3 ALTERNATIVES

3.1 INTRODUCTION

The purpose of the alternatives analysis in an EIR, pursuant to CEQA, is to identify a reasonable range of alternatives to the Proposed Project, or to its location, that would feasibly attain most of the project's basic objectives while reducing or avoiding any of its significant environmental effects (CEQA Guidelines Section 15126.6(a)).

This section is organized as follows:

1. Section 3.2 provides an overview of the alternatives development and screening process.
2. Section 3.3 describes the methodology used for evaluating and screening alternatives.
3. Section 3.4 presents a summary of which alternatives have been selected and which have been eliminated for full EIR analysis based on CEQA criteria.
4. Section 3.5 describes in detail each alternative that has been retained in the EIR for analysis, including the No Project Alternative.
5. Section 3.6 presents descriptions of each alternative that was eliminated from EIR analysis and explains why each was eliminated.

Chapter 6 of this EIR provides a comparison of alternatives based on the environmental analysis of each alternative presented in Chapter 4. The Environmentally Superior Alternative is identified in Chapter 6.

3.2 ALTERNATIVES DEVELOPMENT AND SCREENING PROCESS

The Proposed Project is described in detail in Chapter 2 of this EIR. The Alternatives Screening Report in Appendix D of this EIR describes the alternatives screening analysis that has been conducted by the CPUC for the Proposed Project and provides a record of the screening criteria and results that were reached regarding alternatives carried forward for full EIR analysis and alternatives eliminated. The Alternatives Screening Report documents:

1. The range of alternatives that was suggested and evaluated;
2. The approach and methods used to screen the feasibility of these alternatives according to guidelines established under CEQA; and
3. The results of the alternatives screening.

For alternatives that were eliminated from EIR consideration, the Alternatives Screening Report explains in detail the rationale for elimination and the evidence supporting this determination.

The types of alternatives evaluated in the Alternatives Screening Report include pole relocation alternatives, transmission route alternatives, and electrical system alternatives. "Non-Wires Alternatives"[1] are addressed as well. The alternatives screening process identified and screened 41 potential alternatives. Five alternatives were retained for analysis in this EIR, and 36 alternatives were eliminated from further analysis.

The alternatives development and screening process considered:

- Alternatives proposed by SDG&E in the application for a CPCN
- Alternatives identified in other proceedings, studies, and documents such as the Sunrise Powerlink Project EIR/EIS
- Alternatives suggested by the public during scoping
- Other potentially feasible alternatives capable of meeting the project objectives as developed by the CPUC CEQA Team

3.2.1 California Environmental Quality Act Requirements

CEQA Guidelines Section 15126.6 (a) states that:

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

The Guidelines require an EIR to evaluate the comparative merits of the alternatives it has selected for analysis, and provide sufficient information about each alternative to compare it with the Proposed Project. An EIR should explain how the project alternatives were selected for analysis as well as identifying the alternatives that were rejected as infeasible and briefly explaining why they were rejected (CEQA Guidelines Section 15126.6(a), (c), (d)). CEQA Guidelines state that the discussion of alternatives shall focus on alternatives capable of eliminating or reducing significant adverse environmental effects of a Proposed Project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. However, CEQA Guidelines declare that an EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote or speculative.

To comply with CEQA's requirements, each alternative that was initially identified for this project was evaluated in three ways:

1. Does the alternative meet most of the basic project objectives?

[1] "Non-Wires Alternatives" include methods of meeting project objectives that do not require major transmission lines (e.g., base load generation, distributed generation, renewable energy supplies, conservation and demand-side management, etc.).

2. Is the alternative potentially feasible (from economic, environmental, legal, social, and technological standpoints)?
3. Does the alternative avoid or substantially lessen any significant effects of the Proposed Project, including consideration of whether the alternative itself could create significant environmental effects potentially greater than those of the Proposed Project?

The Alternatives Screening Report (Appendix D) provides more detail about the evaluation process for each alternative.

3.3 ALTERNATIVES SCREENING METHODOLOGY

Alternatives were evaluated using a screening process that consisted of three steps:

Step 1: Clearly define each alternative to allow comparative evaluation.

Step 2: Evaluate each alternative in comparison with the Proposed Project using CEQA criteria (defined below).

Step 3: Based on the results of Step 2, determine the suitability of each alternative for full analysis in the EIR by looking at whether the alternative: (1) is reasonable, (2) achieves all or most of the project's objectives, (3) is potentially feasible, and (4) avoids or substantially lessens an environmental impact of the project as proposed. If the alternative is unsuitable, eliminate it from further consideration.

Infeasible alternatives and alternatives that did not offer any overall environmental advantage (i.e., the alternative either did not reduce or avoid one or more of the Proposed Project's significant effects or if it did, other effects were significantly increased) were removed from further consideration and analysis. Following the screening process, the advantages and disadvantages of the remaining alternatives were carefully weighed with respect to CEQA's criteria for consideration of alternatives.

3.3.1 Consistency with Project Objectives

3.3.1.1 SDG&E's Project Objectives

SDG&E identified the following objectives for the Proposed Project in their Application for a CPCN (SDG&E 2014):

1. Meet the CAISO 2012–2013 Transmission Plan Functional Specifications for a new 230-kV transmission line between the Sycamore Canyon and Peñasquitos Substations by:
    a. Ensuring the SDG&E bulk electric system continues to meet North American Electric Reliability Corporation, Western Electricity Coordinating Council, and CAISO reliability criteria
    b. Promoting compliance with State of California policy goals related to renewable integration and Once-Through Cooling retirement

c. Economically and reliably meeting the San Diego metropolitan area's forecasted load growth
d. Delivering energy more efficiently to the load center in San Diego

2. Locate the Proposed Project's facilities in existing transmission and power line corridors, SDG&E ROW, SDG&E-owned property, and San Diego franchise ROW.

3.3.1.2 Basic Project Objectives

Based on review of SDG&E's project objectives and the CAISO 2012 – 2013 Transmission Plan, the CPUC identified three basic project objectives. These objectives are used by the CPUC to evaluate alternatives and to define a range of reasonable alternatives to the Proposed Project. The three CPUC-defined project objectives are presented and explained below.

CPUC Project Objective 1: Maintain long-term grid reliability in the absence of San Onofre Nuclear Generating System (SONGS) generation

CPUC Project Objective 1 reflects the goal of mitigating the loss of nuclear power generation at SONGS. SONGS was taken offline in 2012 and permanent retirement of the nuclear power plant began in June 2013 (CEC 2015). The retirement of SONGS resulted in the loss of 2,150 MW of generation in the Los Angeles and San Diego region (*Ibid.*). The San Diego region in particular lost access to over 700 MW of generation to support its load (i.e., energy demand). The reduction of generation resources supporting SDG&E load via Path 44 (the five 230-kV lines from SONGS feeding into the San Luis Rey and Talega Substations) needs to be replaced.

CAISO evaluated alternatives to mitigate the loss of electric generation at SONGS in its 2012 – 2013 Transmission Plan (CAISO 2013). Dynamic reactive support in the SONGS Talega area, Huntington Beach synchronous condensers and additional generation of electricity in San Diego County are part of the overall strategy for mitigating the loss of electric generation at SONGS, but are not a part of CPUC Project Objective 1. This CPUC project objective is focused on adding transmission capacity to increase delivery of existing energy resources to meet NERC, WECC and CAISO planning criteria for system reliability.

CPUC Project Objective 2: Deliver energy more efficiently to the load center in San Diego

CPUC Project Objective 2 reflects the goal of alleviating congestion on the power lines out of Sycamore Canyon Substation. Electricity is currently delivered into Sycamore Canyon Substation from the Suncrest 500/230-kV substation and energy is delivered out of Sycamore Canyon Substation by lower capacity 138-kV and 69-kV power lines. The lower capacity 138-kV and 69-kV power lines out of Sycamore Canyon Substation become congested under normal operating conditions (CAISO 2013). This congestion results in thermal overloads on power and transmission lines in SDG&E's system during peak summer demand.

CPUC Project Objective 3: Support deliverability of renewable resources identified in SDG&E's Renewable Portfolio Standard (RPS) portfolio

CPUC Project Objective 3 reflects the goals of delivering renewable resources in SDG&E's RPS portfolio. Table 3.3-1 summarizes the renewable energy in SDG&E's RPS portfolio. This objective is related to CPUC Project Objective 2 because delivery of renewable energy entering

Table 3.3-1 Summary of Renewable Generation in San Diego RPS Portfolio

Area	Cost Constrained	Renewable Generation by Portfolio (MW)		
		Commercial Interest	Environmental	High Distributed Generation
Imperial – SDGE	220	921	921	220
Imperial – IID	920	1,219	1,219	920
San Diego South	384	384	384	0
Baja	0	100	0	0
Arizona	550	550	550	550
Non-CREZ – SDGE	17	17	17	17
SDGE Distributed Generation Facilities	405	405	426	490

Source: CAISO 2013

Sycamore Canyon Substation via Sunrise Powerlink is constrained by the 138-kV and 69-kV electrical system. Additional capacity is needed to deliver renewable energy in San Diego's RPS portfolio that enters San Diego via Sunrise Powerlink.

In addition to the CEQA Guidelines and the basic project objectives as listed above, the CPUC uses the following guiding principles when considering the appropriate criteria for selecting alternatives for evaluation in the EIR:

> Public Utilities Code Section 1002.3 requires CPUC to "...consider cost-effective alternatives to transmission facilities that meet the need for an efficient, reliable, and affordable supply of electricity. . .", and the CPUC's Information and Criteria List for project applications requires discussion of ". . .alternatives capable of substantially reducing or eliminating any significant environmental effects, even if these alternatives substantially impede the attainment of the project objectives, and are more costly."

The determination of whether to eliminate or retain alternatives in the EIR was based on the alternative's ability to meet these objectives and follow the above guiding principles.

3.3.2 Feasibility

The 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." 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. Those alternatives that are potentially feasible, while still meeting most of the project objectives, are fully analyzed in the EIR.

According to CEQA Guidelines Section 15126.6(f)(1), among the factors that may be considered when addressing the potential feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or other regulatory limitations, jurisdictional boundaries, and the project proponent's control over alternative sites. For the screening analysis, the potential feasibility of alternatives was assessed taking the following factors into consideration:

- **Legal Feasibility.** Does the alternative have the potential to avoid lands that have legal protection that may prohibit or substantially limit the feasibility of permitting a high-voltage transmission line? Lands that are afforded legal protections that would prohibit the construction of the project, or require an act of Congress for permitting, are considered less feasible locations for the project. These land use designations include wilderness areas, wilderness study areas, restricted military bases, airports, and Indian reservations. Information on potential legal constraints of each alternative has been compiled from laws, regulations, and local jurisdictions, as well as a review of federal, state, and local agency land management plans and policies.
- **Regulatory Feasibility.** Do regulatory restrictions substantially limit the likelihood of successful permitting of a high-voltage transmission line? Is the alternative consistent with regulatory standards for transmission system design, operation, and maintenance?
- **Technical Feasibility.** Is the alternative potentially feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?
- **Economic Feasibility.** Is the alternative so costly that implementation would be prohibitive? The State CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of the project objectives, or would be more costly" (CEQA Guidelines Section 15126.6(b)). The Court of Appeals determined in *Citizens of Goleta Valley v. Board of Supervisors* (2nd Dist. 1988) 197 Cal.App.3d 1167, p. 1181 (see also *Kings County Farm Bureau v. City of Hanford* (5th Dist. 1990) 221 Cal.App.3d 692, 736): "[t]he fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project."
- **Environmental Feasibility.** Would implementation of the alternative cause substantially greater environmental damage than the Proposed Project, thereby making the alternative clearly inferior from an environmental standpoint? This issue is primarily addressed in terms of the alternative's potential to eliminate significant effects of the Proposed Project.

3.3.3 Potential to Eliminate Significant Environmental Effects

A key CEQA requirement for an 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)). 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 quantify impacts. It is possible to identify elements of an alternative that are likely to be the sources of impacts and to relate them, to the extent possible, to general conditions in the subject area.

The Proposed Project's significant environmental impacts were identified and evaluated to develop alternatives and determine whether an alternative would meet CEQA Guidelines Section 15126.6 requirements. The significant impacts of the Proposed Project are described in Chapter 4. Findings in Chapter 4 show that impacts on Aesthetics, Noise, Recreation, and Traffic would be significant and unavoidable even after applying mitigation.

3.3.4 Public Utilities Code Considerations for Alternatives

In considering SDG&E's application for a CPCN, the CPUC will be guided by the Public Utilities Code in addition to the requirements of CEQA. Public Utilities Code Section 1002 states that:

> (a) The commission, as a basis for granting any certificate pursuant to Section 1001, shall give consideration to the following factors:
>
> (1) Community values.
>
> (2) Recreational and park areas.
>
> (3) Historical and aesthetic values.
>
> (4) Influence on environment, except that in the case of any line, plant, or system or extension thereof located in another state which will be subject to environmental impact review pursuant to the National Environmental Policy Act of 1969 (Chapter 55 (commencing with Section 4321) of Title 42 of the United States Code) or similar state laws in the other state, the commission shall not consider influence on the environment unless any emissions or discharges therefrom would have a significant influence on the environment of this state.

The CPUC will consider the "community values" as expressed in the CPUC's proceeding on the project and in comments on the Draft EIR. The CPUC anticipates that the final decision will represent a reasonable balancing of the communities' interests, the need to protect environmental resources in the area, and the need for the project.

3.4 SUMMARY OF ALTERNATIVES CONSIDERED

Each of the alternatives considered in the Alternatives Screening Report is identified in Table 3.4-1 with a summary of the Alternative's ability to meet project objectives and feasibility criteria. The alternatives retained for further consideration and analysis in this EIR are described in Section 3.5. The alternatives eliminated from further consideration are described in Section in 3.6 along with a rationale for their elimination.

