alternatives were primarily evaluated according to: (1) whether they would meet most of the basic project objectives; (2) whether they would be feasible considering legal, regulatory and technical constraints; and (3) whether they have the potential to substantially lessen any of the significant effects of the Proposed Project. Other factors considered, in accordance with CEQA Guidelines (CEQA Guidelines Section 15126.6(f)), were site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and proponent's control over alternative sites. Economic factors or costs of the alternatives (beyond economically feasible) were not considered in the screening of alternatives since CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives or would be more costly" (CEQA Guidelines Section 16126.6(b)).

The detailed results of the alternatives screening analysis are contained in Appendix 2 of the EIR (Alternatives Screening Report). A summary description of the alternatives considered and the results of screening are provided below.

2.1 Alternatives Fully Evaluated in the EIR

Jamacha Valley 138 kV/69 kV Underground Alternative

Alternative Description. This alternative was developed to address the concerns of residents in Jamacha Valley living near or adjacent to the Miguel-Mission ROW regarding potential long-term visual impacts and EMF emissions associated with the Proposed Project. The existing 138 kV and 69 kV circuits would transition from new steel and wood pole structures onto a new transition pole immediately south of Willow Glen Drive, transitioning underground and continuing for approximately 3.5 miles before transitioning back to an overhead configuration where it would be installed on new wood or steel pole structures in the center of the existing ROW. The new 230 kV circuit would be installed on the west side of the modified 138 kV steel towers within the existing ROW, similar to the Proposed Project.

Two underground options were evaluated within Jamacha Valley following the same route along Willow Glen Drive. The two options included undergrounding either the proposed 230 kV circuit or the existing 138 kV and 69 kV circuits. Because the 138 kV/69 kV underground option through Jamacha Valley would provide better overall benefits (e.g., less poles to install, transition poles are smaller) to the environment (visual resources) and the public in comparison to the 230 kV underground option, the 138 kV/69 kV underground option was selected as the alternative to be addressed for further evaluation in the alternatives analysis.

Rationale for Full Analysis. The Jamacha Valley 138 kV/69 kV Underground Alternative is consistent with SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. It is technically, legally, and regulatorily feasible. This alternative has the potential to lessen several of the impacts of the Proposed Project. No new additional alignment of poles would be installed in Jamacha Valley and 14 proposed 138 kV/69 kV steel or wood poles would be eliminated. The Cottonwood community would experience a net reduction of three overhead conductors along this segment of the Miguel-Mission ROW in comparison to the existing baseline conditions, which would be considered a visual benefit. The reduced construction activity along the slope of the Miguel-Mission ROW would also reduce potential

impacts to slope stability and soil erosion, a concern identified by Cottonwood residents during the scoping period. This alternative would avoid eight known cultural resources sites and would reduce potential impacts to biological habitat and resources (e.g., coastal sage scrub, southern-willow riparian forest, hermes copper butterfly).

During operation, there would be reduced levels of maintenance activities as well as potential for electricity service disruption associated with fire and weather events since the circuits would be underground and protected from the environment. In addition, this alternative would decrease corona noise levels along the ROW as a result of undergrounding the 138 kV and 69 kV circuits along Willow Glen Drive.

Jamacha Valley Overhead A Alternative

Alternative Description. This alternative was developed to address the concerns of residents in Jamacha Valley living near or adjacent to the Miguel-Mission ROW regarding potential long-term visual impacts and EMF emissions associated with the Proposed Project. Under this alternative, the 138 kV and 69 kV circuits would be located on new steel mono-poles on the east side of the ROW, from a point near the Herrick Center (Steele Canyon Road and Jamul Drive) to the intersection of the Miguel-Mission ROW and Hillsdale Road. The new alignment of poles would be located 12 feet from the eastern edge of the ROW.

Rationale for Full Analysis. The Jamacha Valley Overhead A Alternative is consistent with SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. Although the existing ROW may need to be extended to the east (up to approximately 15 feet) because of the location of the circuits, this alternative appears to be technically, legally, and regulatorily feasible. In addition, this alternative has the potential to lessen adverse visual impacts of the Proposed Project. Because the 138 kV and 69 kV poles would be located on the east side of the ROW, downslope from the proposed location of the 138 kV and 69 kV poles under the Proposed Project, this alternative would provide an improvement to the viewshed over the Proposed Project for residents in the Cottonwood community, south of Hillsdale Road. Because this alternative meets the project objectives, is feasible, and would lessen permanent environmental impacts without creating new significant impacts of its own, the Jamacha Valley Overhead A Alternative will be retained for full analysis in this EIR.

Jamacha Valley Overhead B Alternative

Alternative Description. This alternative was developed to address the concerns of residents in Jamacha Valley living near or adjacent to the Miguel-Mission ROW regarding potential long-term visual impacts and EMF emissions associated with the Proposed Project. This alternative would result in the addition of two steel mono-poles structure alignments and one lattice structure along the Miguel-Mission ROW in Jamacha Valley. At a point near the Herrick Center (Steele Canyon Road and Jamul Drive), the existing 138 kV/69 kV lattice towers would be removed and the existing 138 kV/69 kV circuits would be relocated to new steel mono-pole structures on the west side of the ROW. The new 230 kV circuit would be placed on new steel pole structures between the existing steel lattice structures and the new steel poles for the 138 kV and 69 kV circuits.

Rationale for Full Analysis. The Jamacha Valley Overhead B Alternative is consistent with SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. Although there could be project delays associated with removing the lattice structures within the Jamacha Valley area, this alternative is legally, technically, and regulatorily feasible. This alternative has the potential to lessen adverse environmental

effects of the Proposed Project. This alternative would have long-term visual benefits by exchanging 138 kV steel lattice structures for the less visually intrusive steel mono-poles. This alternative would replace 12 existing steel lattice structures. Because this alternative meets the project objectives, is feasible, and would lessen permanent environmental impacts without creating new significant impacts of its own, the Jamacha Valley Overhead B Alternative will be retained for full analysis in the EIR.

City of Santee 138 kV/69 kV Underground Alternative

Alternative Description. This alternative was developed based on input from the City of Santee on undergrounding options through the City of Santee. Under this alternative, the existing 69 kV circuit would be relocated underground for approximately 0.6 miles outside the Miguel-Mission ROW along a water storage tank access road and 0.75 miles along the length of Princess Joann Road, as well as relocation of one 138 kV circuit underground along Princess Joann Road to Magnolia Avenue.

Two underground options were evaluated along Princess Joann Road within the City of Santee, which included undergrounding either the proposed 230 kV circuit or the existing 138 kV and 69 kV circuits along the same route. Because the 138 kV/69 kV underground option through the City of Santee would provide better overall benefits to the environment (e.g., visual benefits from reduced number of poles and conductors overhead) and the public in comparison to the 230 kV underground option, the 138 kV/69 kV underground option was selected as the alternative to be addressed for further evaluation in the alternatives analysis.

Rationale for Full Analysis. The City of Santee 138 kV/69 kV Underground Alternative is consistent with SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. Although there could be schedule delays associated with underground construction, this alternative is technically, legally, and regulatorily feasible. It also has the potential to lessen adverse environmental effects of the Proposed Project. The City of Santee 138 kV/69 kV Underground Alternative would eliminate the need to install three 138 kV wood and steel poles, which would be required with the Proposed Project. In addition, this alternative would eliminate two existing 138 kV wood poles north of Magnolia Avenue. The residents along the southern border of the existing ROW would experience a net reduction of three overhead conductors along this segment of the ROW in comparison with the existing conditions. Therefore, overall, this alternative would provide a net visual benefit to the City of Santee residents adjacent to the existing ROW. In addition, this route has the potential to reduce temporary and permanent impacts to biological resources (e.g., coastal sage scrub), soil erosion, and known cultural resources (four identified cultural resource sites are within the existing ROW along this segment) because construction would occur in city streets and not within the existing SDG&E ROW.

During operation, there would be reduced levels of maintenance activities as well as a reduced potential for electricity service disruption associated with fire and weather events since the circuits would be underground and protected from the environment. In addition, this alternative would decrease corona noise levels along the ROW as a result of undergrounding the 138 kV and 69 kV circuits along Willow Glen Drive. Therefore, because this alternative meets the project objectives, is feasible, and would lessen long-term and permanent environmental impacts, the City of Santee 138 kV/69 kV Underground Alternative is retained for full analysis in the EIR.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

Alternative Description. This alternative was proposed based on input from residents of the City of Santee that the circuits should be moved to the northern side of the existing SDG&E ROW, further from the existing residents. Under this alternative, the 230 kV circuit would parallel the existing northern ROW boundary (approximately 35 feet north of the existing northern boundary) between the water tanks to the east of Princess Joann Road and a point approximately 800 feet northwest of the western end of Princess Joann Road. Under this alternative, the proposed wood and steel poles associated with the Proposed Project would be moved further away from residents who reside adjacent to the southern boundary of the ROW.

Rationale for Full Analysis. The City of Santee 230 kV Overhead Northern ROW Boundary Alternative is consistent with SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. The alternative is also legally, technically, and regulatorily feasible. This alternative has the potential to lessen adverse environmental effects of the Proposed Project. In comparison to the Proposed Project, the three proposed 138 kV poles (230 kV steel mono-poles under this alternative) would be located along the northern boundary of the existing ROW, approximately 150 to 200 feet north of the residences in the City of Santee. This would substantially reduce the adverse visual impacts to the residents located along the existing southern ROW boundary because the poles and circuits would be further away from the residential community. However, two additional poles would be needed east and west of the residential community to transition the pole from the middle of the ROW to the northern boundary. Overall, this alternative would improve the viewshed for those residents located along this segment of the Miguel-Mission ROW. This alternative would slightly decrease corona noise levels, dust and vehicle/engine emissions, and overall construction activity and noise. Because it meets the project objectives, is feasible, and would lessen environmental impacts, the City of Santee 230 kV Overhead Alternative will be retained for full analysis in the EIR.

No Project Alternative

The No Project Alternative required for consideration under CEQA regulations would mean that the Miguel-Mission 230 kV #2 Project would not be built. Under the No Project Alternative, the adverse environmental impacts from the construction and operation of the Proposed Project would not occur. As a consequence, SDG&E or some other entity would need to either augment existing facilities and add new transmission and/or generation capacity to compensate for existing system limitations and anticipated new generation located in the area or continue to incur additional congestion charges associated with the lack of the import transmission capability necessary to take advantage of the economics associated with the operation of the new generation.

The components of the No Project Alternative were assumed to be the following:

1. **Additional Regional Generation:** No change to the existing generation construction schedules has been considered. There is a possibility that, without the project, a portion of the planned generation would either be cancelled or delayed. There is also a possibility that new generation capacity could be necessary in San Diego County or elsewhere to compensate for existing transmission system limitations and anticipated loads. It would be speculative to predict the type and location or schedule of development for new power plants needed to overcome the transmission system constraints remaining under the No Project Alternative.

2. **Congestion Issues:** The CAISO would be forced to implement short-term congestion measures until such time as it initiates its anticipated long-term Locational Marginal Pricing procedures. In both cases many of the economic benefits that would have been derived from the new generation would be lost. Under the No Project Alternative, SDG&E would continue to incur the congestion charges.

Summary of No Project Alternative Scenario

To the extent that the Proposed Project or an alternative thereto is not completed, many of the economic benefits that would have been derived from the new generation would not materialize and potential environmental benefits of increased competition within the generation sector would be lost.

2.2 Alternatives Eliminated from Further Consideration

The alternatives listed below were evaluated for their potential to meet CEQA requirements, but were ultimately eliminated from consideration in the EIR. Figures ES-2, ES-3, and ES-4 depict the location of each alternative addressed in this section. A more detailed description of each alternative and the rationale for its consideration and elimination is presented in Appendix 2, Alternatives Screening Report, of this EIR.

City of Santee 230 kV Underground Along Southern ROW Boundary Alternative

Alternative Description. The EIR preparers discussed potential alternatives to the Proposed Project in the northern portion of the City of Santee with the Planning Director of the City of Santee. The City of Santee suggested that any new line through the City should be placed underground. As a result, the CPUC considered two underground options along the southern ROW boundary in the City of Santee; installing either the 138 kV and 69 kV circuits or the 230 kV circuit underground along this segment of the ROW. (See Figure Ap.2-6 in Appendix 2 of the EIR.) Because of the engineering issues and visual effects that would result from the additional pole (north end of Magnolia Avenue) under the 138 kV/69 kV underground option, this underground alternative focused on placing the proposed 230 kV circuit underground along the southern boundary of the ROW.

Undergrounding of the proposed circuit along the southern ROW boundary would begin at the water tanks approximately 1,450 feet due east of the eastern end of Princess Joann Road and continue to a point approximately 800 feet northwest of the western end of Princess Joann Road. Underground placement would be along the paved access road (3,000 feet) until it intersects with Princess Joann Road, at which time the 230 kV underground route would proceed west along the southern boundary of the existing SDG&E ROW boundary (4,100 feet).

Rationale for Elimination. This alternative is feasible and would meet project objectives; however, underground construction could cause project delays for this segment of the project. The City of Santee 230 kV Underground Along Southern ROW Boundary Alternative would increase temporary and permanent biological resource, cultural resource, and soil erosion impacts from underground trenching. It is estimated that 1.2 acres of habitat would be disturbed during trenching operations along the Miguel-Mission ROW and four known cultural resources that are located within the existing ROW would be impacted, one of which is considered sensitive and would require excavation by a qualified archaeologist. Temporary air and noise impacts to adjacent residents would increase during construction activities and underground trenching. In addition, SDG&E has stated that it would need to construct a termination station at each end of the underground segment for the 230 kV circuit, which would require the acqui-

sition of and impact to additional land. This requirement could contribute to additional impacts to visual resources, biological resources, cultural resources, land use, noise, air quality, and water resources. As a result, this alternative was eliminated from further analysis in this EIR.

City of Santee 230 kV Underground Along Northern ROW Boundary Alternative

Alternative Description. Similar to the City of Santee Underground Along Southern ROW Boundary Alternative, this alternative would place the proposed 230 kV circuit underground along the northern ROW boundary instead (see Figure Ap.2-7 in Appendix 2 of the EIR). The CPUC also evaluated the potential for installing the 138 kV/69 kV circuits underground along the northern ROW boundary in the City of Santee. Undergrounding the 230 kV circuit was considered during the screening process to be a better option than undergrounding the 138 kV/69 kV circuit because it would not require a transition pole north of Magnolia Avenue for the 138 kV circuit. Therefore, the 230 kV circuit is what is discussed below and evaluated in the alternatives analysis.

Rationale for Elimination. This alternative is feasible and would meet project objectives; however, underground construction could cause project delays for this segment of the Miguel-Mission ROW. Environmental impacts would be similar to the City of Santee 230 kV Underground Along Southern ROW Boundary Alternative. The City of Santee 230 kV Underground Along Northern ROW Boundary Alternative would increase temporary and permanent biological resource, cultural resource, and soil erosion impacts from underground trenching. It is estimated that 1.2 acres of habitat would be disturbed during trenching operations along the Miguel-Mission ROW and four known cultural resources are located within the existing ROW and would be impacted, one of which is considered sensitive, and would require excavation by a qualified archaeologist. Temporary air and noise impacts to adjacent residents would increase during construction activities due to the more extensive construction required for continuous underground trenching. In addition, SDG&E has stated that it would need to construct a termination station at each end of the underground segment for the 230 kV circuit, which would require the acquisition of, and impact to, additional land. This requirement could contribute to additional impacts to visual resources, biological resources, cultural resources, land use, noise, air quality, and water resources. Compared to the Proposed Project, it would create additional environmental impacts, and therefore, was eliminated from further analysis in this EIR.

Miguel-Los Coches Alternative

Alternative Description. The Miguel-Los Coches Alternative has been proposed in response to concerns of residents living near or adjacent to the Miguel-Mission ROW regarding potential permanent visual impacts and EMF emissions associated with the Proposed Project. It also addresses the public's request for consideration of consolidating the existing and proposed circuits within SDG&E's existing ROW. Under this alternative, between Miguel and Los Coches Substations, the new 230 kV circuit would be installed on a newly constructed alignment of steel mono-poles to be located in the center of the Miguel-Mission ROW between the existing 230 kV lattice tower alignment and the existing 138 kV/69 kV lattice tower alignment. The new 230 kV circuit would be installed on the west side of the new steel poles from Miguel Substation to Los Coches Substation.

Rationale for Elimination. This alternative would meet project objective and would be feasible; however, there could be delays in the project construction schedule. Although it is technically feasible to install the proposed alternative between the existing towers when the center-to-center separation is 90 feet or greater, it is very likely the spans would not be similar to the existing towers. As a result, intermediate

Figure ES-3. Existing ROW with Major Route Modifications

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Figure ES-4. West of Miguel Underground Alternatives

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poles would likely be needed to maintain clearance to adjacent circuits so that service would not be interrupted. This alternative would have higher poles (15 to 20 feet higher) that would be positioned throughout the center of the ROW (not span for span with the existing structures), which would cause significant visual impacts to residents and recreational users near the existing ROW. In addition, there are significant worker safety issues associated with installing a 230 kV circuit in the middle of the ROW between the two existing lattice structures and the reduced distance between alignments. As a result of these potential impacts, this alternative was eliminated from the EIR analysis.

El Cajon–Mission Trails Alternative

Alternative Description. This alternative route would exit the Miguel Substation in an overhead configuration and proceed northeast following the Miguel-Mission ROW to Campo Road, where the circuit would transition underground and head west for 1.5 miles, turn east on Jamacha Road and continue north for 5.5 miles to Broadway. The route would then continue west for 6.5 miles before turning northwest for 1 mile and then turning southwest on Mission Gorge Road. The route would then continue on Mission Gorge Road for 3 miles until reaching Friars Road, at which point the route would head west for another 2.5 miles until reaching Mission Substation.

