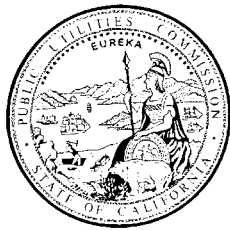


# **Alternatives Screening Report**

## **San Diego Gas & Electric Company's Proposed Miguel-Mission 230 kV #2 Project**

**CPCN Application No. 02-07-022**  
**SCH No. 2003091025**



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## **EIR Appendix 2**

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# 1. Introduction

In July 2002, San Diego Gas & Electric Company (SDG&E) filed an Application (A.) 02-07-022 and a Proponent's Environmental Assessment (PEA) to the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity (CPCN) to construct the Miguel-Mission 230 kV #2 Project (Proposed Project). The CPUC has determined that an Environmental Impact Report (EIR) is required to evaluate the project under the California Environmental Quality Act (CEQA).

According to SDG&E, the Proposed Project is needed to meet the projected electric demand in the San Diego region, while complying with AB 970 legislative mandates. New and modified transmission facilities and modifications to existing substations are needed to serve existing load and projected growth in the San Diego area.

## 1.1 Purpose of Report

As part of the EIR analysis process, CEQA Guidelines require that reasonable alternatives be developed that could "avoid or substantially lessen any of the significant effects of the project" (Section 15126.6(a)). This Alternatives Screening Report is intended to document: (1) the range of alternatives that have been suggested and evaluated; (2) the methods employed by the CPUC Energy Division for screening the feasibility of each alternative according to CEQA guidelines; and (3) the results of the alternatives screening process. In addition, this report provides the basis and rationale for whether an alternative has been rejected or carried forward for full evaluation in the EIR. As full consideration of the No Project Alternative is required as a component of the EIR by CEQA, this report does not address the No Project Alternative (this alternative is presented in EIR Section C.6). However, "non-wires alternatives"<sup>1</sup> are addressed in this report.

## 1.2 Summary of the Proposed Project

The Proposed Project would be located in the County of San Diego, with portions of the project right-of-way (ROW) also located within the Cities of San Diego and Santee, the unincorporated areas of San Diego County, and the Marine Corps Air Station (MCAS) Miramar property. The Proposed Project would be located entirely within SDG&E's existing 35-mile ROW between Miguel and Mission Substations. The Proposed Project consists of three principal components: (1) the installation of a new 230 kV circuit between Miguel and Mission Substations, including replacement or modification of existing structures; (2) relocation of existing 138 kV and 69 kV circuits onto a new pole alignment within the existing SDG&E right-of-way (ROW); and (3) modifications to the Miguel and Mission Substations to accommodate the new 230 kV circuit. Table Ap.2-1 presents a summary of the Proposed Project components.

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, the Santee Lakes, and the San Diego River are also located in close proximity to the Proposed Project route.

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<sup>1</sup> "Non-wires alternatives" include methods of meeting project objectives that do not require major transmission lines (e.g., baseload generation, distributed generation, renewable energy supplies, conservation and demand-side management, etc.).

Table Ap.2-1. Summary of Project Components

Transmission System Modifications				
Transmission Circuits	Project Components	Transmission Section		Total Miguel to Mission Substation
		Miguel Substation to Fanita Junction	Fanita Junction to Mission Substation*	
<b>New 230 kV Circuit including Tower Modifications</b>	Section length	24 miles	11 miles	<b>35 miles</b>
	138 kV tower modifications to accommodate the 230 kV circuit	60 towers	NA	<b>60 towers</b>
	138 kV tower replacements to accommodate the 230 kV circuit	31 poles	NA	<b>31 poles</b>
	New 230 kV structures	11 poles	None	<b>11 poles</b>
	Number of 230 kV poles to be reconducted	None	45	<b>45 poles</b>
<b>Relocate Existing 138 kV/69 kV Circuit</b>	Length of New Line	24 miles	NA	<b>24 miles</b>
	New 138 kV steel pole structures	94 poles	NA	<b>94 poles</b>
	New 138 kV wood pole structures	14 poles	NA	<b>14 poles</b>
Substation Modifications				
<b>Miguel and Mission Substation Modifications</b>	<ul style="list-style-type: none"> <li>• New 230 kV circuit breakers and switching equipment would be added</li> <li>• Bus and support structures would be added</li> <li>• Control, protection and communication would be added</li> <li>• New concrete foundations would be poured within the existing substations</li> </ul>			

\* No towers in this segment require replacement. Only reconductoring would be required on the existing towers.

### 1.3 Future 230 kV Circuit between Miguel Substation and Fanita Junction

SDG&E filed an Amendment to the Miguel-Mission 230 kV #2 Project Application on December 12, 2003, to add a second circuit between Miguel Substation and Fanita Junction. In this amendment, SDG&E described its plan to install a second bundled 230 kV circuit in a vacant position on the modified steel lattice tower structures used for the Proposed Project and located between Miguel Substation and Fanita Junction, a distance of approximately 24 miles. Similar to the 230 kV circuit described in Section 1.2, this new circuit would be rated at approximately 1,000 MW and consist of three phases of bundled conductors (two conductors per phase). This new circuit would eventually connect the Miguel Substation with Sycamore Substation, which is located on MCAS property approximately three miles north of Fanita Junction.

On December 19, 2003, SDG&E filed a motion seeking to withdraw the Amendment, and requested that the description of the Miguel-Mission 230 kV #2 Project remain as originally proposed in the original Application filed on July 12, 2002. The CPUC's Administrative Law Judge granted SDG&E's motion to withdraw its Amendment to the original application. However, because the second circuit would be located on the towers proposed as part of SDG&E's current application and is a reasonably foreseeable action that could result from the Miguel-Mission 230 kV #2 Project, this EIR evaluates, in general terms, the potential impacts associated with constructing and operating this second 230 kV circuit along the project segment between Miguel Substation and Fanita Junction.

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 reference 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 reasonably foreseeable action 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.

## 2. Overview of Alternatives Evaluation Process

A total of 16 potential route alternatives were identified and screened during this analysis. Development of these alternatives focused on the area south of Sycamore Substation and west of Los Coches Substation, including several alternatives within and adjacent to the Miguel-Mission ROW. These potential alternatives range from minor course adjustments to the Proposed Project route to the use of other existing transmission line ROWs, and other alternative energy technologies and non-wires alternatives. The range of alternatives considered in the screening analysis encompasses:

- Alternatives identified by SDG&E as part of the Proponent's Environmental Assessment (PEA) prepared July 2002
- Alternatives identified by the members of the public and interested agencies during the scoping process that was held in accordance with CEQA requirements
- Alternatives identified by the EIR preparation team based on review of the Miguel-Mission ROW and Proposed Project route, system information submitted by SDG&E, and field inspections of the areas surrounding various substations located along the Proposed Project route.

### 2.1 Alternatives Evaluated

Many alternatives were suggested during the EIR scoping process for consideration in establishing a reasonable range of alternatives. Other alternatives were developed by the EIR preparation team or presented by SDG&E in its PEA. Each category is presented below. Section 3 presents a summary of the alternatives that have been selected for full analysis in the EIR and those that have been eliminated based on CEQA criteria. Section 4 presents a detailed description of each alternative and detailed explanations of why each was selected or eliminated.

#### 2.1.1 SDG&E Proposed Alternatives

SDG&E presented several system alternatives, several route alternatives and the No Project Alternative in its July 2002 PEA. However, these alternatives were determined by SDG&E to be infeasible when compared to the project objectives. Segments of these alternatives have been incorporated into the alternatives considered in this EIR; these are described in Section 4 of this appendix. The alternatives presented in the PEA fall into five categories described in the following subsections.

##### 2.1.1.1 Transmission System Upgrade Alternatives

Two types of transmission system upgrades are considered: upgrading the existing 138 kV/69 kV system, and upgrading the 230 kV system. Each is described below.

**Upgrading Existing 138 kV/69 kV System.** The 138 kV/69 kV upgrade alternative would include the addition of two new transformers and various bundling and reconductoring of existing 138 kV and 69 kV transmission circuits. This alternative would include the following transmission system upgrades:

- Installation of a new 230 kV/138 kV 392 mega-volt-ampere (MVA) transformer at Miguel Substation
- Installation of a new 138 kV line (two 636-kcmil ACSR) from the new 138 kV transformer terminal at Miguel Substation to the Proctor Valley Substation (1.4 miles)

- Loop-in the 138 kV transmission line (TL) 13824 (South Bay to Los Coches) to Proctor Valley Substation and installation of two new breakers with 2200A breaker rating or higher
- Bundle the 138 kV TL 13824 from Proctor Valley Substation to Los Coches Substation to two 636-kcmil ACSR (15.3 miles)
- Reconductor a portion of the 69 kV TL 631 (El Cajon to Los Coches) to one 636-kcmil ACSR (7.7 miles)
- Installation of a new 138 kV/69 kV 224 MVA transformer at Main Street Substation and tap TL 13815 on the 138 kV side of the new transformer
- Installation of a motorized switch on the South Bay Substation to Main Street tap line at the Main Street Substation
- Reconductor the 69 kV TL 606 (Division Street Substation–Naval Station Metering Facility) to two 636-kcmil ACSR (1 mile)
- Reconductor the southeast and northeast main bus at South Bay Substation with bundled 1,033-kcmil ACSR.

**Other 230 kV Alternatives.** Other 230 kV transmission alternatives considered were as follows:

- Installation of a new 230 kV circuit from Miguel Substation to Main Street Substation and construction of a new 230 kV substation at Main Street
- Installation of a new 230 kV circuit from Miguel Substation to Los Coches Substation and construction of a new 230 kV substation at Los Coches
- Installation of a new 230 kV circuit from Miguel Substation to Sycamore Substation.

#### **2.1.1.2 Use of Congestion Management and Remedial Action Scheme**

This alternative would not include transmission reinforcement beyond Miguel Substation. Instead, this alternative would require implementing an automatic protection system in the form of a Remedial Action Scheme (RAS), generators increasing minimum generation dispatch requirements at the South Bay and Encina power plants, and various automatic post-contingency operating actions (including generator drooping) to meet CAISO reliability criteria.

#### **2.1.1.3 Energy Conservation and Load Management Alternatives**

Energy conservation alternatives included consideration of conservation programs for SDG&E customers, including the payment financial incentives for customers to install specific, energy-efficient measures. SDG&E also considered load management alternatives, which would reduce electric peak demand or shift electric demand from peak to non-peak time periods, but these programs also require the payment of financial incentives to customers and are considered neither reliable nor long term. The energy savings from such programs are very limited and would represent only a fraction of the capacity that the Proposed Project would supply. This issue is also addressed in more detail in Section 4.5.3 of this appendix.

#### **2.1.1.4 Route Design Alternatives**

SDG&E considered but previously eliminated alternative routes for the proposed 230 kV circuit. Segments of these alternatives have been incorporated into the alternatives considered in this EIR; these are described in Section 4 of this appendix. The following route design alternatives were considered for the relocated 138 kV/69 kV circuits between Miguel Substation and Fanita Junction:

- **Subsection A Alternatives – Miguel Substation to Tower #28.** Beginning at Miguel Substation and continuing to Tower #40, the relocated 138 kV/69 kV circuits would be installed on a new pole alignment located either to the east of the existing lattice towers or in a centered position between the two lattice tower alignments. Between Tower #40 and Tower #28, the relocated 138 kV/69 kV circuits would be placed either to the west of the existing lattice towers or in a centered position between the two lattice tower alignments.
- **Subsection B Alternatives – Tower #28 to Tower #5.** From Tower #28 to Tower #5, the new 138 kV/69 kV pole alignment would be installed in a centered position between the two existing lattice tower alignments.
- **Subsection C Alternatives – Tower #5 to Los Coches Substation.** From Tower #5 to Los Coches Substation, the new 138 kV/69 kV pole alignment would be installed either to the east or west of the two existing lattice tower alignments.
- **Subsection D Alternatives – Los Coches Substation to Tower #37.** From Los Coches Substation to Tower #37, the new 138 kV/69 kV pole alignment would be installed either to the east or in a centered position between the two existing lattice tower alignments.
- **Subsection E Alternatives – Tower #37 to Fanita Junction.** From Tower #37 to Fanita Junction, the relocated 138 kV/69 kV pole alignment would be installed either to the north of or in a centered position between the two existing lattice tower alignments.

#### 2.1.1.5 Alternative Technology

SDG&E considered placing all or part of the new 230 kV circuit underground as a possible alternative. However, this alternative was eliminated from consideration by SDG&E based on the potentially greater environmental impacts associated with new underground construction versus overhead construction in the existing ROW. Alternatives incorporating underground route segments are considered in Section 4.2 of this EIR.

#### 2.1.2 Alternatives Suggested During the Scoping Period

The following is a summary of the public comments received during the scoping meetings held in the City of Santee and Spring Valley on September 15 and September 16, 2003, as well as comments received during the public comment period between September 5 and October 5, 2003. The EIR preparers used these comments and suggestions to develop the project alternatives listed in Section 2.1.3, with consideration given to potential visual and biological resource impacts and EMF concerns. This summary is not intended to provide a full record of all of the comments submitted during the Scoping Period. Further, the suggestions or comments listed below may only represent a partial summation of the original comments. For a complete record of the comments and suggestions received during the Scoping Period, please refer to the Scoping Report provided on the CPUC website at:

[http://www.cpuc.ca.gov/environment/info/aspen/miguel\\_mission/toc-scoping.htm](http://www.cpuc.ca.gov/environment/info/aspen/miguel_mission/toc-scoping.htm).

The CPUC will also have a number of copies of the Scoping Report at the Miguel-Mission Public Workshops and Public Participation Hearings that will be held in the San Diego area in May 2004.



## Government Agency Suggestions

**County of San Diego, Department of Planning and Land Use.** On September 29, 2003, the County of San Diego provided a written recommendation that the EIR provide the following information:

- A supporting visual impact study because staff feels that the project could cause visual and aesthetic impacts that would need to be mitigated with appropriate measures.
- An analysis of impacts due to generation of and exposure of persons to excessive ground-borne vibration or noise levels.
- An analysis of impacts from operational noise to birds and wildlife inhabiting coastal sage scrub habitat.
- Impacts from construction traffic including: the location of parking areas, road usage, traffic flow especially at intersections, property access, and cumulative impacts.

**City of San Diego.** The Planning Department, Development Services Department, and the Park and Recreation Department reviewed the project and provided the following comments on October 3, 2003:

- Approximately half of Subsection F (Figure 1-5 of SDG&E PEA) would be located within the City of San Diego's Multi-habitat Planning Area (MHPA) that was established by the City's Multiple Species Conservation Program. Please refer to the City's MSCP Subarea Plan, March 1997, Section 1.4.1 Compatible Land Uses, Roads and Utilities – Construction and Maintenance Policies (pages 44 and 45) for guidance on the development of your Proposed Project. In addition, please refer to Section 1.4.3 Land Use Guidelines of the MSCP Subarea Plan, which provides guidance for projects that would be located adjacent to the MHPA.
- The City also requests that the Applicant utilize the City of San Diego Biological Review Reference, dated July 2002, in conducting any biological surveys, determining impact significance, and establishing appropriate mitigation for biological impacts that may occur within the City's boundary.
- The City of San Diego Development Services Department is currently processing the Sycamore Landfill Master Plan, which proposes to expand the landfill's footprint and remove the existing SDG&E high transmission line easement within the landfill boundaries (to provide more landfill capacity). It is recommended that further coordination between CPUC/SDG&E and Sycamore Landfill occur to determine how the Proposed Project would affect the landfill facility.

### ***The City of Santee***

The City of Santee submitted comments on September 17, 2003, and October 4, 2003, offering the following suggestions:

- The City recommended that underground installation of the transmission lines should be fully analyzed in the DEIR as a project alternative to avoid impacts associated with EMF, noise, land use, visual, and construction impacts.
- The City recommended that any new poles to be installed in the ROW between Los Coches Substation and Fanita Junction through Santee should be spaced span for span with the existing tower structures. This strategy would prevent the introduction of new structures that would create additional visual impacts to already impacted areas of the community, especially near sensitive receptors such as homes, schools, hillside areas and future protected habitat preserve areas.

### ***Cajon Valley Union School District***

The Cajon Valley Union School District submitted comments on September 25, 2003. The District's concerns are as follows:

- SDG&E should evaluate all school sites and property owned by the District to determine the distance from each property to the transmission easement and determine whether those distances are in compliance with the requirements of the California Department of Education Code regarding the construction of transmission facilities in proximity to schools.

### ***Padre Dam Municipal Water District***

The Padre Dam Municipal Water District (PDMWD) submitted comments on September 16, 25, and 29, 2003:

- PDMWD requests that the design engineers for this project contact the District and provide a draft design for comment by District engineers prior to project construction.
- PDMWD is concerned with any project activity that would occur within proximity of the Santee Lakes Regional Park, and would like to be informed of the specific project activities that would be anticipated in this area.

### **Private Organization Suggestions**

#### ***Santee Citizens for Safe Power***

Between September 16 and October 4, 2003, the Santee Citizens for Safe Power provided multiple comments and 39 letters expressing concerns about the Proposed Project. These comments are summarized below:

- The Santee Citizens for Safe Power would like the EIR to provide full disclosure of real and perceived impacts of EMF associated with transmission lines. In addition, the group recommends the use of the maximum setback distances as required by the State of California, the California Department of Education and as recommended by the World Health Organization.
- The group expressed that people need to know and should be informed of the hazards present where they live.
- The group expressed that people living within 1,000 feet of transmission lines are or have been adversely impacted by EMF.

#### ***Preserve Wild Santee***

During the September 16, 2003, meeting, Mr. Collinsworth provided the following comments and requests on behalf of the Preserve Wild Santee citizen's organization:

- The EIR should consider alternatives that utilize clean energy technology, such as solar energy.
- The EIR should develop alternatives to lessen the visual impacts of the Proposed Project.
- The EIR should present the existing EMF levels that occur out 3 miles from the transmission lines, at 25-foot intervals.

### **Private Citizen Suggestions**

The following comments were derived from video transcripts of the scoping meetings, comments received via the project hotline, and comments received by mail during the scoping period:

***Sal R. Campos (City of Santee)***

- The poles should be moved farther away from homes.
- The EIR should examine the possibility of moving the poles to the north side of the existing structures through Santee and Eucalyptus Hills (Note: See Section E in Figure 1-5 of SDG&E PEA).

***Joseph Dubreuil***

- The Proposed Project should utilize more efficient power lines to decrease the number of structures needed, instead of adding more structures.

***Matt DePhilipis (City of Santee)***

- The new 230 kV circuit should be placed underground.

***Jim and Sharon Ford (City of El Cajon)***

- The existing and proposed lines should be consolidated in a tighter grouping to occupy less air space so that they are not as visually intrusive.

***Joseph Garofalo (City of Santee)***

- The EIR should develop alternatives to the currently Proposed Project that remove or lessen the burden and potential hazards to the residents of Easthaven Court.

***Donna Hackney (City of El Cajon)***

- New towers should and could be placed at a lower elevation, below existing homes in the section running through El Cajon.
- Ms. Hackney believes that with proper planning and diligence, SDG&E could bury the proposed 230 kV transmission lines between Cottonwood Subdivision and Willow Glen Drive and completely eliminate the existing towers that degrade the visual quality of the area. Ms. Hackney also suggested that placing these lines underground may also correct the problems of noise and EMF exposure.