Table 3.4-1 Sycamore-Peñasquitos 230-kV Transmission Line Project Alternatives

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternatives Retained				
Alternative 1: Eastern Cable Pole Option 1b at Carmel Valley Road Source: SDG&E Application; CPUC	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria; reduces visual and recreation impacts to Black Mountain Ranch Community Park	Cable Pole Relocation
Alternative 2a: Eastern Cable Pole with Underground Alignment through City Open Space Source: CPUC	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria; reduces visual and recreation impacts to Black Mountain Ranch Community Park	Cable Pole Relocation
Alternative 2b: Eastern Cable Pole with Underground Alignment in City Utility Access Road Source: CPUC	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria; reduces visual and recreation impacts to Black Mountain Ranch Community Park	Cable Pole Relocation
Alternative 3: Los Peñasquitos Canyon Preserve-Mercy Road Underground Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria; reduces biological, cultural, aesthetic, and land use impacts	Transmission Route
Alternative 4: Segment D 69-kV Partial Underground Alignment Source: CPUC	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria; reduces aesthetic, biological, cultural, and land use impacts	Transmission Route
Alternative 5: Pomerado Road to Miramar Area North Combination Underground/Overhead Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria; reduces biological, cultural, and aesthetic impacts	Transmission Route

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternatives Eliminated				
Alternative 1a: Eastern Cable Pole Option 1a (option for Alternative 1b above) Source: SDG&E Application/PEA	Meets all project objectives	Meets feasibility criteria	Meets environmental feasibility criteria. Reduces visual and recreation impacts to Black Mountain Ranch Community Park; however, SDG&E's low profile three pole alternative is more bulky and visually impactful than the Alternative 1b. Therefore Alternative 1b is retained above and Alternative 1a is eliminated	Cable Pole Relocation
Alternative 6: Eastern Cable Pole Option 2 Source: SDG&E Response to Data Request #1	Meets all project objectives	Meets feasibility criteria	Does not meet environmental feasibility criteria; results in greater impacts to aesthetics and recreation	Cable Pole Relocation
Alternative 7: Western Cable Pole Alternative Source: SDG&E Application/PEA	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria; requires additional structures and does not reduce environmental impacts	Cable Pole Relocation
Alternative 8: Segment A Pole Relocations Source: CPUC	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria because the pole relocations would not measurably reduce any significant impacts of the Proposed Project	Pole Relocation
Alternative 9: Segment D Pole Relocations South of Existing Line Source: Public Scoping	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria because the alternative would not reduce any significant impacts of the Proposed Project and impacts to biological resources would increase due to construction within a MSCP Preserve	Pole Relocation

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternative 10: Northern Alignment Number 1 Source: SDG&E Application/PEA	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria due to greater impacts to aesthetic, biological, and cultural resources, and would cause temporary construction impacts associated with air quality, greenhouse gases, noise, public services, and recreation	Transmission Route
Alternative 11: Route Alternative 5 - Northern Alignment Number 2 Source: SDG&E Application/PEA	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria due to greater impacts to aesthetic, biological, and cultural resources, and would cause an increase in temporary construction impacts associated with air quality, greenhouse gases, noise, public services, and recreation because of the extended length of the alternative	Transmission Route
Alternative 12: Northern Alignment Number 3 Source: SDG&E Application/PEA	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria due to greater impacts to aesthetic, biological, and cultural resources, and would cause an increase in temporary construction impacts associated with air quality, greenhouse gases, noise, public services, and recreation because of the extended length of the alternative	Transmission Route
Alternative 13: Northern Alignment Number 4 Source: SDG&E Application/PEA	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria due to greater impacts to aesthetic, biological, and cultural resources, and would cause an increase in temporary construction impacts associated with air quality, greenhouse gases, noise, public services, and recreation because of the extended length of the alternative	Transmission Route

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternative 14: Southern Alignment Number 5 Source: SDG&E Application/PEA	Meets all project objectives	Regulatory feasibility is uncertain due to land use designations and the presence of sensitive biological resources	Does not meet environmental feasibility criteria; significant and unavoidable impacts to vernal pools and potential impacts to other sensitive biological resources	Transmission Route
Alternative 15: Southern Alignment Number 6 Source: SDG&E Application/PEA	Meets all project objectives	Regulatory feasibility is uncertain due to the presence of sensitive biological resources and land use designations	Does not meet environmental feasibility criteria. Increased land use and visual impacts. Significant and unavoidable impacts to vernal pools and potential impacts to other sensitive biological resources	Transmission Route
Alternative 16: Underground Alignment Number 7 Source: SDG&E Application/PEA	Meets all project objectives	Does not meet regulatory or legal feasibility criteria due to new ROW on MCAS Miramar	May meet environmental feasibility criteria	Transmission Route
Alternative 17: Stonebridge-Mira Mesa Alignment Source: CPUC	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria due to substantially greater impacts on transportation and traffic	Transmission Route
Alternative 18: Los Rosas-Park Village Alignment Source: CPUC	Meets all project objectives	Meets all feasibility criteria	Does not meet environmental feasibility criteria; increases land use, traffic, and hazards due to construction in narrow roads in a residential area	Transmission Route
Alternative 19: Sunrise Coastal Link Alignment Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Meets feasibility criteria	Does not meet environmental feasibility criteria due to greater impacts to land use, public health and safety, noise, and recreation	Transmission Route
Alternative 20: Pomerado Road to Miramar Road Combination Underground/Overhead Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Meets feasibility criteria	Does not meet environmental feasibility criteria due to substantially greater impacts on transportation and traffic	Transmission Route

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternative 21: Mannix-Dormouse Road Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Meets feasibility criteria	Does not meet environmental feasibility criteria due to greater impacts to critical habitat and vernal pools	Transmission Route
Alternative 22: SDG&E Segment 13 Scripps Ranch Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Legal and regulatory infeasibility due to approval of new ROW on MCAS Miramar	Does not meet environmental feasibility criteria due to greater impacts to aesthetics, land use, and hazards	Transmission Route
Alternative 23: MCAS Miramar – Underground/Overhead Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Legal and regulatory infeasibility due to crossing of MCAS Miramar	Meets environmental feasibility criteria; reduced aesthetic impacts	Transmission Route
Alternative 24: MCAS Miramar – Combination Underground/Overhead Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Legal and regulatory infeasibility due to crossing of MCAS Miramar	Meets environmental feasibility criteria; reduced aesthetic impacts	Transmission Route
Alternative 25: Rancho Peñasquitos Boulevard Bike Path Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Infeasible due to Caltrans regulations	Does not meet environmental feasibility criteria; does not reduce impacts	Transmission Route
Alternative 26: State Route 56 Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Infeasible due to Caltrans regulations	Does not meet environmental feasibility criteria; does not reduce impacts	Transmission Route
Alternative 27: Milepost 146.5 to Peñasquitos Substation Underground/Consolidation Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Legally infeasible because it involves burying existing lines that are not a part of the project	Meets environmental feasibility criteria; reduces aesthetic and land use impacts	Transmission Route

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternative 28: Scripps Poway Parkway to State Route 56 Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Infeasible due to Caltrans regulations	Does not meet environmental feasibility criteria; does not reduce impacts	Transmission Route
Alternative 29: Scripps Poway Parkway-Pomerado Road Underground Alternative Source: Sunrise Powerlink EIR/EIS	Meets all project objectives	Meets legal, regulatory, and technical feasibility criteria	Does not meet environmental feasibility criteria; does not reduce impacts	Transmission Route
Alternative 30: CAISO Approved Mission—Peñasquitos 230-kV Transmission Line Source: ORA; CAISO	Does not meet project objectives for delivering energy efficiently to the load center or increasing deliverability of renewable energy	Potentially feasible	Meets environmental feasibility criteria; would avoid impacts in segments A, B, and C of the Proposed Project	Electrical System
Alternative 31: CAISO-Approved Mission—Peñasquitos 230-kV Transmission Line and New Sycamore—Mission 230-kV Transmission Line Source: CPUC	Meets all project objectives	Potentially feasible	Does not meet environmental feasibility criteria; does not reduce impacts of the Proposed Project and would result in greater impacts to air quality, greenhouse gases, biological resources, cultural resources, hydrology, geology, and noise due to increased length of transmission line and increased construction duration	Electrical System
Alternative 32: Loop-in of Single Mission—San Luis Rey 230-kV Line into Peñasquitos Substation Source: CPUC	Does not meet any project objectives	Potentially feasible	Potentially meets environmental criteria; avoids impacts in Segments A, B, and C of the Proposed Project	Electrical System
Alternative 33: Loop-in of Two Mission—San Luis Rey 230-kV Lines Into Peñasquitos Substation Source: CPUC	Does not meet any project objectives	Potentially feasible	Potentially meets environmental criteria; avoids impacts in Segments A, B, and C of the Proposed Project	Electrical System

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternative 34: New Sycamore—Mission 230-kV Line and Loop-in of Single Existing Mission—San Luis Rey 230-kV Line Into Peñasquitos Substation Source: CPUC	Meets all objectives	Potentially feasible	Does not meet environmental criteria; would result in greater aesthetic, noise and traffic impacts in Segment D and would result in greater biological, air quality, greenhouse gas, hydrology, and geology impacts due to additional tower replacements and construction relative to the Proposed Project	Electrical System
Alternative 35: New Mission—Peñasquitos 230-kV Line and Reconfigured and Reconductored Power Lines Source: ORA	Does not meet project objectives; would not deliver energy more efficiently to the load center or promote deliverability of renewable energy	Potentially meets feasibility criteria	Would reduce environmental impacts by avoiding construction of Segments A, B, and C of the Proposed Project	Electrical System
Alternative 36: New Mission—Peñasquitos 230-kV, Reconductored Poway-Pomerado Line and Series Reactor Source: ORA	Does not meet project objectives; would not deliver energy more efficiently to the load center or promote deliverability of renewable energy	Potentially meets feasibility criteria	Would reduce environmental impacts by avoiding construction of Segments A, B, and C of the Proposed Project	Electrical System
Alternative 37: Imperial Irrigation District Hoober to SONGS Line Source: CPUC	Alternative is too speculative to evaluate the performance relative to project objectives	Alternative is too speculative to meet feasibility criteria	Alternative is too speculative to evaluate the environmental feasibility	Electrical System
Alternative 38: Increased Generation at Carlsbad Energy Center during Peak Loads Source: CPUC	Does not meet project objectives; would result in additional overloads	Meets feasibility criteria	May not meet environmental criteria; would require other upgrades to address overloads with other environmental impacts	Non-Wire
Alternative 39: In-Area Distributed Generation (Renewables) Source: Public Scoping; Public Utilities Code 1002.3	Does not meet project objectives	Meets feasibility criteria	Meets environmental criteria; eliminates all impacts associated with the project	Non-wire

Description of Alternative	Project Objectives	Potential Feasibility	Avoids/Reduces Environmental Effects	Alternative Type
Alternative 40: Energy Efficiency and Conservation Source: Public Scoping; Public Utilities Code 1002.3	Does not meet project objectives	Meets feasibility criteria	Meets environmental criteria; eliminates all impacts associated with the project	Non-wire
Alternative 41: Demand Response Source: CPUC; Public Utilities Code 1002.3	Does not meet project objectives	Meets feasibility criteria	Meets environmental criteria; eliminates all impacts associated with the project	Non-wire

3.5 ALTERNATIVES RETAINED FOR EIR ANALYSIS

As discussed in Section 3.3, alternatives were assessed for their feasibility, their ability to reasonably achieve the project objectives, and their potential for reducing the significant environmental impacts of the Proposed Project. Based on these screening criteria, the five alternatives described in this section were selected for detailed analysis within this EIR. Pursuant to CEQA Guidelines 15126.6, this section also contains a discussion of the No Project Alternative.

As further described below, Alternatives 1, 2a, and 2b – the "cable pole alternatives" – are alternatives along the Proposed Project route that would reduce or avoid impacts of cable pole P41 as proposed by relocating the cable pole to different nearby locations (refer to Figure 3.5-1). Alternatives 3 and 4 are also alternatives along the Proposed Project route (refer to Figure 3.5-2). Alternative 3 would underground a portion of the transmission line from Scripps Poway Parkway along Segment A to approximately Peñasquitos Junction (near the intersection of Segments C and D), avoiding 6.4 miles of overhead transmission line construction in Segments A and C. Alternative 4 would underground a portion of the proposed overhead Segment D from the area of Carmel Mountain Road to Peñasquitos Substation (*Ibid.*). Alternative 5 involves an entirely different route than the Proposed Project that would be underground, with the exception of a small portion of overhead alignment in Segment A and at the western end of the Alternative 5 route (*Ibid.*).

Sections 3.5.1 through 3.5.5 provide a more detailed overview of each of these five alternatives.

The description of the alternatives below, and the alternatives analysis presented in Chapter 4, is presented at the same level of detail as the Proposed Project to allow the CPUC to clearly compare the impacts of the alternatives with that of the Proposed Project. If so desired, in its decision, the CPUC could elect to combine or match certain alternatives along the Proposed Project route with project components. Detailed route maps for each of the retained alternatives are shown in Appendix E.

3.5.1 Alternative 1: Eastern Cable Pole Option 1b at Carmel Valley Road (SDG&E Application; CPUC)

3.5.1.1 Description

Alternative 1 is a cable pole relocation alternative along the Proposed Project route that would eliminate the impacts associated with the proposed installation of a tubular steel cable pole north of Carmel Valley Road at the northern end of Black Mountain Ranch Community Park. Alternative 1 is an alternate location for cable pole P41—the cable pole that would be used to transfer the transmission line from overhead to underground at the eastern end of Segment B (Figure 3.5-1). Instead of a using a tubular steel cable pole north of Carmel Valley Road at the northern end of Black Mountain Ranch Community Park as proposed, the Eastern Cable Pole Option 1b at Carmel Valley Road would use a single tubular steel cable pole approximately 150

feet high located immediately south of Carmel Valley Road within existing SDG&E ROW. The cable pole location would be graded to allow placement of a concrete pad, approximately 137 feet by 38 feet in size around the cable pole. The cable pole and concrete pad would be enclosed by an 8-foot tall chain link security fence and gate with privacy slats. An approximately 30-foot wide driveway would be constructed from Carmel Valley Road to the fenced cable pole area to allow access for maintenance vehicles.

Eastern Cable Pole Option 1b would replace an existing single-circuit wood H-frame structure approximately 83 feet in height that currently supports TL 13825. Eastern Cable Pole Option 1b would require a shorter underground segment compared to the Proposed Project because it would not require an underground line and splice vault within the driveway and parking area at Black Mountain Ranch Community Park.

3.5.1.2 Construction Details

Construction activities including the overhead and underground construction methods and work area requirements would be the same as for the Proposed Project cable pole (see Section 2.3 of Chapter 2: Project Description). Alternative 1 would avoid work at pole P41A, located north of Black Mountain Ranch Community Park in the Black Mountain Ranch Preserve. Alternative 1 includes a stringing site and replacement of an existing wood H-frame structure with a 138-kV TSP within the Black Mountain Ranch Community Park. Stringing would be conducted within the eastern portion of two of the four existing recreational baseball fields and the parking cul-de-sac at the northern end of the community park.

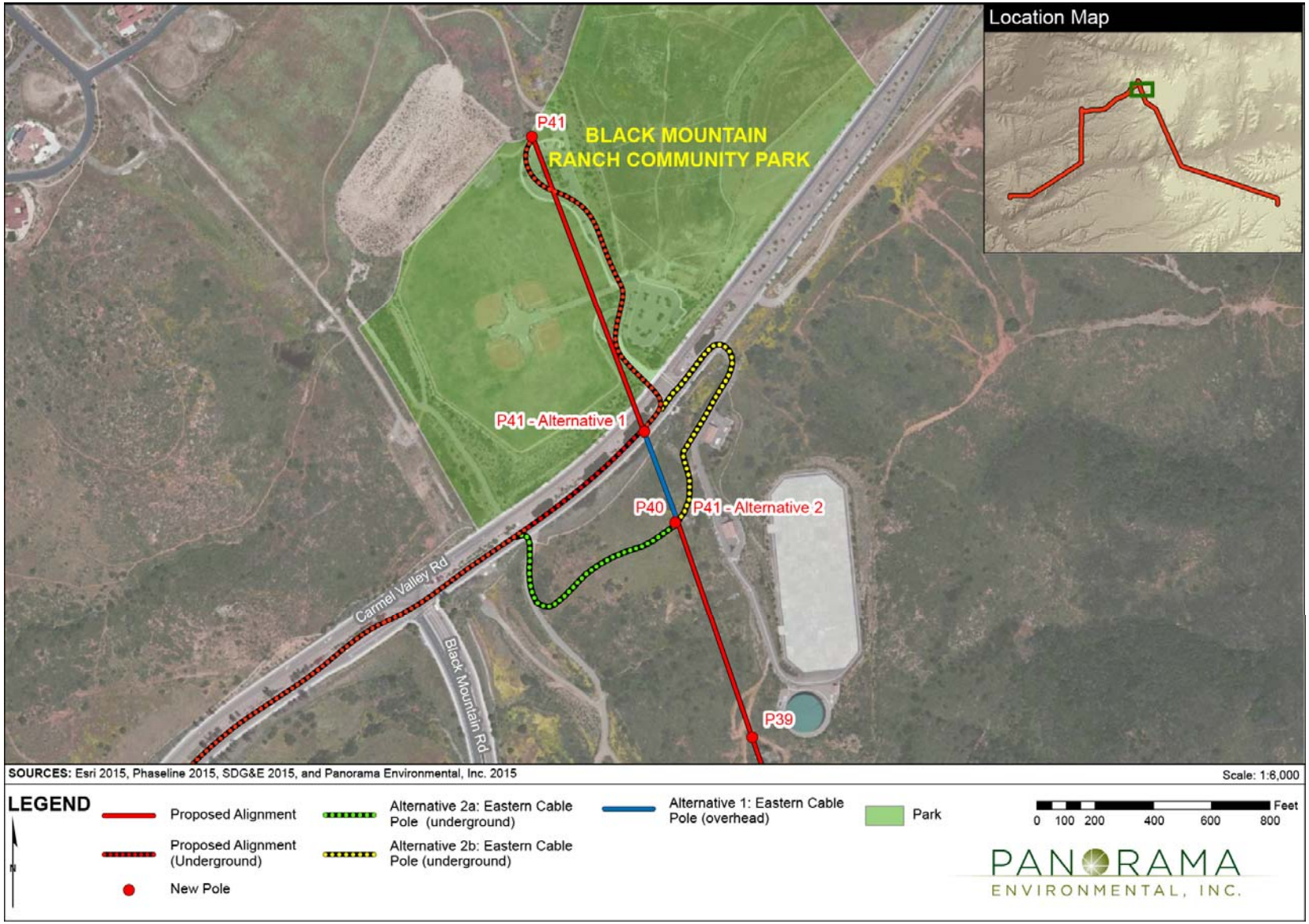
3.5.1.3 Operation and Maintenance Details

As with the Proposed Project, typical operation and maintenance activities include routine inspections and preventative maintenance. Inspection and maintenance activities would be conducted annually at the cable pole location in conjunction with inspections and maintenance for the existing transmission infrastructure in SDG&E's ROW. Inspections are used to identify corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Typical maintenance would include access repairs, repairs and replacements of equipment, and insulator washing. The driveway and flat pad surrounding the cable pole would provide access for routine maintenance activities. SDG&E would implement traffic control on Carmel Valley Road when multiple vehicles are required at the cable pole location for equipment repair or replacement.