Rationale for Elimination. The El Cajon–Mission Trails Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. The underground construction associated with this alternative would traverse densely populated urban settings in El Cajon, Fletcher Hills, San Carlos, Allied Hills, and Mission Valley, thus creating significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation, unknown cultural resources, and biological resources (near parks). The route would also cross two watercourses underground (Sweetwater River and San Diego River) and four major roadways (Interstate 8, State Route 67, State Route 125, and Interstate 15). This route would parallel State Route 94 for approximately 1 mile and State Route 54 for approximately 4 miles. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

Miguel–La Mesa Alternative

Alternative Description. This alternative route would exit Miguel Substation in an overhead configuration and proceed northeast along the Miguel-Mission ROW until reaching Campo Road. At Campo Road, the circuit would transition underground and head west continuing along Broadway. At Broadway, the route would turn southwest and continue for 6.5 miles until reaching Massachusetts Avenue, where the route would turn north and continue for 1 mile. The route would then continue west for 1.5 miles, then turning north for 1.5 miles until reaching Montezuma Road. The route would proceed west on Montezuma Road for 1.5 miles until reaching Fairmount Avenue, at which point the route would follow Mission Gorge Road north for 1.5 miles to Friars Road and continue west for 2.5 miles until reaching Mission Substation.

Rationale for Elimination. The Miguel-La Mesa Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. The underground construction associated with this alternative would traverse more highly developed areas in Rancho San Diego, Spring Valley, La Mesa, and Mission Valley, thus creating significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation, unknown cultural resources, and biological resources (near parks). The route would be located adjacent to San Diego State University and could cause possible disruption of University operations. The route would also bore across two watercourses underground (Sweetwater River and San Diego River) and would cross four major roadways (Interstate 8, State Route 94, State Route 125, and Interstate 15). It would also parallel State Route 94 for approximately 3 miles, a roadway that has significant traffic during morning and evening commuting periods. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

El Cajon–Mission Gorge Road Alternative

Alternative Description. This alternative would exit the Miguel Substation in an overhead configuration and follow the Miguel-Mission ROW until reaching La Cresta Road. At La Cresta Road, the new 230 kV circuit would transition underground and continue along La Cresta Road for 1.5 miles until reaching Broadway via Greenfield Drive. The route would then proceed west for 7.5 miles on Broadway before turning northwest. The route would continue northwest on Jackson Drive for 1.5 miles, turn southwest on Mission Gorge Road and continue for 3 miles until reaching Friars Road. At Friars Road the route would continue west for 2.5 miles until reaching Mission Substation.

Rationale for Elimination. The El Cajon-Mission Gorge Road Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. The underground construction associated with this alternative would traverse more highly developed areas in El Cajon, Fletcher Hills, Allied Gardens, and Mission Valley, thus creating significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation, unknown cultural resources, and biological resources (near parks). The route would also bore across two watercourses underground (Lake Murray Drainage and San Diego River) and would cross six major roadways (Interstate 8, Business Route 8, State Route 54, State Route 67, State Route 125, and Interstate 15). SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

City of Santee–Mission Gorge Road Alternative

Alternative Description. This alternative would exit Miguel Substation and follow the Miguel-Mission ROW overhead until reaching Los Coches Substation, similar to the Proposed Project. At Los Coches Substation, the proposed 230 kV line would transition underground and follow Julian Road west for 1.5 miles. The route would then proceed north on Los Coches Road for a short distance until reaching Woodside Avenue, continuing southwest for 4.5 miles until reaching Mission Gorge Road. The route would follow Mission Gorge Road until Friars Road and then continue to Mission Substation.

Rationale for Elimination. The City of Santee-Mission Gorge Road Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. This alternative would create significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation, unknown cultural resources, and biological resources (near parks). The route would also bore under the San Diego River, cross several major flood control structures near Mission Gorge, and cross three major roadways [State Route 67 (narrow underpass), State Route 125, and Interstate 15]. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

Moreno-Santee Regional Lakes Alternative

Alternative Description. Under the Moreno-Santee Regional Lakes Alternative, the new 230 kV circuit would be installed in the same aboveground configuration within the Miguel-Mission ROW until crossing Moreno Road in the community of Moreno, similar to the Proposed Project. At the intersection of the Miguel-Mission ROW and Moreno Road, the 230 kV circuit would transition from aboveground to an underground configuration and then head south along Moreno Road until reaching Willow Road. At Willow Road, the 230 kV circuit would continue underground in a southwest direction, crossing State Route 67, then on Lakeside Avenue (as it turns into Riverside Drive and Mast Street) for approximately 6 miles until reaching Santee Lakes Regional Lakes. The proposed circuit would continue underground along the eastern edge of the Santee Lakes on or near Fanita Parkway, then head east on Ganley Road and then north on Strathmore Road. Northeast of Strathmore Road, the 230 kV circuit would then transition aboveground configuration and reconnect to the Miguel-Mission ROW.

Rationale for Elimination. The Moreno-Santee Regional Lakes Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. This alternative would create significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation (e.g., Santee Lakes Regional Park), unknown cultural resources, and biological resources (near parks). The route would also bore under the San Vicente Creek (near Moreno Road), cross State Route 67, a highly congested roadway, and pass through the center of downtown City of Santee (Mast

Boulevard) and just south of Santana High School. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

Miguel-Main-Mission A Alternative

Alternative Description. The alternatives west of Miguel Substation were developed in order to develop an alternate route for the proposed 230 kV circuit that would be shorter than the Proposed Project route and would avoid public concerns regarding visual impacts and biological impacts discussed during the scoping process. Avoidance of downtown San Diego, Balboa Park, Old Town San Diego, tourist attractions along Harbor Boulevard, and Presidio Community Park influenced the development of the route alternatives.

This alternative would exit Miguel Substation west and underground along San Miguel Road until reaching Bonita Road, where it would continue underground until reaching an existing ROW at the intersection of E Street and Bay Boulevard (adjacent to the Sweetwater Marsh National Wildlife Preserve), a distance of approximately 7.5 miles. The new 230 kV circuit would then transition to an overhead configuration on a new cable pole and continue north/northwest for approximately 5.5 miles in a vacant position on the east side of an existing lattice tower alignment along the waterfront that eventually connects to Main Street Substation. The new 230 kV circuit would then exit Main Street Substation northwest and underground and continue along Harbor Blvd. to the Pacific Coast Highway, at which point it would continue underground another 7 miles until reaching Interstate 5. The proposed circuit would then transition to an overhead configuration in order to cross the San Diego River in the vicinity of Old Town Substation located at 5525 Gaines Street. From Old Town Substation, the 230 kV circuit would continue east for approximately 3.75 miles in an overhead configuration on one of two existing pole alignments located on the north side of Friars Road and enter the Mission Substation.

Rationale for Elimination. The Miguel-Main-Mission A Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. This alternative would travel through highly developed areas in Chula Vista, the Pacific Coast Highway, downtown San Diego, and Mission Valley and would create significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation and tourist areas (Chula Vista Nature Center, Seaport Village, Petco Park, San Diego Convention Center), unknown cultural resources, and biological resources (near parks).

A portion of this alternative route would be located within the Sweetwater March National Wildlife Refuge, a very sensitive biological resource area (this portion of the alternative would only require reconductoring on existing structures). The project would cross two major watercourses (Sweetwater River and San Diego River), four major roadways and highways [Interstate 805, Interstate 5 (two crossings), Interstate 8, and State Route 163], and numerous light rail tracks throughout the region, possibly disrupting rail operations for a short period of time. The construction of this route would also cause traffic impacts along roadways adjacent to San Diego International Airport, which is just south of the

route. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

Miguel-Main-Mission B Alternative

Alternative Description. The alternatives west of Miguel Substation were developed in order to develop an alternate route for the proposed 230 kV circuit that would be shorter than the Proposed Project route and would avoid public concerns regarding visual impacts and biological impacts discussed during the scoping process.

This alternative would exit Miguel Substation west and would be placed underground along San Miguel Road until reaching Bonita Road, where it would continue underground until reaching an existing ROW at the intersection of E Street and Bay Boulevard (adjacent to the Sweetwater Marsh National Wildlife Preserve), a distance of approximately 7.5 miles. The proposed 230 kV circuit would then transition to an overhead configuration on a new cable pole and continue north/northwest for approximately 5.5 miles in a vacant position on the east side of an existing lattice tower alignment along the waterfront that eventually connects to Main Street Substation. The proposed 230 kV circuit would exit Main Street Substation north and underground and continue along 30th Street until reaching University Avenue, turning west and continuing underground along University until turning southwest on Washington Avenue and intersecting with Pacific Coast Highway. From this point the line would continue underground north/northwest along the Pacific Coast Highway until it reaches Interstate 5.

The proposed circuit would then transition to an overhead configuration in order to cross the San Diego River in the vicinity of Old Town Substation located at 5525 Gaines Street. From Old Town Substation, the proposed circuit would continue east for approximately 3.75 miles in an overhead configuration on one of two existing pole alignments located on the north side of Friars Road and enter the Mission Substation.

Rationale for Elimination. The Miguel-Main-Mission B Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. This alternative would travel through highly developed areas in Chula Vista, the Pacific Coast Highway, and Mission Valley and would create significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, recreation areas (Chula Vista Nature Center and Memorial Community Park Recreational Center), unknown cultural resources, and biological resources (near parks).

A portion of this alternative route would be located within the Sweetwater March National Wildlife Refuge, a very sensitive biological resource area (this portion of the alternative would only require reconductoring on existing structures). The project would cross two major watercourses (Sweetwater River and San Diego River), four major roadways and highways [Interstate 805, Interstate 5 (four crossings), Interstate 8, and State Route 163 (two crossings)], and numerous light rail tracks throughout the region, possibly disrupting rail operations for a short period of time. The construction of this route would also

cause traffic impacts along roadways adjacent to San Diego International Airport, which is just south of the route. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to, additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

West of Miguel Underground Alternative

Alternative Description. The alternatives west of Miguel Substation were developed in order to develop an alternate route for the proposed 230 kV circuit that would be shorter than the Proposed Project route and would avoid public concerns regarding visual impacts and biological impacts discussed during the scoping process.

This alternative would exit Miguel Substation underground and head west along San Miguel Road for 2 miles. The route would turn north on Bonita Road and pass through Bonita Golf Club to Sweetwater Road. The route would continue north along Sweetwater Road to Worthington Street until connecting with Paradise Valley Road. At Paradise Valley Road, the route would continue west for 0.5 miles, then turning north on Meadowbrook Drive and then east on Skyline Drive. The route would continue on Cardiff Street/Skyline Drive until reaching Broadway. At Broadway, the route would turn to the west and continue for 1.5 mile, turn north on Massachusetts Road and continue on University Avenue for 1.5 miles until reaching College Avenue, and continue north on College Avenue/Montezuma Road for 1.5 miles until reaching Fairmount Avenue. The route would continue north on Fairmount Avenue until reaching Mission Gorge Road and continue for 1.5 miles until reaching Friars Road and turning west. The route would then continue west on Friars Road for 2.5 miles until reaching Mission Substation.

Rationale for Elimination. The West of Miguel Underground Alternative is feasible and is consistent with all of SDG&E's project objectives; however, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW and would cause schedule delays. This alternative would travel through highly developed areas in La Mesa, Jamacha Valley, Lemon Grove, El Cajon, and Mission Valley and would create significantly greater short-term impacts in the areas of air quality, traffic, public services, noise, safety (increased response times for emergency vehicles), hazardous materials, unknown cultural resources, and biological resources (near parks). This route may also impact Sweetwater County Park and access to other recreational areas (e.g., Skyline Community Park, Bonita Golf Club).

This alternative would require two bored crossings of major watercourses (Sweetwater River and the San Diego River) and would cross five major roadways and highways (State Route 54, State Route 125, State Route 94, Interstate 8, and Interstate 15) and two light rail tracks, possibly disrupting rail operations for a short period of time. This alternative would also pass just south of San Diego State University, possibly disrupting school activities and causing traffic issues around the campus. In addition, there is also major construction currently underway at the intersection of Sweetwater Road and State Route 125, because Caltrans is in the process of improving this interchange. SDG&E has stated that underground installation of the 230 kV line could require reactor stations and associated facilities every 10 to 15 miles, each of which may occupy up to 1 acre of land. In addition, a termination station would be needed at each end of the underground segment, which would require the acquisition of, and impact to,

additional land. These requirements may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources. Because of the severity of the temporary impacts outside of the existing utility corridor and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

Non-Wires Alternatives

Wind Technology

Alternative Description. San Diego could obtain significant amounts of wind power from the Laguna and Jacumba Mountains located in eastern San Diego County, where Class 5 and Class 6 wind speeds are not uncommon. Up to 500 MW of potential wind generation capacity could be developed over the next 30 years in the San Diego area, although the main obstacle to utilizing wind generation is the lack of existing transmission infrastructure to transport the power to the grid. In addition to land required for transmission lines, approximately 5 to 6 acres are needed per megawatt of wind power. To achieve the Miguel-Mission 230 kV #2 Project objectives, an approximately 2,500 to 3,000 acre windfarm project would be needed. Additional transmission infrastructure would also be required.

Rationale for Elimination. Wind technology has the advantage of not requiring the burning of fossil fuels and the resulting environmental and resource impacts associated with natural gas-fired power. However, wind has the potential to cause significant land use, biological, cultural resources, and visual impacts. Transmission of the renewable power would also still be necessary, which would cause construction impacts similar to those identified for the Proposed Project. There are also reliability concerns with wind technology because of the need for a consistent wind source and so it does not meet the project objective of providing reliable and flexible power to the SDG&E service area. Because of its intermittent nature and limited near-term availability in the project area due to lack of transmission capability, wind technology is eliminated from the EIR consideration.

Solar Technology

Alternative Description. San Diego has among the best solar resources in the nation, possessing an average of 5.7 usable hours of peak sunshine per day. In addition, there has been significant growth of the use of photovoltaic power generation in San Diego, largely because of long term planning efforts. For example, the San Diego Regional Energy Office (SDREO) and the U.S. Department of Energy have agreed on the goal of installing 20,000 solar roofs on industrial and commercial buildings by the year 2020. The SDREO has further indicated that the substantial costs associated with solar technology can be reduced through increased module production, aggregated purchasing strategies, and government tax incentives.

Rationale for Elimination. Solar technology has the advantage of not requiring the burning of fossil fuels and the resulting environmental and resource impacts associated with natural gas-fired power. However, solar technology has the potential to cause significant land use, biological, cultural resources, and visual impacts. Transmission of the renewable power would also still be necessary, which would cause construction impacts similar to those identified for the Proposed Project. There are reliability concerns with solar technology because of the need for a consistent light source. Given the project objectives of improving existing transmission infrastructure and providing reliable and flexible power to the entire SDG&E service area, the current status of solar energy technology does not meet the project objectives.

Demand-Side Management Alternative

Alternative Description. The CPUC supervises various demand-side management programs administered by the regulated utilities, and many municipal electric utilities have their own demand-side management programs. In spite of the State's success in reducing demand to some extent in 2001, California continues to grow and overall demand is increasing. Economic and price considerations as well as long-term impacts of State-sponsored conservation efforts are considered in load forecasts. However, there are uncertainties about how much the demand reduction in the summer of 2001 was due to temporary behavioral changes and how much was due to permanent equipment changes. Despite the fact that demand-side management remains the leading focus of the State's efforts to meet electricity needs, population and economic growth, and reliability concerns limit demand reductions in the project area.

Rationale for Elimination. The available energy savings from demand side management programs are insufficient to improve the service reliability as required by project objectives. As a stand-alone alternative to the Proposed Project, energy conservation and load management programs represent a small fraction of the capacity requirements needed to meet SDG&E's project import and reliability objectives.

Distributed Generation

Alternative Description. Distributed generation (DG) is the generation of electricity from facilities that are smaller than 50 MW in net generating capacity. Local jurisdictions — cities, counties and air districts — conduct all environmental reviews and issue all required approvals or permits for these facilities. Most DG facilities are very small, for example, a fuel cell can provide power in peak demand periods for a single hotel building. More than 2,000 MW of DG is now in place in California.

San Diego has 527 DG sites with a combined capacity of 372.3 MW, most of which comes from combined heat and power. In addition, other DG systems such as landfill gas and hydropower currently add about 40 MW of the above total. The potential for an increased use of DG systems is expected to occur mostly in association with Combined Heat and Power (Combined cycle) applications, although, landfill gas (Biomass Energy) facilities are estimated to almost double by the year 2020.

Rationale for Elimination. This alternative does not meet project objectives. In addition, at this time it is not yet feasible to construct and operate DG alternatives in sufficient quantity to meet projected demand. Further, use of DG technologies as a reliable source of power would require regulatory support and would be limited by the technical capabilities of various distributed generation technologies.

Integrated Resources Alternative

Alternative Description. An integrated resources alternative could be made up of several components, rather than consideration of only a single transmission line project. The components could include a combination of the following:

- Demand-side management
- Transmission system upgrades
- Development of solar power and other renewables
- Distributed generation
- Generating facilities or cogeneration facilities.

Rationale for Elimination. Each alternative technology component addressed above is technically feasible. However, implementation of a combination of resources could not be accomplished by the Applicant in this project and would require regulatory changes or financial incentives that are not available in today's market. Therefore, this alternative has been eliminated from further analysis in the EIR.