***Ellen Holaway (City of Santee)***

- Any new pole alignment should be installed along the north edge of the existing ROW in the City of Santee.

***Rory and Ruth Jones (City of El Cajon)***

- The Proposed Project should utilize the existing towers instead of constructing new ones.

***Mitch Joplin (City of El Cajon)***

- Mr. Joplin suggested the use of the most aesthetically appealing poles for the Proposed Project.

***Jim Radice (City of El Cajon)***

- Mr. Radice suggested using brown colored poles to blend in with the background.
- Mr. Radice suggested investigating project alternatives that do not require the use of new poles.

***Glenn Urie (City of Santee)***

- Mr. Urie suggested that all new utilities should be installed underground.

## 2.1.3 Alternatives Developed by EIR Preparers

The alternatives listed below were developed as possible means of avoiding or reducing adverse impacts associated with the Proposed Project. Development of the following alternatives involved multiple site visits to the project area by the EIR preparation team in order to evaluate the Proposed Project route and to identify any route and/or system alternatives that could exist in the surrounding areas to the west and north of Miguel Substation and to the south of Sycamore Substation. Alternatives were developed from the information gathered during these site visits and the comments and suggestions received from agencies and the public during the Scoping Period. In developing these alternatives, special consideration was given to the potential visual and biological resources impacts of the Proposed Project and the concerns of the public regarding potential impacts from EMF. It should be noted that EMF information presented in this Alternatives Screening Report is informational only and not part of the adopted standards under CEQA.

In addition, development of possible route and system alternatives considered a number of potential impacts to sensitive receptors in the San Diego area, including Balboa Park, oceanfront areas, the University of San Diego, the San Diego and Sweetwater Rivers, Old Town San Diego, various community parks and multiple residential neighborhoods.

### 2.1.3.1 Alternatives with Minor Route Modifications Utilizing the Existing ROW

The following alternatives assume that the Proposed Project would be constructed mainly within the existing ROW as proposed by SDG&E, with the exception of two underground segments that would deviate from the ROW in the vicinity of Jamacha Valley and the City of Santee.

#### Proposed Project with Route Modifications in Jamacha Valley:

- **Jamacha Valley 138 kV/69 kV Underground Alternative.** Relocation of the existing 138 kV/69 kV circuits underground for 3.5 miles along Willow Glen Drive.
- **Jamacha Valley Overhead A 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.
- **Jamacha Valley Overhead B Alternative.** The Jamacha Valley Overhead B Alternative would result in the addition of two steel mono-pole structure alignments and one lattice structure along the Miguel-Mission ROW in Jamacha Valley. At a point near the Herrick Center, 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 poles for the 138 kV and 69 kV circuits. This alternative would involve the installation of approximately 19 steel mono-poles to accommodate the relocated 138 kV/69 kV circuits through Jamacha Valley.

#### Proposed Project with Route Modification in City of Santee:

- **City of Santee 138 kV/69 kV Underground Alternative.** Relocation of the existing 69 kV circuit underground for approximately 0.6 miles outside the Miguel-Mission ROW along an access road to a water storage tank, and 0.75 miles along the length of Princess Joann Road, and relocation of one 138 kV circuit underground along Princess Joann to Magnolia Avenue.
- **City of Santee Underground Along Southern Boundary Alternative.** The 230 kV circuit would be placed underground along the paved storage tank access road until it intersects with Princess

Joann Road, at which time the underground route would proceed west along the southern boundary of the existing SDG&E boundary.

- **City of Santee Underground Along Northern Boundary Alternative.** The 230 kV circuit would be placed underground along the paved storage tank access road until it intersects with Princess Joann Road, at which time the underground route would proceed west along the northern boundary of the existing SDG&E boundary through the City of Santee.
- **City of Santee 230 kV Overhead Northern ROW Boundary Alternative.** Placing the proposed 230 kV circuit on steel poles on the northern side of the ROW through the City of Santee.

**Miguel-Los Coches Alternative.** Installation of new 230 kV circuit on steel mono-poles centered in the Miguel-Mission ROW from Miguel Substation to Los Coches Substation.

### 2.1.3.2 Alternatives with Major Route Modifications Utilizing the Existing ROW

Five alternative routes for the new 230 kV circuit are considered; each is described briefly below and in more detail in Section 4.3.

**El Cajon-Mission Trails Alternative.** Installation of a new 230 kV circuit aboveground, underground, or a combination of both from Miguel Substation northeast to Campo Road, north to El Cajon, west to Mission Trails Regional Park, and southwest to Mission Substation.

**Miguel-La Mesa Alternative.** Installation of a new 230 kV circuit aboveground, underground, or a combination of both from Miguel Substation northeast to Campo Road, west to La Mesa, and north/northwest to Mission Substation.

**El Cajon-Mission Gorge Road Alternative.** Installation of a new 230 kV circuit aboveground, underground, or a combination of both from Miguel Substation northeast to La Cresta Road, west through El Cajon to Mission Gorge Road, and southwest to Mission Substation.

**City of Santee-Mission Gorge Road Alternative.** Installation of a new 230 kV circuit aboveground, underground, or a combination of both from Miguel Substation northeast to Los Coches Substation, west through the City of Santee via Mission Gorge Road, and southwest to Mission Substation.

**Moreno-Santee Regional Lakes Alternative.** Installation of a new 230 kV circuit aboveground, underground, or a combination of both from Miguel Substation to Los Coches Substation, to the community of Moreno, southeast on Lakeside Avenue to Santee Regional Lakes, then north to intersect with the Proposed Project ROW.

### 2.1.3.3 Alternatives West of Miguel Substation

Three alternatives west of Miguel Substation are considered; they are summarized below and described in detail in Section 4.4.

**Miguel-Main-Mission Substation Alternatives.** Two potential alternative routes west of Miguel Substation to Mission Substation utilizing the Main Street Substation:

- **Miguel-Main-Mission A Alternative.** Installation of a new 230 kV circuit underground from Miguel Substation west to Chula Vista, then aboveground north to Main Street Substation, north on Harbor Boulevard and Pacific Coast Highway to Old Town Substation, and east to Mission Substation.

- **Miguel-Main-Mission B Alternative.** Installation of a new 230 kV circuit underground from Miguel Substation west to Chula Vista, then aboveground north to Main Street Substation, then north on 30th Avenue and west on University Avenue and Washington Street to Pacific Coast Highway, north across San Diego River and east to Mission Substation.

**West of Miguel Underground Alternative.** Installation of a new 230 kV circuit underground from Miguel Substation west and then north to Paradise Valley Road, north to La Mesa and northwest to San Diego and Mission Substation.

## 2.2 Alternatives Screening Methodology

The alternatives identified above were subject to an initial three-step screening evaluation procedure illustrated below. Infeasible alternatives and alternatives that clearly offered no potential for overall environmental advantage were removed from further analysis.

- Step 1:** Clarification of the description of each alternative to allow comparative evaluation.
- Step 2:** Evaluation of each alternative using CEQA criteria (defined below).
- Step 3:** Based on the results of Step 2, determination of the suitability of each alternative for full analysis in the EIR. Alternatives deemed infeasible based on CEQA criteria were eliminated from further consideration.

In the final phase of the screening analysis, the advantages and disadvantages of the remaining alternatives were carefully weighed with respect to CEQA's criteria for consideration of alternatives. These criteria are discussed in the following section.

This Alternatives Screening Report does not consider magnetic fields in the context of CEQA and determination of potential environmental impacts for two reasons: 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 determining health risks from EMF. As a result, EMF information is presented as disclosure only for the public and decisionmakers.

## 2.3 CEQA Requirements for Alternatives

According to CEQA Guidelines (Section 15021), it is the duty for every public agency to avoid or minimize environmental damage where feasible and to ensure that no project is approved while other mitigation measures, or alternatives to the project exist that could alleviate any significant environmental effects of the Proposed Project. Section 15126.6 of CEQA states:

*“An EIR for a Proposed Project 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, and it must consider . . . those potentially feasible alternatives that will foster informed decision making and public participation.”*

Section 15126.6 of CEQA further adds that:

*“The discussion of alternatives shall focus on alternatives capable of avoiding or lessening any significant effects of the project, even if those alternatives would impede to some degree the attainment of the project objectives or would be more costly.”*

This EIR has integrated these requirements into the analysis process for the Proposed Project. In order to determine which of the proposed alternatives was feasible, each alternative was evaluated using the following four criteria:

- Does the alternative allow meeting of most basic project objectives?
- Is the alternative feasible (from a legal, regulatory and technical standpoint)?
- Does the alternative avoid or substantially lessen any significant effects of the Proposed Project?
- Does the alternative itself create significant effects potentially greater than those of the Proposed Project?

### 2.3.1 Consistency with Project Objectives

In its July 2002 PEA (Section 2, Purpose and Need), SDG&E stated the objectives of the Proposed Project. For clarification purposes, SDG&E was asked through a Data Request dated October 30, 2003, to restate the objectives of the Proposed Project. This EIR does not endorse, nor is it governed by, the project objectives as defined by SDG&E; instead it uses these objectives as a baseline for determining the positive and negative benefits of the project as proposed by SDG&E. For purposes of this EIR, the project objectives are presented below.

- 1. Reduce Transmission Constraints on Electric System.** The first project objective is to reduce constraints on SDG&E's existing electrical transmission system in accordance with Assembly Bill 970 (AB 970). AB 970 directed 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 . . . ." Reducing system constraints in SDG&E's service territory would allow electric generation to meet demand by increasing statewide and regional access to new merchant generation capacity. In addition, system congestion costs would be reduced and SDG&E and California Independent System Operator (CAISO) consumers would realize potentially significant economic benefits. On February 27, 2003, the CPUC made a finding of need for the Proposed Project citing these benefits. (See Decision D.03-02-069 in docket No. I.00-11-001.) The Commission further provided that its need determination in that decision would be conclusively established for purposes of this CPCN proceeding.
- 2. Provide Reliability Benefits and Operational Flexibility for SDG&E's Service Territory.** The second project objective is to improve the existing SDG&E transmission system infrastructure in order to ensure that the electric system can safely and reliably serve the SDG&E service territory. 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.
- 3. Improve Transmission System Infrastructure.** The third project objective is to improve the existing transmission system infrastructure in order to ensure that the electric system can safely and reliably serve the San Diego area, 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.

### 2.3.2 Feasibility

The alternatives screening analysis is largely governed by what CEQA terms the “rule of reason,” meaning that the analysis should remain focused, not on every possible eventuality, but rather on the alternatives necessary to permit a reasoned choice. Furthermore, of the alternatives identified, the EIR is expected to fully analyze only those alternatives that are feasible with most of the project objectives. 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.”*

In determining the feasibility of alternatives, the factors that may be taken into account are site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and site access/control (CEQA Guidelines Section 15126.6(f)(1)). Other factors that can affect the feasibility of an alternative can include:

- **Legal Feasibility:** Does the alternative have the potential to avoid lands that have legal protections that may prohibit or substantially limit the feasibility of permitting a 230 kV transmission line?
- **Regulatory Feasibility:** Does the alternative have the potential to avoid lands that have regulatory restrictions that may substantially limit the feasibility of completing the construction of a 230 kV transmission line?
- **Technical Feasibility:** Is the alternative feasible from a technological perspective, considering available technology, the construction, operation, and maintenance or spacing requirements of multiple facilities using common rights-of-way, and the potential for common mode failure?

The above feasibility considerations were assessed for the Proposed Project in the alternatives screening analysis. For each alternative considered, a determination was made as to whether there was anything about the alternative that would be infeasible on technical, legal, or regulatory grounds.

### 2.3.3 Potential to Eliminate Significant Environmental Effects

A key CEQA requirement for any alternative is that it must have the potential to “avoid or substantially lessen any of the significant effects of the project” (CEQA Guidelines Section 15126.6(a)). If an alternative was identified that does not provide potential overall environmental advantages as compared to the Proposed Project, it was eliminated from further consideration. At the screening stage, it is not possible to evaluate all of the impacts of the alternatives in comparison to the Proposed Project with absolute certainty, nor is it possible to definitively quantify or predict project impacts. However, it is possible to identify elements of an alternative that are likely to be the sources of impact and to relate them, to the extent possible, to general conditions in the subject area.

Table Ap.2-2 presents a summary of the potentially significant effects of the Proposed Project at the initial screening phase. These significant effects were used to determine whether an alternative met this CEQA requirement. A final conclusion regarding potential impacts and recommendations for mitigating potential impacts is reflected in EIR Section D.



**Table Ap.2-2. Preliminary Summary of Potentially Significant Impacts/Concerns of the Proposed Project**

Issue Area	Impact/Concern
Air Quality	<ul style="list-style-type: none"> <li>• Short-term construction impacts expected to be less than significant</li> </ul>
Biological Resources	<ul style="list-style-type: none"> <li>• Potentially significant impacts to sensitive biological resources (e.g., Quino checkerspot butterfly, San Diego fairy shrimp, San Diego ambrosia, vernal pools, and coastal sage scrub habitat)</li> </ul>
Cultural Resources	<ul style="list-style-type: none"> <li>• Potential construction disturbance to recorded and unknown cultural and historic resources</li> </ul>
Hazards and Hazardous Materials	<ul style="list-style-type: none"> <li>• Potential for contamination from transport, use, disposal of hazardous fuels during construction</li> </ul>
Geology, Soils, and Paleontology	<ul style="list-style-type: none"> <li>• Portions of the proposed ROW are susceptible to landslides, land spreading, and liquefaction.</li> </ul>
Hydrology and Water Quality	<ul style="list-style-type: none"> <li>• Construction-related erosion or degradation of water quality through sedimentation</li> </ul>
Land Use and Recreation	<ul style="list-style-type: none"> <li>• Potential for trail closures during construction</li> </ul>
Public Health, Safety, and Nuisance	<ul style="list-style-type: none"> <li>• Increase in baseline levels for Electric and Magnetic Fields from 69 kV to 230 kV lines</li> <li>• Corona and audible noise from the transmission lines</li> <li>• Induced currents and shock hazards</li> <li>• Radio/TV/electronic equipment interference</li> <li>• Effects on cardiac pacemakers</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Short-term noise from construction activity on sensitive land uses</li> <li>• Continuous operational noise from transformers, substations, and/or transmission line corona</li> </ul>
Socioeconomics	<ul style="list-style-type: none"> <li>• Potential short-term increase to housing demands due to induced project construction personnel</li> </ul>
Public Services and Utilities	<ul style="list-style-type: none"> <li>• Short-term increase in water use during construction</li> <li>• Potential emergency vehicle (police and fire) access impacts associated with street closures during electrical wire stringing</li> <li>• Potential impacts to buried utility lines within the ROW during required grading and excavation</li> </ul>
Transportation and Traffic	<ul style="list-style-type: none"> <li>• Short-term impacts to air traffic could occur if helicopters are used</li> <li>• Temporary impacts to transportation during construction activities.</li> </ul>
Visual Resources	<ul style="list-style-type: none"> <li>• Degradation of the view shed from addition of new pole alignment from Miguel Sub. to Fanita Junction.</li> <li>• Increased visibility of industrial feature to residential corridors</li> </ul>

## 3. Summary of Alternatives Screening Results

This section presents a summary of the conclusions of Section 4, which describes each of the alternatives in detail and presents the rationale for identifying infeasible alternatives and those carried forward for full EIR analysis. Largely this determination is based on the three major criteria listed below:

**Criterion 1: Project Objectives.** Many of the alternatives described in Section 4 are modifications to SDG&E's proposed transmission line route between Miguel and Mission Substations. All of these alternatives are weighed against and to some degree meet the project objectives defined by SDG&E.

**Criterion 2: Feasibility.** The alternatives are also weighed as to their ability to meet technical, legal and regulatory feasibility criteria as described in Section 2.

**Criterion 3: Environmental Effects.** The preliminary summary of potentially significant environmental impacts of the Proposed Project is shown in Table Ap.2-2. The impacts are detailed in full in EIR Section D for those alternatives not eliminated by screening. Each alternative is evaluated by its overall ability to reduce or avoid significant adverse effects of the Proposed Project. In some cases, an alternative may eliminate a significant impact, but may subsequently create a new significant impact. In these cases, the aggregate environmental impacts associated with Proposed Project are compared with those associated with the alternative to determine whether the alternative meets the overall CEQA requirement.

### 3.1 Alternatives Analyzed in This EIR

The alternatives listed below are those that have been selected through the alternative screening process for detailed EIR analysis. Each of these alternatives meets all project objectives, is feasible, and avoids or reduces environmental effects of the Proposed Project. These factors are addressed in detail in Section 4 of this appendix, and a map of each is presented.

- Jamacha Valley 138 kV/69 kV Underground Alternative
- Jamacha Valley Overhead A Alternative
- Jamacha Valley Overhead B Alternative
- City of Santee 138 kV/69 kV Underground Alternative
- City of Santee 230 kV Overhead Northern ROW Boundary Alternative

### 3.2 Alternatives Eliminated from EIR Consideration

The alternatives that have been eliminated through the alternative screening process from detailed EIR analysis are listed below. All are found to meet project objectives, but there are feasibility concerns with several, and most would have greater environmental impacts than the Proposed Project. The rationale for elimination of each alternative is presented in detail in Section 4.

- City of Santee 230 kV Underground Along Southern ROW Boundary Alternative
- City of Santee 230 kV Underground Along Northern ROW Boundary Alternative
- Miguel-Los Coches Alternative
- El Cajon-Mission Trails Alternative
- Miguel-La Mesa Alternative
- El Cajon-Mission Gorge Road Alternative
- City of Santee-Mission Gorge Road Alternative
- Moreno-Santee Regional Lakes Alternative
- Miguel-Main-Mission A Alternative
- Miguel-Main-Mission B Alternative
- West of Miguel Underground Alternative

## 4. Alternative Descriptions and Determinations

### 4.1 Introduction

The alternatives presented in this section range from minor route adjustments within the Miguel-Mission ROW to alternative system designs, proposed new route options, renewable energy supplies, and other non-wire alternatives. After initial screening, if a potential alternative was found to not meet project objectives, to be infeasible, or it did not appear to reduce or avoid potentially significant impacts of the Proposed Project, it was eliminated from full evaluation. Those alternatives that meet the CEQA alternative criteria have been retained for full analysis in the EIR. For each alternative, a map and discussion of compliance are included. The No Project Alternative is described in EIR Section C and is not discussed further in this report.

Section 4.2 provides descriptions of eight alternatives with minor route modifications (less than 5 miles in distance) to the Proposed Project, or that had changes to the proposed circuit locations within the existing Miguel-Mission ROW. Section 4.3 provides descriptions of five alternatives utilizing the existing Miguel-Mission ROW with major route modifications (greater than 5 miles in distance). Three alternative routes to the west and north of the Miguel Substation are evaluated in Section 4.4. Section 4.5 provides details on the non-wire alternatives. Each section has a detailed map that illustrates the location of each alternative route. In addition, we have included all alternative routes on one overview map (see Figure Ap.2-1).