3.5.1.4 Rationale for Full Analysis

Eastern Cable Pole Option 1b at Carmel Valley Road meets the project objectives and meets all feasibility criteria. The alternative would reduce significant and unavoidable impacts to recreation and traffic and transportation (i.e., loss of parking) in Black Mountain Ranch Community Park because the cable pole would be located outside of Black Mountain Ranch Community Park. This alternative would not result in substantially greater environmental impacts than the Proposed Project (refer to Appendix D: Alternatives Screening Report, Section 4.2.1 for further details). This alternative has, therefore, been retained for full analysis in the EIR.

Figure 3.5-1 Cable Pole Alternatives Retained for EIR Analysis



3.5.2 Alternative 2a and 2b: Eastern Cable Pole at Pole P40 and Underground Alignment through City Open Space or City Water Utility Service Road (CPUC)

3.5.2.1 Description

Alternative 2 is a cable pole relocation alternative along the Proposed Project route that would eliminate the impacts associated with the proposed installation of a tubular steel cable pole north of Carmel Valley Road at the northern end of Black Mountain Ranch Community Park. Alternative 2 is an alternate location for cable pole P41—the cable pole that would be used to transfer the transmission line from overhead to underground at the eastern end of Segment B. Instead of using the Proposed Project cable pole about 350 feet north of Carmel Valley Road within Black Mountain Ranch Community Park, Alternative 2 would use a cable pole south of Carmel Valley Road at the approximate location of the first proposed TSP within existing SDG&E ROW.

Alternative 2a

From the Alternative 2 cable pole, the Alternative 2a underground line would head southwest following the approximate alignment of an existing unpaved access road for 600 feet to a main access road (an extension of Emden Road). The underground line would turn north at approximately Black Mountain Road and follows this road for approximately 400 feet to Carmel Valley Road. The underground alignment would travel through City of San Diego dedicated park land and MSCP open space areas near Emden Road and Carmel Valley Road (Figure 3.5-1).

Alternative 2b

From the Alternative 2 cable pole, the Alternative 2b underground line would be routed northeast for about 250 feet within the SDG&E ROW, and then the alignment would turn east for about 110 feet to the paved service road within the City of San Diego's Black Mountain Reservoir facility north of the ROW. The underground transmission line would be located within this road for approximately 350 feet to Carmel Valley Road (Figure 3.5-1).

3.5.2.2 Construction Details

Construction activities including the overhead and underground construction methods and work area requirements would be the same as for the Proposed Project cable pole and underground duct banks and vaults (see Section 2.3 of Chapter 2: Project Description). Alternative 2 would not require work at the pole located north of Black Mountain Ranch Community Park in the Black Mountain Ranch Preserve (P41A). Alternative 2 includes a stringing site and replacement of an existing wood H-frame structure with a 138-kV TSP within the Black Mountain Ranch Community Park to transition the 138-kV power line from the new TSPs south of Carmel Valley Road to the wood H-frames north of Black Mountain Ranch Community Park. Stringing would be conducted within the eastern portion of two of the four existing recreational baseball fields and the parking cul-de-sac at the northern end of the community park.

Construction of the underground portion of Alternative 2a would require installation of two vault structures and approximately 1,000 linear feet of duct bank to connect with Proposed Project Segment B. Alternative 2b would require construction of one vault structure and approximately the same linear distance of duct bank. Due to the presence of existing water supply pipelines crossing underneath the City water utility service road at the Black Mountain Water Supply Reservoir, the underground duct bank trenching for Alternative 2b would need to be two to three times deeper than the minimum duct bank trench depth of 6.5 feet (i.e., 13 to 20 feet).

3.5.2.3 Operation and Maintenance Details

Typical operation and maintenance activities include routine inspections and preventative maintenance. Inspection and maintenance activities would be conducted annually at the cable pole location in conjunction with inspections and maintenance for the existing transmission infrastructure in SDG&E's ROW. Inspections are used to identify corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Typical maintenance would include access repairs, repairs and replacements of equipment, and insulator washing.

Inspections of the underground duct bank would be conducted annually from the new vaults. Inspections would be performed visually, as entry into the vaults with energized lines is not permitted. Inspections could also be performed with infrared, partial discharge monitoring, and other diagnostic instrumentation. Each vault inspection would take less than one day. Maintenance could include cable repair and cable connection repair.

3.5.2.4 Rationale for Full Analysis

Both Alternative 2a and 2b would meet all of the project objectives and would reduce significant recreation, aesthetic, and traffic environmental impacts of the Proposed Project. This alternative with either underground alignment meets legal, regulatory, and technical feasibility criteria (refer to Appendix D: Alternatives Screening Report, Sections 4.2.2 and 4.2.3 for further details). Both Alternatives 2a and 2b have therefore been retained for full analysis in the EIR.

3.5.3 Alternative 3: Los Peñasquitos Canyon Preserve-Mercy Road Underground (Sunrise Powerlink EIR/EIS)

3.5.3.1 Description

Alternative 3 is a routing alternative along the Proposed Project route that would avoid the northern portion of Segment A and all of Segments B and C. The Los Peñasquitos Canyon Preserve-Mercy Road Alternative includes 5.9 miles of underground construction from Scripps Poway Parkway along Segment A to approximately Peñasquitos Junction (Figure 3.5-2). The Los Peñasquitos Canyon Preserve-Mercy Road Alternative was suggested by the West Chase Homeowners Associated and the Rancho Peñasquitos Concerned Citizens during preparation of Sunrise Powerlink Project EIS/EIR (CPUC and BLM 2008). This alternative avoids 6.4 miles of overhead transmission line construction in Segments A and C. The Los Peñasquitos Canyon Preserve-Mercy Road Alternative follows Segment A to approximately Ivy Hill Drive where a 230-kV steel cable pole would be constructed at pole P19CP, and the existing wood 138-kV

H-frame structure located between pole P19 and Ivy Hill Drive would be replaced with a steel H-frame dead end structure, pole P20 (see Appendix E detailed maps). From here, the 230-kV transmission line would transition underground and continue west within Scripps Poway Parkway and Mercy Road. The transmission line would follow Mercy Road to its terminus at Black Mountain Road, crossing underneath I-15. The transmission line would follow Black Mountain Road north. A bridge crossing attachment would be installed over an environmentally sensitive area at the crossing of Los Peñasquitos Creek on Black Mountain Road just north of Truman Street. The transmission line would then turn west at Park Village Road and follow Park Village Road to its terminus near Peñasquitos Junction. The underground transmission line would end at cable pole P43, approximately 450 feet west of Peñasquitos Junction. Both cable poles P19CP and P43 would be 159.5 feet tall. P43 would require a retaining wall that would be 130 feet in length. Alternative 3 would be approximately 5.9 miles long (Figure 3.5-2).

Right-of-Way Requirements
Underground rights for a 40-foot-wide easement would be required from P19CP to Ivy Hill Drive and from the end of Park Village Road to the south edge of the existing SDG&E 300-foot-wide ROW at Peñasquitos Junction.

Underground Duct Bank
Concrete encased duct banks with 19 splice vaults placed approximately every 1,800 feet would be installed along Alternative 3. The standard configuration for a 230-kV double circuit underground duct bank is shown in Figure 2.2-20. PVC duct would be installed approximately 8 feet underground. Actual depths would vary based on utility conflicts.

Concrete splice vaults would be constructed of prefabricated, steel-reinforced concrete. Splice vaults facilitate pulling of cables through the duct bank and connecting pieces of cable. Each vault would have two manhole covers about 34 inches in diameter. The splice vaults would measure about 24 feet long by 10 feet wide by 8 feet deep. A diagram of a typical splice vault is provided in Figure 2.2-16.

3.5.3.2 Technical Feasibility
This alternative is routed from Ivy Hill Drive within Scripps Poway Parkway, Mercy Road, Black Mountain Road and Park Village Road. Scripps Poway Parkway, Mercy Road, and Black Mountain Road are four-lane boulevards that have center medians for approximately 3 miles. Park Village Road is a four-lane boulevard with a center median for approximately 2 miles along the eastern portion of the alternative alignment that transitions to a two-lane road for approximately 0.6 mile with parking along both sides at the western end of the alignment resulting in a road width that is similar to a four-lane road. The road width for all of these roads is 36 feet.

The Scripps Poway Parkway and Mercy Road segments contain existing utilities that occupy approximately a 15- to 18-foot width-wide section of the roadway, which provides sufficient room in the roadways to construct a new transmission line. Black Mountain Road has existing

large utilities that occupy a roughly 29-foot wide section of the roadway. The 7 feet of available space is also sufficient to construct the new transmission line in Black Mountain Road. Park Village Road contains utilities that occupy roughly 30 feet of the 36-foot-wide roadway. The 6 feet of space remaining in Park Village Road is sufficient to construct the underground transmission line with a 3-foot-wide duct bank. This alternative is potentially technically feasible because there is sufficient space to locate the new transmission line with the existing utilities in the roadway.

3.5.3.3 Construction Details

Construction activities for cable pole installation, underground duct bank, and vault construction are similar to those for the Proposed Project (refer to Section 2.3 of Chapter 2: Project Description). Access for Alternative 3 would be on existing roadways. A retaining wall would be constructed around the western cable pole in Los Peñasquitos Canyon at the terminus of the underground transmission line.

Temporary Work Pads

The installation of new transmission cable poles at either end of the Alternative 3 alignment would require an approximately 0.5-acre work area around each structure. The structure work areas would be used for equipment, vehicles, and materials during pole installation. Work areas would be subject to grading and vegetation trimming or removal. A permanent retaining wall would be installed at cable pole P43. Figure 2.3-2 in Section 2.3 provides a photograph of a typical retaining wall face.

Underground Duct Bank

Construction of the underground transmission duct bank would require an approximately 16-foot-wide work area. The work area would increase to a maximum of 130 feet wide and 30 feet long at vault locations. Prior to trenching, paint would be used to mark out the trench alignment, both centerline and 10-foot offsets, at 50-foot intervals and at the beginning and end of each curve in the alignment. The work area would be demarcated by orange cones and Type II barricades around the duct bank or vault work area. Part of the work area would be for the trench and the trenching area, and the rest of the work area would be reserved for trucks loading and unloading materials. Vehicular traffic would be directed outside the work area. Standard traffic control methods, described in Section 2.3.10.1 of Chapter 2: Project Description, would be employed to minimize traffic impacts during construction.

Staging Yards and Materials Storage

Alternative 3 would utilize the same staging yards and material storage areas as the Proposed Project for equipment staging and materials storage. Spare PVC conduit may be temporarily stored along existing roadways during construction.

Substations and Other Work Areas

Alternative 3 would involve the same work at Sycamore Canyon, Peñasquitos and Chicarita Substations as the Proposed Project. There would be no work at Encina Hub or San Luis Rey Substation and the Mission San-Luis Rey phase transposition would not occur.

Construction Workforce, Equipment, and Schedule

SDG&E personnel would include construction crews, environmental monitors, construction inspectors, and SDG&E personnel. Multiple crews may work simultaneously along the underground alignment with up to approximately 100 people working at one time. Alternative 3 is anticipated to take approximately 10 months to complete construction per SDG&E response #3 to CPUC Data Request #8. Construction would begin in June 2016 and would end in March 2017. Table 3.5-1 summarizes the expected construction schedule.

Table 3.5-1 Alternative 3 Proposed Construction Timetable

Task	Estimated Work Dates
Staging Yard Preparation and Mobilization	June 2016
Mark Out, Excavate and Install Vaults	July through August 2016
Trench and Duct	July through October 2016
Bridge Attachment	August through September 2016
Cabling	October through February 2017
Cleanup and Restoration	March 2017
Cable Testing and Commissioning	March 2017

Source: SDG&E 2015b

3.5.3.4 Operation and Maintenance Details

Permanent Work Areas

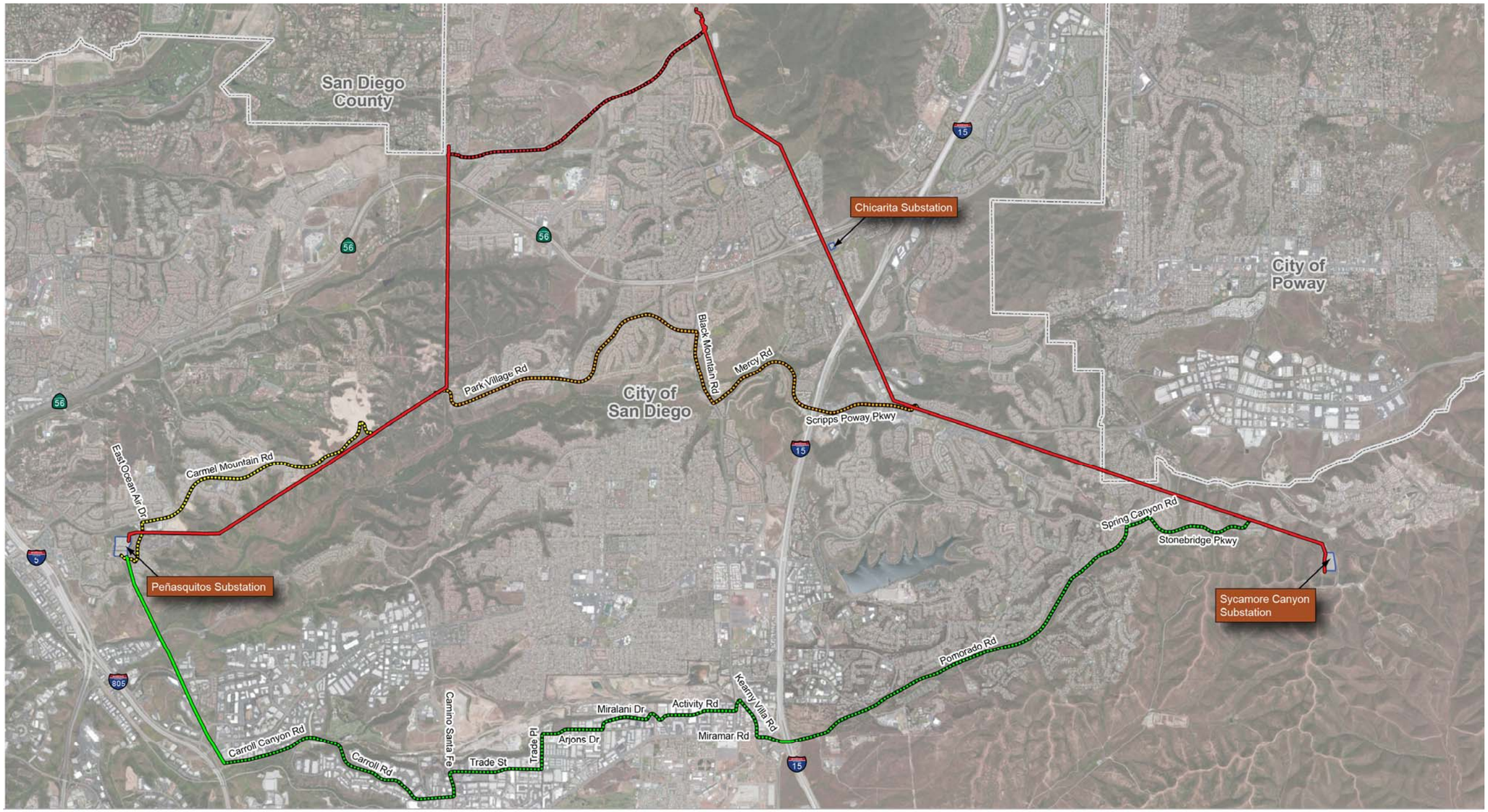
Permanent work areas would need to be maintained around the two cable poles (P19CP and P43) installed on either end of Alternative 3. The splice vault manholes would also be permanently maintained areas. Operation and maintenance would use existing roads for access to the cable poles and underground alignment.