ES.3 Environmental Impacts and Mitigation Measures

Impact Assessment Methodology. The analysis of environmental impacts is based upon the environmental setting applicable to each resource/issue and the manner in which the construction, operation and maintenance of the Proposed Project or alternatives would affect the environmental setting and related resource conditions. In accordance with CEQA requirements and guidelines, the impact assessment methodology also considers the following three topics: (1) the regulatory setting, and evaluates whether the Proposed Project or alternatives would be consistent with adopted federal, State and Local regulations and guidelines, (2) growth-inducing impacts, and (3) cumulative impacts. Regulatory compliance issues are discussed in each resource/issue area section. The EIR document is organized according to the following major issue area categories:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Paleontology
- Hydrology and Water Quality
- Land Use and Recreation
- Noise and Vibration
- Public Health and Safety
- Public Services and Utilities
- Socioeconomics
- Transportation and Traffic
- Visual Resources

In order to provide for a comprehensive and systematic evaluation of potential environmental consequences to the resource/issue areas, the environmental impact assessments for the Proposed Project and alternatives are based upon a classification system, with the following four associated definitions:

Class I: Significant impact; cannot be mitigated to a level that is not significant

Class II: Significant impact; can be mitigated to a level that is not significant

Class III: Adverse impact, less than significant

Class IV: Beneficial impacts

In a number of instances, SDG&E has proposed measures to reduce impacts to potentially affected resources or areas. These types of actions are termed "Project Protocols" (PPs) in the EIR and are considered in the impact assessment as part of SDG&E's Proposed Project description. As such, these measures are different from CEQA mitigation measures, described below.

Mitigation Measures. The EIR describes feasible measures that could minimize significant adverse impacts (CEQA Guidelines Section 15226.4). Within each issue area, mitigation measures are recommended where environmental effects could be substantially minimized. Since some reviewing agencies require a demonstration of reduction of impacts to the maximum extent possible, mitigation measures have been identified for all classes of impacts (except beneficial impacts). The mitigation measures recommended by this study have been identified in the impact assessment sections of the EIR and are presented in Mitigation Monitoring Program tables at the end of the analysis for each resource/issue area.

The major findings of the EIR analysis are summarized below according to resource issue area. Regulatory issues pertinent to each resource are identified, along with a summary of the primary Class I

(significant, unmitigable) and Class II (significant, mitigable) impacts that would be expected from the construction and operation of the Proposed Project. Comparative effects of the alternatives are also provided. Impact findings and mitigation measures for the Proposed Project and alternatives are summarized in Tables ES-5 and ES-6, at the end of this Executive Summary.

3.1 Air Quality

3.1.1 Proposed Project

The project would generate localized pollutant emissions from construction equipment over the entire construction duration, approximately 24 months. Emissions would be caused by general construction, structure foundation excavation, structure delivery and setup, wire installation, fugitive dust from travel along the right-of-way, and substation work. Any travel on unpaved roads and surfaces would create fugitive dust. Use of construction equipment and motor vehicles would cause emissions of pollutants that could contribute to existing elevated concentrations of ozone precursors and PM₁₀ in the region. Implementation of the proposed Project Protocols and recommended mitigation measures would control dust emissions and reduce equipment emissions. These strategies would reduce these potentially significant air quality impacts to less than significant levels.

Small quantities of vehicular emissions associated with maintenance and repair of the transmission line would be the only long-term source of emissions during the operational phase of the project.

The project would influence emissions from power plants in the region as they would adjust operation to serve electricity demand through the Proposed Project. No significant air quality impacts would occur due to emissions from power plants because the project would not change the demand for power, and the project would generally improve the efficiency of the generators delivering power through the grid.

Adding a second future 230 kV circuit would cause increased emissions during construction activities, but as with the Proposed Project, mitigation is recommended to reduce the impacts to less than significant levels. Operation of an additional circuit would further facilitate transmission of power through San Diego County. As with the project, an additional circuit would not change the demand for power, and the efficiency of power delivery through the grid would generally be improved when compared to conditions without an additional circuit, which means no significant changes in emissions from power plants would occur.

3.1.2 Alternatives

The air quality impacts for each alternative would vary depending on their likelihood of creating a nuisance during construction, especially related to the proximity of sensitive receptors. In general, all alternatives would cause similar air quality impacts, which means that the mitigation measures for the Proposed Project would remain appropriate regardless of the alternative.

Jamacha Valley 138 kV/69 kV Underground Alternative

Construction dust and equipment exhaust emissions from activities related to the installation of new poles in Jamacha Valley would be avoided, but this would be offset with a longer duration of more intense activity from underground work along Willow Glen Drive and near the Singing Hills Memorial Park cemetery. During operation of this alternative, air quality impacts would be similar to those of the Proposed Project.

Jamacha Valley Overhead A Alternative

Construction of the poles for the 138 kV/69 kV line near the eastern edge of the ROW under this alternative would consist of essentially the same construction activities in the Jamacha Valley, which have a similar ability to cause a nuisance from dust or construction equipment emissions. However, dust and equipment emissions would be greater under this alternative, due to the need to extend or create roads to access the eastern side of the ROW. During operation of this alternative, air quality impacts would be similar to those of the Proposed Project.

Jamacha Valley Overhead B Alternative

Construction dust and equipment exhaust emissions from activities related to the installation of new poles would be of a longer duration and more intense than necessary for tower modifications that would occur under the Proposed Project, and additional air quality impacts would be related to installing the new 138 kV/69 kV steel poles in the Jamacha Valley. During operation of this alternative, air quality impacts would be similar to those of the Proposed Project.

City of Santee 138 kV/69 kV Underground Alternative

Construction dust and equipment exhaust emissions from activities related to the installation of new poles in the City of Santee would be avoided, but this would be offset with a longer duration of more intense activity from underground work along the neighborhood streets. During operation of this alternative, air quality impacts would be similar to those of the Proposed Project.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

Compared to the Proposed Project, construction of the poles on the north side of the ROW under this alternative would result in similar construction activities. Although the activity for installing the poles would be further from homes along the south side of the ROW, the construction activities would have a similar ability to cause a nuisance from dust or equipment emissions. During operation of this alternative, air quality impacts would be similar to those of the Proposed Project.

No Project Alternative

Because some transmission projects would continue regardless of the Proposed Project, the No Project Alternative would not change air quality impacts from such transmission improvements. Although it would be speculative to predict the type and location or schedule of development for new generation facilities needed to overcome the transmission system constraints remaining under the No Project Alternative, new power plants would need to comply with local air pollution control requirements and the local licensing process, which would likely force air quality impacts to be reduced to less than significant levels.

3.2 Biological Resources

3.2.1 Proposed Project

The Proposed Project is located entirely within San Diego County. San Diego County is a biologically diverse region that supports rare and declining native habitats, numerous federal and State-listed plant and animal species, and an increasing amount of federally designated critical habitat for listed species.

The environmental setting of the project area generally encompasses rivers, ephemeral drainages, vernal pools, riparian habitats, grasslands, and large expanses of native coastal sage scrub and chaparral. The ROW passes through a section of Mission Trails Regional Park and the San Diego National Wildlife Refuge Otay Sweetwater Unit. Activities related to the construction, operation, and maintenance of the Proposed Project would cause direct and indirect temporary and permanent impacts to sensitive vegetation types, and special status plant and animal species.

However, all of the following impacts would be reduced to less than significant levels with the implementation of Project Protocols and mitigation.

- **Temporary and/or Permanent Loss of Sensitive Vegetation Communities.** The Proposed Project would result in temporary disturbance and/or permanent loss to sensitive vegetation communities such as: chamise chaparral, coastal sage scrub, disturbed coastal sage scrub, maritime succulent scrub, and annual grasslands. Impacts to these sensitive vegetation communities are potentially significant and would require mitigation to reduce impacts to less than significant levels.
- **Impacts to Sensitive Plant Species.** Significant temporary impacts to the following sensitive plant species are not anticipated, but have the potential to occur: San Diego ambrosia, and San Diego barrel cactus. Mitigation is proposed to reduce the impact to these species to less than significant levels. No permanent impacts are anticipated to any sensitive plant species.
- **Impacts to Sensitive Animal Species.** Potentially significant impacts to the following sensitive animal species would occur as a result of the Proposed Project: raptors, coastal cactus wren, coastal California gnatcatcher, San Diego fairy shrimp (vernal pool), and quino checkerspot butterfly.
- **Impacts by Invasive Plant Species.** Construction of the Proposed Project could result in the introduction of new invasive plants or the spread of existing invasive species into portions of the project area in which invasive species do not already occur. Unless properly maintained, recently disturbed areas could recolonize with invasive species that outcompete slower growing native species. The seeds of invasive species could be transported to other areas by the tires of trucks used during construction. This is a significant impact, but mitigable to less than significant levels.
- **Impacts due to Bird Electrocutation and Tower/Line Collisions.** Bird electrocutions could occur at the Miguel, Los Coches, Elliot, Mission Substations or the Fanita Junction with any low voltage power lines (less than 69 kV) associated with these substations, where conductors are less than 80 inches apart (the wingspan of the largest North American raptor or waterfowl). Bird collisions with power lines generally occur when:
 - A power line or other aerial structure transects a daily flight path used by a concentration of birds, and
 - Migrants are traveling at reduced altitudes and encounter tall structures in their path.

The potential for bird collisions with the Proposed Project's power lines or substation facilities occurs along the entire project ROW, and is greatest in those locations that are near open water and wetlands. However, overall bird electrocutions and collision impacts would be less than significant.

- **Indirect impacts.** Potential indirect impacts from project construction requiring mitigation include: decreased water quality (through sedimentation, urban contaminants, or fuel release, for example), construction noise, and night lighting. Water quality in riparian areas can be adversely affected by potential surface runoff and sedimentation during construction. The use of petroleum products (fuels, oils, lubricants) and erosion of cleared land during construction could potentially contaminate surface water. In addition, there is a potentially higher than normal risk of surface runoff and erosion due to the October 2003 Cedar Fire. Indirect impacts associated with project activities will

include a temporary increase in noise due to vehicles such as augers, cranes and pick-up trucks. Breeding birds and mammals may temporarily or permanently leave their territories to avoid construction activity, which could lead to a reduction in reproductive success and increased mortality. Night lighting on native habitats can prevent nocturnal wildlife from using an area.

3.2.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

Implementation of this alternative would moderately reduce temporary and permanent impacts to, and mitigation for, sensitive vegetation communities as compared to the Proposed Project. Temporary and permanent impacts to sensitive plant and animal species would require mitigation, as would impacts resulting from invasive plant species, construction noise, night lighting, traffic, access to properties, and decreased water quality. Bird electrocution and collision impacts would be adverse but less than significant. With mitigation measures similar to those identified for the Proposed Project, all impacts related to this alternative would be reduced to less than significant levels.

Jamacha Valley Overhead A Alternative

Implementation of the Jamacha Valley Overhead A Alternative would have only slightly greater impacts to, and mitigation for, sensitive vegetation communities than the Proposed Project, with a slight increase in temporary and permanent impacts and total mitigation. This alternative would also require construction or extension of access roads to access the eastern edge of the ROW. Temporary and permanent impacts to sensitive plant and animal species would require mitigation, as would impacts resulting from invasive plant species, construction noise, night lighting, traffic, access to properties, and decreased water quality. Bird electrocution and collision impacts would be adverse but less than significant. With mitigation measures similar to those identified for the Proposed Project, all impacts related to this alternative would be reduced to less than significant levels.

Jamacha Valley Overhead B Alternative

This alternative would result in a reduction in temporary impacts to sensitive vegetation communities and an increase in permanent impacts to sensitive vegetation communities and in required mitigation as compared to the Proposed Project. Temporary and permanent impacts to sensitive plant and animal species would require mitigation, as would impacts resulting from invasive plant species, construction noise, night lighting, traffic, access to properties, and decreased water quality. Bird electrocution and collision impacts would be adverse but less than significant. With mitigation measures similar to those identified for the Proposed Project, all impacts related to this alternative would be reduced to less than significant levels.

City of Santee 138 kV/69 kV Underground Alternative

This alternative would result in a slight reduction in temporary impacts to sensitive vegetation communities. Mitigation for sensitive vegetation communities would be slightly less than that required for the Proposed Project. Temporary and permanent impacts to sensitive plant and animal species would require mitigation, as would impacts resulting from invasive plant species, construction noise, night lighting, traffic, access to properties, and decreased water quality. Bird electrocution and collision impacts would be adverse but less than significant. With mitigation measures similar to those identified

for the Proposed Project, all impacts related to this alternative would be reduced to less than significant levels.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

Although there would be a slight increase in temporary and permanent impacts and required mitigation due to the construction of the two additional crossover 230 kV steel mono-poles, the biological resources impacts would only be slightly greater with the City of Santee 230 kV Overhead Northern ROW Boundary Alternative than with the Proposed Project. Temporary and permanent impacts to sensitive plant and animal species would require mitigation, as would impacts resulting from invasive plant species, construction noise, night lighting, traffic, access to properties, and decreased water quality. Bird electrocution and collision impacts would be adverse but less than significant. With mitigation measures similar to those identified for the Proposed Project, all impacts related to this alternative would be reduced to less than significant levels.

No Project Alternative

Under the No Project Alternative, the SDG&E ROW would remain in its current condition with existing access roads, transmission lines, and towers and poles. No new impacts to sensitive vegetation communities such as coastal sage scrub, chamise chaparral, or maritime succulent scrub would occur under the No Project Alternative. In addition, no new impacts to sensitive plants or animals, such as San Diego barrel cactus or quino checkerspot butterfly, would occur under the No Project Alternative.

Indirect impacts associated with project construction to water quality, fugitive dust, or changes in animal behavior would not occur under the No Project Alternative. However, the No Project Alternative would likely result in additional air emissions from power plant operations. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. The effect of these emissions on biological resources would be less than significant due to the dispersed nature of the emissions. In addition, if new power plants were constructed, additional impacts to biological resources would likely occur.

3.3 Cultural Resources

3.3.1 Proposed Project

Fifty-eight cultural resources are located within the boundaries of the Proposed Project. Of these, 15 resources have been determined ineligible for the California Register of Historical Resources (CRHR) or have been identified as non-unique archaeological resources. Of the 43 historical resources or potential historical resources in the project area, 37 are located in the vicinity of project construction areas (defined as being within 150 feet of a project component).

Construction activities have the potential to affect known and undetected cultural resources. Impacts to cultural resources could also result during future construction and maintenance resulting from accidental damage, vandalism, or unauthorized collection of cultural materials from sites by project personnel. In addition, construction of new access roads and maintenance of existing roads could potentially affect cultural resources by providing enhanced public access to environmentally sensitive areas. Enhanced access could lead to an increase in accidental damage, vandalism, or unauthorized collecting of artifacts by the public.

Mitigation measures are designed to address potential effects on both known and undetected cultural resources. Mitigation measures include archaeological survey, avoidance of cultural resources, evaluation and data recovery, construction monitoring, cultural resources awareness training for construction personnel, and installation of locked gates on access roads. These measures would reduce all potential impacts to cultural resources to less than significant levels.

3.3.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

This alternative is located along the Sweetwater River in an archaeologically sensitive area, which is an area with a high probability of buried sites located in the vicinity. Excavation during construction activities would have the potential to affect historical resources or unique archaeological resources. In addition, Willow Glen Drive may be old enough to qualify as a potential historical resource. Consequently, this alternative could potentially affect known and undiscovered cultural resources. Installing the circuits underground increases the likelihood of affecting unknown buried cultural resources by moving construction to an area of higher archaeological sensitivity, as well as vastly increasing the amount of ground disturbance. Impacts to cultural resources would be mitigated to less than significant levels through mitigation.

Jamacha Valley Overhead A Alternative

This alternative would have a greater area of disturbance during construction of the pole sites and access roads in comparison to the Proposed Project, which would thereby increase its potential effects on known and unknown cultural resources.

Jamacha Valley Overhead B Alternative

The number of potential impacts to cultural resources would be higher with this alternative than with the Proposed Project. This alternative would increase potential impacts in the Jamacha Valley where the existing 138 kV/69 kV steel lattice structures would be replaced by new poles. The replacement of the existing 138 kV/69 kV structures in the Jamacha Valley would increase construction in this area over that for the Proposed Project, thereby increasing the potential effects on known and unknown cultural resources.

City of Santee 138 kV/69 kV Underground Alternative

Potential impacts to cultural resources from this alternative are only slightly higher than for the Proposed Project. Although this alternative was not included in the cultural resources studies performed for the Proposed Project and the presence of cultural resources along the route is unknown, it is located in an area of cultural resource sensitivity similar to that of the Proposed Project. Consequently, this alternative could potentially affect known and undiscovered cultural resources. Installing the circuits underground increases the likelihood of affecting unknown buried cultural resources by increasing the amount of ground disturbance. Implementation of the mitigation measures developed for the Proposed Project would reduce the potential effects of this alternative on cultural resources to less than significant levels.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

This alternative would have a greater area of disturbance during construction of the two additional mono-pole sites in comparison to the Proposed Project, which would thereby increase its potential effects on known and unknown cultural resources. The implementation of the Project Protocols and mitigation measures for the alternative would reduce the effect of the alternative on cultural resources to less than significant levels.

No Project Alternative

The likelihood of adverse impacts from a project hinges on the potential of damaging or destroying known or unanticipated cultural deposits during project construction. Under the No Project Alternative, no adverse impacts to cultural resources would be expected due to the CAISO-implemented congestion measures. However, impacts to cultural resources could occur under the No Project Alternative if new power plants are constructed. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. It is assumed that construction of new power plants would comply with CEQA, and that appropriate mitigation measures similar to the ones described in this EIR would be implemented to reduce potentially significant impacts to less than significant levels.