### 4.2 Alternatives Utilizing the Existing ROW with Minor Route Modifications

#### 4.2.1 Proposed Project with Route Modifications in Jamacha Valley

Three alternatives have been proposed 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. Implementation of these alternatives assumes that the Proposed Project would be constructed as proposed from Miguel Substation to a point just south of Willow Glen Drive in Jamacha Valley. North of Jamacha Valley, these alternatives would transition back into the Proposed Project alignment.

Section 4.2.1.1 describes the Jamacha Valley 138 kV/69 kV Underground Alternative, which would involve relocating the existing 138 kV and 69 kV circuits underground along Willow Glen Drive. Figure Ap.2-2 provides a detailed illustration of this alternative. EIR Appendix 4 provides details on the feasibility of this route modification as provided by Commonwealth Associates Incorporated (an independent engineering contractor to CPUC).

The other two route alternatives in Jamacha Valley would involve modifying the position of the poles and circuits within the existing Miguel-Mission ROW. The Jamacha Valley Overhead A Alternative (described in Section 4.2.1.2) was the original alignment proposed by SDG&E in its PEA, dated July 2002, but was subsequently changed to the Proposed Project alignment by moving the circuit from the east side of the ROW to the center (see Section 4.2.1.2 for further details). The Jamacha Valley Overhead B Alternative, which includes replacing the existing 138 kV lattice structures in Jamacha Valley with new steel mono-poles, (described in Section 4.2.1.3) was developed by the CPUC in order to reduce the potential long-term visual impacts to the residents in the Cottonwood community.

#### 4.2.1.1 Jamacha Valley 138 kV/69 kV Underground Alternative

As described in Section 4.2.1, 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. Two underground options were evaluated within Jamacha Valley along Willow Glen Drive. The two options included undergrounding either the proposed 230 kV circuit or the existing 138 kV and 69 kV circuits. Under both options, the existing circuits would transition from a new pole or lattice structure onto a new transition pole immediately south of Willow Glen Drive, transitioning underground and continuing underground for approximately 3.5 miles along the length of Willow Glen Drive to the intersection of Willow Glen Drive and Dehesa Road. The underground circuits would then connect to a new transition pole to be installed west-northwest of Singing Hills Memorial Park and transition back to an overhead configuration in the existing ROW. Figures Ap.2-2a, Ap.2-2b, and Ap.2-2c provide illustrations of this route modification in Jamacha Valley. The two options evaluated are as follows:

- **138 kV/69 kV Underground Option.** Under this option, 14 proposed new poles supporting the 138 kV and 69 kV circuits would not be constructed because both the 138 kV and 69 kV circuits would be placed underground along Willow Glen Drive, rather than relocated to newly constructed poles. Two transition poles would be required at the north and south ends of the segment, within the existing ROW. In this option, the new 230 kV circuit would be placed on existing and modified towers where the 138 kV/69 kV circuits are currently located. No new poles would be constructed in this ROW segment, except for the transition poles.
- **230 kV Underground Option.** In this option, the 138 kV and 69 kV circuits (six new conductors) would remain positioned in the ROW on the existing towers, and the 230 kV bundled circuit (also six conductors) would be installed underground along Willow Glen Drive. Two transition poles would be required (larger than those needed for the 138 kV/69 kV underground option). No new poles would be constructed in this segment of the ROW except for the transition towers.

**Conclusion Regarding Underground Options.** Because the 138 kV/69 kV underground option through Jamacha Valley provides better overall benefits to the visual environment (e.g., fewer poles to install, transition poles are smaller) 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 this Alternatives Screening Report.

#### Key Issues/Components Associated with the 138 kV/69 kV Underground Option

- 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, west of Willow Glen Drive, would experience a net reduction of three overhead conductors along this segment of the Miguel-Mission ROW in comparison to the existing baseline conditions, considered a visual benefit.
- Reduced levels of maintenance activities since the circuits would be underground and protected from the environment. No cleaning of the insulators would be required. Reduced levels of inspections activities would be required under this alternative.
- Reduced potential for electricity service disruption from fires and weather events.
- Underground construction would result in potential delays in project schedule (see EIR Appendix 4 for details on the feasibility of this underground alternative).

Figure Ap.2-1. Overview of Alternative Routes

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Figure Ap.2-2a. Jamacha Valley 138 kV/69 kV Underground Alternative

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Figure Ap.2-2b. Jamacha Valley 138 kV/69 kV Underground Alternative

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Figure Ap.2-2c. Jamacha Valley 138 kV/69 kV Underground Alternative

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- This alternative would be consistent with SDG&E's plan to install an additional 230 kV circuit along this segment in the future. Should a new circuit be planned and permitted, the new circuit could be strung on the east side of the modified existing 138 kV steel lattice structures.
- 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.

### Consideration of CEQA Criteria

**Project Objectives.** 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.

**Feasibility.** The CPUC requested that SDG&E evaluate the feasibility of undergrounding the 138 kV/69 kV along Willow Glen Drive in Jamacha Valley. SDG&E stated that:

*“ . . . a preliminary review of the route presents several problems, including but not limited to, circuit clearance problems, conflicts with other underground utilities, the requirement to obtain new right-of-way in order to construct a segment of overhead line outside of SDG&E's existing right-of-way and the possibility of increased EMF levels. All these issues could contribute to a delay of the project in-service date, and not satisfy the project purpose and need. The additional cost of this option could be very high, up to \$16 million, with the potential added financial impact to customers of possible future costs because the underground portion will be built in “franchise position.” In “franchise position” means that SDG&E would be required to pay to move the underground transmission line if, in the future, an existing or a future utility needed SDG&E's position in the roadway.” (SDG&E, 2003h)*

Based on this feedback from SDG&E, the CPUC requested that an independent engineering firm (Commonwealth Associates Incorporated [CAI]) review the 3.5-mile route and evaluate the feasibility of this alternative (see EIR Appendix 4 for the complete feasibility assessment). CAI found that it is technically feasible to construct an underground transmission line in this Jamacha Valley segment. However, this alternative may require additional time to construct the underground segment through Jamacha Valley because of the slower pace of trenching.

**Potential to Lessen Significant Environmental Effects.** This alternative has the potential to lessen the adverse environmental effects of the Proposed Project. Impacts that would be reduced include the following:

- **Visual Resources.** This alternative would eliminate 14 proposed 138 kV/69 kV poles, avoiding some of the potentially adverse visual impacts that would result from the Proposed Project. It would substantially eliminate the visual impacts along Willow Glen Drive and from the Cottonwood community near Hillsdale and Vista Rodeo Roads. In addition, this alternative would have a net reduction of three overhead conductors along this segment of the ROW in comparison to the baseline

conditions. Six existing overhead conductors (two circuits) would be installed underground along Willow Glen Drive. Unlike the Proposed Project, this alternative would create no new adverse visual impacts to residents adjacent to the existing Miguel-Mission ROW or recreational users at Singing Hills Country Club.

- **Cultural Resources.** Eight identified cultural resources sites are located within the Proposed Project ROW between the intersection of Willow Glen Drive and the Miguel-Mission ROW and Dehesa Road. This alternative would avoid these eight known cultural resources sites.
- **Biological Resources.** This alternative would reduce potential impacts to biological habitat and resources (e.g., coastal sage scrub, southern-willow riparian forest, hermes copper butterfly), since there would not be any new poles installed along this ROW segment. However, the Applicant would still need to modify the 138 kV lattice towers and install the 230 kV circuit along this segment of the ROW. This construction activity would be limited and would disturb fewer biological resources than the Proposed Project.
- **Corona Noise.** In comparison to the Proposed Project, 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.
- **Soil Erosion and Slope Stability.** Reduced construction activity along the slope of the Miguel-Mission ROW would reduce potential impacts to slope stability, a concern identified by Cottonwood residents during the scoping period. This alternative would also minimize soil erosion concerns associated with construction activity along the slopes of this segment of the ROW.

**Potential New Impacts Created.** This alternative has the potential to create or increase short-term environmental effects of the Proposed Project. Short-term impacts that would increase include the following:

- **Air Quality and Noise.** The underground construction required for installation of the Jamacha Valley 138 kV/69 kV Underground Alternative could potentially create temporary increases in impacts to air quality and noise from trenching activities. These impacts would occur only during the short-term construction schedule associated with this route modification.
- **Traffic.** This alternative has a greater likelihood of disrupting traffic along Willow Glen Drive during construction of the underground circuits. Temporary lane closures would be needed during construction of this alternative.
- **Public Safety and Utilities.** There would be greater potential for the occurrence of temporary public safety issues (increased response times for emergency vehicles) and disruption of public utilities as a result of the construction within Willow Glen Drive.
- **Cultural Resources.** Due to undergrounding, there is an increased likelihood of affecting unknown buried cultural resources by moving construction to an area of higher archaeological sensitivity and vastly increasing ground disturbance.

### Alternative Conclusion

**Jamacha Valley 138 kV/69 kV Underground Alternative – *RETAINED FOR ANALYSIS.*** The Jamacha Valley 138 kV/69 kV Underground Alternative is feasible and would meet all project objectives for the Miguel-Mission 230 kV #2 Project. As described above, this alternative could decrease several permanent environmental impacts, such as impacts to visual and biological resources and known cultural resources. This alternative may also reduce impacts to recreation, soil erosion, and geologic resources. New impacts created by this alternative would primarily be from construction activities of a temporary nature. These temporary impacts include air quality, traffic, public utilities, noise, and public safety.

Because it meets the project objectives, is feasible, and would lessen more permanent/significant environmental impacts, the Jamacha Valley 138 kV/69 kV Underground Alternative is retained for full analysis in the EIR.

#### 4.2.1.2 Jamacha Valley Overhead A Alternative

The Jamacha Valley Overhead A Alternative was evaluated based on concerns from residents in Jamacha Valley about visual resources and EMF levels. 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 (see Figures Ap.2-3a and Ap.2-3b). The 69 kV circuit would be located on the west side of the new alignment of steel mono-poles, and the 138 kV circuit would be positioned on the east side.

This alternative was part of SDG&E's original alignment for the Miguel-Mission 230 kV #2 Project through Jamacha Valley. However, SDG&E modified its alignment along this segment to position the 138 kV and 69 kV circuits in the center of the ROW. SDG&E made this change for the following reasons:

- SDG&E stated it would need to build (or extend) new access roads to get to each new pole site on the east side of the ROW through Jamacha Valley. These new access roads could cause significant environmental impacts, such as impacts to biological resources, cultural resources, soil erosion, and water quality. This alternative would also increase temporary air quality and noise impacts to residents along the ROW from the additional construction requirements.
- Difficult to access and construct on steep terrain along the east side of the ROW.
- Concerns about visual resources and EMF from community members located east of the ROW (e.g., Boxwood Drive, Rodeo Drive) in the northern portion of Jamacha Valley, as well as the residents east of the ROW (e.g., Camino Monte Sombre Trail, Camino de la Sierra) between Jamacha Valley and Interstate 8.

#### Key Issues/Components Associated with This Alternative

- This alternative would move the new alignment of poles away from the residents in the southern portion of Jamacha Valley.
- Access roads would need to be constructed (or extended) for this alternative in order to access the construction sites along the eastern boundary of the ROW.
- 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 decrease from 21.6 mG with the Proposed Project to 21.4 mG under this alternative (at west edge of ROW) and increase from 10.2 mG to 14.7 mG (east edge).**

#### Consideration of CEQA Criteria

**Project Objectives.** 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.

**Feasibility.** CPUC requested that an independent engineering firm (CAI) evaluate the feasibility of this alternative. CAI concluded that it appears feasible to install new 138 kV/69 kV circuits 12 feet from the eastern edge of the ROW. However, additional ROW width may be needed (up to approximately 15 feet east of the existing ROW) because of the location of the circuits at the edge of the ROW.

**Lessen Significant Environmental Effects.** This alternative has the potential to lessen adverse environmental effects of the Proposed Project. Long-term impacts that would be reduced include the following:

- **Visual Resources.** 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. As a result, this alternative would provide an improvement to the viewshed over the Proposed Project for residents in the Cottonwood community, south of Hillsdale Road.

**Potential New Impacts Created.** This alternative has the potential to create or increase significant short-term environmental effects of the Proposed Project. Short-term impacts that would increase include the following:

- **Biological Resources.** With this alternative, there would be a greater area of disturbance during construction, as well as greater impacts to biological resources (e.g., coastal sage scrub, southern-willow riparian forest, hermes copper butterfly) as a result of additional workspace and access roads needed to construct the 138 kV and 69 kV circuits on the east side of the existing ROW.
- **Cultural Resources.** There would be greater potential disturbance to cultural resources for this alternative in comparison to the Proposed Project because of a greater area of disturbance during construction of the pole sites and the access roads.
- **Air Quality and Noise.** Because of the additional construction activities (e.g., access roads, workspace) under this alternative, air quality and noise impacts would be greater under this alternative in comparison with the Proposed Project.
- **Soil Erosion.** Greater disturbance area could result in a greater chance for soil erosion to occur along the Miguel-Mission ROW.

### Alternative Conclusion

**Jamacha Valley Overhead A Alternative – *RETAINED FOR ANALYSIS.*** This alternative is feasible and would meet all project objectives for the Miguel-Mission 230 kV #2 Project. As described above, this alternative would provide an improvement to the viewshed over the Proposed Project for the residents in the Cottonwood community, south of Hillsdale Road. Potential adverse short-term environmental impacts to air quality, cultural resources, biological resources, noise, and soil erosion would be expected from the construction of the additional poles within the ROW. Because this alternative meets the project objectives, is feasible, and would lessen permanent environmental impacts, the Jamacha Valley Overhead A Alternative is retained for full analysis in this EIR.

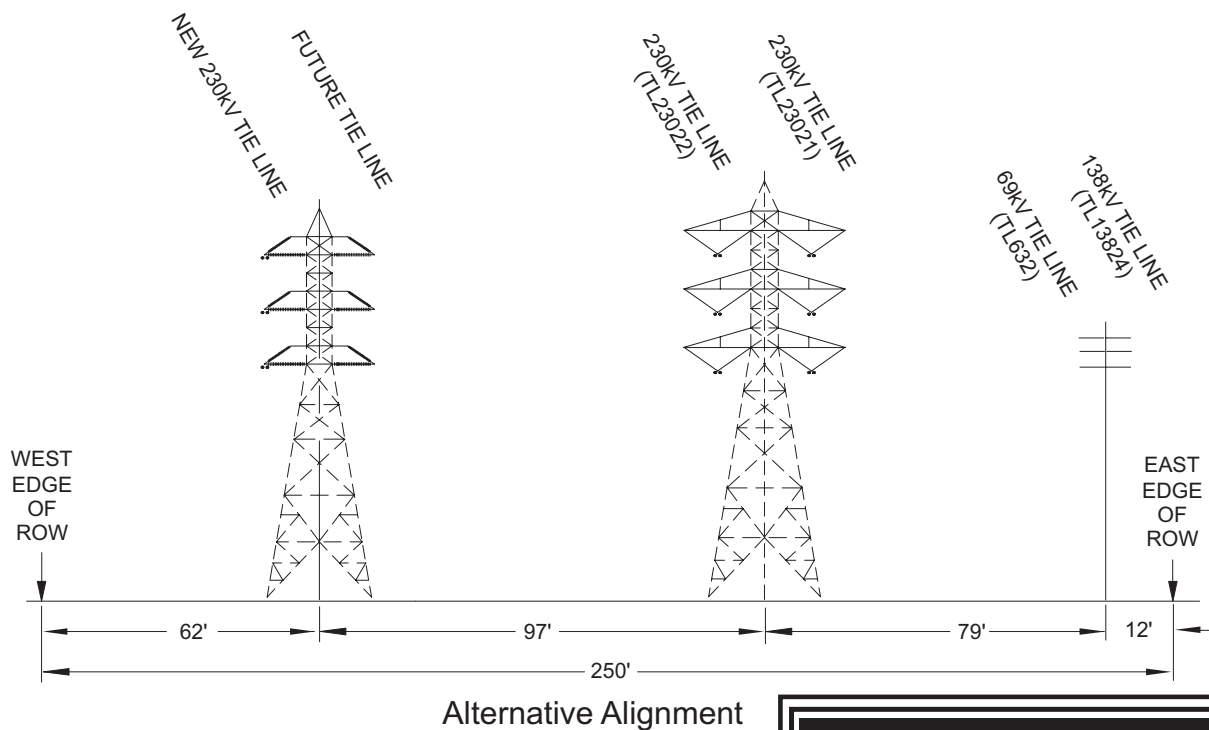
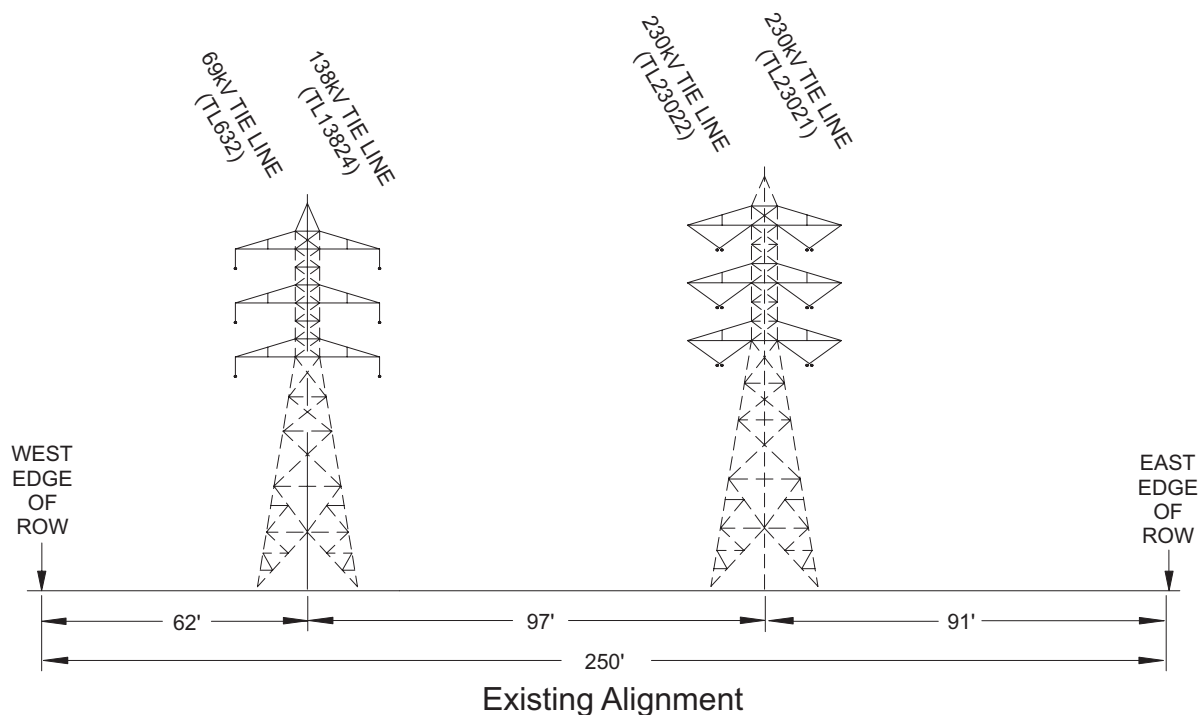


Figure Ap.2-3a. Jamacha Valley Overhead A Alternative

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View: South to North



**Miguel-Mission 230 kV #2 Project**

Figure Ap.2-3b  
 Jamacha Valley Overhead A  
 Alternative

**Aspen**  
 Environmental Group

### 4.2.1.3 Jamacha Valley Overhead B Alternative

As described in Section 4.2.1, this alternative was developed to address the concerns of residents in the 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 Jamacha Valley Overhead B Alternative would result in the addition of two steel mono-pole 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 and 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. See Figures Ap.2-4a through Ap.2-4d for illustrations of this alternative.