The new cable poles would require a permanent maintenance pad that is typically about 50 feet by 75 feet (3,750 square feet) in size. Clearance requirements around cable poles would as described in Section 2.4.1.1. Cleared areas would commonly overlap with permanent maintenance pads.

Inspection and Maintenance

Typical activities include routine inspections and preventative maintenance. Inspection and maintenance activities would be conducted annually at the cable pole locations in conjunction with inspections and maintenance for the existing transmission infrastructure in SDG&E's ROW. Inspections are used to identify corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Typical maintenance would include access repairs, repairs and replacements of equipment, and insulator washing.

Figure 3.5-2 Routing Alternatives Retained for EIR Analysis (Alternatives 3, 4, and 5)



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Inspections of the underground duct bank would be conducted annually from the 19 new vaults. SDG&E would implement traffic control to access the vaults. Inspections would be performed visually, as entry into the vaults with energized lines is not permitted. Inspections could also be performed with infrared, partial discharge monitoring, and other diagnostic instrumentation. Each vault inspection would take less than one day. Maintenance could include cable repair and cable connection repair.

3.5.3.5 Rationale for Full Analysis

This alternative would meet the project objectives and is feasible. It has been retained because it would offer substantial avoidance of land use/visual effects to residents in the northern portion of Segment A as well as avoidance of biological impacts in portions of Segments A to C (refer to Appendix D: Alternatives Screening Report, Section 4.3.1 for further details). This alternative has, therefore, been retained for full analysis in the EIR.

3.5.4 Alternative 4: Segment D 69-kV Partial Underground Alignment (Public Scoping)

3.5.4.1 Description

Alternative 4 is a routing alternative along the Proposed Project route that eliminates the impacts from new TSP installation along 2.8 miles of Segment D by locating the 69-kV power line underground within roadways instead of on new TSPs. The Segment D 69-kV Partial Underground Alignment would replace a 2.8-mile portion of the overhead Segment D 69-kV lines with two 69-kV underground power lines from the area of Del Mar Mesa to Peñasquitos Substation, requiring approximately 3.1 miles of underground construction within roadways. Underground transmission would begin approximately 0.4 mile west of Peñasquitos Junction (the intersection of Segments C and D). Two cable poles would transition the 69-kV power lines to underground at the approximate location of existing structure E17 near a new subdivision and Carmel Mountain Road. Approximately 850 feet of the underground power lines would be located along an existing SDG&E access road to Carmel Mountain Road. The underground route would then follow and be located within Carmel Mountain Road to East Ocean Air Drive. The underground line would follow East Ocean Air Drive south for approximately 1,500 feet to the driveway entrance for Peñasquitos Substation Road. The line would enter Peñasquitos Substation underground via the driveway entrance (Figure 3.5-2). The 69-kV wood H-frames would be abandoned in place and would remain in Segment D. The 230-kV transmission line would be installed on the existing lattice steel tower similar to the Proposed Project between P48 and Peñasquitos Substation. This alternative avoids building the double circuit 69-kV power line on new TSPs along Los Peñasquitos Canyon Preserve that are part of the Proposed Project.

Two single circuit 69-kV steel cable poles, P48AA and P48BB, would be installed immediately adjacent to one another to transition the two 69-kV power lines in Proposed Project Segment D from overhead to underground in two new parallel duct banks. Both cable poles would be approximately 83 feet tall. Alternative 4 would be approximately 3.1 miles long. The initial 850 feet of duct bank would be located underneath an existing SDG&E access road to Carmel

Mountain Road from the new cable pole locations near existing lattice tower structure E17. The underground route would then follow Carmel Mountain Road and East Ocean Air Drive to Peñasquitos Substation. A bridge attachment would be required on the existing Carmel Mountain Road bridge near the intersection with Timber Brook Lane.

Within Proposed Project Segment D where the two existing 69-kV power lines are currently strung, one existing 69-kV power line would be removed from the existing steel lattice towers between new cable pole P48BB and Peñasquitos Substation. The other 69-kV power line, which is currently strung on existing wooden H-frame structures, would be de-energized between new cable pole P48AA and Peñasquitos Substation. The de-energized power line and wooden H-frame structures would remain in place. The new overhead 230-kV conductor would be installed on the existing steel lattice towers, and no new TSPs would be required or installed.

Figure 3.5-3 presents a diagram of a typical single circuit 69-kV cable pole that would be used for cable poles P48AA and P48BB. Figure 3.5-4 shows a typical double-circuit 69-kV duct bank.

Right-of-Way Requirements
Underground rights for a 40-foot-wide easement would be required from the north edge of the existing 300-foot wide SDG&E ROW adjacent to cable poles P48AA and P48BB to Carmel Mountain Road.

Underground Duct Banks
Concrete encased duct banks with 20 splice vaults (10 vaults for each of the underground 69-kV power lines) placed approximately every 1,800 feet along each of the two underground power lines would be installed along Alternative 4. The standard configuration for a 69-kV double circuit underground duct bank is shown in Figure 3.5-4. PVC duct would be installed approximately 7 feet underground. Actual depths would vary based on utility conflicts found.

Concrete splice vaults would be constructed of prefabricated, steel-reinforced concrete. Splice vaults facilitate pulling of cables through the duct bank and connecting pieces of cable. Each vault would have two manhole covers about 34 inches in diameter. The splice vaults would measure about 24 feet long by 10 feet wide by 8 feet deep. A diagram of a typical splice vault is provided in Figure 2.2-16 (Chapter 2: Project Description).

3.5.4.2 Technical Feasibility
This alternative is potentially technically feasible. The roadway is a relatively new two-lane road at the east end of the underground alignment where the power line enters Carmel Mountain Road and the road becomes a divided boulevard with four road lanes and a center median where Carmel Mountain Road crosses Timber Brook Lane. At the east end of Carmel Mountain Road the existing utilities occupy approximately 10 feet of the 18-foot-wide roadway. West of Timer Brook Lane, the existing utilities occupy roughly 13 feet of the 36-foot-wide road. There is sufficient room to construct the underground power lines within these roadways considering the existing utilities in the area.

3.5.4.3 Construction Details

Construction activities for cable pole installation and underground duct bank and vault construction are similar to those for the Proposed Project (refer to Section 2.3 of Chapter 2: Project Description). The 230-kV transmission line in Segment D would be strung on existing lattice tower structures in the same manner described for Proposed Project. The wood H-Frame structures and existing 69-kV power line between P48 and Peñasquitos Junction would remain in place and the 69-kV power line would be de-energized.

Alternative 4 would cross on an existing bridge about 450 feet east of Timber Brook Lane on Carmel Mountain Road. At the bridge, the duct bank would be placed in an empty bridge cell (hung under the bridge). Access for Alternative 4 would be on existing roadways (i.e., Carmel Mountain Road and East Ocean Air Drive) and SDG&E's access road to cable poles P48AA and P48BB.

Temporary Work Pad

Installation of new cable poles would require an approximately 0.5-acre work area around each structure. The structure work areas would be used for equipment, vehicles, and materials during pole installation. Work areas would be subject to grading and vegetation trimming or removal.

Underground Duct Bank

Construction of the underground power lines would require an approximately 16-foot-wide work area. The work area would increase to a maximum of 130 feet wide and 30 feet long at vault locations. Prior to trenching, paint would be used to mark out the trench alignment, both centerline and 10-foot offsets, at 50-foot intervals and at the beginning and end of each curve in the alignment. The work area would be demarcated by orange cones and Type II barricades. Part of the work area would be for the trench and the trenching area, and the rest of the work area would be reserved for truck loading. Vehicular traffic would be directed outside the work area. Standard traffic control methods, described in Section 2.3.10.1 of Chapter 2: Project Description, would be employed to minimize traffic impacts during construction.

Staging Yards and Materials Storage

Alternative 4 would utilize the same staging yards and materials storage areas as the Proposed Project for equipment staging and materials storage. Spare PVC conduit may be temporarily stored along Carmel Mountain Road during construction.

Figure 3.5-3 Diagram of 69-kV Cable Pole

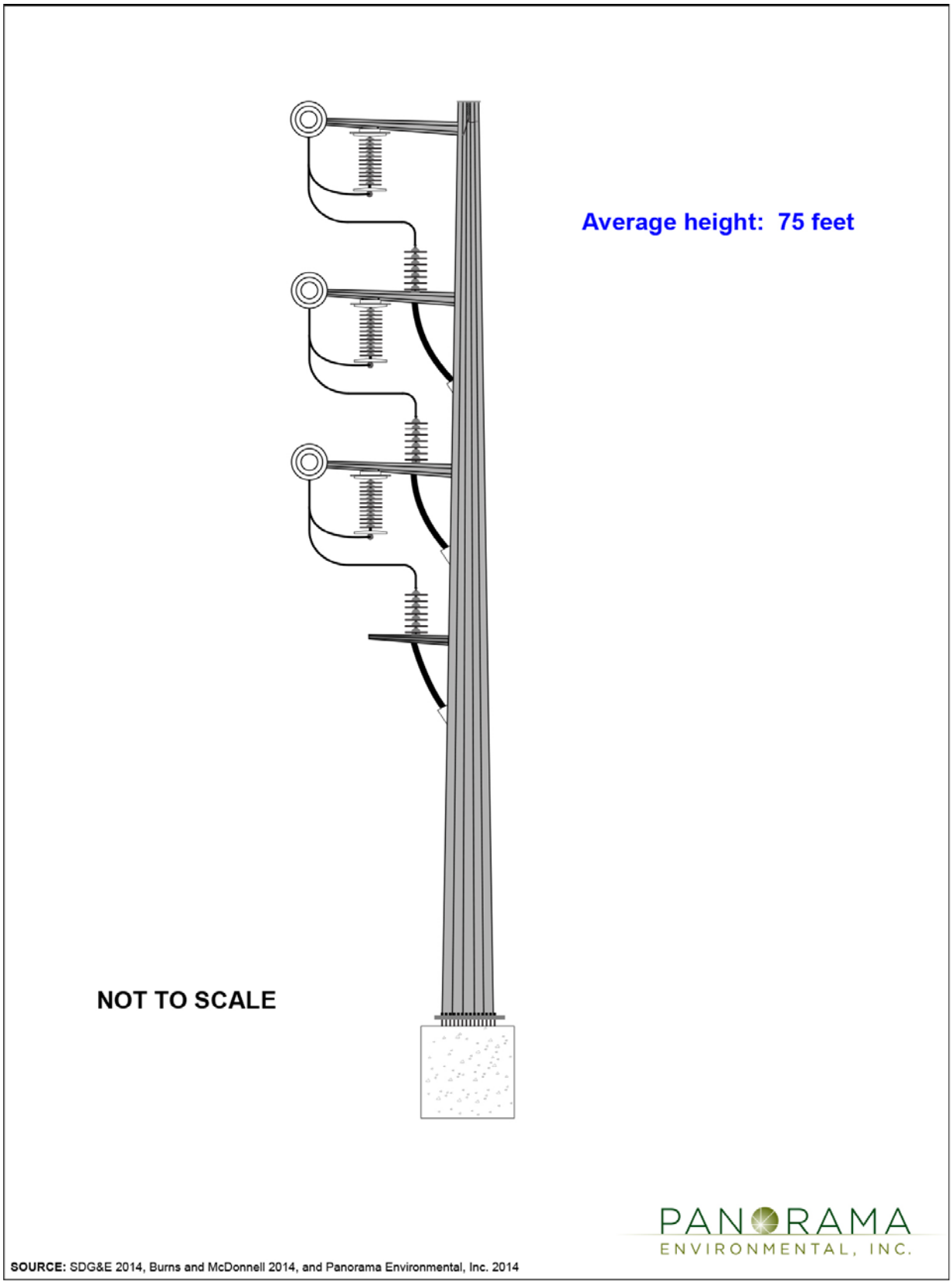
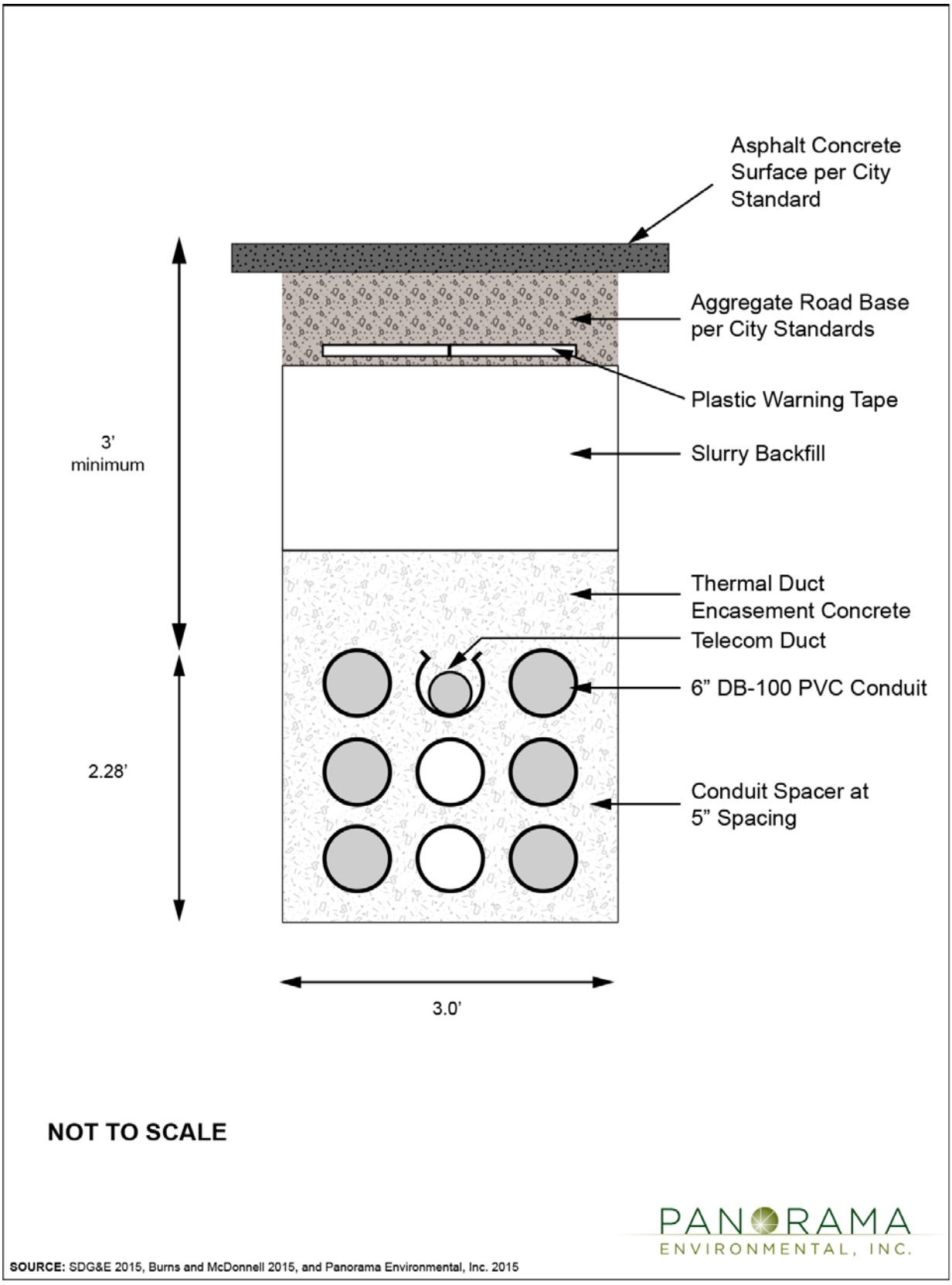