3.4 Geology, Soils, and Paleontology

3.4.1 Proposed Project

No active or potentially active faults would be crossed by the Proposed Project; however, large active faults in the vicinity may generate moderate ground shaking in the area of the project, especially in the western portions of the project. Earthquake-related hazards include ground failure such as liquefaction, lateral spreading, and seismic slope instability. Ground failure by liquefaction is most likely to occur in the low-lying sandy areas such as the San Diego and Sweetwater rivers, Moreno Valley (San Vicente Creek), and the Sycamore Canyon area. Other types of seismic ground failure are less likely.

Landslides, earth flows, and debris flows are also potential impacts that could affect the Proposed Project. These impacts often result from slope instability caused by grading or fill for maintenance roads or for tower footing excavation and construction. The arid environment and the nature of the underlying bedrock have produced unstable or erodible soils throughout the project area on slopes as well as in the low-lying areas. Weathering of volcanic bedrock and of younger sediments that top the mesas and ridges in the western part of the project area generates soils with shrink-swell characteristics. Expansive soils should not be an issue with drilled pier type tower footings; however, the Miguel and Mission Substations are both located on expansive soil.

Fossils are known to occur in the Tertiary sediments in the project area. Terrestrial vertebrate fossils are considered significant historical resources in California. Fossils found during construction of the project would be donated to a local curating museum.

All potential project impacts associated with geology, soils, and paleontology would be mitigated to less than significant levels.

3.4.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

The Jamacha Valley 138 kV/69 kV Underground Alternative within Willow Glen Drive is entirely underground along gentle terrain with readily achieved erosion control by reconstructing the road over the cable trench. This underground construction would allow additional opportunity for excavation instability, but would be less disruptive to erodible soil and potential slope instability than constructing several new towers in bedrock along sloping terrain. All impacts would be mitigated to less than significant levels.

Jamacha Valley Overhead A Alternative

This alternative would have a slightly greater area of disturbance during construction of additional pole sites and the access roads to transition the circuit to the east side of the ROW when compared to the Proposed Project, which would thereby increase the potential for unstable soil conditions to occur as well as the potential to damage paleontological resources. The implementation of the Project Protocols and mitigation measures for the alternative would reduce the effects of the alternative to less than significant levels.

Jamacha Valley Overhead B Alternative

The Jamacha Valley Overhead B Alternative would require construction of a greater number of new poles than the Proposed Project, and it would remove 7 to 12 existing tower structures. The impact of this alternative on the environment would be slightly greater than that of the Proposed Project due to increased ground disturbance necessary to install the additional poles and remove the existing towers; however, the disturbance would be temporary. Erodeable soil would require proper site restoration. All impacts would be mitigated to less than significant levels.

City of Santee 138 kV/69 kV Underground Alternative

The City of Santee 138 kV/69 kV Underground Alternative would be predominantly within paved roads, which would reduce the potential for erosion of loose soil. However, approximately 800 feet of trenching at the west end of the alternative through undeveloped land would be particularly susceptible to erosion and would require proper site restoration. Because this alternative would require trenching in erosion-susceptible soils, the potential for soil disturbance with this alternative would be slightly greater than with the Proposed Project. All impacts would be mitigated to less than significant levels.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

This alternative would have a greater area of disturbance during construction of the two additional mono-poles in comparison to the Proposed Project, which would thereby increase the potential for unstable soil conditions to occur as well as the potential to damage paleontological resources. All impacts would be mitigated to less than significant levels.

No Project Alternative

Implementation of the No Project Alternative assumes the future installation of new power plants in the San Diego area. Although new power plants may be necessary, their location and schedule for development cannot be predicted. Potential new generation facilities would require analysis of geologic and

seismic impacts, requiring consideration of appropriate soil conditions and foundation requirements, and specific facility design to minimize damage during earthquakes that cause strong groundshaking.

3.5 Hydrology and Water Quality

3.5.1 Proposed Project

Most impacts to hydrology and water quality associated with the Proposed Project would be less than significant due to Project Protocols requiring best management practices and other procedures that would reduce the potential for water quality contamination. These potential impacts would include: impacts from soil erosion and sedimentation from construction activity and access roads, potential degradation of water quality through spill of potentially harmful materials used in construction, and groundwater disturbance through project-related excavation. Impacts related to increased runoff from new impervious areas and construction in a potential dam inundation area are not significant due to low potential for watershed modification on a scale sufficient to increase runoff, and low potential for project-related damage in the event of a dam breach.

The analysis found a potential significant impact for flood or erosion damage due to placement of proposed power poles or other permanent aboveground structures in or adjacent to the path of a watercourse. Mitigation measures are proposed to locate aboveground structures outside of flood and erosion hazard areas, or design modifications to protect against flood and erosion damage. These measures will reduce these impacts to a less than significant level.

3.5.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

With the exception of the 3.5-mile 138 kV/69 kV underground line, this alternative is identical to the Proposed Project with identical impacts, mitigation measures, and level of significance. The main difference between the Jamacha Valley 138 kV/69 kV Underground Alternative and the Proposed Project is the Jamacha Valley 138 kV/69 kV Underground Alternative runs parallel to the Sweetwater River and crosses a tributary to the river in an underground cable rather than by overhead span. The underground Jamacha alternative includes potential impacts to groundwater through project-related excavation, and through exposure of the underground cable to stream scour and erosion. Both impacts are considered less than significant because the excavation activities would be shallow and protected by an existing roadway.

Jamacha Valley Overhead A Alternative

In comparison to the Proposed Project, this alternative would require construction or extension of access roads to the east side of the ROW and installation of poles to allow the circuit to cross the alignment. Hydrological impacts would be incrementally greater due to the additional transition poles and the need to access sites on the eastern edge of the ROW. However, with the implementation of the Project Protocols these impacts would still be less than significant.

Jamacha Valley Overhead B Alternative

In comparison to the Proposed Project, this alternative would require construction activities for additional poles in the Jamacha Valley. Hydrological impacts would be incrementally greater due to the addi-

tion of these poles. However, with the implementation of the Project Protocols these impacts would still be less than significant.

City of Santee 138 kV/69 kV Underground Alternative

This alternative would cross one additional watercourse in comparison to the Proposed Project, in the same setting. The potential for groundwater impacts are greater for the City of Santee 138 kV/69 kV Underground Alternative than for the Proposed Project, but construction-related water quality impacts would be less due to the avoidance of installing new poles and constructing new access roads in areas avoided by this route modification. This route has the potential to expose the underground cable to damage through stream scour and erosion, but this impact would be less than significant with mitigation. All other impacts would be adverse but less than significant.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

In comparison to the Proposed Project, this alternative would require the installation of two additional poles to transition the 230 kV circuit to the northern edge of the ROW. Hydrological impacts would be incrementally greater due to the addition of these poles. However, with the implementation of the Project Protocols these impacts would still be less than significant.

No Project Alternative

The No Project Alternative would consist of additional regional generation and/or CAISO-implemented congestion measures. Of these two components of the No Project Alternative, only additional regional generation would likely result in potential construction and operations related hydrology or water quality impacts. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. However, general construction and maintenance activities associated with the new turbines could contaminate surface and groundwater if appropriate protective measures were not taken.

3.6 Land Use and Recreation

3.6.1 Proposed Project

The Proposed Project lies entirely within San Diego County along an existing SDG&E ROW, which crosses unincorporated areas of southern San Diego County, the Cities of Santee and San Diego, and the federally owned and operated MCAS Miramar. Rough foothills with steep valleys and ravines generally characterize the area of the Proposed Project. The Proposed Project route crosses or adjoins many varied land uses and skirts a major metropolitan area and recreational lands.

The analysis finds that, without mitigation, the Proposed Project would conflict with the County of San Diego Recreational Element and would potentially disrupt recreational uses along the transmission corridor. These impacts, however, are fully mitigable. With implementation of all mitigation set forth in Section D.7, all impacts to land use, recreation, and agriculture would be less than significant.

3.6.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

Construction impacts resulting from the underground installation of the 138 kV/69 kV circuits in Jamacha Valley would be potentially greater than those resulting from the Proposed Project due to a longer construction schedule and increased potential disruptions of access associated with the undergrounding process. Operational impacts would be similar to those identified for the Proposed Project. All impacts would be mitigated to less than significant levels.

Jamacha Valley Overhead A Alternative

Compared to the Proposed Project, construction of the 138 kV/69 kV poles near the east edge of the ROW under this alternative would have a slightly longer duration of construction impacts due to construction of new access roads. Operational impacts would be similar.

Jamacha Valley Overhead B Alternative

Compared to the Proposed Project, this alternative would require construction of an additional pole alignment, resulting in greater construction activity and duration in Jamacha Valley, which would have potentially greater construction impacts. Operational impacts would be similar.

City of Santee 138 kV/69 kV Underground Alternative

Construction impacts resulting from the underground installation of the 138 kV/69 kV circuits in Santee would be potentially greater than those resulting from the Proposed Project due to a longer construction schedule and increased potential disruptions of access associated with the undergrounding process. However, all impacts would be mitigated to less than significant levels.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

Although the poles would be installed farther from homes along the south side of the ROW, the construction activities would have a similar ability to disrupt sensitive land uses during construction. The construction of two additional crossover mono-poles would result in slightly greater construction activity, but this impact would also be minor in comparison to the Proposed Project. Therefore, compared to the Proposed Project, construction of the 230 kV poles near the northern edge of the ROW under this alternative would have similar construction impacts as well as similar operational impacts.

No Project Alternative

The No Project Alternative would consist of additional regional generation and/or CAISO-implemented congestion measures. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. The development of new power plants would result in temporary local construction noise, dust, and other nuisance impacts. Long-term operational impacts would include incremental increases in operational noise and air emissions, both of which could potentially result in impacts at the closest residential receptors. The air emissions would incrementally contribute to the pollutant load at these locations, which could also potentially create significant impacts to residential receptors.

3.7 Noise and Vibration

3.7.1 Proposed Project

Construction of the Proposed Project would require short-term use of bulldozers, graders, drill rigs, cranes, compressors, generators, haul trucks, and other equipment. Helicopters would also be needed to transport construction materials, remove and install new towers, and to string the conductors for the overhead line. During the anticipated 24 months necessary to construct the new pole line and install the transmission lines and substation modifications, the intermittent construction noise and vibration impacts from the Proposed Project would be potentially significant. Proper noise suppression techniques and coordination of activities with property owners and occupants through mitigation measures would reduce the construction noise and vibration impacts to less than significant levels.

Once operational, noise from the overhead transmission line would occur from corona discharge and minor inspection or maintenance activities. Corona noise could cause a significant impact if it is excessive near residences, but mitigation measures are recommended to ensure that all necessary design features or changes in line configuration have been incorporated to achieve compliance with the local noise ordinances and that there would be a proper response to any complaints of corona effects. The noise caused by inspection and maintenance along the Proposed Project would not be frequent.

Adding an additional future 230 kV circuit would cause increased construction noise, but as with the project, mitigation is recommended to reduce the impacts to less than significant levels. Operation of an additional circuit would likely result in increased corona noise for all receptors along the alignment. Although corona noise levels cannot be estimated without more detailed design of the future circuit, this impact likely would be more severe than it would be with the Proposed Project. Depending on whether additional communities would be adversely affected, additional mitigation not foreseeable at this time could also be necessary. Similarly, noise from modifications to substations could increase and possibly become significant and warrant unforeseeable mitigation if additional transformers would be needed at the substations.

3.7.2 Alternatives

The noise and vibration impacts for each alternative would vary depending on their likelihood of creating a nuisance during construction, especially related to the proximity of sensitive receptors. In general, all alternatives would cause similar noise and vibration impacts, which means that the mitigation measures for the Proposed Project would remain appropriate regardless of alternative.

Jamacha Valley 138 kV/69 kV Underground Alternative

Compared to the Proposed Project, this alternative would cause increased construction activities along Willow Glen Drive, which would result in a greater number of residences experiencing temporary construction noise. During operation of this alternative, long-term impacts related to corona noise would be slightly reduced.

Jamacha Valley Overhead A Alternative

Compared to the Proposed Project, construction of the 138 kV/69 kV poles near the east edge of the ROW under this alternative would result in similar construction activities. Although the noise for

installing the poles would be further from some homes along the west side of the ROW, the construction activity would generally have a similar ability to cause noise or vibration nuisances. During operation of this alternative, impacts related to corona noise would be similar.

Jamacha Valley Overhead B Alternative

Compared to the Proposed Project, construction of additional poles under this alternative would result in longer construction activities in the Jamacha Valley, which would have a greater ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

City of Santee 138 kV/69 kV Underground Alternative

Compared to the Proposed Project, this alternative would cause increased construction activities along Magnolia Avenue and Princess Joann Road, which would result in a greater number of residences experiencing temporary construction noise. During operation of this alternative, impacts related to corona noise would be slightly reduced.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

Compared to the Proposed Project, construction of the poles on the north side of the ROW under this alternative would result in similar construction activities. Although the noise for installing the poles would be further from homes located along the south side of the ROW, the construction activities would have a similar ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

No Project Alternative

The No Project Alternative could result in new generation capacity being installed in San Diego County or elsewhere to compensate for existing transmission system limitations and anticipated loads. Although new power plants may be necessary, their location and schedule for development cannot be predicted. New generation would need to comply with local noise ordinances and the local licensing process, which would be likely to reduce noise impacts to less than significant levels.

3.8 Public Health and Safety

3.8.1 Hazardous Materials and Environmental Contamination

Two separate issues are addressed under public health and safety: hazardous materials and contamination, and electric and magnetic field (EMF) related issues.

Proposed Project

No known contaminated sites are located along the alignment. However, undocumented contamination may have occurred in the commercial and light industrial areas and may have spread to excavation areas, new pole locations, and along the alignment. Although environmental contamination is unlikely to be encountered, four mitigation measures have been developed, two related to project construction and two related to project operation, to supplement the Project Protocols SDG&E has proposed. With mitigation, potential contamination from spills during construction and project operation would be

prevented, and contamination encountered during construction would be properly removed and transported; all impacts would be less than significant.

3.8.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

The Jamacha Valley 138 kV/69 kV Underground Alternative, within Willow Glen Drive, is almost entirely underground within a paved roadway which would require significant trenching and soil disturbance. The comparable segment of the Proposed Project would require installation of 14 new structures, with excavation limited to the foundation area for each structure. Land use is similar along both alignments; however, no sites with potential environmental impact are located along the comparable segment of the Proposed Project alignment versus two sites with potential environmental impact along the Jamacha Valley 138 kV/69 kV Underground Alternative. The potential to encounter previously unknown contamination is greater along the Jamacha Valley 138 kV/69 kV Underground Alternative route. The potential for hazardous substance spills during construction would be the same for either alignment.

Jamacha Valley Overhead A Alternative

The Jamacha Valley Overhead A Alternative would construct two additional poles in comparison to the Proposed Project, resulting in a slightly greater amount of soil disturbance in the same general area. Impacts of the alternative would be similar to the Proposed Project due to their similar nature and alignment.

Jamacha Valley Overhead B Alternative

The Jamacha Valley Overhead B Alternative would require construction of a greater number of new poles in comparison to the Proposed Project, resulting in a slightly greater amount of soil disturbance in the same general area. No known contaminated sites are located along the alignment. Although environmental contamination is unlikely to be encountered, mitigation would reduce impacts to less than significant. Impacts of the alternative would be similar due to their similar nature and alignment.

City of Santee 138 kV/69 kV Underground Alternative

The City of Santee 138 kV/69 kV Underground Alternative would be almost entirely underground within paved roadways, which would require significant trenching and soil disturbance. The comparable segment of the Proposed Project would require installation of three new structures, with excavation limited to the foundation area for each structure. Land use is similar along both alignments and existing environmental contamination is not expected for either route. The potential for hazardous substance spills during construction would be the same for either alignment.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

This alternative would construct about the same number of new poles as the Proposed Project, resulting in a similar amount of soil disturbance in the same general area. Impacts of the alternative would be similar to the Proposed Project, but slightly less likely to encounter contamination because it would avoid construction along the access road adjacent to the ROW, just east of Magnolia Avenue.

No Project Alternative

The No Project Alternative scenario would most likely result in the installation of new generation in the San Diego area and in other improvements to existing utility systems. Installation of new generation facilities could potentially result in excavation, use, or release of hazardous materials or handling of contaminated soil and/or groundwater, resulting in exposure of workers and the public to hazardous materials. Locations for new facilities could have existing soil or groundwater contamination, which would be encountered during construction excavation. The impacts would occur in the areas where upgrades of existing systems take place, especially when earthwork is required (such as new foundations, footings or trenches).

3.8.3 EMF Issues

This EIR does not consider magnetic fields in the context of CEQA and determination of environmental impact, first because there is no agreement among scientists that EMF does create a potential health risk, and second because there are no defined or adopted CEQA standards for defining health risks from EMF. However, recognizing that there is a great deal of public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMFs) from power lines, the EIR provides information regarding EMF issues associated with electric utility facilities and the potential effects of the Proposed Project related to public health and safety as disclosure only for the public and decision-makers. Potential health effects from exposure to *electric fields* from power lines (effect produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume of space or medium that surrounds it) are typically not of concern since electric fields are effectively shielded by materials such as trees, walls, etc., therefore, the majority of the following information related to EMF focuses primarily on exposure to *magnetic fields* (invisible fields created by moving charges) from power lines. However, the EIR does not consider magnetic fields in the context of CEQA and determination of environmental impact. EMF information is presented only for the benefit of the public and decisionmakers.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remains inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. Most recently the International Agency for Research on Cancer (IARC) and the California Department of Health Services (DHS) both classified EMF as a *possible* carcinogen. The information included in this EIR quantifies existing EMF exposures within the community. These exposures are widespread and cover a very broad range of field intensities and duration. In the Miguel-Mission project area, the magnetic field levels for the existing 69 kV line range from 3 to 8 milliGauss (mG) at a distance of 50 feet from the line. Field levels are estimated to range from 8 to 27 mG for the rebuilt 230 kV/69 kV line (the Proposed Project) at a distance of 50 feet from the line.