This alternative would involve the installation of approximately 19 steel mono-poles (Towers #675975 through #675957, see maps in EIR Appendix 1) to accommodate the relocated 138 kV/69 kV circuit from the Herrick Center through Jamacha Valley, terminating northwest of the intersection of Dehesa Road and Willow Glen Drive. Seven of the 19 lattice structures are proposed to be replaced under the Proposed Project; this leaves a net of 12 additional steel lattice structures that would be replaced under this alternative. Upon relocation of the 138 kV and 69 kV circuits to new alignment of steel mono-poles, the existing 138 kV lattice tower structures would be removed. Under this alternative, it is assumed that the new 138 kV steel mono-pole structures would be located approximately 12 feet from the western edge of the Miguel-Mission ROW. The 69 kV circuit would be located on the west side of the pole and the 138 kV circuit on the east side.

#### Key Issues/Components Associated with This Alternative

- This alternative would exchange steel lattice structures for steel mono-poles, 12 additional steel lattice structures would be replaced under this alternative. This would be considered a long-term visual benefit. Steel mono-poles are less visually intrusive than the existing steel lattice structures.
- This alternative has the potential to delay the project construction schedule because additional poles would need to be installed and the steel lattice structures would need to be removed.
- Magnetic field levels along the western edge of the existing ROW in the Jamacha Valley would be reduced by roughly 10 percent, and magnetic field 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 (at the east edge).**

#### Consideration of CEQA Criteria

**Project Objectives.** 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.

**Feasibility.** The Jamacha Valley Overhead B Alternative is considered to be feasible. The installation of an additional steel mono-pole and the removal of steel lattice structures may cause project delays or extend project duration.

**Lessen Significant Environmental Effects.** This alternative has the potential to lessen adverse environmental effects of the Proposed Project. Long-term impacts that would be reduced include the following:

Figure Ap.2-4a. Jamacha Valley Overhead B Alternative

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Figure Ap.2-4b. Jamacha Valley Overhead B Alternative

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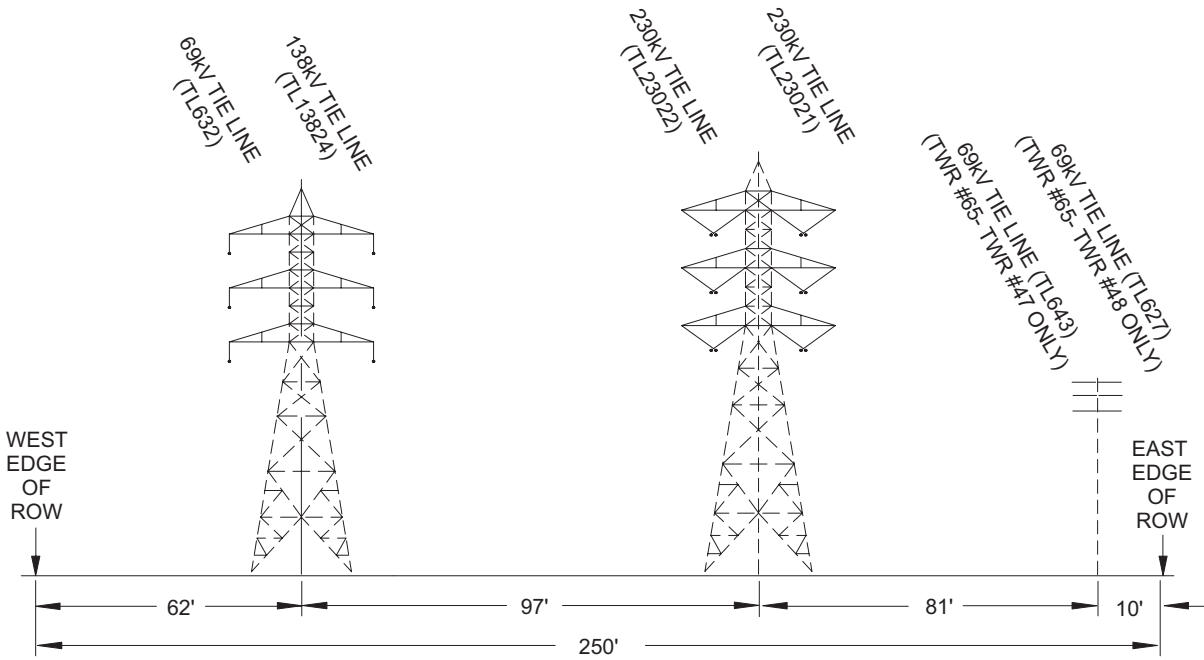


Figure Ap.2-4c. Jamacha Valley Overhead B Alternative

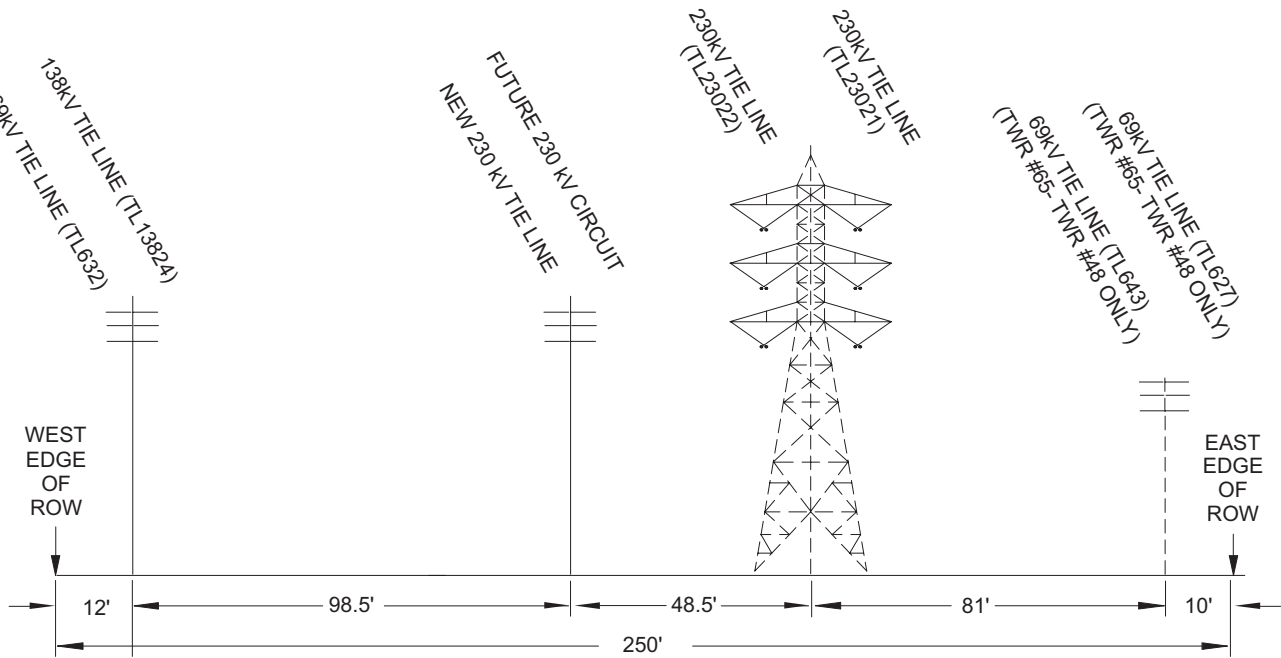
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View: South to North



Existing Alignment



Alternative Alignment

Installation of a new 230 kV circuit on steel mono-poles centered in the Miguel-Mission ROW, with new steel or wood poles for 138 kV/69 kV circuits in Jamacha Valley

**Miguel-Mission 230 kV #2 Project**

Figure Ap.2-4d

**Jamacha Valley Overhead  
 B Alternative  
 Alignment Profile**

**Aspen**  
 Environmental Group

- **Visual Resources.** This alternative would remove the existing 138 kV steel lattice structures in the Jamacha Valley and replace them with new steel mono-poles. Instead of two lattice structure alignments and a steel mono-pole alignment in the ROW (as with the Proposed Project), the ROW would contain two steel mono-pole alignments and a steel lattice structure alignment under this alternative. This alternative would involve the installation of approximately 12 steel mono-poles to accommodate the 138 kV and 69 kV circuits. This would be considered a permanent visual beneficial impact to the residents and recreational users within Jamacha Valley. Steel mono-poles are considered less visually intrusive than the steel lattice structures.

**Potential New Impacts Created.** This alternative has the potential to create or increase short-term environmental effects of the Proposed Project. Short-term impacts that would increase include the following:

- **Biological Resources.** In comparison to the Proposed Project, it is anticipated that there would be a greater disturbance area during construction in order to remove an existing alignment of steel lattice structures, as well as to install two alignments of new steel mono-poles.
- **Air Quality and Noise.** Because of the amount of construction activities under this alternative (e.g., demolition of existing lattice towers and installation of two alignments of steel mono-poles), air quality and noise impacts would be slightly greater under this alternative in comparison with the Proposed Project.
- **Cultural Resources.** There would be a slight increase in potential disturbance to cultural resources for this alternative in comparison to the Proposed Project because of the greater disturbance area during construction.
- **Soil Erosion.** Greater disturbance area could result in a greater chance for soil erosion to occur along the Miguel-Mission ROW.

### Alternative Conclusion

**Jamacha Valley Overhead B Alternative – *RETAINED FOR ANALYSIS*.** This alternative is feasible and would meet all project objectives for the Miguel-Mission 230 kV #2 Project. As described above, this alternative would provide permanent visual benefits to the residents and recreational users within Jamacha Valley. Potential short-term adverse environmental impacts to air quality, cultural resources, noise, and biological resources would be expected from the construction of the additional poles. Any additional impacts created by this alternative would primarily be short-term construction impacts of a temporary nature. Because this alternative meets the project objectives, is feasible, and would lessen permanent environmental impacts, the Jamacha Valley Overhead B Alternative is retained for full analysis in the EIR.

### 4.2.2 Proposed Project with Route Modifications in the City of Santee

Several potential alternatives were considered 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. In addition, on February 27, 2004, City Council members from the City of Santee formally asked SDG&E to bury all large transmission lines that run through the City despite the high cost of construction and installation. The Planning Director of the City of Santee on March 10, 2004 confirmed that the City of Santee would very much like to pursue an underground option for the Miguel-Mission Project. The City of Santee has stated that it considers the underground option superior to the Proposed Project's overhead configuration.

Four alternatives are considered in Sections 4.2.2.1 through 4.2.2.4 below. Three of the four alternatives are underground alternatives within Princess Joann Road or the existing ROW. The remaining alternative is an overhead alternative north of the existing Miguel-Mission ROW.

#### 4.2.2.1 City of Santee 138 kV/69 kV Underground Alternative

As described above, the City of Santee is very interested in the underground options for the Miguel-Mission 230 kV #2 Project. As a result, two underground options were evaluated along Princess Joann Road within the City of Santee. The two options included undergrounding either the proposed 230 kV circuit or the existing 138 kV and 69 kV circuits. Both options would follow the same route through this segment of the Miguel-Mission ROW. The circuits would be installed 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. See Figure Ap.2-5 for an illustration of the City of Santee 138 kV/69 kV Underground Alternative. The two options are:

- **138 kV/69 kV Underground Option.** Under this option, no additional poles would be installed in the City of Santee, avoiding new and permanent visual impacts that would occur with the Proposed Project. Three proposed 138 kV wood or steel poles associated with the Proposed Project would be eliminated. In addition, the City of Santee 138 kV/69 kV Underground Alternative would eliminate two existing 138 kV poles north of Magnolia Avenue. The residents south of existing ROW would experience a net reduction of three overhead conductors along this segment of the ROW in comparison to the existing baseline conditions.
- **230 kV Underground Option.** Similar to the 138 kV/69 kV underground option, no additional poles would need to be installed in the City of Santee under this option. Three proposed 138 kV wood and steel poles associated with the Proposed Project would be eliminated. However, this route modification would not eliminate the two existing 138 kV poles north of Magnolia Avenue, as described for the 138 kV/69 kV underground option. In addition, the residents along the southern boundary of the existing ROW would not experience a net reduction of three overhead conductors along this segment of the ROW, as described for the 138 kV/69 kV underground option.

**Conclusion Regarding Underground Options.** Because the 138 kV/69 kV underground option through the City of Santee provides 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 this Alternatives Screening Report.

#### Detailed Description of the City of Santee 138 kV/69 kV Underground Alternative

This alternative has several components: the 69 kV, 138 kV, and 230 kV circuits are each defined below.

- **69 kV Circuit.** An aboveground water storage tank/reservoir is located adjacent to the Miguel-Mission ROW approximately 1,450 feet due east of the eastern end of Princess Joann Road (see Figure Ap.2-5). A paved access road extends from the water tanks approximately 1,400 feet northwest, then turns southwest and continues for approximately 1,600 feet until reaching the eastern end of Princess Joann Road. Just south of the existing water tanks, the 69 kV circuit would transition from its current location on a new wood or steel pole alignment located 12 feet from the southern edge of the Miguel-Mission ROW onto a new cable pole and transition underground following the route of the paved access road described above for approximately 0.6 miles to the end of Princess Joann Road. The 69 kV circuit would continue underground in a generally east to west direction for approximately

0.75 miles along the length of Princess Joann Road and connect to a new cable pole to be installed in the Miguel-Mission ROW located approximately 800 feet northwest of the western end of Princess Joann Road. At the new cable pole location, the 69 kV circuit would transition back to an overhead configuration and reconnect to the new steel or wood pole alignment located 12 feet from the southern edge of the Miguel-Mission ROW.

- **138 kV Circuit.** The existing 138 kV circuit located in the Miguel-Mission ROW north of the City of Santee connects the Mission Substation with the Santee Substation, which is located along Mast Boulevard in the City of Santee. Currently, the existing 138 kV circuit exits the Miguel-Mission ROW at the top of Magnolia Avenue and heads south along Magnolia Avenue on the west side of the street and then turns east along Mast Boulevard to Santee Substation.

Under this alternative, the existing 138 kV circuit would remain in the same configuration as the Proposed Project between Fanita Junction and a point approximately 800 feet northwest of the western end of Princess Joann Road (see Figure Ap.2-5). At this point, the 138 kV circuit would be installed on a new cable pole where the circuit would transition from an overhead alignment to underground route. The 138 kV circuit would continue generally eastward underground for approximately 0.5 miles along Princess Joann Road until reaching the intersection of Princess Joann Road and Magnolia Avenue. At this location, the underground 138 kV circuit would turn north for several hundred feet and transition to an overhead line via a new cable pole. The overhead 138 kV circuit would then turn south and energize the existing 138 kV circuit that continues south along Magnolia Avenue to Santee Substation. The new cable pole installed at this location would replace an existing 138 kV wood pole currently located adjacent to Magnolia Avenue, which is used to support the existing 138 kV circuit between the Miguel-Mission ROW and Santee Substation.

- **Non-Energized 138 kV Circuit.** Within the City of Santee, the existing 138 kV circuit between Tower #576655 (just west of Oak Creek Drive, see EIR Appendix 1) and Magnolia Avenue is currently not energized. This short span of 138 kV circuit was taken offline in order to energize the 138 kV circuit that is located along Magnolia Avenue and provides power to the Santee Substation (located on Mast Boulevard). East of Santee Substation, the existing 138 kV circuit heads north and taps back into the Miguel-Mission ROW at Tower #576655, creating a continuous 138 kV circuit. SDG&E has stated that it may need this short-span (between Magnolia Avenue and Tower #576655) of the 138 kV circuit for reliability purposes in the future. Therefore, this alternative also includes a non-energized 138 kV circuit underground that would follow the same route as noted above for the 69 kV circuit between Magnolia Avenue and the cable pole location to the south of the water tanks (1,450 feet east of the eastern end of Princess Joann Road). This non-energized segment would enable SDG&E to maintain this non-energized circuit north of the City of Santee.
- **230 kV Circuit.** The proposed 230 kV circuit would continue from east to west on the modified 138 kV/69 kV modified lattice tower alignment through the City of Santee and continue in that alignment to Fanita Junction. North of the City of Santee, the proposed 230 kV circuit would be located on the south side of the modified steel lattice towers. The center of the existing lattice structures is located 50 feet north of the existing southern boundary of SDG&E's ROW.

### **Key Issues/Components Associated with This Alternative**

- As described above, no additional poles would be installed in the City of Santee, avoiding new and permanent visual impacts that would occur with the Proposed Project. Three proposed 138 kV wood or steel poles associated with the Proposed Project would be eliminated. In addition, the City of Santee 138 kV/69 kV Underground Alternative would eliminate two existing 138 kV poles north of Magnolia Avenue. The residents south of the existing ROW would experience a net reduction of three overhead conductors along this segment of the ROW in comparison to the existing baseline conditions.

Figure Ap.2-5. City of Santee 138 kV/69 kV Underground Alternative

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- Reduced levels of maintenance since the circuits would be underground and protected from the environment. No cleaning of the insulators would be required. Reduced levels of inspection activities would be required under this alternative.
- Reduced potential from electricity service disruption from fires and weather events.
- This alternative would support SDG&E's proposed future 230 kV circuit within this existing ROW segment. The 230 kV circuit would be strung on the north side of the modified steel lattice towers.
- Underground construction would result in increased schedule delays (see Appendix 4 for details on the feasibility associated with the 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 fields 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 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.

### Consideration of CEQA Criteria

**Project Objectives.** 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.

**Feasibility.** The CPUC requested that SDG&E evaluate the feasibility of undergrounding the 138 kV/69 kV circuits along Princess Joann Road in the City of Santee. SDG&E stated that

*“ . . . this alternative also presents several problems, including but not limited to, circuit clearance problems, conflicts with other existing underground utilities and the requirement to obtain new right-of-way for construction of a segment of underground circuit outside of SDG&E's existing right-of-way. All of these conflicts will contribute to a delayed in-service date and thus not meet the project purpose and need.” (SDG&E, 2003h)*

Based on this feedback from SDG&E, CPUC requested that an independent engineering firm (CAI) review the 1.35-mile route and evaluate the feasibility of this alternative (see EIR Appendix 4 for the complete feasibility assessment). CAI found that it is technically feasible to construct an underground transmission line in this segment of the Miguel-Mission ROW. However, this alternative may require additional time to construct the underground segment through the City of Santee because of the slower pace of trenching.

**Potential to Lessen Significant Environmental Effects.** This alternative has the potential to lessen adverse environmental effects of the Proposed Project. Long-term impacts that would be reduced include the following:

- **Visual Resources.** 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. Overall, this alternative provides a net visual benefit to the City of Santee residents adjacent to the existing ROW.