Figure 3.5-4 Diagram of a 69-kV Double Circuit Underground Duct Bank



SOURCE: SDG&E 2015, Burns and McDonnell 2015, and Panorama Environmental, Inc. 2015

Construction Workforce, Equipment and Schedule
SDG&E personnel would include construction crews, environmental monitors, construction inspectors, and SDG&E personnel. Multiple crews may work simultaneously along the underground alignment with up to approximately 100 people working at one time. Alternative 4 is anticipated to take approximately 8 months to complete per SDG&E response #3 to CPUC Data Request #8. Table 3.5-2 provides the estimated schedule for construction of Alternative 4.

Table 3.5-2 Alternative 4 Proposed Construction Timetable

Task	Estimated Work Dates
Mark Out, Excavate and Install Vaults	September 2016
Trench and Duct	September through December 2016
Cabling	January through April 2017
Cable Testing and Commissioning	March through April 2017

Source: SDG&E 2015c

3.5.4.4 Operation and Maintenance Details

Permanent Work Areas
Permanent work areas would need to be maintained around the two cable poles (P48AA and P48BB) after construction. The splice vault manholes would also be permanently maintained areas. Operation and maintenance would use existing work areas and roads.

The new cable poles would require a permanent maintenance pad that is typically about 50 feet by 75 feet (3,750 square feet) in size. Clearance requirements around cable poles would be the same as described for the Proposed Project in Section 2.4.1.1. Cleared areas would commonly overlap with permanent maintenance pads.

Inspection and Maintenance
Typical activities include routine inspections and preventative maintenance. Inspection and maintenance activities would be conducted annually at the cable pole locations in conjunction with inspections and maintenance for the existing transmission infrastructure in SDG&E's ROW. Inspections are used to identify corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Typical maintenance would include access repairs, repairs and replacements of equipment, and insulator washing.

Inspections of the underground duct bank would be conducted annually from the 20 new vaults. SDG&E would implement traffic control to access the vaults. Inspections would be performed visually, as entry into the vaults with energized lines is not permitted. Inspections could also be performed with infrared, partial discharge monitoring, and other diagnostic instrumentation. Each vault inspection would take less than one day. Maintenance could include cable repair and cable connection repair.

3.5.4.5 Rationale for Full Analysis

This alternative would meet the project objectives and is feasible. It has been retained because it would offer substantial avoidance of significant aesthetic and biological resource impacts to the community near Segment D (refer to Appendix D: Alternatives Screening Report, Section 4.3.2 for further details). This alternative has, therefore, been retained for full analysis in the EIR.

3.5.5 Alternative 5: Pomerado Road to Miramar Area North Combination Underground/Overhead (Sunrise Powerlink EIR/EIS)

3.5.5.1 Description

Alternative 5 is a routing alternative located almost entirely within a new alignment from the Proposed Project. The Pomerado Road to Miramar Area North Combination Underground/Overhead Alternative would run overhead between Sycamore Canyon Substation and Stonecroft Trail within existing SDG&E ROW.

A 230-kV steel cable pole would be constructed at P5 near Stonecroft Trail, and the existing wooden 138-kV H-frame structure would be replaced with steel H-frame dead end structure P6. The 230-kV transmission line would transition underground at cable pole P5 and continue west within Stonebridge Parkway. Alternative 5 would follow Stonebridge Parkway underground to its terminus with Pomerado Road, where the route would turn south on Pomerado Road. Approximately 425 feet before Pomerado Road crosses I-15, the transmission line would transition overhead via a 230-kV cable pole. The line would be strung on two interset poles (one on either side of I-15) and cross I-15 at a 90 degree angle. The line would then transition underground on the west side of I-15 just north of Miramar Road via a second 230-kV cable pole. The route would continue westward under Miramar Road, turn north on Kearny Villa Road, south on Black Mountain Road, and west on Activity Road to Camino Ruiz. Alternative 5 would continue underground north under Camino Ruiz, west on Miralani Drive, west on Arjons Drive, south on Trade Place, west on Trade Street, south on Camino Santa Fe, and west on Carroll Road/Carroll Canyon Road to Scranton Road. From this point, the transmission line would continue west for approximately 400 feet behind commercial buildings to near an existing transmission pole in existing SDG&E ROW. The underground transmission line would end at this location. Here, a 230-kV cable pole would be installed to transition the transmission line back to an overhead position within existing ROW on existing 230-kV TSPs heading northward into the Peñasquitos Substation (Figure 3.5-2). Approximately 2.8 miles of the transmission line would be overhead (0.7 mile in Segment A and 2.1 miles within SDG&E ROW from Scranton Road to Peñasquitos Substation) and 11.5 miles would be underground for a total length of 14.3 miles.

Cable pole P5 would be 159.5 feet tall and would require a 155-foot-long retaining wall. The two I-15 cable poles would be 159.5 and 165 feet tall, respectively, and the two I-15 interset poles would be 120 feet tall. The transmission line would transition to overhead at the proposed CC MM cable pole (CC MM CP) at the west end of Segment B. Figures 2.2-8 through 2.2-13 in Chapter 2: Project Description present diagrams of typical pole structures that would be used for the cable poles and overhead crossing of I-15.

Right-of-Way Requirements
Underground rights for a 40-foot-wide easement would be required from cable pole P5 to Stonebridge Parkway.

Underground Duct Banks
Concrete encased duct banks with 35 splice vaults placed approximately every 1,800 feet would be installed along the underground portion of Alternative 5. The standard configuration for a 230-kV double circuit underground duct bank is shown in Figure 2.2-20. PVC duct would be installed approximately 8 feet underground. Actual depths would vary based on utility conflicts found.

Concrete splice vaults would be constructed of prefabricated, steel-reinforced concrete. Splice vaults facilitate pulling of cables through the duct bank and connecting pieces of cable. Each vault would have two manhole covers about 34 inches in diameter. The splice vaults would measure about 24 feet long by 10 feet wide by 8 feet deep. A diagram of a typical splice vault is provided in Figure 2.2-16 in Chapter 2: Project Description.

3.5.5.2 Technical Feasibility
Stonebridge Parkway is a four-lane boulevard with a center median. Pomerado Road has two travel lanes, a bike lane, and a shoulder, so it has the same width as a three-lane road. Miramar Road is a major thoroughfare with six travel lanes plus a turn lane. The industrial roads north of Miramar Road are two-lane roads with parking on each side resulting in a road width that is equivalent to a four-lane road.

The underground utilities in Stonebridge Parkway occupy roughly 21 feet of the 36-foot-wide roadway. The utilities in Pomerado Road occupy roughly 14 to 17 feet of the 27-foot-wide roadway. The utilities in the industrial area north of Miramar Road occupy roughly 17 to 24 feet of the 36-foot-wide road. This alternative appears to be potentially feasible because there is sufficient room for construction of the underground transmission line within the roadways.

3.5.5.3 Construction Details
Construction activities for the new TSPs, cable poles, underground duct bank, and vaults would be similar to activities for the Proposed Project (refer to Section 2.3 of Chapter 2: Project Description). The 230-kV overhead transmission line in the western portion of Alternative 5 would be strung on existing structures. Access for the underground portion of Alternative 5 would be on existing roadways, with the exception of the I-15 overhead crossing which would require helicopters to string conductor across the highway. Access roads for the western overhead portion of Alternative 5 are shown in Appendix E.

Construction Work Areas
Installation of new transmission cable poles would require an approximately 0.5-acre work area around each structure. The structure work areas would be used for equipment, vehicles, and materials during pole installation. Work areas would be subject to grading and vegetation trimming or removal.

Construction of the underground transmission line would require an approximately 16-foot-wide work area. The work area would increase to a maximum of 130 feet wide and 30 feet long at vault locations. Prior to trenching, paint would be used to mark out the trench alignment, both centerline and 10-foot offsets, at 50-foot intervals and at the beginning and end of each curve in the alignment. The work area would be demarcated by orange cones and Type II barricades. Part of the work area would be for the trench and the trenching area, whereas the rest of the work area would be reserved for truck loading. Vehicular traffic would be directed outside the work area. Standard traffic control methods, described in Section 2.3.10.1 of Chapter 2: Project Description, would be employed to minimize traffic impacts during construction.

Staging Yards and Materials Storage
Alternative 5 would utilize the same staging yards and materials storage areas as the Proposed Project for equipment staging and materials storage. Spare underground PVC conduit may be temporarily stored along roadways during construction.

Substations and Other Work Areas
Alternative 5 would involve the same work at Sycamore Canyon, Peñasquitos and Chicarita Substations as the Proposed Project. There would be no work at Encina Hub or San Luis Rey Substation, and the Mission San-Luis Rey phase transposition would not occur.

Construction Workforce, Equipment and Schedule
SDG&E personnel would include construction crews, environmental monitors, construction inspectors, and SDG&E personnel. Multiple crews may work simultaneously along the overhead and underground alignments, with up to approximately 100 people working at one time. Alternative 5 would utilize equipment types similar to the Proposed Project (see Table 2.3-8 in Chapter 2: Project Description) with one exception: Alternative 5 would not require the use of heavy-lift helicopters. Alternative 5 is anticipated to take approximately 12 months to complete per SDG&E Response #3 to CPUC Data Request #8. The estimated schedule for Alternative 5 construction is provided in Table 3.5-3.

3.5.5.4 Operation and Maintenance Details

Permanent Work Areas
Permanent work areas would need to be maintained around the majority of the aboveground structures, including the four cable poles and two interset poles. The splice vault manholes would also be permanently maintained areas. Operation and maintenance would use existing work areas and roads, but some additional permanent work areas would need to be maintained to operate the overhead structures.

New poles would require a permanent maintenance pad that is typically about 50 feet by 75 feet (3,750 square feet) in size. Clearance requirements around poles would be the same as described for the Proposed Project in Section 2.4.1.1. Cleared areas would commonly overlap with permanent maintenance pads.

Table 3.5-3 Alternative 5 Proposed Construction Timetable

Task	Estimated Work Dates
Staging Yard Preparation and Mobilization	June 2016
Site Preparation and Road Construction	July 2016
Wire and Structure Removal	July 2016
Foundation Construction	July through August 2016
Structure Assembly and Erection	August 2016
Wire Stringing	September through October 2016
Cleanup and Restoration	September 2016 through May 2017 (depending on work area)
Mark Out, Excavate and Install Vaults	July through September 2016
Trench and Duct	July through November 2016
Cabling	September through April 2017
Cable Testing and Commissioning	May 2017

Source: SDG&E 2015d

Permanent retaining walls would be installed at several locations where the work pad elevation is higher than the existing surrounding terrain. Figure 2.3-2 provides a photograph of a typical retaining wall face.

Inspection and Maintenance

Typical activities include routine inspections and preventative maintenance. Inspection and maintenance activities would be conducted annually at the cable pole locations in conjunction with inspections and maintenance for the existing transmission infrastructure in SDG&E's ROW. Inspections are used to identify corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Typical maintenance would include access repairs, repairs and replacements of equipment, and insulator washing.

Inspections of the underground duct bank would be conducted annually from the 35 new vaults. SDG&E would implement traffic control to access the vaults. Inspections would be performed visually, as entry into the vaults with energized lines is not permitted. Inspections could also be performed with infrared, partial discharge monitoring, and other diagnostic instrumentation. Each vault inspection would take less than one day. Maintenance could include cable repair and cable connection repair.

3.5.5.5 Rationale for Full Analysis

This alternative would meet project objectives and is potentially feasible. It has been retained because it would offer substantial avoidance of aesthetic ,biological resource, recreation, and traffic environmental effects to residents near the Proposed Project and avoid impacts within Black Mountain Ranch, Del Mar Mesa, and Los Peñasquitos Canyon Preserves (refer to

Appendix D: Alternatives Screening Report, Section 4.3.3 for further details). This alternative has therefore been retained for full analysis in the EIR.

3.5.6 No Project Alternative

CEQA requires an evaluation of the No Project Alternative so decision makers can compare the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project. The analysis of the No Project Alternative must discuss the existing conditions at the time the Notice of Preparation was published (August 2014 in this instance), as well as "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" [CEQA Guidelines Section 15126.6 (e)(2)]. CEQA also requires that: "If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed" [CEQA Guidelines Section 15126.6 (e)(3)(B)].

The CEQA definition of the No Project Alternative depends on an understanding of "what would be reasonably expected to occur...based on current plans and consistent with available infrastructure..." [Section 15126.6(e)(2)]. The No Project Alternative considers the reasonably foreseeable actions that would be implemented by SDG&E if the Proposed Project is not approved. If the Proposed Project is not approved, there are potential NERC reliability criteria violations that SDG&E would need to mitigate to avoid fines (up to $1 million per day per violation). The No Project Alternative therefore considers the actions that SDG&E would likely take to comply with NERC reliability criteria.

3.5.6.1 No Project Alternative Description

Under the No Project Alternative, construction and operation of the Proposed Project would not occur. However, as described in Chapter 1: Introduction, the Proposed Project is needed to maintain electrical system reliability in the absence of generation at SONGS. If the Proposed Project (or one or more of the retained Alternatives described above) is not approved by the CPUC, it is reasonable to assume that different electrical system improvement(s) would be implemented to avoid current and proposed overloads and maintain system reliability consistent with NERC reliability criteria. Upgrades to these lines or comparable electrical facilities would therefore be required under a No Project Alternative to avoid reliability violations. This section describes the three upgrades that are considered part of the No Project Alternative:

- Mission—Peñasquitos 230-kV Transmission Line
- Second Poway—Pomerado 69-kV Power Line
- Series Reactor[2] at Sycamore Canyon Substation

[2] Series reactors are used to help control power flows in the transmission grid. When a series reactor is placed in a line, it increases the impedance of that line, causing less power to flow through that line.