Presently there are no applicable regulations related to EMF levels from power lines. Using the 4% benchmark, SDG&E has incorporated low-cost and no-cost measures to reduce magnetic field levels near schools along the proposed route (including deeper burial of underground lines and changing phase configuration). There are additional potential measures for reducing magnetic fields, mostly beyond the no-cost/low-cost parameters (including increasing distance from conductors, reducing conductor spacing, and minimizing current), which are described for the benefit of the public and decision makers in reviewing the Proposed Project.

Five alternatives have been identified. Two of these involve placing 138 kV and 69 kV transmission lines underground, and three would alter the proposed configurations of the 138 kV and 69 kV transmission lines and the new 230 kV transmission line within the existing ROW. Relocation of the 138 kV and 69 kV circuits underground would reduce field levels along the ROW and introduce magnetic fields to the route of the underground lines. When compared to field levels from overhead lines, those from underground lines decay much more rapidly with lateral distance, but can be quite high at locations over the centerline of the cable route. This is because underground conductors would be much closer to ground level than those overhead. For each of the underground alternatives, it was assumed that duct bank for the 138 kV and 69 kV circuits would be covered by at least 36 inches of backfill (Commonwealth, 2004). Compared to the Proposed Project, the alternatives would affect magnetic field levels as follows:

Jamacha Valley 138 kV/69 kV Underground Alternative. Residences are located intermittently along either side of the existing ROW in the Jamacha Valley. Magnetic field levels along the existing ROW in Jamacha Valley would not be substantially reduced by relocating the 138 kV and 69 kV circuits to an underground route: **they would drop from 21.6 mG with the Proposed Project to 21.5 mG under this alternative (at west edge of ROW) and from 10.2 mG to 9.4 mG (east edge).** Placement of the 138 kV and 69 kV circuits in Willow Glen Drive would introduce field levels of 56.6 mG to locations directly above the duct bank. At either edge of the 70-foot wide road, assuming placement of the duct bank in the center of the road, magnetic field levels would be about 1.7 mG.

Jamacha Valley Overhead A Alternative. Magnetic field levels along the western edge of the existing ROW in the Jamacha Valley would not be substantially reduced, and levels along the eastern edge of the ROW would be increased by roughly 40 percent because of locating the 138 kV and 69 kV circuits near the eastern edge: **they would increase from 21.6 mG with the Proposed Project to 21.4 mG under this alternative (at west edge of ROW) and from 10.2 mG to 14.7 mG (east edge).**

Jamacha Valley Overhead B Alternative. Magnetic field levels along the western edge of the existing ROW in the Jamacha Valley would be reduced by roughly 10 percent, and levels along the eastern edge would be increased by roughly 20 percent because of the 230 kV circuits being closer to that edge: **they would decrease from 21.6 mG with the Proposed Project to 19.0 mG under this alternative (at west edge of ROW) and increase from 10.2 mG to 12.5 mG (east edge).**

City of Santee 138 kV/69 kV Underground Alternative. Residences are located immediately adjacent to the southern edge of the existing ROW in the City of Santee. Magnetic field levels along the southern edge of the existing ROW in the City of Santee would be reduced by roughly 30 percent without substantially reducing levels on the northern edge by relocating the 138 kV and 69 kV circuits to an underground route: **magnetic field levels would drop from 39.8 mG with the Proposed Project to 26.4 mG under this alternative (at south edge of ROW) and from 33.3 mG to 32.8 mG (north edge).** Placement of the 138 kV and 69 kV circuits in Princess Joann Road would introduce field levels of 35.8 mG to locations directly above the duct bank. At either edge of the 40-foot wide road, assuming placement of the duct bank in the center of the road, magnetic field levels would be about 5.0 mG.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative. Magnetic field levels along the southern edge of the existing ROW in the City of Santee would be reduced by roughly 50 percent, and because of locating the 230 kV at the northern edge of the ROW, levels would increase by nearly 100 percent on the north side of the ROW: **dropping from 39.8 mG with the Proposed Project to 18.0 mG (at south edge of ROW) and increasing from 33.3 mG to 73.1 mG (at north edge of existing ROW).** This alternative would also expand the existing ROW to the north.

3.9 Public Services and Utilities

3.9.1 Proposed Project

The analysis finds that buried utility lines (e.g., water, sewer, electricity, natural gas, telecommunications, etc.) could share the proposed right-of-way (ROW) with the existing transmission lines. Therefore, drilling and excavation activities associated with the Proposed Project could potentially cause service interruptions of these utilities. Project Protocols, included as part of the Proposed Project, would reduce these potential impacts to less than significant levels.

While the majority of project construction and staging would be confined to the proposed substation sites and ROW, stringing of utility line could interfere with emergency access to surrounding properties when crossing existing roadways. Mitigation would ensure the inclusion of traffic control measures to minimize this potential impact to a less than significant level.

During project construction, water would be required for dust suppression and the cleaning of construction equipment, but once constructed, the Proposed Project would require no water. Proposed Project construction would generate waste largely in the form of soil, concrete from existing foundations, and scrap metal from the existing towers. Project operations would not generate solid waste and would therefore not affect existing landfill capacities. The water used and waste generated by the project would be minor relative to the capacities of local water providers and solid waste facilities. The Proposed Project would not generate or increase wastewater or stormwater runoff. Therefore, impacts to the regional water supply, solid waste facilities, and wastewater facilities would be less than significant.

Neither construction nor operation of the Proposed Project is expected to result in an increase in the local population. Therefore, there would be no impacts to existing schools, fire, or police department service capabilities.

3.9.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

Impacts associated with the Jamacha Valley 138 kV/69 kV Underground Alternative would be greater than those of the Proposed Project, but all impacts remain less than significant. Excavation for the underground portion of the route would have a greater potential to disrupt utilities such as water, electricity, natural gas, and telecommunications than excavation required for tower foundations. However, as discussed above, utility service interruptions could occur during the construction of both the Proposed Project and the Jamacha Valley 138 kV/69 kV Underground Alternative. Both would require notification to the public should utility services be disrupted in the surrounding area to mitigate these impacts.

Jamacha Valley Overhead A Alternative

Installation of the Jamacha Valley Overhead A Alternative would cause a slightly greater likelihood of disrupting utilities during construction when compared to the Proposed Project. Similar to the Proposed Project, this alternative would require notification to the public should utility services be disrupted in the surrounding area. Mitigation associated with the Proposed Project also would be required to mitigate possible emergency access impacts during construction of this alternative.

Jamacha Valley Overhead B Alternative

Installation of the Jamacha Valley Overhead B Alternative would cause a slightly greater likelihood of disrupting utilities during construction when compared to the Proposed Project. Similar to the Proposed Project, this alternative would require notification to the public should utility services be disrupted in the surrounding area. Mitigation associated with the Proposed Project also would be required to mitigate possible emergency access impacts during construction of this alternative.

City of Santee 138 kV/69 kV Underground Alternative

Impacts associated with the City of Santee 138 kV/69 kV Underground Alternative would be slightly greater than the Proposed Project. Excavation for the underground portion of the route would have a greater potential to disrupt utilities such as water, electricity, natural gas, and telecommunications than excavation required for tower foundations. However, as discussed above, utility service interruptions could occur during construction of both the Proposed Project and alternatives. Both would require notification to the public should utility services be disrupted in the surrounding area to mitigate these impacts.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

Installation of the City of Santee 230 kV Overhead Northern ROW Boundary Alternative would result in temporary construction impacts similar to those of the Proposed Project, except that construction along the northern edge of the ROW would be slightly less likely to disrupt utilities, especially east of Magnolia Avenue. Similar to the Proposed Project, this alternative would require notification to the public should utility services be disrupted in the surrounding area. Mitigation associated with the Proposed Project would also be required to mitigate possible emergency access impacts during construction of this alternative.

No Project Alternative

The No Project Alternative would consist of additional regional generation and/or CAISO-implemented congestion measures. Of these two components of the No Project Alternative, only additional regional generation would likely result in potential construction and operations related impacts associated with public services and utilities. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. However, general construction and maintenance activities associated with the new power plants would likely require water, wastewater treatment, and solid waste disposal services. The construction and operation of new power plants would not require the need for public services such as schools, or fire and police protection.

3.10 Socioeconomics

3.10.1 Proposed Project

Construction activities associated with the Proposed Project would be considered short-term and temporary. It is assumed that all construction personnel would come from within a two-hour commute area and would not generate a permanent increase to population levels. No construction impacts to existing or future population growth levels would occur as a result of the Proposed Project. Operation of the modified substations and proposed new transmission lines would not require any additional workers for

operations or maintenance. As such, no new regional growth is expected as a direct or indirect result of the project. Given the number of specialty construction workers within the commute area, it is anticipated there is an adequate available labor force within daily commuting distance to supply the work force for the project.

Because few, if any, construction workers are expected to permanently relocate to the area as a result of construction activities associated with the Proposed Project, no new housing would be needed for the project, and no new competition for existing housing would likely occur. The project would be consistent with both the Land Use Distribution Element of SANDAG's Regional Growth Management Strategy addressing the concept of "jobs/housing balance" and the 1999 Regional Housing Needs Statement (RHNS) identifying the need for very low- and low-income households. While residential developments occur along the route, all project developments would occur within the existing ROW and would not require the removal or relocation of any residential units or business uses. Therefore, the Proposed Project would not result in any displacement impacts.

3.10.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

The Jamacha Valley 138 kV/69 kV Underground Alternative would utilize more temporary construction labor than the Proposed Project. However, there would be a negligible difference between the impacts of the alternative and Proposed Project on population levels and housing availability within the commute distance. All impacts would be less than significant.

Jamacha Valley Overhead A Alternative

The Jamacha Valley Overhead A Alternative would utilize more temporary construction labor than the Proposed Project due to the need to construct access roads in order to access the construction sites along the eastern boundary of the ROW. However, there would be a negligible difference between the impacts of the alternative and Proposed Project on population levels and housing availability within the commute distance. All impacts would be less than significant.

Jamacha Valley Overhead B Alternative

The Jamacha Valley Overhead B Alternative would require a temporary construction labor force similar to that of the Proposed Project. Therefore, there would be no substantial difference between the impacts of the alternative and the Proposed Project on the socioeconomic environment of the project area and all impacts would be less than significant.

City of Santee 138 kV/69 kV Underground Alternative

The City of Santee 138 kV/69 kV Underground Alternative would utilize more temporary construction labor than the Proposed Project. However, there would be a negligible difference between the impacts of the alternative and the Proposed Project on population levels and housing availability within the commute shed. All impacts would be less than significant.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

The City of Santee 230 kV Overhead Northern ROW Boundary Alternative would require a temporary construction labor force similar to that of the Proposed Project. Construction duration would be slightly longer due to the addition of two additional poles. Regardless, there would be no substantial difference between the impacts of the alternative and the Proposed Project on the socioeconomic environment of the project area and all impacts would be less than significant.

No Project Alternative

Under the No Project Alternative, there is a possibility that new power plants would be planned and constructed to compensate for existing transmission system limitations and anticipated loads. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. These projects would require construction, potentially adding to the area's workforce for short periods of time. Population growth in the area is expected to continue with or without the Proposed Project.

3.11 Transportation and Traffic

3.11.1 Proposed Project

Construction of the Proposed Project would require short-term use of heavy construction equipment such as: bulldozers, graders, drill rigs, cranes, compressors, generators, haul trucks, and other equipment. During the anticipated 24 months necessary to construct the new pole line and install the transmission lines and substation modifications, construction traffic impacts associated with the Proposed Project would be potentially significant. Implementation of identified mitigation measures (e.g., coordination of construction activities with local agencies, property owners) would reduce the construction impacts to less than significant.

Once operational, the Proposed Project would have no significant traffic related impacts associated with the transmission operations portion of the Proposed Project. The expected amount of traffic to be generated from transmission operations is approximately 76 vehicle trips per year. Based on the negligible amount of traffic expected during the operations part of the project, no significant impacts would occur.

3.11.2 Alternatives

The traffic impacts associated with each alternative would vary depending on their locations to public roadways and highways. The following is a general discussion of the project alternatives.

Jamacha Valley 138 kV/69 kV Underground Alternative

Implementation of this alternative would result in a significant amount of additional construction impacts within public road ROWs compared to the Proposed Project's overhead alignment, which would have little direct effect on roadways. This alternative would have a greater likelihood of disrupting travel on Willow Glen Drive, and it would cause an additional potentially significant impact by restricting access to properties along the underground route. This impact would be reduced to less than significant levels with implementation of mitigation.

Jamacha Valley Overhead A Alternative

This alternative would require short-term construction activities similar to the activity related to installing the new 138 kV steel poles of the Proposed Project. As with the Proposed Project, this alternative would have the potential to adversely impact transportation and traffic through temporary road closures and additional construction traffic. Also, as with the Proposed Project, all construction related impacts could be reduced to a less than significant level through the implementation of recommended mitigation measures. Because there would be no underground construction with this alternative, impacts related to restricting access to properties would not occur.

Jamacha Valley Overhead B Alternative

Relocation of the existing 138 kV/69 kV circuit to new steel mono-pole structures on the west side of the ROW and removal of the lattice structures in addition to the construction of the new 230 kV circuit on new steel mono-pole structures would result in greater short-term construction activities and duration than the Proposed Project. As with the Proposed Project, this alternative would have the potential to adversely impact transportation and traffic through temporary road closures and additional construction traffic. Also, as with the Proposed Project, all construction related impacts could be reduced to a less than significant level through implementation of recommended mitigation measures. Because there would be no underground construction with this alternative, impacts related to restricting access to properties would not occur.

City of Santee 138 kV/69 kV Underground Alternative

Implementation of this alternative would result in additional construction within public road ROWs compared to the Proposed Project's overhead alignment, which would have little direct effect on roadways. This alternative would have a greater likelihood of disrupting travel on Magnolia Avenue and Princess Joann Road, and it would cause an additional potentially significant impact by restricting access to properties along the underground route. Mitigation measures are recommended to reduce traffic impacts to less than significant levels within the project area.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

The construction of two additional crossover mono-poles would result in slightly greater construction activity, but this impact would have a minor increase in transportation and traffic effects in comparison to the Proposed Project. Therefore, compared to the Proposed Project, construction of the 230 kV poles near the northern edge of the ROW under this alternative would have similar construction impacts. Operational impacts would also be similar.

No Project Alternative

Under the No Project Alternative, the proposed transmission line would not be constructed; therefore, no construction or operational traffic impacts would occur. The No Project Alternative scenario includes the possibility that new power plants would need to be constructed to compensate for existing transmission system limitations and anticipated loads. Although new power plants may be necessary in the San Diego area, their location and schedule for development cannot be predicted. Construction of new power plants would potentially result in traffic and transportation impacts. However, potential impacts and associated mitigation measures would have to be assessed at the time the power plants are proposed.

3.12 Visual Resources

3.12.1 Proposed Project

The segment of the Proposed Project between Miguel Substation and Fanita Junction would be located through visually sensitive areas of San Diego County and the City of Santee that are used extensively for residential, park, recreation, open space, travel, and other public community purposes. Visual impacts to these types of land uses from transmission facilities represent long-term changes to the aesthetic environment since new overhead facilities are proposed for the 138 kV and 69 kV circuits, as well as for some specific 230 kV pole locations.

Installation of SDG&E's Proposed Project would primarily result in the long-term visibility of additional transmission structures and 230 kV circuits, which would increase the industrial character of the existing setting along SDG&E's established utility ROW. Of the 23 key viewpoints that were evaluated between the Miguel Substation and Fanita Junction for the Proposed Project, potentially significant visual changes were documented at 15 KOPs. Areas where potentially significant visual impacts are identified include: Steele Canyon High School (KOP 5), Jamacha Elementary School (KOP 6), Steele Canyon County Park (KOP 7), Cottonwood at Rancho San Diego Golf Club (KOP 8), residential neighborhoods east of Cottonwood at Rancho San Diego Golf Club (KOP 9), Cottonwood residential neighborhood (KOPs 11, 12, and 13), Willow Glen Road (KOP 14), residential areas of Granite Hills and Glenview (KOPs 16, 17, and 18), residential neighborhoods in Santee (KOP 21), Lake Jennings County Park (KOP 19), and Santee Lakes Regional Park (KOP 22). In addition to the impacts at the KOPs, similar potentially significant visual impacts were identified for the Eucalyptus neighborhood, El Cajon neighborhoods near Interstate 8, at crossings of State Route 94, Interstate 8 and State Route 67/Wildcat Canyon Road, and from Louis A. Stelzer County Park.

Mitigation measures are recommended for these visually sensitive locations to reduce potentially significant visual impacts to less than significant levels. Mitigation recommendations include the screening of construction equipment and activities, and the painting and maintenance of pole and towers to reduce the long-term visual contrasts of the project in both natural and landscaped settings to the extent feasible.

The Proposed Project would also cause short-term visual impacts that would result from the visibility of project construction equipment, materials and personnel as well as construction staging areas. Due to the relatively short-term duration of project construction, these impacts would constitute adverse but less than significant visual impacts. However, mitigation is recommended to further reduce these impacts.