- **Biological and Cultural Resources.** This route has the potential to reduce temporary and permanent impacts to biological resources (e.g., coastal sage scrub) and known cultural resources (four identified cultural resource sites are within the existing ROW) because construction would occur in city streets and not within the ROW. With regard to cultural resources, this alternative would avoid the four known cultural resource sites located within the ROW.
- **Soil Erosion.** In comparison to the Proposed Project, soil erosion from construction activities would be reduced because construction would be in city streets and not in the ROW.
- **Corona Noise.** This alternative would decrease corona noise levels along the ROW as a result of undergrounding the 138 kV and 69 kV circuits. Under the Proposed Project, the 138 kV/69 kV circuits would be very close to the residences along the southern boundary of the Miguel-Mission ROW.

**Potential New Impacts Created.** This alternative has the potential to create or increase short-term environmental effects of the Proposed Project, including the following:

- **Air Quality and Noise.** The underground construction associated with the City of Santee 138 kV/69 kV Underground Alternative would create temporary increases in impacts to air quality and noise. These impacts would occur only during the short-term construction schedule associated with this route modification.
- **Traffic.** This alternative would cause a much greater likelihood of disrupting traffic along Princess Joann Road during construction of the underground circuits. Underground construction along Princess Joann Road would require lane closures during construction.
- **Public Safety and Utilities.** There would be greater potential for the occurrence of temporary public safety issues (increased response times for emergency vehicles) and disruption of public utilities due to construction in Princess Joann Road.
- **Cultural Resources.** Due to undergrounding, there is an increased likelihood of affecting unknown buried cultural resources.

### Alternative Conclusion

**City of Santee 138 kV/69 kV Underground Alternative – *RETAINED FOR ANALYSIS*.** The City of Santee 138 kV/69 kV Underground Alternative is feasible and would meet all project objectives. This alternative has the potential to reduce or avoid environmental impacts to visual resources, as well as impacts to biological resources and known cultural resources. Potential short-term adverse environmental impacts to air quality, cultural resources, noise, and traffic would be expected from underground construction. Because it 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.

#### 4.2.2.2 City of Santee 230 kV Underground Along Southern ROW Boundary

As described in Section 4.2.2, EIR preparers discussed with the Planning Director of the City of Santee about potential alternatives to the Proposed Project along the existing ROW in the northern portion of the City of Santee. The City of Santee suggested that any new line through the City be placed

underground. As documented below, 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.

Undergrounding of the proposed circuits along the southern ROW boundary for both options 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 underground route would proceed west along the southern boundary of the existing SDG&E boundary (4,100 feet). See Figure Ap.2-6 for a depiction of this alternative. The two options are:

- **138 kV/69 kV Underground Option.** Under this alternative, the 138 kV and 69 kV circuits would be placed underground along the southern boundary of the existing Miguel-Mission ROW. This alternative would eliminate three proposed 138 kV wood and steel poles associated with the Proposed Project. However, this alternative would require the installation of three transition poles to transition the circuits from overhead to underground and vice versa. Two of the transition poles would be located at the ends of this undergrounding segment (1,450 feet due east of the eastern end of Princess Joann Road and approximately 800 feet northwest of the western end of Princess Joann Road). The third transition pole (located north of Magnolia Avenue) is needed to enable the 138 kV circuit to tie into the existing 138 kV power line that continues south along Magnolia Avenue.
- **230 kV Underground Option.** Only two transition poles would be required under this alternative, one at each end of this underground segment. This option would eliminate three proposed 138 kV wood and steel poles associated with the Proposed Project.

**Conclusion Regarding Underground Options.** As described above, the 138 kV/69 kV Underground option would require an additional pole at the north end of Magnolia Avenue to tie into the existing 138 kV power line that continues south along Magnolia Avenue. In addition, the 138 kV/69 kV circuits would cross the existing 230 kV circuits three times; the 230 kV circuit would only have to cross the existing circuits twice. Because of these engineering issues (e.g., reliability concerns) 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.

### **Key Issues/Components Associated with This Alternative**

- Three proposed 138 kV wood and steel poles associated with the Proposed Project would be eliminated.
- Reduced levels of maintenance since the circuit would be underground and protected from the environment. No cleaning of the insulators would be required. Reduced levels of inspection activities would be required under this alternative.
- Reduced potential from electricity service disruption from fires and weather events.
- Underground construction would result in delayed construction schedule.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- A 230 kV circuit would require the construction of a termination station at both ends of the underground segment to transition from overhead to underground, which would require the acquisition

of, and impact to, additional land. Ultimately an area 200' x 100' at each end of the underground segment would be required to accommodate a future 230 kV circuit.

- This route modification would reduce EMF emission in areas adjacent to this section of the Miguel-Mission ROW. However, the underground line would create a new area of magnetic field directly above the circuits along the southern boundary.

### **Consideration of CEQA Criteria**

**Project Objectives.** The City of Santee 230 kV Underground Along Southern 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.

**Feasibility.** It is feasible to construct an underground 230 kV line along the southern boundary of the existing Miguel-Mission ROW. However, this underground alternative may cause project delays for this segment of the Miguel-Mission ROW.

**Potential to Lessen Significant Environmental Effects.** This alternative has the potential to lessen long-term environmental effects of the Proposed Project. Long-term impacts that would be reduced include the following:

- **Visual Resources.** This alternative would avoid visual impacts associated with three additional poles that would be installed under the Proposed Project. These three poles would not be installed under this alternative. However, this alternative would need termination stations located east and west of the residents in the City of Santee with associated impacts.
- **Corona Noise.** In comparison to the Proposed Project, this alternative would decrease corona noise levels along the ROW as a result of undergrounding the 230 kV circuit.

**Potential New Impacts Created.** This alternative has the potential to create or increase short-term environmental effects of the Proposed Project. Short-term impacts that would increase include the following:

- **Cultural Resources.** The continuous trenching required for the City of Santee 230 kV Underground Along Southern ROW Boundary Alternative would impact known cultural resources within the existing ROW. Four identified cultural resources sites are located within or adjacent to the ROW. Depending on the particular site, impacts may extend into the long-term. One of the four sites is considered sensitive, and would require excavation by a qualified archaeologist. The other three sites would require monitoring during construction. This alternative would require that the trenching occur within known cultural resource sites.

In addition, there is an increased likelihood of affecting unknown buried cultural resources under this alternative as a result of trenching activities.

- **Biological Resources.** This alternative would increase temporary and permanent impacts to biological resources (e.g., coastal sage scrub) and sensitive biological species. It is estimated that 1.2 acres of habitat would be disturbed during trenching operations along the Miguel-Mission ROW.
- **Soil Erosion.** In comparison to the Proposed Project, soil erosion from construction activities would be increased because of trenching activities.
- **Air Quality.** Construction activities along the southern ROW boundary would temporarily increase noise and dust emissions to residents directly adjacent to the ROW.

Figure Ap.2-6. City of Santee Underground Along Southern ROW Boundary

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- **Noise.** Noise levels would increase during underground circuit placement. Should blasting be required for underground placement, noise levels would increase significantly for short periods.

A previously stated, this alternative would require construction of a termination station at each end of the underground segment, which would require the acquisition of, and impact to, additional land. This requirement may contribute to additional impacts to visual resources, biological resources, cultural resources, land use, noise, air quality, and water resources.

### **Alternative Conclusion**

**City of Santee 230 kV Underground Along Southern ROW Boundary – *ELIMINATED*.** This alternative is feasible and would meet project objectives. While it would reduce visual and corona noise impacts of the Proposed Project, it would increase temporary and permanent biological resource, cultural resource, and soil erosion impacts. Specifically, this alternative would require that the trenching occur within known cultural resource sites. Temporary air and noise impacts to adjacent residents would increase during construction activities. In addition, SDG&E has stated that it would need a termination at each end of the segment for the 230 kV circuit. This could create additional adverse impacts to issues areas, such as visual, biological, and cultural resources. As a result, this alternative was eliminated from further analysis in this EIR.

#### **4.2.2.3 City of Santee 230 kV Underground Along Northern ROW Boundary**

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. The length of this underground alternative would be approximately 4,200 feet (see Figure Ap.2-7). 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 is considered to be a better option because it would not require a transition pole north of Magnolia Avenue for the 138 kV circuit.

#### **Key Issues/Components Associated with This Alternative**

- Three proposed 138 kV wood and steel poles associated with the Proposed Project would be eliminated.
- Reduced levels of maintenance since the circuit would be underground and protected from the environment. No cleaning of the insulators would be required. Reduced levels of inspection activities would be required under this alternative.
- Reduced potential from electricity service disruption from fires and weather events.
- Underground construction would result in delayed construction schedule.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- A 230 kV circuit would require the construction of a termination station at both ends of the underground segment to transition from overhead to underground, which would require the acquisition of, and impact to, additional land. Ultimately an area 200' x 100' at each end of the underground segment would be required to accommodate a future 230 kV circuit.
- This route modification would reduce EMF emission in areas adjacent to this section of the Miguel-Mission ROW. However, the underground line would create a new area of magnetic field directly above the circuits along the southern boundary.

## Consideration of CEQA Criteria

**Project Objectives.** The City of Santee 230 kV Underground Along Northern ROW Boundary 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.

**Feasibility.** It is feasible to construct an underground 230 kV line along the northern boundary of the existing Miguel-Mission ROW. However, this underground alternative may cause project delays for this segment of the Miguel-Mission ROW.

**Potential to Lessen Significant Environmental Effects.** This alternative has the potential to lessen long-term environmental effects of the Proposed Project in the following areas:

- **Visual Resources.** This alternative would eliminate the visual impacts associated with three additional poles that would be installed under the Proposed Project. These three poles would not be installed under this alternative. However, this alternative would need two termination stations located east and west of the residents in the City of Santee.
- **Corona Noise.** Compared to the Proposed Project, this alternative would decrease corona noise levels along the ROW as a result of installing the circuits underground.

**Potential New Impacts Created.** This alternative has the potential to create or increase short-term environmental effects of the Proposed Project. Short-term impacts that would increase include the following:

- **Cultural Resources.** The underground construction associated with the City of Santee Northern ROW Underground Alternative would impact known cultural resources. Four identified cultural resources sites are located within or adjacent to the ROW. Depending on the particular site, impacts may extend into the long-term. As described above, one of the four sites is considered sensitive, which would require excavation by a qualified archaeologist. The other three sites would require monitoring during construction. This alternative would require that the trenching occur within known cultural resource sites.

In addition, there is an increased likelihood of affecting unknown buried cultural resources under this alternative as a result of trenching activities.

- **Biological Resources.** This alternative would increase temporary and permanent impacts to biological resources (e.g., coastal sage scrub) and sensitive biological species. It is estimated that 1.2 acres of disturbed land would result from trenching operations along the Miguel-Mission ROW.
- **Soil Erosion.** In comparison to the Proposed Project, soil erosion from construction activities would be increased because of trenching activities.
- **Air Quality.** Construction activities along the northern ROW boundary would temporarily increase noise and dust emissions due to the more extensive construction required for continuous trenching.
- **Noise.** Noise levels would increase during underground circuit installation as the trenching activities were underway. Should blasting be required for underground placement, noise levels would increase significantly for short periods.

A 230 kV circuit would require construction of a termination station at each end of the underground segment, which would require the acquisition of, and impact to, additional land. This requirement may contribute to additional impacts to visual resources, biological resources, cultural resources, land use; noise; air quality; and water resources.



Figure Ap.2-7. City of Santee Underground Along Northern ROW Boundary

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## Alternative Conclusion

**City of Santee Underground Along Northern ROW Boundary Alternative – *ELIMINATED*.** This alternative is feasible and meets all project objectives. It would reduce visual impacts and corona noise associated with the Proposed Project, but would increase temporary and permanent biological resource, cultural resource, and soil erosion impacts. Specifically, this alternative would require that the trenching occur within known cultural resource sites. Temporary air and noise impacts to adjacent residents would increase during construction activities, especially should blasting be required. Compared to the Proposed Project, it would create additional environmental impacts, and therefore, was eliminated from further analysis in this EIR.

### 4.2.2.4 City of Santee 230 kV Overhead Northern ROW Boundary

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 residences. As a result, two overhead options were evaluated within the City of Santee. The two options included placing either the proposed 230 kV circuit or the existing 138 kV/69 kV circuits on steel poles on the northern side of the ROW. Both circuits would follow the same route through this segment of the Miguel- Mission ROW. Under both options, the circuits would be moved to the north side of the existing ROW between the water tanks (approximately 1,450 feet due east of the eastern end of Princess Joann Road). In order to transition the circuits to the north side of the ROW, SDG&E would need to install an additional pole on the northern edge of the ROW, near the water tanks to the east of Princess Joann Road. From proposed Pole #1300 (see EIR Appendix 1), the circuits would head north and pass over/under the two existing 230 kV circuits to a new pole located on the north side of the existing ROW. The circuits would then head west paralleling the northern boundary (25 to 35 feet north of the existing northern boundary) of the ROW until a point approximately 800 feet northwest of the western end of Princess Joann Road, where the circuits would pass over/under the existing 230 kV circuits to a new pole located on the south side of the ROW and reconnect with the Proposed Project to Mission Substation. The two overhead options are:

- **138 kV/69 kV Overhead Option.** Under this option, the three proposed wood and steel poles associated with the Proposed Project would be retained, but would be moved further away from residents who reside adjacent to the southern boundary of the ROW. Three additional 138 kV wood and steel poles would be added to allow crossover of the circuits at Magnolia Avenue (to connect with the 138 kV circuit that is located along Magnolia Avenue) and at the two endpoints. Construction activities for installation of the new poles would occur at a greater distance (150 to 200 feet) from residents.
- **230 kV Overhead Option.** Similar to the 138 kV/69 kV Option, this option would retain the three proposed wood and steel poles associated with the Proposed Project along this segment. However, these poles would be moved further away from residents who reside adjacent to the southern boundary of the ROW. Only two additional 230 kV steel mono-poles would be required for this segment to allow crossover of the circuits at the two endpoints. Construction activities for installation of the new poles would occur at a greater distance from residents.

**Conclusion Regarding Overhead Options.** Because the 230 kV Overhead Option through the City of Santee provides better overall benefits (e.g., one less pole, only two crossings of the existing circuits) to the environment and the public in comparison to the 138 kV/69 kV Overhead Option, the 230 kV Overhead Option was selected as the alternative to be addressed for further evaluation in this Alternatives Screening Report.

### Key Issues/Components Associated with This Alternative

- The three proposed 138 kV wood and steel poles associated with the Proposed Project would be retained but would be moved further away from residents who reside adjacent to the southern boundary of the ROW. Two additional 230 kV steel mono-poles would be added to allow crossover of the circuits at the two endpoints.
- EMF 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 with the alternative (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 width of the existing ROW to the north.
- Construction activities for installation of the new poles would occur at a greater distance from residents.

### Consideration of CEQA Criteria

**Project Objectives.** 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.

**Feasibility.** CPUC requested that an independent engineering firm (CAI) review this route to evaluate the feasibility of this alternative (see EIR Appendix 4 for the complete feasibility assessment). CAI found that it is feasible to construct an overhead 230 kV transmission line along the north side of this segment of the Miguel-Mission ROW. However, the center of the 230 kV pole would be located approximately 35 feet north of the existing ROW (see Figures Ap.2-8a and Ap.2-8b). This is a result of the clearance needed between the proposed 230 kV circuit and the existing 230 kV circuits on the steel lattice structures.

**Potential to Lessen Significant Environmental Effects.** This alternative has the potential to lessen adverse environmental effects of the Proposed Project. Long-term impacts that would be reduced include the following:

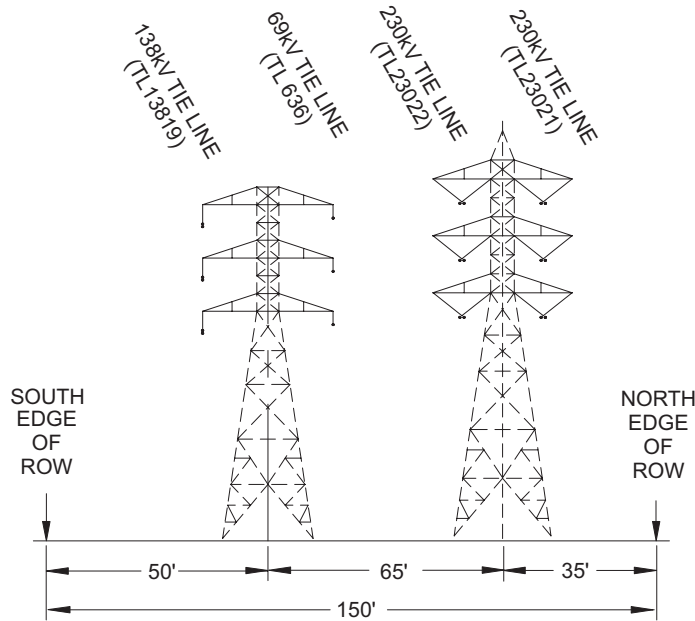
- **Visual Resources.** In comparison to the Proposed Project, the three proposed 138 kV poles (230 kV steel mono-poles under this alternative) would be located along the northern boundary of the existing ROW, approximately 150 to 200 feet north of the residences in the City of Santee. This would substantially 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 residents 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.
- **Air Quality.** Construction activities along the northern ROW boundary would create temporary dust and vehicle/engine emissions, although there would be an additional 150- to 200-foot buffer between the construction area and residents living adjacent to the southern boundary.
- **Noise.** Short-term construction noise at residents along the southern boundary would decrease with the exception of possible blasting to remove rock.
- **Corona Noise.** This alternative would decrease corona noise levels to residents along the southern boundary of the existing Miguel-Mission ROW because the circuits would be further away from the residential community.

Figure Ap.2-8a. City of Santee 230 kV Overhead Northern ROW Boundary Alternative

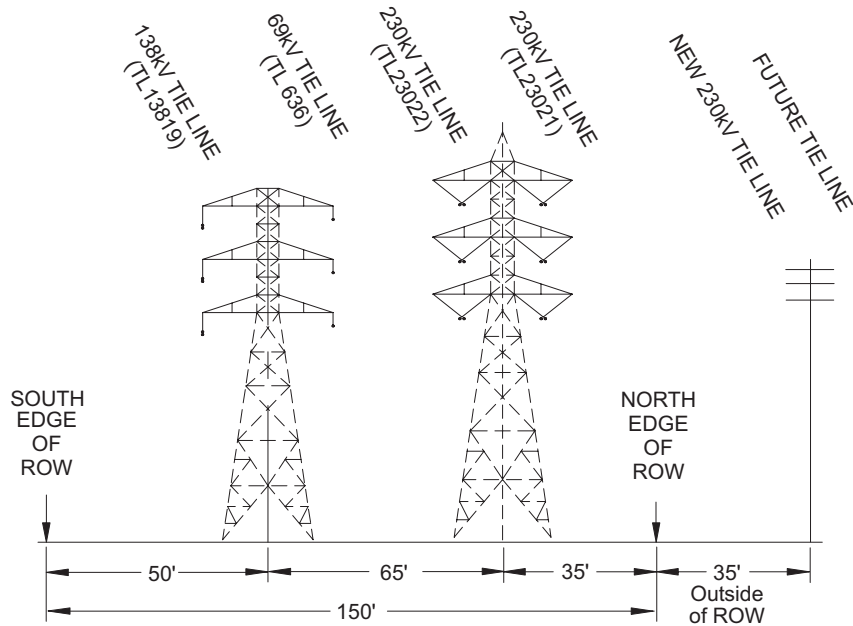
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View: East to West



Existing Alignment



Alternative Alignment

**Miguel-Mission 230 kV #2 Project**

Figure Ap.2-8b  
 City of Santee 230 kV Overhead  
 Northern ROW  
 Boundary Alternative

**Aspen**  
 Environmental Group

**Potential New Impacts Created.** This alternative has the potential to create or increase long-term environmental effects in comparison with the Proposed Project. Long-term impacts that would be increased include the following:

- **Biological and Cultural Resources.** This alternative could increase impacts to biological and cultural resources at the locations of the two additional poles (transition poles) required for this alternative.
- **Soil Erosion.** In comparison to the Proposed Project, soil erosion from construction activities would be increased due to the two additional poles.