The corridors for these upgrades are shown on Figure 3.5-5.

The Mission—Peñasquitos transmission line and Second Poway—Pomerado power line would be constructed even if the CPUC approves the Proposed Project or a project alternative. SDG&E would need to file an application with the CPUC for a Permit to Construct (50-kV to 200-kV power line) or a CPCN (greater than 200-kV transmission line), as required under GO No. 131-D prior to construction of either of these projects. The CPUC would then evaluate the environmental impacts of these projects and define mitigation for those impacts as required under CEQA.

Mission—Peñasquitos 230-kV Transmission Line

The CAISO-approved Mission—Peñasquitos transmission line consists of a new 230-kV transmission line between Mission Substation and Peñasquitos Substation. CAISO provided the following description of this line (CAISO 2015):

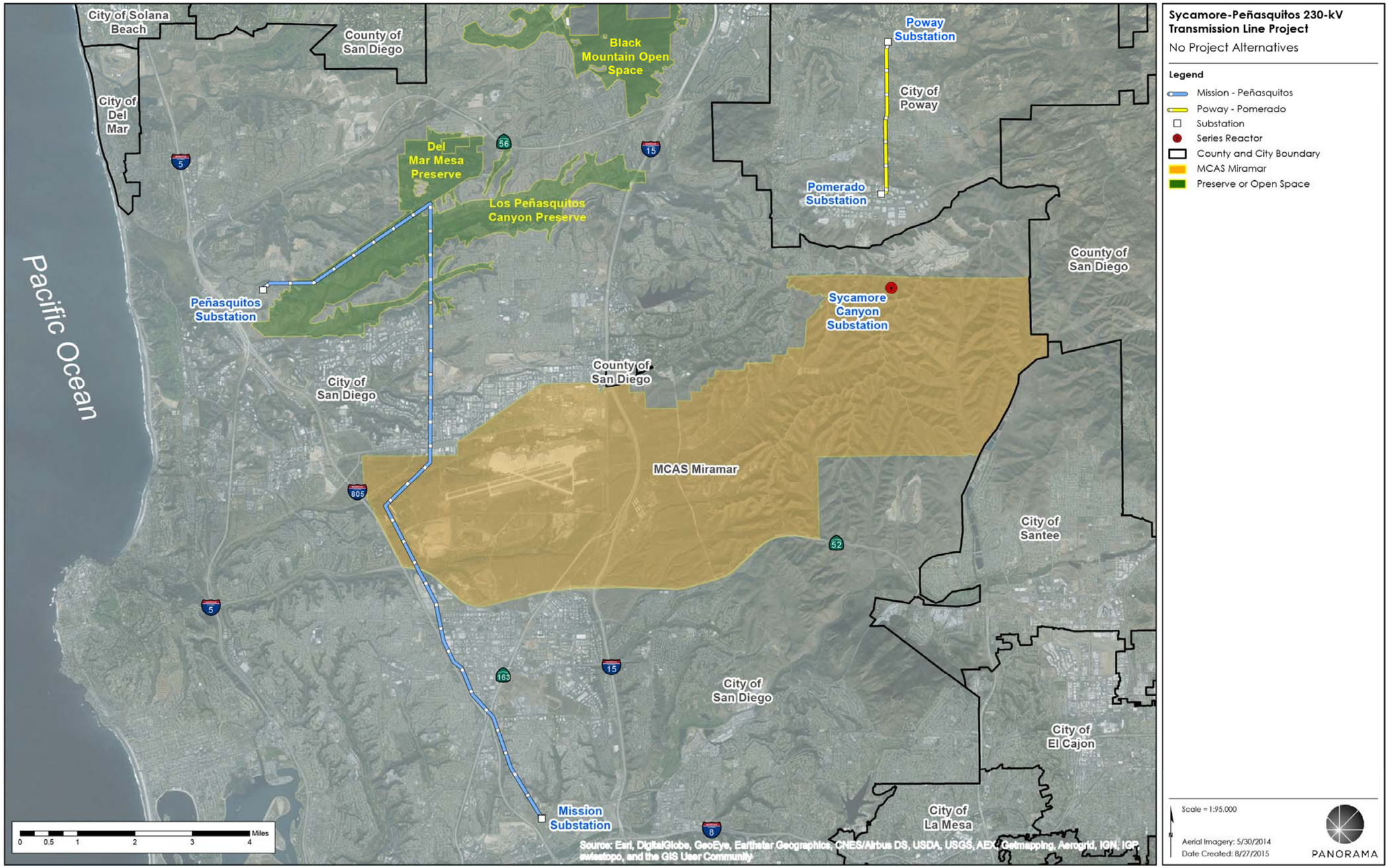
> Creating a new Mission—Peñasquitos 230-kV circuit (about 14 miles in length) by building a new 230-kV section (approximately 3.4 miles) to access Peñasquitos 230-kV substation from Peñasquitos Junction and by using the 10-mile Southern portion of TL23001 from Mission Substation to Peñasquitos Junction.

CAISO also stated that, "the opportunity to reconfigure the 10-mile southern section of TL 23001 from Mission Substation to Peñasquitos…becomes possible after the CAISO's previously approved Sycamore Canyon—Peñasquitos 230-kV project is placed in service in 2017"(CAISO 2015). Because the Proposed Project would not be built under the No Project Alternative scenario, TL 23001 would remain in service and it would not be possible to merely reconfigure the 10-mile southern portion of that line. Instead, a new line would need to be installed within the southern segment alongside TL 23001.The Mission—Peñasquitos 230-kV Transmission Line under the No Project Alternative scenario would include approximately 15 miles of new overhead transmission line from Mission Substation to Peñasquitos Substation and would consist of four segments:

- Mission Substation to Copley Drive and San Clemente Canyon Freeway (SR-52)
- Copley Drive and San Clemente Canyon Freeway to Summer Ridge Road and Camino Santa Fe
- Summer Ridge Road and Camino Santa Fe to Peñasquitos Junction
- Peñasquitos Junction to Peñasquitos Substation

By causing less power to flow through the line, the reactor shunts that power onto other lines, reducing or eliminating the potential for thermal overloads on the line the reactor is placed on.

Figure 3.5-5 No Project Alternative



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From Mission Substation to Copley Drive and SR-52, approximately 4.3 miles, installation of the new Mission—Peñasquitos 230-kV line would involve bundling the Mission—San Luis Rey 230-kV lines (TL 23001 and TL 23004) on the eastern side of the existing steel lattice towers and TSPs. The new Mission—Peñasquitos Line would then be installed on the western side of these existing structures.

From Copley Drive and SR-52 to Summer Ridge Road and Camino Sante Fe, approximately 4.2 miles, installation of the 230-kV line would require removing two sets of single-circuit wood H-frame structures and replacing the structures with steel H-frame structures to maintain a low-profile in proximity to MCAS Miramar airport. Fifty-six wood H-frames would be removed and 56 steel H-frames would be installed in this segment.

From Summer Ridge Road and Camino Santa Fe to Peñasquitos Junction, installation of the 230-kV line would involve bundling TL 23001 and TL 23004 on the eastern side of the existing steel lattice towers for a distance of about 3.2 miles. The new Mission—Peñasquitos line would then be installed on the western side of these existing structures.

From Peñasquitos Junction to Peñasquitos Substation, the new 230-kV transmission line would be installed comparable to Segment D of the Proposed Project. Installation would involve reconstructing the existing wood H-frame 69-kV line as a double circuit 69-kV line on TSPs for 3.3 miles and relocating a 69-kV line from the existing steel lattice tower to the new TSPs. The new 230-kV transmission line would then be installed on the opened position on the existing steel lattice towers.

3.5.6.2 Second Poway—Pomerado 69-kV Power Line

CAISO described the Second Poway—Pomerado 69-kV power line in the 2014 – 2015 Transmission Plan as follows: "The project scope includes building 2nd Pomerado—Poway 69-kV circuit rated at 145/174 MVA for normal and emergency conditions along with expansion of TL6913 right-of-way" (CAISO 2015). The CPUC evaluated the feasibility of adding a second 69-kV line to the existing structures in the Poway—Pomerado corridor. Adding another 69-kV line to the existing poles would require placing an insulator on the opposite side of the pole from each of the existing insulators due to the existing configuration on some of the wood poles; however, the available clearance appears too small and the bottom circuit would likely impact clearance requirements to underbuilt lines or to the ground. Some of the poles in the corridor utilize cross arms to support the 69-kV line, which would also pose a problem because the cross arms only leave one position open while the new line would require three positions. Based on this feasibility assessment, most of the poles within the Poway—Pomerado ROW corridor would not accommodate the Second Poway—Pomerado 69-kV power line.

The Second Poway—Pomerado 69-kV power line would either be constructed on new wood or steel poles adjacent to the existing Poway—Pomerado 69-kV power line or the existing Poway—Pomerado line could be reconstructed on new double-circuit poles and the existing wood poles would be removed. The installation of new poles or replacement of existing poles would be conducted along the 2.6-mile long alignment in all areas where the existing poles have not been

designed for a double-circuit configuration. CAISO's description of the Second Poway—Pomerado line suggests that this work would require expansion of the existing TL 6913 ROW.

Series Reactor at Sycamore Canyon Substation
A series reactor would be installed within the Sycamore Canyon Substation on the Sycamore—Scripps 69-kV line. The series reactor would be a 1.9 Ohm (10.7 MVars) or larger reactor and would have the same rating as the Sycamore—Scripps line of 164 MVA (ORA 2015).

3.5.6.3 Background

In order to understand the rationale behind development of the No Project Alternative, it is necessary to understand the various actions that, taken together, could provide equivalent electrical system reliability/transmission capacity to the areas served by the Proposed Project in the event that it was not approved. The following discussion describes the history of recent electrical upgrades and approved electrical upgrades in the area that were considered in defining the actions that are part of the No Project Alternative.

Sunrise Powerlink
In 2006, SDG&E proposed a 230-kV transmission line between Sycamore Canyon and Peñasquitos Substations, referred to as the Coastal Link, as a part of the Sunrise Powerlink Project (Applications A.05-12-014 and A.06-08-010). An alternative to the Coastal Link portion of the Sunrise Powerlink Project was approved by the CPUC in Sunrise Powerlink Project proceeding. The alternative included:

- Adding a 3rd 230/69-kV transformer at Sycamore Canyon Substation
- Adding a 230/138-kV transformer at Encina Substation
- Reconductoring Sycamore—Pomerado 69-kV lines 1 & 2
- Reconductoring the Poway—Pomerado 69-kV line

The Poway—Pomerado 69-kV line was later removed from the list of required upgrades based on additional load-flow analysis performed by SDG&E, while the Sycamore—Scripps 69-kV line was added to the list of upgrades. Construction of the Sunrise Powerlink Project included these alternative upgrades and went into service in 2013 (Thomas et al. 2015). These prior upgrades are therefore part of the existing electrical system and are considered when defining the No Project Alternative.

CAISO 2024 Summer Peak Reliability Base Case
The CAISO manages grid operations for the State of California and conducts planning for future electrical infrastructure needs to maintain electrical system reliability. CAISO planning efforts focus on a 10-year planning horizon and the results are documented annually in the Board-approved transmission plan. As a part of the annual transmission planning process, CAISO releases a model that includes the projected demand for energy for a 10-year planning horizon with all of the infrastructure upgrades that are approved by CAISO in previous transmission plans. This model from CAISO is referred to as the base case. The most recent base case is included in the 2014 – 2015 Transmission Plan and the model includes forecasting for the year 2024. The CAISO base case forms the foundation for evaluating needed transmission

upgrades to maintain electrical reliability. The SDG&E/CAISO 2024 Summer Peak Reliability base case (Reliability base case) and associated contingency files were used to define actions that would need to be taken by SDG&E if the Proposed Project were not approved in order to maintain system reliability. The Reliability base case is the latest or most up-to-date base case available on the CAISO's secure website; this case was used by CAISO to prepare the 2014 – 2015 Transmission Plan (ZGlobal, Inc. 2015). The analysis of the No Project Alternative was conducted by running the contingency files with the Reliability base case, which includes the Proposed Project. A No Project scenario was then constructed by removing the Proposed Project (Sycamore—Peñasquitos transmission line) and associated upgrades (i.e., Mission—San Luis Rey upgrades) from the Reliability base case. The No Project scenario was then defined by a comparative analysis of the two outcomes.

3.5.6.4 CAISO 2014-2015 Transmission Plan

The CAISO 2014 – 2015 Transmission Plan is considered in the development of the No Project Alternative scenario because the 2014 – 2015 Transmission Plan specifies transmission upgrades that are approved by the CAISO Board of Governors. CAISO-approved projects are considered reasonably foreseeable actions. These upgrades are expected to occur because they have been approved and have a projected in-service date. Upgrades included in the CAISO 2014 – 2015 Transmission Plan that would address the same reliability violations created by not building the Proposed Project are therefore considered part of the No Project Alternative scenario where CAISO approved an alternative project/upgrade to address the same reliability issues that were observed in the modeled No Project scenario.

3.5.6.5 No Project Alternative Scenario

As stated above in Section 3.5.6.1 and described further in this Section, under the No Project Alternative Description, SDG&E has identified system components that would need to be upgraded to meet NERC, WECC, and CAISO planning standards for system reliability because these lines would be overloaded in the absence of the Proposed Project. These results match the list of required upgrades defined by SDG&E and the Office of Ratepayer Advocated (ORA).

SDG&E No Project Alternative

SDG&E identified the following operational actions that would be taken under a No Project Alternative scenario:

- Generate and dispatch to the grid more expensive, less efficient non-renewable energy
- Load shedding
- Installation of additional non-renewable generation (e.g., peaker plants) near the San Diego load center

- Implementation of transmission upgrades to mitigate NERC Category B[3] overloads on the following lines (Thomas et al. 2015):
  - Doublet Tap—Friars 138-kV line
  - Poway—Pomerado 69-kV line
  - Sycamore—Scripps 69-kV line

Modeled No Project Alternative

The CPUC conducted power flow modeling to evaluate the need for the Proposed Project and define potential electrical reliability violations that would need to be addressed by SDG&E. Transmission upgrades to address these violations are included in the No Project Alternative scenario (i.e., if the Proposed Project is not approved). Power flow modeling was conducted using the 2024 Summer Peak Reliability base case.

The results of the power flow modeling for the Proposed Project (Reliability base case) and No Project scenario (Reliability base case with Proposed Project and associated upgrades removed) are presented in Tables 3.5-4 and 3.5-5, respectively (see also the ZGlobal, Inc. 2015 assessment in the Alternatives Screening Report in Appendix D of this EIR). These two modeled scenarios were compared to define electrical facilities that would be loaded above 100 percent in the No Project scenario and would require actions by SDG&E to meet planning reliability criteria specific to that scenario. Several overloads occur under both the Proposed Project and No Project scenarios; it was assumed that these overloads would need to be addressed under both scenarios. The No Project scenario resulted in overloads on the following lines, which were operating within acceptable limits in the Proposed Project scenario:

- Doublet Tap—Friars 138-kV line
- Sycamore—Scripps 69-kV line
- Poway—Pomerado 69-kV line

[3] A single contingency (Category B) scenario refers to failure of a single element. Single contingencies include: 1.) single phase-to-ground faults, 2.) phase-to-phase faults, 3.) three-phase faults, 4.) generator failures, and 5) the disconnection of any element without a fault. In each case, only one element is affected within a particular zone of protection (NERC 2007).