The segment of the Proposed Project between Fanita Junction and the Mission Substation would be located in visually sensitive areas of San Diego County and the City of San Diego, including Mission Trails Regional Park, portions of Tierrasanta, and the Admiral Baker Golf Course. SDG&E is proposing to add a second 230 kV circuit to existing structures and to make modifications within the established Mission Substation site. Visual contrasts from these actions would be weak, when compared to the existing utility corridor setting and character. Visual changes from the Proposed Project were therefore not assessed in detail from specific KOPs due to the limited and incremental nature of the visual changes SDG&E's Proposed Project would cause. Overall visual impacts in this segment would be minor and less than significant due to the limited extent of changes.

3.12.2 Alternatives

Jamacha Valley 138 kV/69 kV Underground Alternative

This alternative avoids some of the significant and potentially significant visual impacts that would result from the Proposed Project: it would substantially eliminate the visual impacts along Willow Glen Drive and from the Cottonwood neighborhood near Hillsdale and Vista Rodeo Roads. The alternative would require transition poles at each end of the underground section of lines, resulting in potentially significant visual impacts along Willow Glen Drive, Dehesa Road, and in Singing Hills Memorial Park. Mitigation is recommended to ensure that visual impacts at these locations would be less than significant at these locations.

Potentially significant impacts would still occur under this alternative at the other overhead tower locations described above for the Proposed Project. Sensitive areas that would incur potentially significant visual impacts under this alternative include: Steele Canyon High School (KOP 5), Jamacha Elementary School (KOP 6), Steele Canyon County Park (KOP 7), Cottonwood at Rancho San Diego Golf Club (KOP 8), residential neighborhoods east of Cottonwood at Rancho San Diego Golf Club (KOP 9), residential areas of Granite Hills and Glenview (KOPs 16, 17, and 18), residential neighborhoods in Santee (KOP 21), Lake Jennings County Park (KOP 19), and Santee Lakes Regional Park (KOP 22). In addition to impacts identified for the specific KOPs, potentially significant visual impacts were identified for the Eucalyptus neighborhood, El Cajon neighborhoods near Interstate 8, at crossings of State Route 94, Interstate 8 and State Route 67/Wildcat Canyon Road, and from Louis A. Stelzer County Park. With implementation of mitigation measures, all long-term impacts would be less than significant.

Jamacha Valley Overhead A Alternative

The Jamacha Valley Overhead A Alternative would predominantly result in visual changes that would be similar to, or slightly less than, the visual effects of SDG&E's Proposed Project. Reduced or similar impacts would occur from approximately the ROWs intersection with Steele Canyon and Jamul Drive to south of the intersection of the ROW with Hillsdale Road. Along this part of Jamacha Valley, similar potentially significant visual impacts to the Proposed Project would occur at Cottonwood at Rancho San Diego Golf Club and at Steele Canyon County Park. Reduced visual impacts, compared to the Proposed Project, would occur where the 138 kV/69 kV line and structures would be positioned further away from residences and parks. These types of adverse, less than significant visual impacts would occur to Hilton Head County Park and to residences of the Cottonwood neighborhood located west of the ROW on the ridgeline above Willow Glen Road. For those homes located on the ridgeline to the west of the ROW, this alternative would reduce visual impacts since the structures and lines would be located downslope and further east of the existing lattice structures.

Jamacha Valley Overhead B Alternative

Overall, this alternative would decrease the visual contrasts that would occur with the Proposed Project in Jamacha Valley. The alternative would essentially change the visual character of SDG&E's ROW from a predominantly lattice structure corridor to one that is predominantly single steel mono-poles between Jamacha Elementary School and north of Dehesa Road. Overall, the steel pole designs for the 230 kV and 138 kV/69 kV lines are visually more compatible with urban and community settings and design standards than lattice tower structures.

Visual impacts for this alternative would be less than the Proposed Project for 10 KOPs evaluated from Jamacha Elementary School to north of Dehesa Road. Although the visual impacts would be substantially reduced with this alternative compared to the Proposed Project, the overall visual changes are

considered adverse and potentially significant at the following KOPs: Jamacha Elementary School (KOP 6), Steele Canyon County Park (KOP 7), Cottonwood at Rancho San Diego Golf Club (KOP 8), Cottonwood residential (KOPs 9, 11, 12, and 13), along Willow Glen Road (KOP 14), and from residential areas near Dehesa Road (KOP 16). All impacts would be reduced to less than significant levels with mitigation.

City of Santee 138 kV/69 kV Underground Alternative

This alternative would eliminate the new 138 kV/69 kV steel mono-poles that are proposed by SDG&E for a 0.75-mile stretch of the corridor in the City of Santee. The alternative would underground the 69 kV circuit in an existing access road and then along Princess Joann Road. The 138 kV circuit would also be installed underground, and would connect to SDG&E's existing system along Magnolia Drive. The City of Santee 138 kV/69 kV Underground Alternative would eliminate the need to install three 138 kV wood and steel poles, which would be required with the Proposed Project. In addition, this alternative would eliminate two existing 130 kV wood poles north of Magnolia Avenue. The residents along the southern border of the existing ROW would experience a net reduction of three overhead conductors along this segment of the route in comparison to the existing conditions.

With implementation of this alternative, the Proposed Project's visual impacts to the City of Santee's residential neighborhood would be reduced to less than significant levels. All other impacts associated with the Proposed Project would remain unchanged. Mitigation recommended for the Proposed Project would further reduce all long-term visual impacts to adverse but less than significant levels.

City of Santee 230 kV Overhead Northern ROW Boundary Alternative

The City of Santee 230 kV Northern ROW Alternative would result in adverse, but less than significant visual impacts to the City of Santee residential homes, located immediately south of, and adjacent to, the ROW. Compared to the Proposed Project, reduced visual impacts would occur to these residences located immediately adjacent to the ROW, since no new structures would be installed adjacent to their properties. Visual impacts similar in degree to the Proposed Project would occur, however, to residences located further to the south (e.g. along Princess Joann Road) or to the north, as well as to persons using the ROW for informal recreation, including hiking and biking. Similar, or slightly increased visual impacts would occur to those viewers where the 230 kV mono-poles would be closer, or perceived as taller and slightly more massive than, the 138 kV/69 kV poles, proposed by SDG&E. Visual impacts to these viewers are adverse, and potentially significant.

With implementation of this alternative, the Proposed Project's visual impacts to the City of Santee's residential neighborhood would be reduced to less than significant levels. All other impacts associated with the Proposed Project would remain unchanged. Mitigation recommended for the Proposed Project would further reduce all long-term visual impacts to adverse but less than significant levels.

No Project Alternative

Under the No Project Alternative, the proposed upgrades to SDG&E's existing Miguel to Mission ROW and substations would not occur and no changes in visual quality or views would result. This alternative assumes, however, that SDG&E would need to make other improvements elsewhere in their system to compensate for the system benefits that would not be realized under the No Action scenario. Visual impacts would result to other views and aesthetic resources from system upgrades and installation of new facilities elsewhere could result in increased visual impacts, depending on the location and visual sensitivity of the area.

ES.4 Comparison of Alternatives

This section summarizes and compares the environmental advantages and disadvantages of the Proposed Project and the alternatives evaluated in this EIR. This comparison is based on the assessment of environmental impacts of the Proposed Project and each alternative, as identified in Sections D.2 through D.13. Section C introduces and describes the alternatives considered in this EIR; Appendix 2 includes the Alternatives Screening Report, which documents all alternatives considered in the screening process.

Section E.1 describes the methodology used for comparing alternatives. Section E.2 defines the environmentally superior alternative, based on comparison of each alternative with the Proposed Project. Section E.3 presents a comparison of the No Project Alternative with the alternative that is determined in Section E.2 to be environmentally superior.

4.1 Comparison Methodology

CEQA does not provide specific direction regarding the methodology of alternatives comparison. Each project must be evaluated for the issues and impacts that are most important; this will vary depending on the project type and the environmental setting. Issue areas that are generally given more weight in comparing alternatives are those with long-term impacts (e.g., visual impacts and permanent loss of habitat or loss of use of recreational facilities). Impacts associated with construction (i.e., temporary or short-term) or those that are easily mitigable to less than significant levels are considered to be less important.

This comparison is designed to satisfy the requirements of CEQA Guidelines Section 15126.6(d), Evaluation of Alternatives, which states that:

“The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.”

If the environmentally superior alternative is the No Project Alternative, CEQA requires identification of an environmentally superior alternative among the other alternatives [CEQA Guidelines Section 15126.6(e)(2)].

The following methodology was used to compare alternatives in this EIR:

- **Step 1: Identification of Alternatives.** An alternatives screening process (described in Section C) was used to identify a number of alternatives to the Proposed Project. That screening process identified five alternatives that would utilize the existing ROW with minor route modifications. A No Project Alternative was also identified. No other feasible alternatives meeting most of the project objectives were identified that would lessen or alleviate significant impacts.
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the proposed and the alternative route segments were identified in Sections D.2 through D.13, including the potential impacts of transmission line and substation construction and operation. There were no significant and unmitigable (Class I) impacts identified that could occur with the Proposed Project and alternatives.

- **Step 3: Comparison of Proposed Project with Alternatives.** The environmental impacts of the Proposed Project were compared to those of each alternative to determine the environmentally superior alternative. The environmentally superior alternative was then compared to the No Project Alternative.

Although this comparison focuses on the most important issue areas (e.g., visual resources, biological resources), determining an environmentally superior alternative is difficult because of the many factors that must be balanced. In order to identify the environmentally superior alternative, the most important impacts in each issue area were identified and compared (see detailed comparison tables in Section E.2). **Although this EIR identifies an environmentally superior alternative, it is possible that the decision-makers (the five members of the CPUC) could balance the importance of each impact area differently and reach a different conclusion.**

4.2 Environmentally Superior Alternative

As stated above, the EIR has not identified any significant unmitigable (Class I) impacts from the Proposed Project. In addition, no Class I impacts are identified for any alternative. Therefore, this comparison is based on the relative importance of the project impacts in the 12 issue areas (described in Sections D.2 through D.13).

The following is a discussion of the advantages and disadvantages of each alternative and a determination of whether the Proposed Project or an alternative is considered to be environmentally superior within each issue area. The preferred alternative is identified for each issue area. In each of the tables presented below, an alternative shown as “preferred” may still have environmental effects, but when compared with the other alternatives, the environmental effects would be minimized with the preferred alternative.

4.2.1 Transmission Line Route Alternatives: Jamacha Valley

The Proposed Project would be located entirely within SDG&E’s existing ROW for the segment in Jamacha Valley. Three alternatives have been developed in order to address the concerns of residents in Jamacha Valley living near or adjacent to the Miguel-Mission ROW regarding potential long-term visual impacts and EMF emissions associated with the Proposed Project. The three available alternatives are: Jamacha Valley 138 kV/69 kV Underground Alternative, Jamacha Valley Overhead A Alternative, and Jamacha Valley Overhead B Alternative.

Proposed Project vs. Jamacha Valley Alternatives

The **Jamacha Valley 138 kV/69 kV Underground Alternative** (see Section C and Section 4.2.1.1 of Appendix 2) would relocate the existing 138 kV and 69 kV circuits underground for 3.5 miles along Willow Glen Drive. Though short-term construction impacts would be greater than the Proposed Project because of the slower pace of underground work, this alternative would eliminate the need to construct 14 proposed 138 kV/69 kV poles. The Jamacha Valley 138 kV/69 kV Underground Alternative would substantially eliminate the visual impacts along Willow Glen Drive and from the Cottonwood community near Hillsdale and Vista Rodeo Roads, and it would avoid construction-related disturbance of biological and cultural resources in the existing ROW and reduce soil erosion. It would, however, result in an increased likelihood of disrupting traffic along Willow Glen Drive during construction and an increased likelihood of affecting unknown buried cultural resources because the underground route would be in an area of higher archaeological sensitivity. It would not substantially reduce magnetic field levels because they would be dominated

by magnetic field emissions from the 230 kV circuits that would not be relocated. In addition magnetic fields would be added to the 3.5-mile segment of Willow Glen Drive.

The **Jamacha Valley Overhead A Alternative** (see Section C and Section 4.2.1.2 of Appendix 2) would locate the new alignment of poles to the east of the proposed location, away from the residents in the southern portion of Jamacha Valley. This alternative would reduce impacts to visual resources because of the location of the 138 kV and 69 kV poles on the east side of the ROW, but it would cause increased short-term impacts related to disturbance of biological and cultural resources and soil erosion from construction of new pole sites and access road extensions to the east side of the ROW. It would not substantially reduce magnetic field levels at the west edge of the ROW, and levels along the eastern edge of the ROW would be increased by roughly 40 percent because of locating the 138 kV and 69 kV circuits near the eastern edge.

The **Jamacha Valley Overhead B Alternative** (see Section C and Section 4.2.1.3 of Appendix 2) would result in the addition of two new alignments of steel mono-pole structures and removal of the existing 138 kV/69 kV lattice towers. This alternative would substantially eliminate impacts to visual resources by replacing existing lattice towers with less visually intrusive poles, but it would cause increased short-term impacts related to disturbance of biological and cultural resources and soil erosion from construction of new pole sites. It would reduce magnetic field levels at the west edge of the ROW by roughly 10 percent, and levels along the eastern edge of the ROW would be increased by roughly 20 percent because of the 230 kV circuits being closer to that edge.

Comparison of Jamacha Valley Alternatives. The Jamacha Valley 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Construction would occur in an existing roadway, so short-term construction-related impacts to earth resources (i.e., biological resources, geology, soils, paleontology, hydrology, and water quality) would also be minimized with the Jamacha Valley 138 kV/69 kV Underground Alternative. Other construction-related, public nuisance-type impacts (i.e., air quality, noise, vibration, and traffic) would be minimized with the Proposed Project. The nuisance-type effects would adversely impact residences, recreational facilities, and transportation facilities, but the impacts would be short-term and mitigated to less than significant levels. Table ES-2 compares each of the Jamacha Valley Alternatives with the Proposed Project for each environmental issue area.

Table ES-2. Proposed Project vs. Jamacha Valley Alternatives

Issue Area	Proposed Project	Jamacha Valley 138 kV/69 kV Underground Alternative	Jamacha Valley Overhead A Alternative	Jamacha Valley Overhead B Alternative
Air Quality	Preferred because of reduced exposure of residences and reduced construction disturbance	Longest duration of construction and disturbance due to underground work near a greater number of residences	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration	Impacts would be similar to the Proposed Project, but would have a longer construction duration
Biological Resources	More construction in sensitive areas increasing temporary impacts	Preferred because of slight reduction in both temporary and permanent impacts as well as need for mitigation	Slightly greater level of construction in sensitive areas increasing temporary impacts	Slight reduction in temporary impacts, but a slight increase in permanent impacts and required mitigation

Table ES-2. Proposed Project vs. Jamacha Valley Alternatives

Issue Area	Proposed Project	Jamacha Valley 138 kV/69 kV Underground Alternative	Jamacha Valley Overhead A Alternative	Jamacha Valley Overhead B Alternative
Cultural Resources	Preferred because of low likelihood of encountering unknown resources	Highest likelihood of affecting unknown buried cultural resources due to greater ground disturbance and requiring construction to Willow Glen Drive, which may qualify as a historical resource and is in an area of higher archaeological sensitivity	More likely to encounter cultural resources sites with construction of new 138 kV/69 kV pole sites and access roads	More likely to encounter cultural resources sites with construction of both new 230 kV and 138 kV/69 kV poles
Geology, Soils, and Paleontology	Constructing several new towers in bedrock along sloping terrain would impact soil and slope stability	Preferred because alternative would be in paved roadways along gentle topography	Greater soil erosion due to increased ground disturbance from construction of new 138 kV/69 kV pole sites and access roads	Greater soil erosion due to increased ground disturbance necessary to remove the towers and construct two alignments of poles
Hydrology and Water Quality	Soil erosion and increased sedimentation due to new access roads that would need to be built	Preferred because construction would occur within paved roadways and would avoid construction of access roads to new towers	Greater impacts from soil erosion and increased sedimentation due to construction of new 138 kV/69 kV pole sites and access roads	Greater disturbance due to additional tower construction and removal
Land Use	Preferred because of reduced construction disturbance and duration	Longer construction duration due to slower pace of underground work	Similar to the Proposed Project, but would have a slightly longer construction duration	Slightly longer construction duration due to additional tower construction and removal
Noise and Vibration	Preferred because of reduced construction disturbance and duration	Longest duration of construction and disturbance due to underground work by a greater number of residences	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration	Slightly longer construction duration due to additional tower construction and removal
Public Health and Safety	Preferred because of small potential for encountering contaminated areas	More likely to encounter contaminated areas during underground construction within roadways	Slightly greater amount of soil disturbance than Proposed Project and increased potential for encountering contaminated areas	Greater amount of soil disturbance and increased potential for encountering contaminated areas
Public Services and Utilities	Preferred because of slightly less likelihood of disrupting public services and utilities	Most likely to disrupt services during excavation for the underground portion of the route	Slightly greater likelihood than Proposed Project of disrupting utilities during construction	Slightly greater likelihood of disrupting utilities during installation of new poles
Socioeconomics	No preference	No preference	No preference	No preference
Transportation and Traffic	Preferred because construction disturbance of traffic would be the least	Most disturbance to traffic due to construction of underground lines in roadways	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration	Impacts would be similar to the Proposed Project, but would have a longer construction duration

Table ES-2. Proposed Project vs. Jamacha Valley Alternatives

Issue Area	Proposed Project	Jamacha Valley 138 kV/69 kV Underground Alternative	Jamacha Valley Overhead A Alternative	Jamacha Valley Overhead B Alternative
Visual Resources	Retaining existing lattice towers would have greater permanent visual impacts than replacement with steel mono-poles	Preferred because the 138 kV/69 kV line would be underground, substantially eliminating visual impacts in Jamacha Valley associated with the Proposed Project and from the Cottonwood community near Hillsdale and Vista Rodeo Roads	Comparable to the Proposed Project, but reduced visual impacts would occur where the 138 kV/69 kV line and structures would be positioned further away from residences and parks	Substantially reduced visual impacts because of eliminating existing lattice towers

4.2.2 Transmission Line Route Alternatives: City of Santee

The Proposed Project would be located entirely within SDG&E’s existing ROW in the City of Santee. Alternatives were developed in response to concerns of the residents in the City of Santee living near or adjacent to the Miguel-Mission ROW regarding the potential for permanent visual impacts and EMF emissions associated with the Proposed Project. The different route modifications available within this segment are: City of Santee 138 kV/69 kV Underground Alternative and City of Santee 230 kV Overhead Northern ROW Boundary Alternative.