### Alternative Conclusion

**City of Santee 230 kV Overhead Northern ROW Boundary – *RETAINED FOR ANALYSIS.*** The City of Santee 230 kV Overhead Northern ROW Alternative would reduce visual, air quality and construction noise, and corona noise of the Proposed Project. While it could increase impacts to biological resource, cultural resource, and soil erosion that may result from the construction of the two additional poles required for transitioning the circuit to the north side of the ROW, the environmental benefits of this alternative outweigh these concerns. Because it meets the project objectives, is feasible, and would lessen environmental impacts, the City of Santee 230 kV Overhead Alternative is retained for full analysis in the EIR.

### 4.2.3 Miguel–Los Coches Alternative

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.

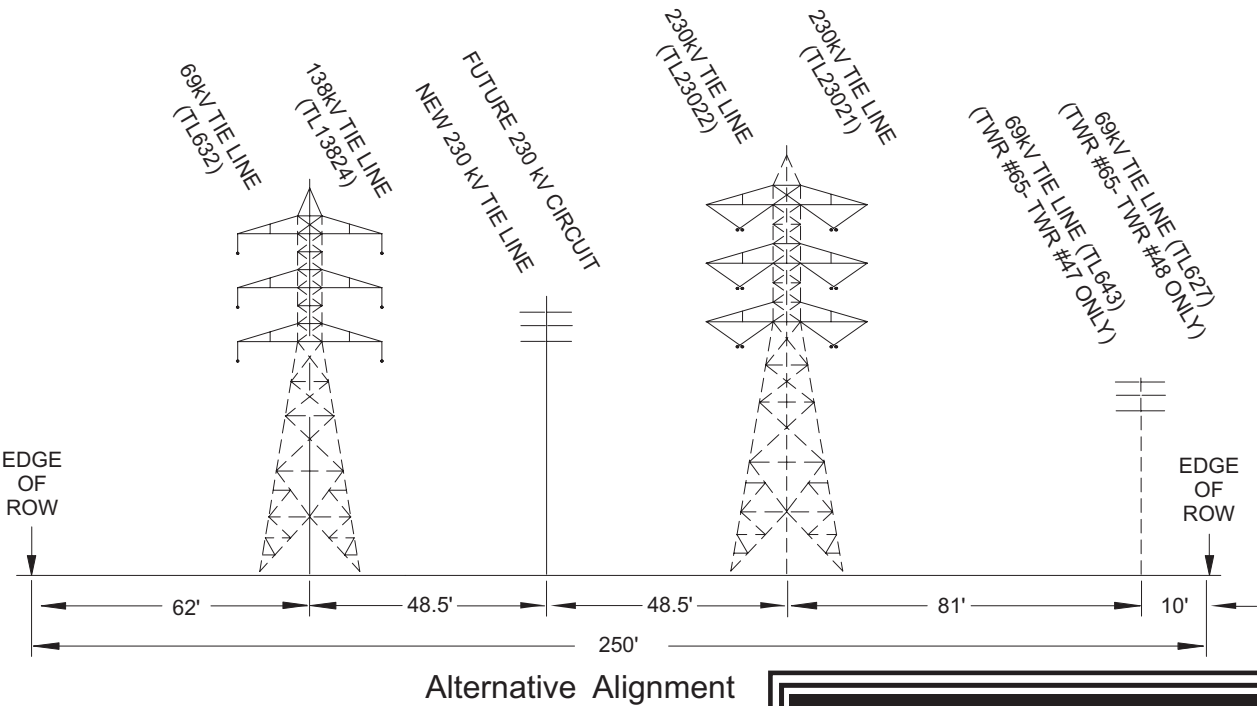
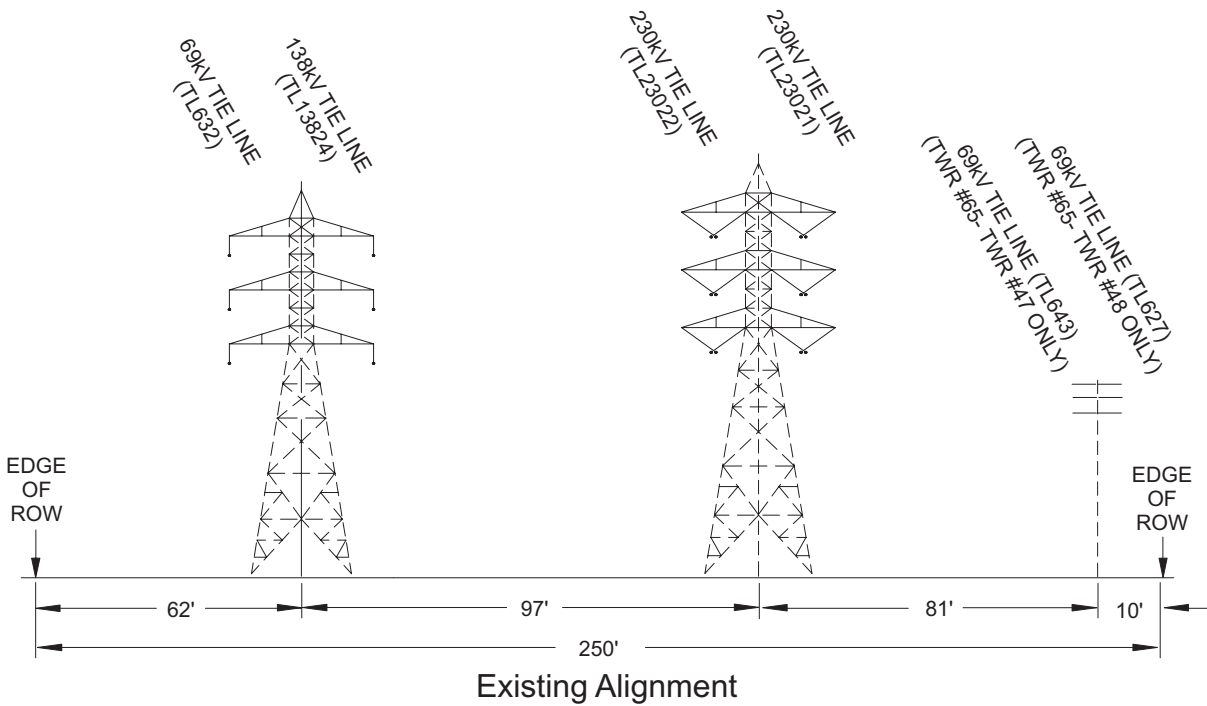
Under this alternative, between Miguel and Los Coches Substations, the new 230 kV circuit would be installed on a newly constructed alignment of steel mono-poles to be located in the center of the Miguel-Mission ROW between the existing 230 kV lattice tower alignment and the existing 138 kV/69 kV lattice 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. See Figures Ap.2-1 and Ap.2-9 for illustrations of this alternative.

#### Key Issues/Components Associated with This Alternative

- In comparison to the Proposed Project, this alternative would eliminate the need to replace 16 existing steel lattice structures located between Miguel and Los Coches Substations.
- This alternative would eliminate the need to modify the existing 138 kV/69 kV steel lattice structures between Miguel and Los Coches Substations.
- Steel mono-poles would be 15 to 20 feet higher than the poles identified for the Proposed Project.
- Consolidation of existing circuits within a narrow area of the existing SDG&E ROW, a concern identified by area residents during the scoping period.
- Increased concerns for worker safety during construction and maintenance due to the addition of a third alignment, and reduced distances between alignments.
- Potential delays in project construction schedule due to worker safety issues of installing a 230 kV circuit within a narrow area between the two existing lattice structures.



View: South to North



Installation of a new 230 kV circuit on steel mono-poles centered in the Miguel-Mission ROW from Miguel Substation to Los Coches Substation

**Miguel-Mission 230 kV #2 Project**

Figure Ap.2-9  
**Miguel - Los Coches  
 Alternative Alignment  
 Profile**

**Aspen**  
 Environmental Group

## Consideration of CEQA Criteria

**Project Objectives.** The Miguel–Los Coches 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.

**Feasibility.** EIR preparers requested that SDG&E evaluate the feasibility of installing a new 230 kV steel mono-pole in the middle of the existing ROW between Miguel Substation and Los Coches Substation. SDG&E has stated that

*“ . . . an alternative alignment in the right-of-way for the new 230 kV line has been investigated on a preliminary basis. Preliminary engineering indicates that it may be technically feasible to build a 230 kV structure line set in the middle of the vacant space between the existing 230 kV tower line and the existing 138/69 kV tower line. However, due to the limited space between the existing 138 kV and 230 kV steel lattice towers, this option would increase the exposure to the system to the loss of multiple 230 kV circuits. The increased risk of loss of multiple 230 kV circuits and potential loss of large amounts of SDG&E customer load is, from an operational, safety and reliability points of view, unacceptable.*

*Another major concern with this alternative is the impact on line outages for construction and maintenance of the lines in the corridor. Maintenance of the 230 kV transmission lines will be very difficult since both structures would need to be very close, side by side, and in very close proximity. It is likely that work on any of the 230 kV circuits will require longer outages of the adjacent circuits than the preferred design presented in the PEA. Construction activities will also be very difficult due to the limited space between the structures. Impacts on system operation resulting in additional power constraints make this option less desirable and more costly during construction.*

*In order to achieve acceptable safety standards, a different design must be used to incorporate a 230 kV line in the middle between the two existing tower lines. The compact phase spacing required would implicate greater impacts to maintaining the line and to aesthetics. All of the 230 kV steel poles would be 15 to 20 feet taller than the corresponding poles for the 138 kV/69 kV design.” (SDG&E, 2003)*

Based on this feedback from SDG&E, CPUC requested that an independent engineering firm (Commonwealth Associates Incorporated) evaluate the feasibility of this proposed alternative. CAI concluded that the proposed alternative may be installed between the existing towers when the center-to-center separation is 90 feet or greater. It is very likely the spans will not be similar to the existing towers. As a result, intermediate poles would likely be needed to maintain clearance to adjacent circuits during “blow-out” conditions (when circuits swing and touch other circuits or poles within an existing ROW during windy conditions).

**Lessen Significant Environmental Effects.** This alternative consolidates the existing circuits within a narrow area in the existing SDG&E ROW, consistent with a suggestion presented by area residents during the scoping period. It would also lessen long-term environmental effects of the Proposed Project in the following areas:

- **Biological and Cultural Resources.** Under this alternative, the 138 kV/69 kV steel structures would not be modified, reducing the potential impacts from construction/modification of these

towers, essentially reducing the amount of ground disturbance that would occur. In comparison to the Proposed Project, this alternative would eliminate the need to replace 16 existing steel lattice structures located between Miguel and Los Coches Substations. However, this segment would require some intermediate poles between the existing lattice structures in order to maintain required clearance distances and avoid blow-out situations. Overall, this alternative would reduce ground disturbance during construction, and therefore, reduce potential impacts to biological and cultural resources along the Miguel-Mission ROW.

**Potential New Impacts Created.** This alternative has the potential to create or increase short-term and long-term environmental effects of the Proposed Project. Impacts that would increase include the following:

- **Visual Resources.** In comparison to the Proposed Project, the visual resources impacts of the Miguel-Los Coches Alternative would be slightly greater because the new steel mono-poles would be approximately 15 to 20 feet taller than the new poles proposed by SDG&E for the 138 kV/69 kV design. In addition, the poles would not mirror the existing structures in the ROW, there would be a need for intermediate poles between the lattice structures to maintain clearances.
- **Public Services.** Because of the more compact spacing requirements between structures and transmission lines, this alternative could result in short and long-term impacts to the public, including the potential for more frequent and longer service interruptions during installation and maintenance of the transmission lines.
- **Worker Safety.** SDG&E has stated that there may be worker safety concerns associated with installing a steel mono-pole in between the two existing lattice structures.

### Alternative Conclusion

**Miguel-Los Coches Alternative – ELIMINATED.** This alternative is feasible and would meet all project objectives for the Miguel-Mission 230 kV #2 Project. From an environmental standpoint, this alternative has the potential of reducing impacts to biological and cultural resources as a result of reduced disturbance areas during construction. However, this alternative would have higher poles 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 may be significant worker safety issues associated with installing a 230 kV circuit in the middle of the ROW between the two existing lattice structures. As a result, this alternative was eliminated from the EIR analysis.

## 4.3 Alternatives Utilizing the Existing ROW with Major Route Modifications

The following alternatives attempt to develop a shorter route for the new 230 kV circuit 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. These alternatives are similar to the Proposed Project route in that they begin at Miguel Substation and end at Mission Substation; however, these alternative routes travel through more highly developed areas and communities to the north and west of the Miguel Substation. Figure Ap.2-10 provides an illustration of all the alternatives addressed in Section 4.3; these alternatives are described in Sections 4.3.1 through 4.3.5 below.

### 4.3.1 El Cajon–Mission Trails Alternative

This alternative route would exit the Miguel Substation in an aboveground configuration and proceed northeast following the Miguel-Mission ROW to Campo Road, similar to the Proposed Project. At Campo Road, the circuit would transition underground and head west for 1.5 miles, turn east on Jamacha Road (that eventually transitions to North 2nd Street) and continue north for 5.5 miles to Broadway. The route would then continue west for 6.5 miles on Broadway as it becomes Fletcher Parkway, and continues on Navajo Road until it connects with Jackson Drive. On Jackson Drive, the route would continue northwest for 1 mile and turn 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.

#### Key Issues/Components Associated with This Alternative

- Total project length would be reduced from 35 miles to approximately 24.5 miles.
- This alternative would extend the project into more highly developed areas of El Cajon, Fletcher Hills, San Carlos, Allied Hills, and Mission Valley. Project would cross two watercourses underground: Sweetwater River (near Campo Road) and San Diego River (along Friars Road).
- Route crosses 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.
- Underground construction would delay project schedule.
- 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. This new reactor station may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources.
- This alternative would not support SDG&E's proposed future 230 kV circuit within the existing ROW.

#### Consideration of CEQA Criteria

**Project Objectives.** The El Cajon–Mission Trails Alternative is consistent with all of SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The El Cajon–Mission Trails Alternative is feasible.

**Lessen Significant Environmental Effects.** This alternative would place portions of the new 230 kV circuit underground, thereby reducing permanent visual impacts along the Miguel-Mission ROW, especially in Jamacha Valley and the City of Santee. By following a more direct route through developed areas of the County, this alternative could reduce or lessen potential temporary and permanent impacts to biological and cultural resources associated with the Proposed Project route.

**Potential New Impacts Created.** The underground construction associated with this alternative would traverse densely populated and traveled urban settings, 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

Figure Ap.2-10. Existing ROW with Major Route Modifications

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resources (near parks). In addition, SDG&E has stated that it would need to construct a termination station at each end of the underground segment, which would require the acquisition of, and impact to, additional land. This requirement may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources.

### Alternative Conclusion

**El Cajon–Mission Trails Alternative – *ELIMINATED*.** This alternative would result in substantially greater impacts than the Proposed Project in the areas of air quality, traffic (cross Interstate 8, State Route 67, State Route 125, and Interstate 15), public utilities, noise, human health and safety, hazardous materials, and recreation. Unknown cultural resources may also be impacted. While these impacts would be temporary, they would in some cases cause considerable delays in areas already congested, thus substantially degrading the baseline conditions in these areas compared to the Proposed Project. The adverse impacts to all of these areas must be compared to the impacts of the Proposed Project. Because of the severity of the temporary impacts and the greater length of time required for construction activities, this alternative has been eliminated from further consideration.

### 4.3.2 Miguel–La Mesa Alternative

The Miguel–La Mesa Alternative route would exit Miguel Substation in an aboveground configuration and proceed northeast along the Miguel-Mission ROW until reaching Campo Road, similar to the Proposed Project. 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 until reaching University Avenue. The route would then continue west on University Avenue for 1.5 miles, turn north on College Avenue for 1.5 miles until reaching Montezuma Road. The route would then 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.

#### Key Issues/Components Associated with This Alternative

- The Miguel–La Mesa Alternative would reduce the total project length from 35 miles to approximately 23.5 miles.
- This alternative would extend the project into more highly developed areas (e.g., Rancho San Diego, Spring Valley, La Mesa, Mission Valley).
- The alternative would require bored crossings of two watercourses: Sweetwater River (along Campo Road) and San Diego River (along Friars Road).
- The alternative also would cross four roadways: Interstate 8, State Route 94, State Route 125, and Interstate 15. It would also would parallel State Route 94 for approximately 3 miles, a roadway that has significant traffic during morning and evening commuting periods.
- Underground construction would delay project schedule.
- The route is located adjacent to San Diego State University, possible disruption of University operations.

- 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. This new reactor station may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- Relative to the Proposed Project, this alternative would also reduce EMF emissions to areas adjacent to the Miguel-Mission ROW.

### Consideration of CEQA Criteria

**Project Objectives.** The Miguel-La Mesa Alternative is consistent with all of SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The Miguel-La Mesa Alternative is feasible.

**Lessen Significant Environmental Effects.** As described for El Cajon-Mission Trails Alternative, the Miguel-La Mesa Alternative would reduce visual impacts to residents located along the Miguel-Mission ROW in the areas of Cottonwood, El Cajon, Lakeside, Moreno, Eucalyptus Hills, the City of Santee, East Elliott and Tierrasanta. In addition, by following a more direct route through developed areas of the County, this alternative would reduce potential impacts to biological and cultural resources associated with the Proposed Project, which is located in more rural areas of the County.

**Potential New Impacts Created.** In comparison with the Proposed Project, the construction associated with the all-underground Miguel-La Mesa Alternative would have substantial adverse impacts in the areas of air quality, unknown cultural resources, hazardous materials, noise, traffic (crossing four major roadways, and parallel to State Route 94 for three miles), public services and safety (increased response times for emergency vehicles), and water resources (crossing two major watercourses). The route may temporarily impact access to recreational areas along the route, as well as San Diego State University operations. In addition, SDG&E has stated that it would need to construct a termination station at each end of the underground segment, which would require the acquisition of, and impact to, additional land, which may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources.

### Alternative Conclusion

**Miguel-La Mesa Alternative – ELIMINATED.** This alternative would likely result in substantially greater adverse impacts than the Proposed Project in the areas of air quality, traffic, public utilities, hazardous materials, noise as a result of underground construction of the new transmission line. Unknown cultural resources may also be impacted. In addition, this alternative would delay the project schedule. The adverse impacts to all of these areas must be compared to the impacts of the Proposed Project and the benefits of this alternative, which would benefit visual resources along the Miguel-Mission ROW. Because of the severity of the temporary impacts and the greater length in time for construction activities in comparison with the Proposed Project, this alternative has been eliminated from further consideration.