Table 3.5-4 Proposed Project Single Category Outages Facilities Rated Above 95%

From			To			2024 Peak Load (% of MVA Rating)
Facility #	Name	kV	Facility #	Name	kV	
22468	MIGUEL	500	22472	MIGUELMP	500	115.3
22464	MIGUEL	230	22472	MIGUELMP	500	113.4
22464	MIGUEL	230	22468	MIGUEL	500	112.6
22740	SANYSDRO	69	22616	OTAYLKTP	69	107.2
22604	OTAY	69	22616	OTAYLKTP	69	104.0
22886	SUNCREST	230	228860	SUNCREST TP1	230	100.7
22886	SUNCREST	230	228861	SUNCREST TP2	230	100.7
228320	SYCAMORE TP1	230	22832	SYCAMORE	230	100.5
228321	SYCAMORE TP2	230	22832	SYCAMORE	230	100.5
22360	IMPRLVLY	500	22930	ECO	500	99.5
22930	ECO	500	22468	MIGUEL	500	99.4

Source: ZGlobal, Inc. 2015

Table 3.5-5 No Project Single Category Outages Facilities Rated Above 95%

From			To			2024 Peak Load (% of MVA Rating)
Facility #	Name	kV	Facility #	Name	kV	
22468	MIGUEL	500	22472	MIGUELMP	500	117.7
22464	MIGUEL	230	22472	MIGUELMP	500	115.7
22464	MIGUEL	230	22468	MIGUEL	500	115.0
22192	DOUBLTTP	138	22300	FRIARS	138	111.7
22828	SYCAMORE	69	22756	SCRIPPS	69	111.6
22668	POWAY	69	22664	POMERADO	69	107.7
22740	SANYSDRO	69	22616	OTAYLKTP	69	107.3
22604	OTAY	69	22616	OTAYLKTP	69	103.5
22360	IMPRLVLY	500	22930	ECO	500	99.1
22930	ECO	500	22468	MIGUEL	500	98.9
22464	MIGUEL	230	22504	MISSION	230	98.5
22464	MIGUEL	230	22504	MISSION	230	97.9
22700	SAMPSON	69	22172	DIVISION	69	97.1
228320	SYCAMORE TP1	230	22832	SYCAMORE	230	97.0
228321	SYCAMORE TP2	230	22832	SYCAMORE	230	97.0
22886	SUNCREST	230	228860	SUNCREST TP1	230	96.9
22886	SUNCREST	230	228861	SUNCREST TP2	230	96.9
22771	BAY BLVD	230	22464	MIGUEL	230	96.6
22056	BERNARDO	69	22464	ARTESN	69	96
22056	BERNARDO	69	22009	ARTESN	69	96

Source: ZGlobal, Inc. 2015

Reasonably Foreseeable Upgrades Based on Prior Upgrades and CAISO 2014 – 2015 Transmission Plan

CAISO approved a new Mission—Peñasquitos 230-kV transmission line and a Second Pomerado—Poway 69-kV line in the 2014-2015 Transmission Plan to mitigate the overloads on the Doublet Tap—Friars 230-kV line and the Poway—Pomerado 69-kV line, respectively (CAISO 2015a). The Mission—Peñasquitos and Second Poway—Pomerado lines are therefore considered reasonably foreseeable actions that are components of the No Project Alternative because they are approved by CAISO and they would address the Category B overloads that occur in the modeled No Project scenario on the Doublet Tap—Friars and Poway—Pomerado lines.

SDG&E reconductored the Sycamore—Scripps 69-kV line in 2013 as part of the Sunrise Powerlink Project. Because the Sycamore—Scripps power line was recently upgraded, reconductoring the line would not increase capacity and would not mitigate the overload.

The ORA[4] prepared testimony as part of the proceeding on the Proposed Project and defined an alternative to the Proposed Project which included upgrades to the same systems that are included in the No Project Alternative scenario. ORA suggested installation of a series reactor at the Sycamore Canyon Substation (ORA 2015) to address overloads on the Sycamore – Scripps 69-kV line. Because reconductoring the Sycamore—Scripps line would not mitigate the overload, it is therefore reasonable to assume that SDG&E would install a series reactor at Sycamore Canyon Substation, as suggested by ORA in its revised alternative (ORA 2015).

3.6 ALTERNATIVES ELIMINATED FROM FULL EIR ANALYSIS

The discussion below summarizes the alternatives eliminated from full analysis in the Draft EIR. Appendix D, the Alternatives Screening Report, provides a more in-depth discussion of the rationale for eliminating each of these alternatives.

3.6.1 Alternative 1a: Eastern Cable Pole Option at Carmel Valley Road (SDG&E Application)

3.6.1.1 Description

Eastern Cable Pole Option 1a is a design option to Alternative 1b: Eastern Cable Pole Option 1b. Alternative 1a would use three separate steel tubular cable poles, one for each of the three phases of the new 230-kV transmission line. Two of the three poles would be approximately 55 feet tall. The third pole (the easternmost of the three poles) would be approximately 85 feet tall and would support the third phase of circuit as well as the optical ground wire. Eastern Cable Pole Option 1a would require a slightly shorter underground segment compared to the

[4] The ORA is tasked with obtaining the lowest possible service rate for customers with safe service levels.

Proposed Project (about 500 feet less), and would not require an underground splice vault within the driveway to Black Mountain Ranch Community Park.

3.6.1.2 Rationale for Elimination

Eastern Cable Pole Option 1a meets the project objectives and potentially meets all feasibility criteria. The alternative would reduce significant and unavoidable impacts to recreation, land use, aesthetics, and traffic and transportation in Black Mountain Ranch Community Park; however, the alternative would result in substantially greater aesthetic impacts at Carmel Valley Road due to the large size of the three-cable-pole structure (refer to Appendix D: Alternatives Screening Report, Section 4.4.1 for further details). This alternative was therefore modified to Alternative 1b, a single cable pole at Carmel Valley Road, as opposed to a three-pole structure. Alternative 1b, a single cable pole at Carmel Valley Road has been retained for analysis in the EIR, and therefore Alternative 1b has been eliminated from further analysis.

3.6.2 Alternative 6: Eastern Cable Pole Option 2 (SDG&E Application)

3.6.2.1 Description

Eastern Cable Pole Option 2 would locate cable pole P41 within Black Mountain Ranch Community Park at the location proposed by SDG&E in their PEA (Figure 3.6-1). As opposed to the Proposed Project location, which would located cable pole P41 to the north of the ball fields, the alternative cable pole would be located along the eastern margin of the southeast ball field and in the middle of the park. The underground transmission line would extend from the cable pole through the entrance to Black Mountain Ranch Community Park to Carmel Valley Road.

3.6.2.2 Rationale for Elimination

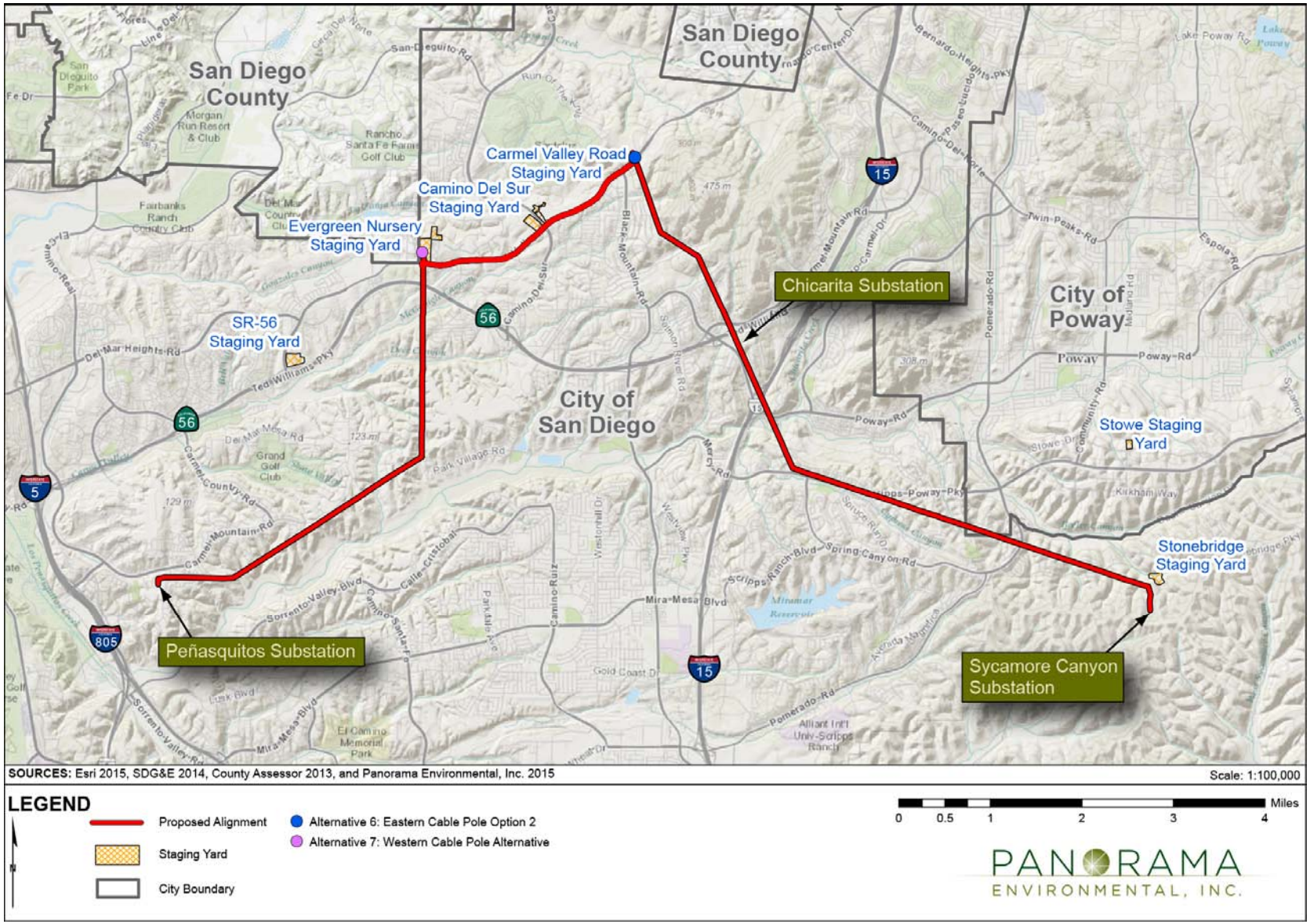
Eastern Cable Pole Option 2 was eliminated from analysis because it would result in substantially greater impacts to aesthetics and recreational resources. While the alternative would reduce impacts to the MSCP Preserve north of Black Mountain Ranch Community Park, the substantial increase in the severity of recreation and aesthetic impacts at the park would outweigh the benefits of avoiding impacts to open space areas (refer to Appendix D: Alternatives Screening Report, Section 4.4.2 for further details). In addition, Alternatives 1b, 2a, and 2b avoid impacts to the open space areas north of the park without increasing the impacts to recreational uses at Black Mountain Ranch Community Park that would result from implementation of this alternative.

3.6.3 Alternative 7: Western Cable Pole Alternative (SDG&E Application)

3.6.3.1 Description

The Western Cable Pole Alternative is an alternate option for cable pole P42—the cable pole that would be used to transfer the transmission line from overhead to underground at the western end of Segment B. Instead of using a double-circuit monopole structure about 100 feet south of Carmel Valley Road within existing SDG&E ROW as proposed, the Western Cable Pole Alternative would use a double-circuit monopole structure about 200 feet north of Carmel Valley Road within the Evergreen Nursery property (Figure 3.6-1).

Figure 3.6-1 Eliminated Cable Pole Relocation Alternatives (Alternatives 6 and 7)



The Proposed Project would replace existing structure R48, which is a double-circuit steel lattice tower approximately 127 feet in height that currently supports TL 23001 and TL 23004. The Western Cable Pole Alternative would not directly replace any existing structures. The Proposed Project's cable pole would be approximately 165 feet tall and would also support TL 23004. The Western Cable Pole Alternative option would use a 145-foot-tall tubular steel double-circuit monopole structure.

3.6.3.2 Rationale for Elimination

The alternative was eliminated from full analysis in the EIR because it would not reduce any significant environmental impacts of the Proposed Project.

3.6.4 Alternative 8: Segment A Pole Relocations (CPUC)

3.6.4.1 Description

The Segment A Pole Relocation Alternative involves relocation of poles P5, P17 through P21, P24, and P34 within Segment A (Figure 3.6-2):

- P5 would be shifted from its existing location in the Proposed Project, towards the existing H-frame location and in-line with the Proposed Project's alignment.
- Poles P17 through P21 would be shifted from the existing locations in the Proposed Project, 30 feet away from residences, and out-of-line of the Proposed Project's transmission alignment, but within the SDG&E ROW.
- Pole P24 would be shifted southeast, in-line with the Proposed Project's alignment; P24 would be located in a less sloped area and would be 20 feet higher than P24 for the Proposed Project.
- P34 would be shifted in-line with the Proposed Project's alignment. P34 would be located adjacent to an existing monopole.

3.6.4.2 Rationale for Elimination

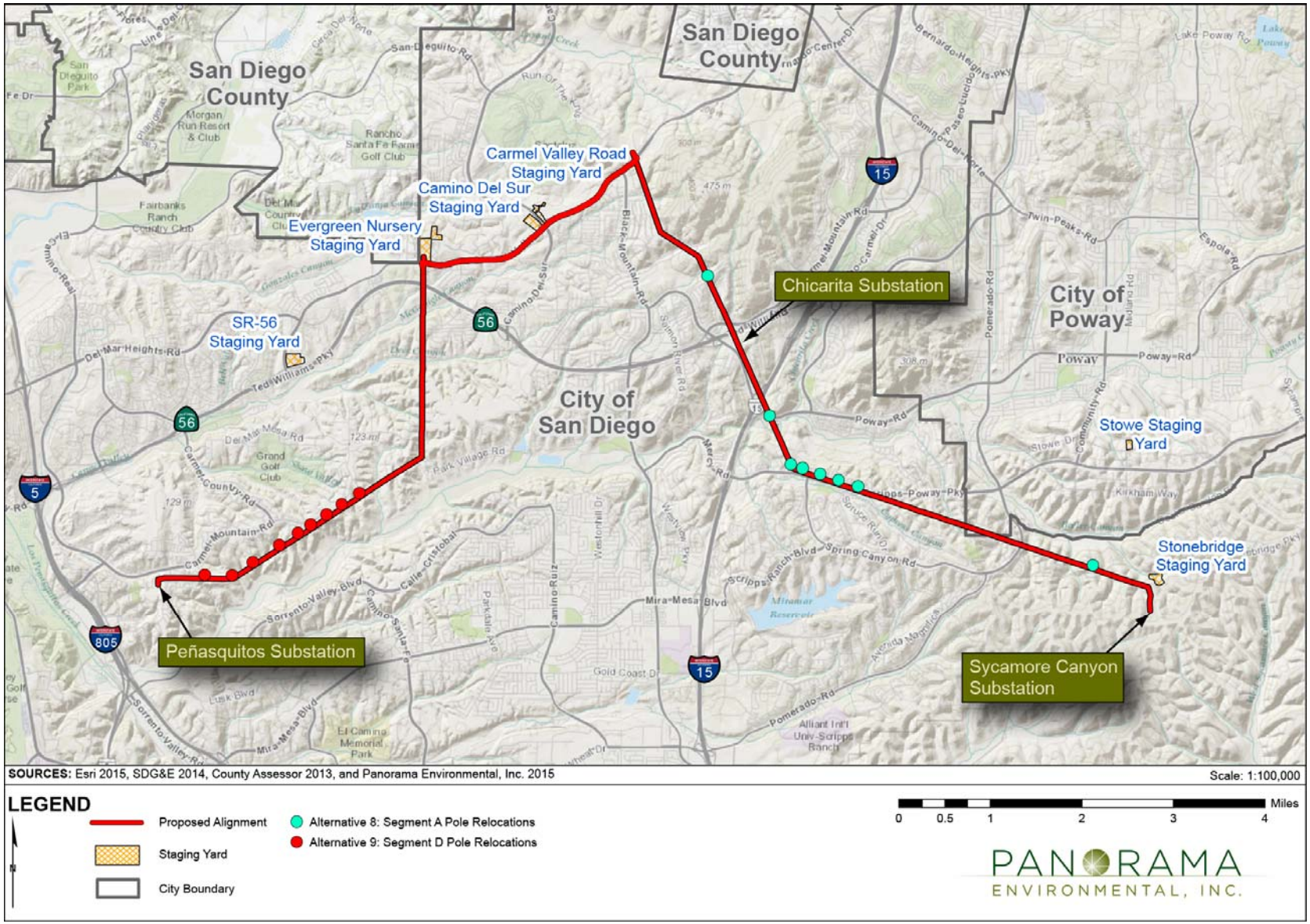
The Segment A Pole Relocation Alternative is rejected from further analysis because it would not measurably reduce any significant impact of the Proposed Project and could generate additional environmental impacts (refer to Appendix D: Alternatives Screening Report, Section 4.5.1 for further details). This alternative has therefore been eliminated from full analysis in the EIR.