Proposed Project vs. City of Santee Alternatives

The **City of Santee 138 kV/69 kV Underground Alternative** (see Section C and Section 4.2.2.1 of Appendix 2) was developed in response to the concerns of the residents in the City of Santee to reduce the visual and EMF impacts of the Proposed Project. The circuits would be installed underground for approximately 0.6 miles outside of SDG&E’s ROW along a water storage tank access road and 0.75 miles along the length of Princess Joann Road. Under this alternative, three proposed 138 kV wood and steel poles associated with the Proposed Project would be eliminated. In addition, this alternative would eliminate two existing 138 kV wood poles north of Magnolia Avenue. The City of Santee 138 kV/69 kV Underground Alternative would reduce or avoid impacts to visual resources, as well as impacts to biological resources and known cultural resources, while increasing other construction-related impacts because of the slower pace of underground work. It would also reduce magnetic field levels for residences located immediately adjacent to the southern edge of the existing ROW.

The **City of Santee 230 kV Overhead Northern ROW Boundary Alternative** (see Section C and Section 4.2.2.4 of Appendix 2) was developed based on input from residents of the City of Santee that the circuits should be moved to the northern side of the existing ROW. The circuits would be located approximately 25 to 35 feet north of the existing northern ROW boundary on steel mono-poles. The City of Santee 230 kV Overhead Northern ROW Boundary Alternative would substantially reduce visual impacts to the residences located immediately adjacent to the ROW, while causing slightly greater impacts related to disturbance of biological and cultural resources and soil erosion. It would also substantially reduce EMF levels for residences located immediately adjacent to the southern edge of the Existing ROW.

Comparison of City of Santee Alternatives. The City of Santee 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual

resources. Because construction would occur in an existing roadway, short-term construction-related impacts to biological resources would also be minimized with the City of Santee 138 kV/69 kV Underground Alternative. Other construction-related impacts to earth resources (i.e., geology, soils, paleontology, hydrology, and water quality), and public nuisance-type impacts (i.e., air quality, noise, vibration, and traffic), would be minimized with either the Proposed Project or the City of Santee 230 kV Overhead Northern ROW Boundary Alternative. The City of Santee 230 kV Overhead Northern ROW Boundary Alternative, when compared solely to the Proposed Project, would provide reduced permanent impacts to visual resources with slightly greater short-term construction impacts. The nuisance-type effects would adversely impact residences and transportation facilities, but the impacts would be short-term and mitigated to less than significant levels.

Table ES-3 compares each of the City of Santee Alternatives with the Proposed Project for each environmental issue area.

Table ES-3. Proposed Project vs. City of Santee Alternatives

Issue Area	Proposed Project	City of Santee 138 kV/69 kV Underground Alternative	City of Santee 230 kV Overhead Northern ROW Boundary Alternative
Air Quality	Similar, but slightly increased exposure of residences and reduced construction disturbance	Longer duration of construction and disturbance due to underground work near a greater number of residences	Preferred because similar to the Proposed Project, except pole installation would occur further from homes
Biological Resources	More construction in sensitive areas increasing temporary impacts	Preferred because of slight reduction in both temporary and permanent impacts as well as reduced need for mitigation	Slightly greater level of construction in sensitive areas than Proposed Project, increasing temporary impacts
Cultural Resources	Preferred because of low likelihood of encountering unknown resources	Increases the likelihood of affecting unknown buried cultural resources by increasing the amount of ground-disturbance	More likely to encounter cultural resources sites with construction of additional pole sites
Geology, Soils, and Paleontology	Preferred because tower construction would cause soil disturbance but to a lesser extent	Approximately 800 feet of trenching west of Princess Joann Road would greatly disturb erodible soil	Slightly greater likelihood of soil disturbance than Proposed Project and greater damage to paleontological resources due to construction of additional pole sites
Hydrology and Water Quality	Preferred because one fewer watercourse would be crossed, but construction-related water quality impacts would be greater from the need to construct short access roads in existing ROW	One additional watercourse would be crossed resulting in greater potential for groundwater impacts, but construction-related water quality impacts would be less due to avoiding the need to construct access roads in existing ROW	Slightly greater impacts related to soil erosion and increased sedimentation due to construction of additional pole sites
Land Use	Proposed Project would be constructed in existing corridor adjacent to residential land uses	Requires more construction work in residential area and longer construction duration	Preferred because similar to the Proposed Project, except pole installation would occur further from homes
Noise and Vibration	Proposed Project would be constructed in existing corridor adjacent to residential land uses	Longer duration of construction and underground work by a greater number of residences	Preferred because similar to the Proposed Project, except pole installation would occur further from homes
Public Health and Safety	Slightly greater likelihood of encountering contaminated areas along the access road adjacent to the Miguel-Mission ROW, just east of Magnolia Avenue	Most likely to disrupt services during excavation for the underground portion of the route, and greater potential for encountering contaminated areas	Preferred , because of slightly less likelihood of encountering contaminated areas
Public Services and Utilities	Slightly greater likelihood of disrupting utilities along the southern boundary of the Miguel-Mission ROW, especially east of Magnolia Avenue	More likely to disrupt services during excavation for the underground portion of the route	Preferred because of slightly less likelihood of disrupting utilities.

Table ES-3. Proposed Project vs. City of Santee Alternatives

Issue Area	Proposed Project	City of Santee 138 kV/69 kV Underground Alternative	City of Santee 230 kV Overhead Northern ROW Boundary Alternative
Socio-economics	No preference	No preference	No preference
Transportation and Traffic	Preferred because construction disturbance of traffic would be the least	Most disturbance to traffic due to construction of underground lines in roadways	Impacts would be similar to the Proposed Project, but would have a slightly longer construction duration
Visual Resources	Greater permanent visual impacts because of location of new poles near residences at southern edge of ROW	Preferred because the 138 kV/69 kV line would be underground, substantially eliminating impacts in the City of Santee corridor	Comparable to the Proposed Project, but reduced visual impacts would occur for the residences immediately adjacent to the ROW

4.2.3 Definition of Environmentally Superior Alternative

Table ES-4 defines the environmentally superior alternatives for the entire project route. In the areas not affected by the two identified alternatives, the Proposed Project, with mitigation recommended in this EIR, is environmentally superior. The conclusion for each segment is summarized below.

Table ES-4. Environmentally Superior Alternative

Segment	Preferred Route
Jamacha Valley Alternatives	Jamacha Valley 138 kV/69 kV Underground Alternative
City of Santee Alternatives	City of Santee 138 kV/69 kV Underground Alternative

Conclusion for Jamacha Valley Alternatives

The Jamacha Valley 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Because construction would occur in an existing roadway, short-term construction-related impacts to earth resources (i.e., biological resources, geology, soils, paleontology, hydrology, and water quality) would also be minimized with the Jamacha Valley 138 kV/69 kV Underground Alternative.

The Jamacha Valley Overhead A and B Alternatives are also preferred over the Proposed Project because they would reduce long-term and permanent impacts to visual resources. The Jamacha Valley Overhead B Alternative would be superior to the Jamacha Valley Overhead A Alternative because it would substantially reduce the long-term and permanent impacts to visual resources without substantially increasing construction-related impacts beyond those that would occur with the Proposed Project. Construction-related impacts for the Jamacha Valley Overhead A and B Alternatives would generally be comparable or slightly greater than the Proposed Project, but as with the Proposed Project, the construction impacts would be short-term and mitigated to less than significant levels.

For the substantial elimination of permanent impacts to visual resources, the Jamacha Valley 138 kV/69 kV Underground Alternative is the environmentally superior alternative within Jamacha Valley.

The comparative analysis provided above placed heavy weighting on long-term and permanent impacts associated with visual resources. If issues beyond CEQA are considered (i.e., EMF issues associated with the Proposed Project and alternatives in Jamacha Valley), the conclusion may result in a different alternative being preferred, such as Jamacha Valley Overhead A Alternative, which does not introduce EMF emissions to new areas along Willow Glen Drive in Jamacha Valley.

Conclusion for City of Santee Alternatives

The City of Santee 138 kV/69 kV Underground Alternative is preferred overall because it would substantially eliminate long-term and permanent impacts to visual resources. Because construction would occur in an existing roadway, short-term construction-related impacts to biological resources would also be minimized with the City of Santee 138 kV/69 kV Underground Alternative.

The City of Santee 230 kV Overhead Northern ROW Boundary Alternative is also preferred over the Proposed Project because it would reduce long-term and permanent impacts to visual resources without substantially increasing construction-related impacts beyond those that would occur with the Proposed Project. Construction-related impacts for the City of Santee 230 kV Overhead Northern ROW Boundary Alternative would generally be comparable or slightly greater than the Proposed Project, but as with the Proposed Project, the construction impacts would be short-term and mitigated to less than significant levels.

For the substantial elimination of permanent impacts to visual resources, the City of Santee 138 kV/69 kV Underground Alternative is the environmentally superior alternative in the City of Santee corridor.

The comparative analysis provided above placed heavy weighting on long-term and permanent impacts associated with visual resources. If issues beyond CEQA are considered (i.e., EMF issues associated with the Proposed Project and alternatives in the City of Santee), the conclusion may result in a different alternative being preferred, such as City of Santee 230 kV Overhead Northern ROW Boundary Alternative, which would have lower EMF emissions at the residences along the southern ROW boundary and residences along Princess Joann Road.

Summary of Environmentally Superior Alternative

The Environmentally Superior Alternative is the Proposed Project with mitigation, in conjunction with Jamacha Valley 138 kV/69 kV Underground Alternative with mitigation within Jamacha Valley, and the City of Santee 138 kV/69 kV Underground Alternative with mitigation in the City of Santee.

4.3 No Project Alternative vs. the Environmentally Superior Alternative

Summary of No Project Alternative and Its Impacts. The No Project Alternative is described in Section C.6, and includes the following components:

1. **Additional Regional Generation:** No change to the existing generation construction schedules has been considered. There is a possibility that, without the project, a portion of the planned generation would either be cancelled or delayed. There is also a possibility that new generation capacity could be necessary in San Diego County or elsewhere to compensate for existing transmission system limitations and anticipated loads. It would be speculative to predict the type and location or schedule of development for new power plants needed to overcome the transmission system constraints remaining under the No Project Alternative.
2. **Congestion Issues:** The CAISO would be forced to implement short-term congestion measures until such time as it initiates its anticipated long-term Locational Marginal Pricing procedures. In both cases many of the economic benefits that would have been derived from the new generation would be lost. Under the No Project Alternative, SDG&E would continue to incur the congestion charges.

Summary of the Environmentally Superior Alternative and Its Impacts. The Environmentally Superior Alternative as defined in Section E.2.3 would be a combination of the Proposed Project, the Jamacha Valley 138 kV/69 kV Underground Alternative, and the City of Santee 138 kV/69 kV Underground Alternative. This route would be in the existing SDG&E ROW and within roadways in Jamacha Valley and the City of Santee. This route would minimize the long-term and permanent operational impacts to visual resources. Short-term impacts would include construction disturbances (e.g., air quality, biological resources, cultural resources, noise, and traffic). Impacts of the Environmentally Superior Alternative are defined in each issue area's impact analysis for the Proposed Project, Jamacha Valley 138 kV/69 kV Underground Alternative, and City of Santee 138 kV/69 kV Underground Alternative.

Conclusion: Comparison of Environmentally Superior Alternative with No Project Alternative. The Environmentally Superior Alternative would be located within the SDG&E ROW and underground in two areas with minimal long-term impacts on residences or other sensitive land uses. In comparison, long-term impacts to many environmental issue areas could occur under the No Project Alternative. Development of new power plants under the No Project Alternative would likely result in some level of long-term regional impacts to air quality, biological resources, water quality, noise, public health, and visual resources. Overall, the Environmentally Superior Alternative is preferred over the No Project Alternative.

ES.5 Impact Summary Tables

The tables on the following pages summarize all identified impacts of the Proposed Project (Table ES-5) and alternatives (Table ES-6). For each impact, the following information is presented: impact number and title, impact class (Class I, II, III, or IV), applicable mitigation measure, and residual impact (whether significant or less than significant).

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class ^a	Mitigation Measure(s)	Residual Impact
AIR QUALITY			
A-1: Construction activities would create emissions of dust and equipment exhaust	Class II	A-1a: Suppress dust at all work or staging areas and on public roads A-1b: Use low-emission construction equipment	Less Than Significant (LTS)
A-2: Inspection and maintenance would cause emissions from mobile source activity	Class III	None	LTS
A-3: Power generated during transmission line operation would cause emissions from power plants	Class III	None	LTS
BIOLOGICAL RESOURCES			
B-1: Temporary and permanent loss of sensitive vegetation communities	Class II / III	B-1a: Provide restoration/compensation for impacted sensitive upland vegetation communities	LTS
B-2: Temporary and permanent loss of sensitive plant species	Class II / III	B-2a: Protect San Diego ambrosia from impacts or provide compensation for impacts B-2b: Protect San Diego barrel cactus from impacts or relocate potentially impacted species	LTS
B-3: Disturbance to vernal pools	Class II	Mitigation Measures B-4d and B-4e (below)	LTS
B-4: Disturbance and loss of sensitive animal species	Class II	B-4a: Protect raptor nests B-4b: Protect coastal cactus wren and its habitat B-4c: Protect coastal California gnatcatcher and its habitat B-4d: Protect San Diego fairy shrimp and vernal pools or provide compensation for impacts B-4e: Protect vernal pools B-4f: Protect quino checkerspot butterfly and its suitable habitat B-4g: Protect quino checkerspot butterfly	LTS
B-5: Introduction of invasive plant species	Class II	B-5a: Protect project area from introduction or establishment of invasive plant species	LTS
B-6: Bird electrocution and collision	Class III	None	LTS
B-7: Indirect disturbance of sensitive species and habitats	Class II	B-7a: Reduce night lighting on sensitive habitats Mitigation Measures B-4b and B-4c (above)	LTS
B-8: Restrict wildlife movement in wildlife corridors	Class III	None	LTS

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class ^a	Mitigation Measure(s)	Residual Impact
CULTURAL RESOURCES			
C-1: Construction operations could affect known cultural resources	Class II	C-1a: Avoid all known cultural resources C-1b: Conduct construction monitoring within 150 feet of known cultural resources C-1c: Mark cultural resource boundaries C-1d: Evaluate cultural resources that cannot be avoided	LTS
C-2: Construction operations could affect undiscovered cultural resources	Class II	C-2a: Conduct archaeological survey C-2b: Conduct construction monitoring in the project area	LTS
C-3: Future maintenance operations could affect known cultural resources	Class II	C-3a: Provide cultural resources awareness training to maintenance personnel	LTS
C-4: General public may collect or vandalize cultural resources	Class II	C-4a: Install locked gates on access roads	LTS
GEOLOGY, SOILS, AND PALEONTOLOGY			
G-1: Seismically induced ground failures including liquefaction, lateral spreading, seismic slope instability, and ground cracking	Class II	G-1a: Geotechnical evaluations of ground stability	LTS
G-2: Slope instability including landslides, earth flows, and debris flows may affect stability of new pole foundations	Class II	G-2a: Geological evaluations of ground stability and foundation design	LTS
G-3: Increased soil erosion caused by construction and use of maintenance roads may impact tower stability	Class II	G-3a: Soil erosion prevention along maintenance roads	LTS
G-4: Overuse or abandonment of maintenance roads may result in substantial soil erosion and loss of topsoil	Class II	G-4a: Restrict access to maintenance roads	LTS
G-5: Construction on unstable and erodible deposits on ridges and steep slopes, and in areas near active washes may result in landslides or undermining of pole foundations	Class II	G-5a: Foundations in unstable slopes or erodible soils	LTS
G-6: Expansive (shrink-swell) soils could damage substations over time	Class II	G-6a: Geotechnical evaluations of expansive soils	LTS
G-7: Construction activities may destroy paleontologic resources	Class II	G-7a: Review of construction plans by paleontologist G-7b: Paleontological training and monitoring	LTS

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class ^a	Mitigation Measure(s)	Residual Impact
HYDROLOGY AND WATER QUALITY			
H-1: Soil erosion, water quality degradation and sedimentation from construction activity and access roads	Class III	None	LTS
H-2: Degradation of water quality through spill of potentially harmful materials used in construction	Class III	None	LTS
H-3: Groundwater disturbance and water quality degradation through project-related excavation	Class III	None	LTS
H-4: Increased runoff from new impervious areas	Class III	None	LTS
H-5: Encroachment into a floodplain or watercourse by permanent aboveground project features	Class II	H-5a: Aboveground structures shall be protected against flood and erosion damage	LTS
H-6: Construction in a potential dam inundation area	Class III	None	LTS
LAND USE AND RECREATION			
L-1: Conflict with an applicable land use plan, policy, or regulation	Class II	Mitigation Measures L-5a and L-5b (below)	LTS
L-2: Physically divide an established community	Class III	None	LTS
L-3: Disrupt an established land use	Class III	None	LTS
L-4: Substantially deteriorate a recreational facility	Class III	None	LTS
L-5: Disrupt recreational activities	Class II	L-5a: Avoid peak recreational usage L-5b: Notify users of recreational resources	LTS
L-6: Convert farmland to non-agricultural use	Class III	None	LTS
L-7: Conflict with an existing agricultural use or a Williamson Act contract	Class III	None	LTS
NOISE AND VIBRATION			
N-1: Construction activity would temporarily increase local noise levels	Class II	N-1a: Provide advance notice of construction N-1b: Provide liaison for construction nuisance complaints	LTS
N-2: Construction activity would temporarily cause groundborne vibration	Class II	Mitigation Measures N-1a and N-1b (above)	LTS
N-3: Operation of the transmission line would cause corona noise	Class II	N-3a: Achieve compliance with City of San Diego noise abatement code N-3b: Respond to complaints of corona noise	LTS