### 4.3.3 El Cajon–Mission Gorge Road Alternative

The El Cajon-Mission Gorge Road Alternative would exit the Miguel Substation in an aboveground configuration and follow the Miguel-Mission ROW until reaching La Cresta Road, similar to the Proposed Project. 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 as it becomes Fletcher Parkway, continue along Navajo Road until reaching Jackson Drive, at which point the route would turn 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.

#### Key Issues/Components Associated with This Alternative

- This alternative would reduce the total project length from 35 miles to approximately 25 miles.
- This alternative would extend the project into more highly developed areas of El Cajon, Fletcher Hills, Allied Gardens, and Mission Valley
- This alternative would require bored crossings of two watercourses: Lake Murray Drainage (along Navajo Road) and San Diego River (along Friars Road).
- This alternative crosses six major roadways: Interstate 8, Business Route 8, State Route 54, State Route 67, State 125, Interstate 15
- Underground construction would delay project schedule.
- 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 one acre of land.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- This alternative would also reduce EMF emissions to areas adjacent to the Miguel-Mission ROW.

#### Consideration of CEQA Criteria

**Project Objectives.** The El Cajon–Mission Gorge Road Alternative is consistent with all of SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The El Cajon–Mission Gorge Road Alternative is feasible.

**Lessen Significant Environmental Effects.** The El Cajon–Mission Gorge Road Alternative would reduce visual impacts to residents located along the Miguel-Mission ROW in the areas El Cajon, Lakeside, Moreno, Eucalyptus Hills, the City of Santee, East Elliott, and Tierrasanta. This alternative would lessen the impacts to biological resources in the project ROW; it is assumed that no biological resources would be impacted from undergrounding the 230 kV circuit in the roadways in San Diego County.

**Potential New Impacts Created.** The underground construction associated with the El Cajon–Mission Gorge Road Alternative would create potentially greater impacts in the areas of air quality, unknown cultural resources, hazardous materials, noise, traffic (this route would cross six major roadways), public

services, and safety (increased response times for emergency vehicles) and water resources (crossing two major watercourses). In addition, SDG&E has stated that it would need to construct a termination station at each end of the underground segment, which would require the acquisition of, and impact to, additional land, which may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources.

### **Alternative Conclusion**

**El Cajon–Mission Gorge Road Alternative – *ELIMINATED*.** The El Cajon–Mission Gorge Road Alternative would likely result in significant adverse impacts to air quality, traffic, human health and safety, public utilities, hazardous materials, and noise as a result of underground construction and maintenance of the new transmission line. Unknown cultural resources may also be impacted. In addition, this alternative would delay project schedule. The adverse impacts to all of these areas must be compared to the impacts of the Proposed Project and the benefits of this alternative, which would benefit visual resources along the Miguel-Mission ROW. Because of the severity of the temporary impacts and the greater length in time for construction activities in comparison with the Proposed Project, this alternative has been eliminated from further consideration.

### **4.3.4 City of Santee–Mission Gorge Road Alternative**

The City of Santee-Mission Gorge Road Alternative would exit Miguel Substation and follow the Miguel-Mission ROW aboveground 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 continue to Mission Substation.

#### **Key Issues/Components Associated with This Alternative**

- Total project length would be reduced from 35 miles to approximately 26.5 miles.
- This alternative would require a bored crossing of one watercourse: San Diego River (Friars Road). It would also cross several major flood control structures near Mission Gorge.
- The alternative would cross three major roadways: State Route 67 (narrow underpass), State Route 125, Interstate 15.
- Underground construction would delay project schedule.
- 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 one acre of land. This may be an issue on this short route modification.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- The City of Santee-Mission Gorge Road Alternative would also reduce EMF emissions to areas adjacent to the Miguel-Mission ROW between Los Coches Substation and Mission Substation.

## Consideration of CEQA Criteria

**Project Objectives.** The City of Santee–Mission Gorge Road Alternative is consistent with all of SDG&E’s project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. However, this alternative would not support SDG&E’s proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The City of Santee–Mission Gorge Road Alternative is feasible.

**Lessen Significant Environmental Effects.** This alternative would reduce visual impacts to residents located along Subsections E and F (see Figure B-7 of the EIR) of the Miguel-Mission ROW. In addition, by following a more direct route through developed areas of San Diego County, this alternative would reduce potential impacts to biological resources associated with the Proposed Project, which is located in more rural areas of the County.

**Potential New Impacts Created.** The underground construction associated with the City of Santee–Mission Gorge Road Alternative would create greater impacts in the areas of air quality, unknown cultural resources, hazardous materials, noise, traffic, and public services and safety (increased response times for emergency vehicles). This route passes through the center of the City of Santee, which may cause major disruption to public services and safety (including increased response times for emergency vehicles). In addition, SDG&E has stated that it would require a reactor station (up to 1 acre in size) for a 230 kV circuit underground. This requirement may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources.

## Alternative Conclusion

**City of Santee-Mission Gorge Road Alternative – *ELIMINATED*.** This alternative would likely result in greater adverse impacts than the Proposed Project in the areas of air quality, traffic, human health and safety, public utilities, hazardous materials, and noise as a result of construction of the new underground transmission line. Unknown cultural resources and recreational areas may also be impacted. The adverse impacts to all of these areas must be compared to the impacts of the Proposed Project and the benefits of this alternative, which would be reduced visual impacts along the Miguel-Mission ROW between Los Coches and Mission Substations. Because of the severity of the temporary impacts and the greater length in time for construction activities, this alternative has been eliminated from further consideration.

### 4.3.5. Moreno–Santee Regional Lakes Alternative

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.

### Key Issues/Components Associated with This Alternative

- The alternative route would cross one watercourse underground: San Vicente Creek (near Moreno Road).
- The alternative route would cross one major roadway: State Route 67 — a very busy roadway.
- The alternative route would pass through the center of downtown City of Santee (Mast Boulevard), and passes just south of Santana High School.
- Underground construction would delay project schedule.
- 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 one acre of land. This may be an issue on this short route modification.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- This alternative would also reduce EMF emissions to areas adjacent to the Miguel-Mission ROW in the City of Santee and Eucalyptus Hills.

### Consideration of CEQA Criteria

**Project Objectives.** The Moreno–Santee Regional Lakes Alternative is consistent with all of SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The Moreno–Santee Regional Lakes Alternative would be technically feasible.

**Lessen Significant Environmental Effects.** This alternative would reduce visual impacts to residents located along the Miguel-Mission ROW in the City of Santee and the community of Eucalyptus Hills. In addition, by following a more direct route through developed areas of the County, the Moreno–Santee Regional Lakes Alternative would reduce potential impacts to biological resources associated with the Proposed Project, which is located in more rural areas of the County.

**Potential New Impacts Created.** The underground construction associated with the Moreno–Santee Regional Lakes Alternative would create greater impacts in the areas of air quality, unknown cultural resources, hazardous materials, noise, recreational areas (e.g., Santee Lakes Regional Park), traffic (State Route 67), and public services and safety (increased response times for emergency vehicles). This route would pass through the center of the City of Santee on Mast Boulevard, which may cause major disruption to public services and safety (including increased response times for emergency vehicles). In addition, SDG&E has stated that it would require a reactor station (up to 1 acre in size) for a 230 kV circuit underground. This requirement may contribute to additional impacts to visual resources, biological and cultural resources, land use, noise, air quality, and water resources.

### Alternative Conclusion

**Moreno–Santee Regional Lakes Alternative - *ELIMINATED*.** This alternative would result in substantially greater adverse impacts than the Proposed Project in the areas of air quality, traffic, human health and safety, public utilities, hazardous materials, noise as a result of construction of the new underground transmission line. Unknown cultural resources may also be impacted. This alternative would

be only slightly shorter (by one mile) than the Proposed Project. It would delay the project schedule. Because of the high level of temporary adverse impacts associated with this project, this alternative has been eliminated from further consideration.

## 4.4 Alternatives West of Miguel Substation

These alternatives have been proposed 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. Figure Ap.2-11 illustrates the locations of the three route alternatives to the west of Miguel Substation. Avoidance of the following key geographical features in San Diego influenced the development of these route alternatives to the west of Miguel Substation:

- Downtown San Diego
- Balboa Park
- Old Town San Diego
- Tourist Attractions along Harbor Boulevard
- Presidio Community Park.

### 4.4.1 Miguel-Main-Mission Alternatives

These two alternatives have been proposed in order to develop an alternate route for the proposed 230 kV circuit that would be shorter than the Proposed Project route and would respond to public concerns raised during the scoping process regarding visual impacts, biological impacts, and EMF emissions.

#### 4.4.1.1 Miguel-Main-Mission A Alternative

The Miguel-Main-Mission A Alternative would exit Miguel Substation underground and head west along San Miguel Road until reaching Bonita Road, where it would continue underground for approximately 4.25 miles along Bonita Road, and then 2 miles along E Street until reaching an existing ROW at the intersection of E Street and Bay Boulevard (adjacent to Sweetwater Marsh National Wildlife Preserve). The new 230 kV circuit would then transition to an aboveground configuration on a new cable pole and continue north-northwest for approximately 4.5 miles in a vacant position on the east side of an existing lattice tower alignment (ROW between South Bay Power Plant and Main Street Substation) along the waterfront that eventually connects to Main Street Substation.

The new 230 kV circuit would then exit Main Street Substation underground and head west along Main Street and then south along 28th Street until reaching Harbor Boulevard. The 230 kV circuit would then continue north underground along Harbor Boulevard to the Pacific Coast Highway, at which point it would continue underground another 4.25 miles to a point near Interstate 8. Near Interstate 8, the 230 kV circuit would head northeast on Taylor Street and then northwest on Sunset Street to an existing tower alignment located at the corner of Sunset Street and Gaines Street. The proposed circuit would then transition to an aboveground configuration in order to cross the San Diego River and Interstate 8. North of the San Diego River, the 230 kV circuit would transition underground along Friars Road and Gaines Street and then connect to the Old Town Substation at 5525 Gaines Street. From Old Town Substation, the 230 kV circuit would continue east for approximately 3.75 miles in an aboveground configuration on one of two existing pole alignments located on the north side of Friars Road and then entering the Mission Substation.

### Key Issues/Components Associated with This Alternative

- Potential for increased reliability of the SDG&E system between Miguel and Mission Substations
- The total project length would be reduced from 35 miles to approximately 24 miles.
- This alternative would extend the project into more highly developed areas of Chula Vista, the Pacific Coast Highway, Downtown San Diego, and Mission Valley.
- Project would cross two major watercourses: Sweetwater River (near the Sweetwater Marsh National Wildlife Refuge) and the San Diego River (near the intersection of Interstate 8 and Interstate 5).
- The Miguel-Main-Mission A Alternative would be located within the existing Sweetwater Marsh National Wildlife refuge. However, this portion of the alternative would only require reconductoring on existing structures.
- The alternative route would cross four major roadways and highways in the region, including: Interstate 805, Interstate 5 (two crossings), Interstate 8, and State Route 163. This route would also cross numerous light rail tracks throughout the region, possibly disrupting rail operations for a short period of time.
- Underground construction would also delay project schedule.
- This alternative route would also pass just north of San Diego International Airport
- 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 one acre of land.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.

### Consideration of CEQA Criteria

**Project Objectives.** The Miguel-Main-Mission A Alternative is consistent with all of SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. This route would also increase reliability of SDG&E system between Miguel and Mission Substation. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The Miguel-Main-Mission A Alternative is feasible.

**Lessen Significant Environmental Effects.** This alternative would reduce potential visual impacts in areas near or adjacent to the Miguel-Mission ROW. In addition, because this alternative route travels in more developed areas within the County of San Diego, potential impacts to biological resources would also be reduced along portions of the Miguel-Mission ROW. However, a portion of this route passes (overhead reconductoring on existing towers) through the Sweetwater Marsh National Wildlife Refuge, which includes many sensitive biological resources.

**Potential New Impacts Created.** In comparison with the Proposed Project, the construction associated with the all-underground Miguel-Main-Mission A alternative would likely result in substantially greater adverse impacts in the areas of air quality, traffic (route would cross Interstate 805, Interstate 5, Interstate 8, and State Route 163), rail services, public services and safety (increased response times for emergency vehicles), noise, cultural resources, hazardous materials, and recreation and tourist areas (Chula Vista Nature Center, Seaport Village, Petco Park, San Diego Convention Center). A portion of this alternative route is located within the Sweetwater March National Wildlife Refuge, a very sensitive biological resource area. The construction of this route would also cause traffic impacts along roadways adjacent to San Diego International Airport.

Figure Ap.2-11. West of Miguel Underground Alternatives

**[CLICK HERE TO VIEW](#)**

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## Alternative Conclusion

**Miguel-Main-Mission A Alternative – *ELIMINATED*.** This alternative is feasible and would meet all project objectives for the Proposed Project. However, in comparison with the Proposed Project, this alternative would result in substantially greater temporary environmental impacts to air quality, unknown cultural resources, hazardous materials, noise, and traffic as a result of underground construction of the new transmission line. In particular, this alternative route would create substantial traffic and transportation issues on a regional scale. In addition, this alternative would delay the project schedule. Because of the high level of temporary adverse impacts associated with this project, the Miguel-Main-Mission A Alternative has been eliminated from further consideration.

### 4.4.1.2 Miguel-Main-Mission B Alternative

The Miguel-Main-Mission B Alternative would exit Miguel Substation underground and head west 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 8 miles. The proposed 230 kV circuit would then transition to an aboveground configuration on a new cable pole and continue north/northwest for approximately 4.5 miles in a vacant position on the east side of an existing lattice tower alignment along the waterfront and eventually connecting to Main Street Substation (located at 29th Street and Main Street). The proposed 230 kV circuit would exit Main Street Substation underground and head east on Main Street and then north on 30th Street until reaching University Avenue. The circuit would then head west and continue 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 reaching Interstate 8. The proposed circuit would then transition to an aboveground configuration in order to cross Interstate 8 and San Diego River and connect with 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 aboveground configuration on one of two existing pole alignments located on the north side of Friars Road and enter the Mission Substation.

### Key Issues/Components Associated with This Alternative

- Potential for increased reliability of the SDG&E system between Miguel and Mission Substations.
- The total project length would be reduced from 35 miles to approximately 26.5 miles.
- This alternative would extend the project into more highly developed areas of Chula Vista, the Pacific Coast Highway and Mission Valley.
- The alternative would require bored crossings of two major watercourses: Sweetwater River (near the Sweetwater Marsh National Wildlife Refuge) and the San Diego River (near the intersection of Interstate 8 and Interstate 5).
- This alternative is also located within the existing Sweetwater Marsh National Wildlife Refuge. However, this portion of the alternative would only require reconductoring on existing structures.
- The alternative crosses four major roadways and highways in the region, including: Interstate 805, Interstate 5 (four crossings), Interstate 8, State Route 163 (two crossings). This route would also cross numerous light rail tracks throughout the region, possibly disrupting rail operations for a short period of time.

- Underground construction would delay project schedule.
- This route would also pass just north of San Diego International Airport
- 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.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.

### **Consideration of CEQA Criteria**

**Project Objectives.** The Miguel-Main-Mission B Alternative is consistent with all of SDG&E's project objectives to improve system reliability, reduce constraints on the existing transmission system, and improve the existing transmission infrastructure. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The Miguel-Main-Mission B Alternative is feasible.

**Lessen Significant Environmental Effects.** The Miguel-Main-Mission B Alternative would reduce potential visual impacts in areas near or adjacent to the Miguel-Mission ROW. In addition, because this alternative route travels more within developed areas of the County of San Diego, potential impacts to biological resources would also be reduced along portions of the Miguel-Mission ROW.

**Potential New Impacts Created.** The underground construction associated with this alternative is likely to result in substantial adverse impacts in the areas of air quality, traffic (route would cross Interstate 805, Interstate 5, Interstate 8, and State Route 163), rail services, public services and safety (increased response times for emergency vehicles), noise, cultural resources, hazardous materials, and recreation areas (Chula Vista Nature Center, Memorial Community Park Recreational Center). In addition, a portion of this alternative route (even though it would only require reconductoring) is located within the Sweetwater March National Wildlife Refuge, a very sensitive biological resource area. Construction could also cause substantial traffic impacts along roadways adjacent to San Diego International Airport.

### **Alternative Conclusion**

**Miguel-Main-Mission B Alternative – *ELIMINATED*.** This alternative is feasible and would meet all project objectives for the Proposed Project. However, in comparison with the Proposed Project, this alternative could result in substantially greater short-term environmental impacts to air quality, unknown cultural resources, hazardous materials, noise, and traffic as a result of construction of the new underground transmission line. In particular, this alternative route would create substantial traffic and transportation issues on a regional scale. In addition, this alternative would delay the project schedule. Because of the high level of temporary adverse impacts associated with this project, this alternative has been eliminated from further consideration.

#### **4.4.2 West of Miguel Underground Alternative**

The West of Miguel Underground Alternative would exit Miguel Substation underground and head west along San Miguel Road for 2 miles until reaching Bonita Road, at which point 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 Meadow-

brook Drive and then east on Skyline Drive where it would pass Skyline Community Park. East of the community park, 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 miles, 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.

### **Key Issues/Components Associated with This Alternative**

- The total project length would be reduced from 35 miles to approximately 20 miles.
- Potential for increased reliability of the SDG&E system between Miguel and Mission Substations.
- This alternative would extend the project into more highly developed areas of La Mesa, Jamacha Valley, Lemon Grove, El Cajon, and Mission Valley.
- This alternative would require two bored crossings of major watercourses: Sweetwater River along Bonita Road and the San Diego River along Friars Road.
- This alternative crosses five major roadways and highways in the region, including: State Route 54, State Route 125, State Route 94, Interstate 8, and Interstate 15. This route would also cross two light rail tracks, possibly disrupting rail operations for a short period of time.
- There is major construction currently underway at the intersection of Sweetwater Road and State Route 125; Caltrans is in the process of improving this interchange.
- Underground construction would delay project schedule.
- This alternative would also pass just south of San Diego State University, possibly disrupting school activities and creating traffic issues around the campus.
- 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.
- This alternative would not support SDG&E's proposed future 230 kV circuit within this existing ROW segment.
- It is also assumed that this alternative would also reduce EMF emissions to areas adjacent to the Miguel-Mission ROW.

### **Consideration of CEQA Criteria**

**Project Objectives.** The West of Miguel 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. However, this alternative would not support SDG&E's proposed future 230 kV circuit within the existing Miguel-Mission ROW.

**Feasibility.** The West of Miguel Underground Alternative would be technically feasible.

**Lessen Significant Environmental Effects.** The West of Miguel Underground Alternative would reduce visual impacts to residents located along the Miguel-Mission ROW. In addition, because this alternative would be located in more developed areas of the County, it would reduce potential impacts to biological resources associated with the Proposed Project.

**Potential New Impacts Created.** The underground construction associated with the West of Miguel Underground Alternative would create substantial temporary impacts in the areas of air quality, unknown cultural resources, hazardous materials, noise, and public services and safety (increased response times for emergency vehicles). In particular, this alternative route would create substantial traffic and transportation issues on a regional scale. As described above, this route would cross five major roadways in the region, including State Route 54, State Route 125, State Route 94, Interstate 8, and Interstate 15. In addition, there is also major construction currently underway at the intersection of Sweetwater Road and State Route 125; Caltrans is in the process of improving this interchange. This route may also impact Sweetwater County Park and access to other recreational areas (e.g., Skyline Community Park, Bonita Golf Club).