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class^a	Mitigation Measure(s)	Residual Impact
N-4: Inspection and maintenance activities would cause occasional noise	Class III	None	LTS
N-5: Operation of modifications to substations would increase local noise levels	Class III	None	LTS
PUBLIC HEALTH AND SAFETY			
HZ-1: Previously unknown soil or groundwater contamination could be encountered during construction	Class II	HZ-1a: Observation of soil for contamination	LTS
HZ-2: Potential hazardous substance spills could occur during construction	Class II	HZ-2a: Review of training and response plan	LTS
HZ-3: Release of hazardous materials could occur during substation operations	Class II	HZ-3a: Preparation of plans HZ-3b: Documentation of compliance	LTS
PS-1: Radio and television interference	Class II	PS-1a: Limit conductor surface potential PS-1b: Document complaints of broadcast interference	LTS
PS-2: Induced currents and shock hazards in joint use corridors	Class II	PS-2a: Survey and document potential hazards	LTS
PS-3: Effects on cardiac pacemakers	Class III	None	LTS
PS-4: Wind earthquake and fire hazards	Class III	None	LTS
PUBLIC SERVICES AND UTILITIES			
U-1: Utility system disruptions	Class III	None	LTS
U-2: Public service system disruptions	Class II	U-2a: Maintain adequate emergency vehicle access	LTS
U-3: Project-required utility and public service demands	Class III	None	LTS
SOCIOECONOMICS			
S-1: Project-related population growth	Class III	None	LTS
S-2: Induce demand for labor	Class III	None	LTS
S-3: Induce demand for housing	Class III	None	LTS
S-4: Displacement of people or existing housing	Class III	None	LTS
S-5: Consistency with applicable plans and policies	Class III	None	LTS

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-5. Summary of Impacts and Mitigation for the Proposed Project

Impact	Impact Class ^a	Mitigation Measure(s)	Residual Impact
TRANSPORTATION AND TRAFFIC			
T-1: Temporary lane and road closures during construction	Class II	T-1a: Prepare traffic control plans T-1b: Restrict time of lane closures	LTS
T-2: Construction would generate additional traffic	Class III	None	LTS
T-3: Construction would cause physical damage to roads and sidewalks	Class II	T-3a: Repair damaged roadways	LTS
T-4: Construction interference with pedestrian/bicycle circulation and safety	Class II	T-4a: Provide temporary pedestrian and bicycle access	LTS
T-5: Construction interference with emergency response	Class II	T-5a: Ensure emergency response access	LTS
T-6: Loss of parking	Class III	None	LTS
VISUAL RESOURCES			
V-1: Short-term visibility of construction activities and equipment – all project areas	Class III	V-1a: Reduce visibility of construction activities and equipment V-1b: Avoid construction on weekends and holidays near recreation sites and parks	LTS
V-2: Long-term visibility of upgraded/new 230 kV structures – all project areas	Class II / III	V-2a: Reduce visual contrasts of upgraded structures and new poles in urban and community settings with appropriate paint treatments, compatible with community design V-2b: Reduce visual contrasts of upgraded structures and new poles in natural settings with appropriate neutral earth-tone paint treatments	LTS
V-3: Long-term visibility of new 138 kV/69 kV mono-pole structures	Class II / III	Mitigation Measure V-2a and V-2b (above)	LTS
V-4: Long-term visibility of new 230 kV conductors – from KOPs 11, 13 (Cottonwood residential neighborhood)	Class II / III	V-4a: Reduce potential for visual impacts due to view obstructions	LTS
V-5: Long-term damage to landscape resources from maintenance activities	Class II	V-5a: Reduce direct impacts to, and visual degradation of, exotic landscapes and natural scenic areas for the life of the project	LTS

^a Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^a	Impact Class ^b	Mitigation Measure(s)	Residual Impact
AIR QUALITY				
A-1: Construction activities would create emissions of dust and equipment exhaust	All	Class II	A-1a: Suppress dust at all work or staging areas and on public roads A-1b: Use low-emission construction equipment	Less than Significant (LTS)
A-2: Inspection and maintenance would cause emissions from mobile source activity	All	Class III	None	LTS
A-3: Power generated during transmission line operation would cause emissions from power plants	All	Class III	None	LTS
BIOLOGICAL RESOURCES				
B-1: Temporary and permanent loss of sensitive vegetation communities	All	Class II / III	B-1a: Provide restoration/compensation for impacted sensitive upland vegetation communities	LTS
B-2: Temporary and permanent loss of sensitive plant species	All	Class II / III	B-2a: Protect San Diego ambrosia from impacts or provide compensation for impacts B-2b: Protect San Diego barrel cactus from impacts or relocate potentially impacted species	LTS
B-3: Disturbance to vernal pools	All	Class II	Mitigation Measures B-4d and B-4e (below)	LTS
B-4: Disturbance and loss of sensitive animal species	All	Class II	B-4a: Protect raptor nests B-4b: Protect coastal cactus wren and its habitat B-4c: Protect coastal California gnatcatcher and its habitat B-4d: Protect San Diego fairy shrimp and vernal pools or provide compensation for impacts B-4e: Protect vernal pools B-4f: Protect quino checkerspot butterfly and its suitable habitat B-4g: Protect quino checkerspot butterfly	LTS
B-5: Introduction of invasive plant species	All	Class II	B-5a: Protect project area from introduction or establishment of invasive plant species	LTS
B-6: Bird electrocution and collision	All	Class III	None	LTS

^a Alternatives Abbreviations: Jamacha Valley 138 kV/69 kV Underground Alternative (JVUG), Jamacha Valley Overhead A Alternative (JVA), Jamacha Valley Overhead B Alternative (JVB), City of Santee 138 kV/69 kV Underground Alternative (CSUG), City of Santee 230 kV Overhead Northern ROW Boundary Alternative (CSOH)

^b Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^a	Impact Class ^b	Mitigation Measure(s)	Residual Impact
B-7: Indirect disturbance of sensitive species and habitats	All	Class II	B-7a: Reduce night lighting on sensitive habitats Mitigation Measures B-4b and B-4c (above)	LTS
B-8: Restrict wildlife movement in wildlife corridors	All	Class III	None	LTS
CULTURAL RESOURCES				
C-1: Construction operations could affect known cultural resources	All	Class II	C-1a: Avoid all known cultural resources C-1b: Conduct construction monitoring within 150 feet of known cultural resources C-1c: Mark cultural resource boundaries C-1d: Evaluate cultural resources that cannot be avoided	LTS
C-2: Construction operations could affect undiscovered cultural resources	All	Class II	C-2a: Conduct archaeological survey C-2b: Conduct construction monitoring in the project area	LTS
C-3: Future maintenance operations could affect known cultural resources	All	Class II	C-3a: Provide cultural resources awareness training to maintenance personnel	LTS
C-4: General public may collect or vandalize cultural resources	All	Class II	C-4a: Install locked gates on access roads	LTS
C-5: Construction operations could affect buried archaeological sites along the Sweetwater River	JVUG	Class II	C-5a: Develop and implement buried sites testing program	LTS
GEOLOGY, SOILS, AND PALEONTOLOGY				
G-1: Seismically induced ground failures including liquefaction, lateral spreading, seismic slope instability, and ground cracking	JVUG, CSUG	Class II	G-1a: Geotechnical evaluations of ground stability	LTS
G-2: Slope instability including landslides, earth flows, and debris flows may affect stability of new pole foundations	JVA, JVB, CSUG	Class II	G-2a: Geological evaluations of ground stability and foundation design	LTS
G-3: Increased soil erosion caused by construction and use of maintenance roads may impact tower stability	All	Class II	G-3a: Soil erosion prevention along maintenance roads	LTS
G-4: Overuse or abandonment of maintenance roads may result in substantial soil erosion and loss of topsoil	All	Class II	G-4a: Restrict access to maintenance roads	LTS

^a Alternatives Abbreviations: Jamacha Valley 138 kV/69 kV Underground Alternative (JVUG), Jamacha Valley Overhead A Alternative (JVA), Jamacha Valley Overhead B Alternative (JVB), City of Santee 138 kV/69 kV Underground Alternative (CSUG), City of Santee 230 kV Overhead Northern ROW Boundary Alternative (CSOH)

^b Impact Classes: Class I (significant, unmitigable); Class II (less than significant with mitigation incorporated); Class III (less than significant); Class IV (beneficial)

Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^a	Impact Class ^b	Mitigation Measure(s)	Residual Impact
G-5: Construction on unstable and erodible deposits on ridges and steep slopes, and in areas near active washes may result in landslides or undermining of pole foundations	JVA, JVB, CSOH	Class II	G-5a: Foundations in unstable slopes or erodible soils	LTS
G-7: Construction activities may destroy paleontologic resources	All	Class II	G-7a: Review of construction plans by paleontologist G-7b: Paleontological training and monitoring	LTS
HYDROLOGY AND WATER QUALITY				
H-1: Soil erosion, water quality degradation and sedimentation from construction activity and access roads	All	Class III	None	LTS
H-2: Degradation of water quality through spill of potentially harmful materials used in construction	All	Class III	None	LTS
H-3: Groundwater disturbance and water quality degradation through project-related excavation	All	Class III	None	LTS
H-4: Increased runoff from new impervious areas	All	Class III	None	LTS
H-5: Encroachment into a floodplain or watercourse by permanent aboveground project features	All	Class II for JVA, JVB, CSOH; Class III for JVUG, CSUG	H-5a: Aboveground structures shall be protected against flood and erosion damage (Jamacha Valley Overhead A Alternative, Jamacha Valley Overhead B Alternative, and City of Santee 230 kV Overhead Northern ROW Boundary Alternative)	LTS
H-6: Construction in a potential dam inundation area	All	Class III	None	LTS
H-7: Exposure of the underground cable to damage through stream scour and erosion	JVUG, CSUG	Class II for CSUG; Class III for JVUG	H-7a: Underground cable shall be protected against scour and erosion (City of Santee 138 kV/69 kV Alternative)	LTS
LAND USE AND RECREATION				
L-1: Conflict with an applicable land use plan, policy, or regulation	All	Class II	Mitigation Measure L-5a and L-5b (below)	LTS
L-2: Physically divide an established community	All	Class III	None	LTS
L-3: Disrupt an established land use	All	Class III	None	LTS

^a Alternatives Abbreviations: Jamacha Valley 138 kV/69 kV Underground Alternative (JVUG), Jamacha Valley Overhead A Alternative (JVA), Jamacha Valley Overhead B Alternative (JVB), City of Santee 138 kV/69 kV Underground Alternative (CSUG), City of Santee 230 kV Overhead Northern ROW Boundary Alternative (CSOH)

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Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^a	Impact Class ^b	Mitigation Measure(s)	Residual Impact
L-4: Substantially deteriorate a recreational facility	All	Class III	None	LTS
L-5: Disrupt recreational activities	All	Class II	L-5a: Avoid peak recreational usage L-5b: Notify users of recreational resources	LTS
L-6: Convert farmland to non-agricultural use	All	Class III	None	LTS
L-7: Conflict with an existing agricultural use or a Williamson Act contract	All	Class III	None	LTS
NOISE AND VIBRATION				
N-1: Construction activity would temporarily increase local noise levels	All	Class II	N-1a: Provide advance notice of construction N-1b: Provide liaison for construction nuisance complaints	LTS
N-2: Construction activity would temporarily cause groundborne vibration	All	Class II	Mitigation Measures N-1a and N-1b (above)	LTS
N-3: Operation of the transmission line would cause corona noise	All	Class II	N-3a: Achieve compliance with City of San Diego noise abatement code N-3b: Respond to complaints of corona noise	LTS
N-4: Inspection and maintenance activities would cause occasional noise	All	Class III	None	LTS
N-5: Operation of modifications to substations would increase local noise levels	All	Class III	None	LTS
PUBLIC HEALTH AND SAFETY				
HZ-1: Previously unknown soil or groundwater contamination could be encountered during construction	All	Class II	HZ-1a: Observation of soil for contamination	LTS
HZ-2: Potential hazardous substance spills could occur during construction	All	Class II	HZ-2a: Review of training and response plan	LTS
PS-1: Radio and television interference	All	Class II	PS-1a: Limit conductor surface potential PS-1b: Document complaints of broadcast interference	LTS
PS-2: Induced currents and shock hazards in joint use corridors	All	Class II	PS-2a: Survey and document potential hazards	LTS

^a Alternatives Abbreviations: Jamacha Valley 138 kV/69 kV Underground Alternative (JVUG), Jamacha Valley Overhead A Alternative (JVA), Jamacha Valley Overhead B Alternative (JVB), City of Santee 138 kV/69 kV Underground Alternative (CSUG), City of Santee 230 kV Overhead Northern ROW Boundary Alternative (CSOH)

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Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^a	Impact Class ^b	Mitigation Measure(s)	Residual Impact
PS-3: Effects on cardiac pacemakers	All	Class III	None	LTS
PS-4: Wind earthquake and fire hazards	All	Class III	None	LTS
PUBLIC SERVICES AND UTILITIES				
U-1: Utility system disruptions	All	Class III	None	LTS
U-2: Public service system disruptions	All	Class II	U-2a: Maintain adequate emergency vehicle access	LTS
U-3: Project-required utility and public service demands	All	Class III	None	LTS
SOCIOECONOMICS				
S-1: Project-related population growth	All	Class III	None	LTS
S-2: Induce demand for labor	All	Class III	None	LTS
S-3: Induce demand for housing	All	Class III	None	LTS
S-4: Displacement of people or existing housing	All	Class III	None	LTS
S-5: Consistency with applicable plans and policies	All	Class III	None	LTS
TRANSPORTATION AND TRAFFIC				
T-1: Temporary lane and road closures during construction	All	Class II	T-1a: Prepare traffic control plans T-1b: Restrict time of lane closures	LTS
T-2: Construction would generate additional traffic	All	Class III	None	LTS
T-3: Construction would cause physical damage to roads and sidewalks	All	Class II	T-3a: Repair damaged roadways	LTS
T-4: Construction interference with pedestrian/bicycle circulation and safety	All	Class II	T-4a: Provide temporary pedestrian and bicycle access	LTS
T-5: Construction interference with emergency response	All	Class II	T-5a: Ensure emergency response access	LTS
T-6: Loss of parking	All	Class III	None	LTS
T-7: Underground construction would restrict access to properties	JVUG, CSUG	Class II	T-7a: Provide continuous access to properties T-7b: Coordinate with businesses	LTS

^a Alternatives Abbreviations: Jamacha Valley 138 kV/69 kV Underground Alternative (JVUG), Jamacha Valley Overhead A Alternative (JVA), Jamacha Valley Overhead B Alternative (JVB), City of Santee 138 kV/69 kV Underground Alternative (CSUG), City of Santee 230 kV Overhead Northern ROW Boundary Alternative (CSOH)

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Table ES-6. Summary of Impacts and Mitigation for Alternative Routes

Impact	Applicable Alternatives ^a	Impact Class ^b	Mitigation Measure(s)	Residual Impact
VISUAL RESOURCES				
V-1: Short-term visibility of construction activities and equipment	All	Class III	V-1a: Reduce visibility of construction activities and equipment V-1b: Avoid construction on weekends and holidays near recreation sites and parks	LTS
V-2: Long-term visibility of upgraded/new 230 kV structures – all project areas	All	Class II for CSOH; Class III	V-2a: Reduce visual contrasts of upgraded structures and new poles in urban and community settings with appropriate paint treatments, compatible with community design V-2b: Reduce visual contrasts of upgraded structures and new poles in natural settings with appropriate neutral earth-tone paint treatments	LTS
V-3: Long-term visibility of new 138 kV/69 kV mono-pole structures	JVUG, JVA, JVB	Class II / III	Mitigation Measure V-2a and V-2b (above)	LTS
V-4: Long-term visibility of new 230 kV conductors – KOPs 11 and 13 (Cottonwood residential neighborhood)	All	Class II for JVUG and JVB; Class III	V-4a: Reduce potential for visual impacts due to view obstructions	LTS
V-5: Long-term damage to landscape resources from maintenance activities	All	Class II	V-5a: Reduce direct impacts to, and visual degradation of, exotic landscapes and natural scenic areas for the life of the project	LTS
V-6: Long-term visibility of overhead/underground transition stations	JVUG, CSUG	Class II for JVUG; Class III for CSUG	V-6a: Reduce visual impacts at overhead/underground transition poles/stations V-6b: Reduce potential visual impacts of 69 kV/138 kV lines and existing distribution/subtransmission lines near Willow Glen Drive and Dehesa Avenue Transition Station	LTS

^a Alternatives Abbreviations: Jamacha Valley 138 kV/69 kV Underground Alternative (JVUG), Jamacha Valley Overhead A Alternative (JVA), Jamacha Valley Overhead B Alternative (JVB), City of Santee 138 kV/69 kV Underground Alternative (CSUG), City of Santee 230 kV Overhead Northern ROW Boundary Alternative (CSOH)

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