### **Alternative Conclusion**

**West of Miguel Underground Alternative – ELIMINATED.** The West of Miguel Underground is feasible and would meet all project objectives. However, in comparison to the Proposed Project, this alternative could result in substantial temporary environmental impacts to air quality, unknown cultural resources, hazardous materials, noise, and traffic as a result of underground construction of the new transmission line. In addition, this alternative would delay the project schedule. Because of the high level of temporary adverse impacts associated with this project, this alternative has been eliminated from further consideration

## **4.5 Non-Wires Alternatives**

Non-wires alternatives are those that do not involve the construction of new transmission lines. For example, if adequate sources exist, renewable energy and fossil fuel generation are potential non-wires alternatives. In addition, demand-side management (e.g., conservation) and distributed generation can also result in a reduced need for the Proposed Project without new transmission. The following section provides a discussion of these alternatives and their feasibility to alleviate project impacts while fulfilling the project objectives.

### **4.5.1 Renewable Resource Alternatives**

Conscious efforts are being made to increase the renewable resource component of California's generation supply. As of 2001, approximately 54 percent of California's in-state generation was from oil, gas, and coal plants and 38 percent from hydroelectric, wind, waste-to-energy, geothermal, and solar plants. This section considers the principal renewable electricity generation technologies that could serve as alternatives to the Proposed Project. Renewable technologies include biomass, solar thermal, photovoltaic, wind, geothermal, small hydropower of 30 megawatts or less, tire waste, digester gas, landfill gas, and municipal solid waste generation technologies. The technologies could be attractive from an environmental perspective because of the absence or reduced level of air pollutant emissions. However, these technologies also have environmental consequences, feasibility problems, and may not meet the objectives of this Proposed Project.

**Renewable Portfolio Standard Program.** The CPUC, in collaboration with the California Energy Commission (CEC), has initiated a proceeding to implement the State's Renewable Portfolio Standard (RPS) Program as mandated by Senate Bill 1078 (SB 1078, Sher, Chapter 516, Statutes of 2002) under Public Utilities Code sections 381, 383.5, 399.11 through 399.15, and 445. California's Renewable Portfolio Standard (RPS) requires retail sellers of electricity to increase their procurement of eligible

renewable energy resources by at least 1 percent per year so that 20 percent of their retail sales are procured from eligible renewable energy resources by 2017. The RPS legislation requires that the CPUC and CEC work collaboratively to implement the RPS, and assigns specific roles to each agency. Pursuant to Senate Bill (SB) 1078, the CEC's responsibilities include:

- Certifying eligible renewable resources that meet criteria contained in the bill, including those generated out-of-state
- Designing and implementing a tracking and verification system to ensure that renewable energy output is counted only once for the purpose of the RPS and for verifying retail product claims in California or other states
- Allocating and awarding supplemental energy payments as specified in SB 1038 to eligible renewable energy resources to cover above-market costs of renewable energy.

California is implementing the RPS for the Investor-owned utilities (IOU) in a CPUC rulemaking (R.01-10-024). Pursuant to this decision the CPUC's responsibilities include:

- Establishing a process to determine market price referents, setting the criteria for IOU ranking of renewable bids by least cost and best fit, and establishing flexible compliance rules, penalty mechanisms and standard contract terms and conditions
- Establishing initial renewable generation baselines for each IOU, making subsequent changes to these baselines as needed, and determining annual procurement targets (APTs)
- Directing the IOUs to develop procurement plans, and approving, amending or rejecting the plans
- Making specific determinations of market price referents for products under contract
- Approving or rejecting IOU requests to enter specific contracts for renewable power, including determining if a solicitation was adequately competitive
- Factoring transmission and imbalance costs into the RPS process and identifying the transmission grid implications of renewable development
- Defining rules for the participation of renewable Distributed Generation (DG), Electric Service Providers (ESP), Community Choice Aggregators (CCA), and potential Procurement Entities

**Energy Action Plan.** On March 8, 2003, the California Energy Commission (CEC), the Consumer Power and Conservation Financing Authority (CPA), and the California Public Utilities Commission (CPUC) approved an Energy Action Plan in addition to the Renewable Portfolio Standard. The shared goal of the Energy Action Plan is to:

*“Ensure that adequate, reliable, and reasonably-priced electrical power and natural gas supplies, including prudent reserves, are achieved and provided through policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers.”*

The energy agencies intend to achieve this stated goal through means, including but not limited to:

1. Meeting California's energy growth needs while optimizing energy conservation and resource efficiency and reducing per capita electricity demand.
2. Ensuring reliable, affordable, and high quality power supply for all who need it in all regions of the State by building sufficient new generation.

3. Accelerating the goal of SB 1078 of having 20 percent of all electricity sales come from renewable resources by year 2010 as opposed to 2017.
4. Upgrading and expanding the electricity transmission and distribution infrastructure and reducing the time required to bring new facilities online.
5. Promoting customer and utility owned distributed generation.

In 2001, electricity sales by the IOUs totaled approximately 169,000 GWh. The renewables portfolio standard requires an annual increase in renewable generation equivalent to 1 percent of sales, or about 1,700 GWh. Accelerating the goals of SB 1078 to have 20 percent of retail sales procured from renewable energy sources by 2010 instead of 2017, would add 4,200 MW of renewables to the system over the next 7 years, at an average of 600 MW (1.6 percent) per year.

## **4.5.2 Renewable Resources Applicable to the San Diego Area**

The Renewable Resources Development Report (2003) prepared by the California Energy Commission identifies wind and solar as the principal renewable resources available within the SDG&E territory. Major California wind resources are located in the Altamont Pass, Tehachapi, and San Geronio areas of the State with more limited resources operating and available in the project area. Similarly, major existing solar energy facilities are also located outside of the project area, although the southern portion of the State overall has the strongest solar resource potential.

### **4.5.2.1 Wind Technology**

#### ***Alternative Description***

Wind carries kinetic energy that can be utilized to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current (AC) into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6 MW. California currently generates about 1,800 MW of electricity from 105 separate wind facilities (referred to as a "windfarm").

The components of a utility-scale "windfarm" include wind turbines, an underground power transmission system, control and maintenance facilities, and a substation that connects the farm with the utility power grid. Utility-scale wind turbines are classified by size as follows: small (less than 50 kilowatts [kW]); intermediate (50 to 500 kW); and large (above 500 kW). Small and intermediate turbines make up the bulk of the older installed turbine base, but new turbines installed in the late 1990s are generally 600 kW and larger. Utility-scale windfarms are generally located in areas with average annual wind speeds of at least 13 miles per hour. Wind power is more available during certain seasons because climatic conditions affect wind speed. In California, wind speeds are highest in the hot summer months, and approximately three-fourths of all annual wind power output is produced during the spring and summer.

The perception of wind as an emerging energy source reached a peak in the early 1980s, when wind turbine generators to convert wind power into electricity were being installed in California at a rate of nearly 2,000 per year. Progress slowed a few years later as startup tax subsidies disappeared, and experience demonstrated some deficiencies in design. At the present time, technological progress again has

caught up, contributing lower cost and greater reliability. A major factor has been the inclusion of environmental externalities by electric utilities in their resource planning programs. It is now being shown that wind power is substantially more economically attractive than was previously thought.

There are now more than 16,000 wind turbines installed in the U.S., with almost all of them located in California. It has been estimated that with fully commercial development, 20 percent of the nation's electricity needs could be supplied by wind power. And while California is providing a large share of this resource, there still are opportunities for substantial growth throughout the State. California currently generates about 1,800 MW of electricity from 105 separate wind facilities.

According to the San Diego Regional Energy Infrastructure Study (2002), 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. The study suggests that 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.

#### **Advantages:**

- Wind technology forestalls or replaces the need to build potentially more polluting conventional power plants.
- Produces virtually no air, water or soil pollution.
- Because of its modular nature, it is easy to add capacity as needed.
- Installing wind turbines can be accomplished relatively quickly.
- Power generated with wind technology is cost-competitive with natural gas-fired plants, and the price of wind power is not affected by fuel price increases or supply disruptions.
- Federal tax credits are available for wind generation.

#### **Disadvantages:**

- Wind technology requires the use of large tracts of land.
- Energy produced by wind is intermittent, depending on weather conditions
- Changes in visual quality (as windfarms tend to be located at or immediately below ridge lines).
- Disturbances to wildlife habitats.
- Avian mortality due to collisions with wind turbines and associated wires.
- Noise (wind turbines generate both audible and low frequency [deep base vibration] sound waves).
- Grass or brush fires caused by shorts in the electrical cables in the unlikely event that they become stretched or twisted when the turbines turn to catch the wind.

#### ***Consideration of CEQA Criteria***

**Project Objectives.** This alternative would increase operational flexibility within the SDG&E service area. However, there are reliability concerns with wind technology because of the need for a consistent wind source.

**Feasibility.** The San Diego Regional Energy Infrastructure Study (SDREO and SAIC, 2002) concluded that untapped supplies of wind resources exist in Mountainous and Desert Regions of San Diego County, and in Northern Baja California. However, there is currently insufficient transmission infrastructure

available to bring this power to the grid. In addition, to develop 560 MW of wind generation, SDG&E would be required to procure additional easements from multiple public and private entities, which may be infeasible from a regulatory perspective. Therefore, this alternative is infeasible.

**Lessen Significant Environmental Effects.** Wind technology would not require the burning of fossil fuels, and therefore would reduce the environmental and resource impacts associated with natural gas-fired power. However, use of wind resources would require new transmission lines to be constructed with impacts similar to those of the Proposed Project.

**Potential New Impacts Created.** In general, the areas in California with the best wind resources have already been developed. Centralized wind generation areas generally require 5 to 6 acres per megawatt. The land area needed for wind electricity generation could create significant land use, biological, cultural, and visual concerns. In addition, wind turbines would have noise impacts associated with both construction and operation. Wind turbines have been documented to kill large numbers of raptors because these fast-flying birds do not account for the movement of the rotating blades.

### ***Alternative Conclusion***

***ELIMINATED.*** 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. 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.

### **4.5.2.2 Solar Technology**

#### ***Alternative Description***

Currently, there are two types of solar generation available: solar thermal power (also known as concentrating solar power) and photovoltaic (PV) power generation. Solar thermal power generation uses high temperature solar collectors to convert the sun's radiation into heat energy, which is then used to run steam power systems. Solar thermal is suitable for distributed or centralized generation, but requires far more land than conventional natural gas power plants and cannot provide power consistently over a 24-hour period. However, when hybridized with natural gas fired power plants, it can provide dispatchable power, (i.e., power which can be provided at will, such as during short periods when solar energy is not available). Hybridization and thermal storage can enhance the economic value of the electricity produced and reduce its average cost.

With 354 MWs of operating solar thermal power plants, California leads the world in solar-thermal electric power generation. The vast majority of these facilities are parabolic-trough electric plants installed in the 1980s in the Mojave Desert where large tracks of available land exist. Centralized solar projects using the parabolic-trough technology require approximately five acres per megawatt and photovoltaic arrays require approximately 2.5 to 10 acres per megawatt.

Photovoltaic (PV) power systems convert sunlight to direct-current (DC) electricity, using solid-state semiconductor devices. PV technology has received increased support from private and public sectors since the 1970s, resulting in a steady decrease in costs and increases in performance. PV systems typically convert about 10 percent of the available solar energy to alternating current electricity. Approximately one square kilometer (247 acres) is required for a 100 MW rated PV power system. Such a system would produce an energy output of 600 MWh/day.



PV power systems are typically ground mounted or building mounted. Because only about 10 percent of the available solar radiation that falls on a given PV cell is converted into electricity, large areas are needed to achieve power outputs comparable to conventional electric plants. There is a current move by the PV industry towards “building-integrated” PV power systems. They reduce the land area required and can provide multiple benefits such as shade and thermal insulation for the building as well as electric power. Utilization of dual-purpose locations such as roof spaces and covered parking areas can help mitigate the area issue, and are becoming an increasingly attractive deployment strategy. With long term planning and a responsive government, SDREO predicts that PV could economically represent a 230 to 865 MW capability in San Diego over the next 30 years.<sup>2</sup> However, without rebate incentives, solar PV is not currently competitive with grid power.

Despite current drawbacks, the use of solar energy in California offers obvious promise. San Diego in particular has among the best solar resources in the nation, possessing an average of 5.7 usable hours of peak sunshine per day.<sup>3</sup> In addition, there has been significant growth of the use of PV in San Diego, largely because of long term planning efforts. For example, the 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.

### ***Consideration of CEQA Criteria***

**Project Objectives.** There are reliability concerns with solar technology. While the use of solar technology may be appropriate for some peaker plants, solar energy technologies cannot provide full-time availability or regional reliability given the current state of the industry. Solar technology does not currently meet the objectives of the Proposed Project.

**Feasibility.** The use of solar energy in California offers obvious promise as an environmentally preferred resource, and in the San Diego Region a potentially feasible alternative. However, it is limited by its availability (only during daytime hours), by the relatively high cost of solar panels, and by the significant quantities of land that would be required to support a facility to equal the capacity of the Proposed Project.

**Lessen Significant Environmental Effects.** Solar technology would not require the burning of fossil fuels and the environmental and resource impacts associated with natural gas fired-power. The visual and construction impacts of the Proposed Project would not occur if a feasible source of solar power with significant generating capacity were available in the San Diego area to achieve the approximately 500 MWs proposed to be provided to Mission Substation by the Proposed Project.

**Potential New Impacts Created.** While solar generation facilities do not generate air emissions (unless they operate with a fossil fuel component) and have relatively low water requirements, there are other potential impacts associated with their use. Construction of solar thermal plants can lead to habitat destruction and visual impacts. PV systems can also have negative visual impacts, especially if ground-mounted. Furthermore, PV installations are highly capital intensive, and manufacturing of the panels generate some hazardous wastes that could pose an occupational hazard.

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<sup>2</sup> San Diego Regional Energy Infrastructure Study. SDREO and SAIC, 2002.

<sup>3</sup> Solar Radiation Data Manual for Flat-Plate and Concentrating Collectors, NREL. Golden, CO.

### ***Alternative Conclusion***

**ELIMINATED.** 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 cannot be considered as a reasonable alternative to the Proposed Project. Therefore, this alternative has been eliminated from further consideration in the EIR.

## **4.5.3 System Enhancement Alternatives**

### **4.5.3.1 Demand-Side Management Alternative**

#### ***Alternative Description***

Demand-side management programs are designed to reduce customer energy consumption and overall electricity use. Some programs also attempt to shift such energy use to off-peak periods.

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. The combination of these programs constitutes the most ambitious overall approach to reducing electricity demand administered by any state in the nation. 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.

#### ***Consideration of CEQA Criteria***

**Project Objectives.** While reductions in demand are considered an essential part of SDG&E's future operations and are incorporated into its system base and peak load forecasts, the available energy savings from these programs is insufficient to improve the service reliability to SDG&E customers to the level desired. As a stand-alone alternative to the Proposed Project, energy conservation and load management program alternatives were eliminated from consideration because they represent a small fraction of the capacity requirements needed to meet SDG&E's reliability and improved transmission infrastructure objectives.

**Feasibility.** Demand-side management is feasible on a small scale, but not on a scale that would be required to replace the Proposed Project.

**Lessen Significant Environmental Effects.** This alternative would reduce energy consumption and thus reduce the need for gas-fired power generation and new transmission lines. All effects of the Proposed Project would be avoided.

**Potential New Impacts Created.** Because there would be no construction, no new impacts would be created.

### ***Alternative Conclusion***

***ELIMINATED.*** 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. For these reasons, this alternative has been eliminated from further consideration.

#### **4.5.3.2 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.

There are many DG technologies, including microturbines, internal combustion engines, combined heat and power (CHP) applications, fuel cells, photovoltaics and other solar energy systems, wind, landfill gas, digester gas and geothermal power generation technologies. DG units may be owned by electric or gas utilities, by industrial, commercial, institutional or residential energy consumers, or by independent energy producers. To the extent that it is established, DG acts to either reduce the load on the SDG&E system or augment supply as additional system generation. In either case, it would help to support SDG&E's ability to meet the applicable reliability criteria.

In addition, there are several incentive programs designed to provide financial assistance to those interested in operating DG systems in California. Senate Bill 1345 (Statutes of 2000, Chapter 537, Peace, signed by Governor Davis in September 2000) directs the CEC to develop and administer a grant program to support the purchase and installation of solar energy and small DG systems. Small DG systems include micro-cogeneration, gas turbines, fuel cells, electricity storage technologies (in systems other than PV), and reciprocating internal combustion engines. These systems currently rely on incentive programs and government support to offset their higher costs. An exception would be those DG installations that provide a higher quality of power or a more reliable power supply than can be provided by the electric utility company and for which businesses are willing to pay extra.

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.

##### ***Consideration of CEQA Criteria***

**Project Objectives.** While DG technologies are recognized as important resources to the region's ability to meet its long-term energy needs, DG does not provide a means for SDG&E to meet the objectives of the Proposed Project because of the comparatively small capacity of DG systems and the relatively high cost. DG technologies do not have the capability to meet SDG&E's stated objectives for increased import capacity, increased export capacity and grid enhancement.

**Feasibility.** Consideration of DG as an alternative to the Proposed Project is not feasible because no single entity has proposed implementing a substantial DG program. Also, a number of serious barriers including technical issues, business practices, and regulatory policies make interconnection to the electrical grid difficult. Broad use of DG resources would likely require regulatory support and technological improvements. Therefore, this alternative has been eliminated from further consideration because it would not be technologically feasible.

**Lessen Significant Environmental Effects.** Because DG technologies would be located in close proximity to the location of demand, impacts associated with the linear construction of transmission lines would be reduced. Other lessening of environmental effects would depend on the type of DG that would be used.

**Potential New Impacts Created.** Potential new impacts created by the use of DG generation would depend on the type of generation selected. Potential impacts associated with the use of solar and wind facilities are noted above.

### ***Alternative Conclusion***

**ELIMINATED.** 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. For these reasons, this alternative has been eliminated from further consideration.

## **4.5.4 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.

### **Consideration of CEQA Criteria**

**Project Objectives.** None of these alternatives individually meet the stated project objectives. Together, however, they would add needed power to the grid, improve the transmission infrastructure, and, together with conservation measures and reduced energy consumption, could alleviate transmission constraints and provide more reliable power.

**Feasibility.** Each of these components is technically feasible and could be implemented on a limited scale in San Diego County. However, each component has environmental and/or regulatory obstacles to its implementation (described in the individual sections above). Any combination of these alternatives would have no fewer obstacles than each alternative would have individually. Furthermore, 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.

**Lessen Significant Environmental Effects.** Environmental effects would be determined by the configuration of those components selected for implementation. See the individual discussions of alternative technologies above for impacts that would be avoided through the use of a particular technology.

**Potential New Impacts Created.** The creation of new impacts would be determined by the configuration of alternative technology and demand reduction options that would be selected for implementation. See the individual discussions of alternative technologies above for impacts that would be created through the use of a particular technology.

### **Alternative Conclusion**

***ELIMINATED.*** 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.

## 5. References

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