3.6.5 Alternative 9: Segment D Pole Relocations South of Existing Line (Public Scoping; CPUC)

3.6.5.1 Description

Under this alternative, poles P48 through P57 would be relocated 30 to 40 feet closer to Peñasquitos Canyon and away from residences (Refer to Figure 3.6-2). The relocated poles would be located within the existing SDG&E ROW.

Figure 3.6-2 Eliminated Pole Relocation Alternatives (Alternatives 8 and 9)



3.6.5.2 Rationale for Elimination

The Segment D Pole Relocation South of Existing Line Alternative was rejected from further analysis. While this alternative could marginally reduce aesthetics and noise impacts it would increase the severity of biological resource, geology, land use, and air quality impacts (refer to Appendix D: Alternatives Screening Report, Section 4.5.2 for further details).

3.6.6 Alternative 10: Northern Alignment Number 1 (SDG&E Application/PEA)

3.6.6.1 Description

Alternative 10 is 27.66 miles long, extends further north than the Proposed Project alignment, and would essentially replace the Proposed Project Segment B (undergrounding in Carmel Valley Road) with an alternate overhead alignment located north of Carmel Valley Road (Figure 3.6-3).

Alternative 10 would use existing SDG&E ROW from the Sycamore Canyon Substation north for approximately 15.3 miles (including 8.3 miles of Segment A of the Proposed Project). The route then travels approximately 0.3 mile west. Northern Alignment Alternative Number 1 would continue south approximately 8.9 miles utilizing existing structures (including 2.1 miles of Segment C of the Proposed Project) until reaching the Peñasquitos Junction. The alternative would use Segment D as proposed.

Alternative 10 would be approximately 10.96 miles longer than the proposed route. This route would be installed overhead, and eliminates the 2.84-mile-long underground Segment B. The overall length of the transmission line would increase by approximately 66 percent and the overhead length would double.

3.6.6.2 Rationale for Elimination

Alternative 10 was rejected from further analysis. While Northern Alignment Number 1 would reduce significant traffic impacts from construction of the underground route, it would have longer and/or more intensive construction schedule resulting in greater and more significant environmental impacts to aesthetics, biological resources, cultural resources, noise, air quality, greenhouse gases, and recreation compared to the Proposed Project (Refer to Appendix D: Alternatives Screening Report, Section 4.6.1 for further details). This alternative could result in more severe operational impacts because the additional miles of overhead transmission line would have greater aesthetic impacts than the Proposed Project.

3.6.7 Alternative 11: Northern Alignment Number 2 (SDG&E Application/PEA)

3.6.7.1 Description

Alternative 11 is 25.09 miles long, extends further north than the Proposed Project alignment, and would essentially replace the Proposed Project Segment B (undergrounding in Carmel Valley Road) with an alternative overhead alignment located north of Carmel Valley Road (Figure 3.6-3). Northern Alignment Alternative Number 2 would utilize much of the alignment included as part of the Proposed Project.

Alternative 11 would use existing SDG&E ROW from the Sycamore Canyon Substation north for approximately 14 miles (including 8.3 miles of Segment A of the Proposed Project). The route then travels approximately 0.4 mile west. Alternative 11 would then continue south approximately 7.5 miles utilizing existing structures (including 2.1 miles of Segment C of the Proposed Project) until reaching the Peñasquitos Junction. Alternative 11 would utilize Segment D as included within the Proposed Project.

Alternative 11 would be approximately 8.39 miles longer than the proposed route. This route would be installed aboveground, and eliminates the 2.84-mile-long underground Segment B. The overall length of the transmission line would increase by approximately 50 percent and the length installed aboveground would increase by 81 percent.

3.6.7.2 Rationale for Elimination

Alternative 11 was rejected from further analysis. While Alternative 11 would reduce significant traffic impacts from construction of the underground route, it would have longer and/or more intensive construction schedules resulting in greater and potentially more significant environmental impacts compared to the Proposed Project (refer to Appendix D: Alternatives Screening Report, Section 4.6.2 for further details). This alternative could result in more severe operational impacts because the additional miles of overhead transmission line would have greater aesthetic impacts than the Proposed Project.

3.6.8 Alternative 12: Northern Alignment Number 3 (SDG&E Application/PEA)

3.6.8.1 Description

Alternative 12 is 23.62 miles long, extends further north than the Proposed Project alignment, and would essentially replace the Proposed Project Segment B (undergrounding in Carmel Valley Road) with an alternative alignment (overhead and some limited underground) located north of Carmel Valley Road (Figure 3.6-3). Alternative 12 would utilize much of the alignment included as part of the Proposed Project.

Alternative 12 would use existing SDG&E ROW from the Sycamore Canyon Substation north for approximately 13 miles (including 8.3 miles of Segment A of the Proposed Project). The route then travels approximately 0.9 mile west within a franchise position in Del Dios Highway until it connects with existing SDG&E ROW. This segment of Northern Alignment Alternative Number 3 would include new construction of underground single-circuit 230-kV transmission line. Northern Alignment Alternative Number 3 would then continue south approximately 6.5 miles utilizing existing structures (including 2.1 miles of Segment C of the Proposed Project) until reaching the Peñasquitos Junction. Northern Alignment Alternative Number 3 would utilize Segment D as included within the Proposed Project.

Alternative 12 would be approximately 6.92 miles longer than the proposed route. This route would reduce the length of transmission line installed underground by approximately 1.98 miles, and increase the length installed aboveground by 8.9 miles. The overall length of the

Figure 3.6-3 Eliminated Routing Alternatives (North)

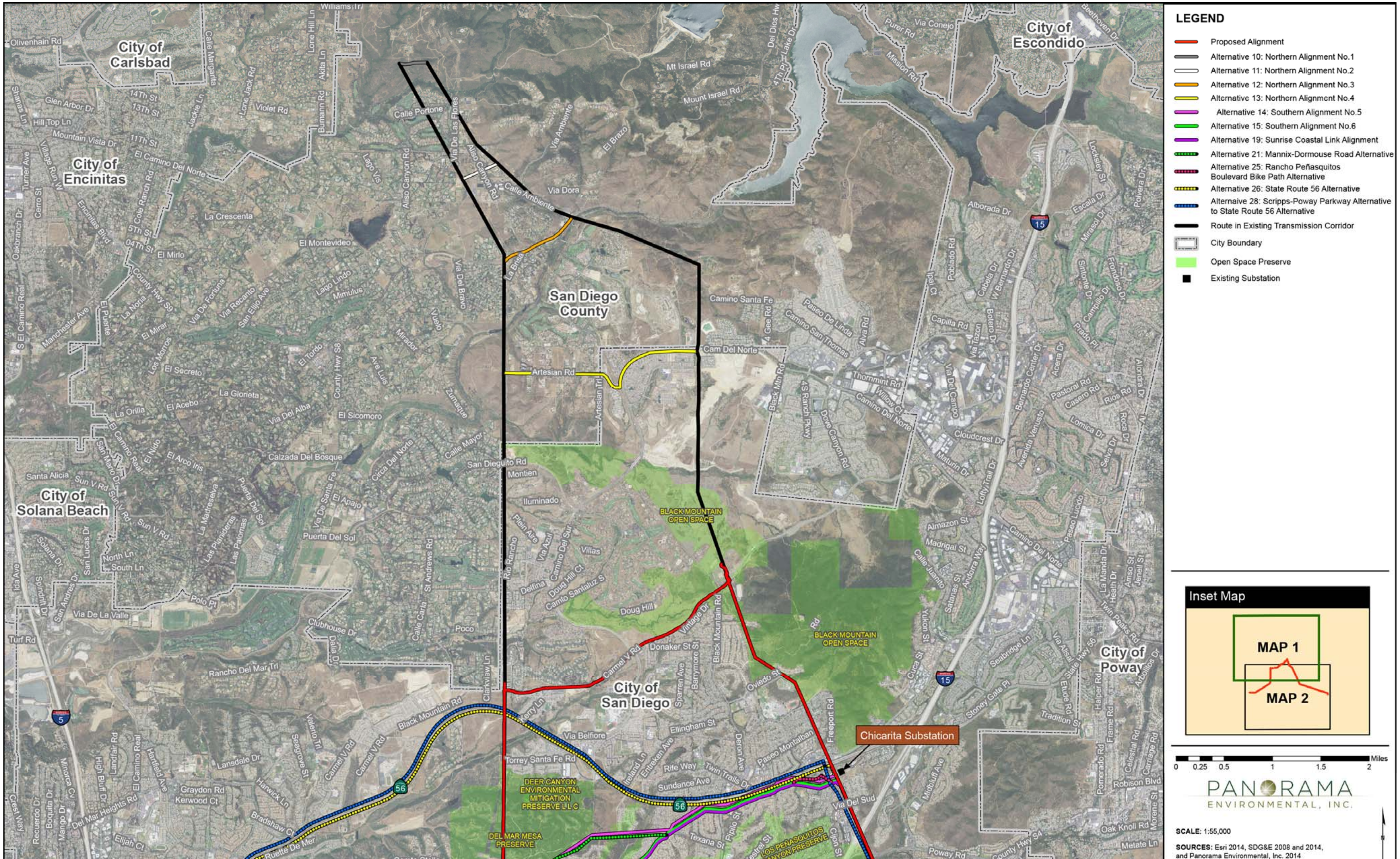
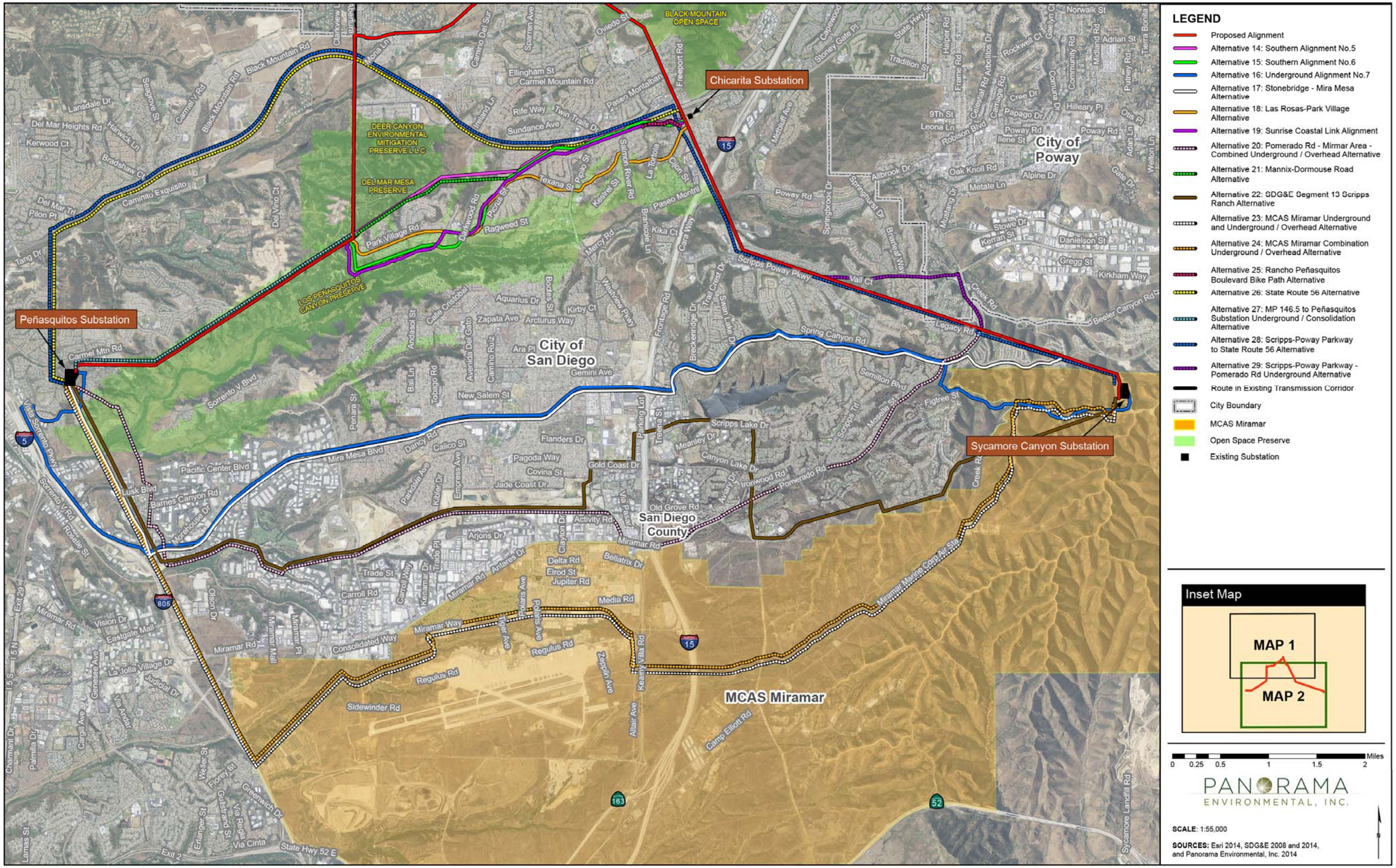


Figure 3.6-4 Eliminated Routing Alternatives (South)



transmission line would increase by approximately 41 percent, underground line length would be reduced by approximately 70 percent, and aboveground length would increase by 64 percent compared to the Proposed Project.

3.6.8.2 Rationale for Elimination

Alternative 12 was rejected from further analysis. Alternative 12 would reduce significant traffic impacts from construction of the underground route, and have longer and/or more intensive construction schedules resulting in greater and potentially more significant environmental impacts compared to the Proposed Project (refer to Appendix D: Alternatives Screening Report, Section 4.6.3 for further details). This alternative could result in more severe operational impacts because the additional miles of overhead transmission line would have greater aesthetic impacts than the Proposed Project.

3.6.9 Alternative 13: Northern Alignment Number 4 (SDG&E Application/PEA)

3.6.9.1 Description

Alternative 13 is 21.6 miles long, extends further north than the proposed project alignment, and would essentially replace the Proposed Project Segment B (undergrounding in Carmel Valley Road) with an alternative alignment (overhead and some limited underground) located north of Carmel Valley Road (Figure 3.6-3). Alternative 13 would utilize much of the alignment included as part of the Proposed Project.

Alternative 13 would use existing SDG&E ROW from the Sycamore Canyon Substation north for approximately 10.7 miles (including 8.3 miles of Segment A of the Proposed Project). The route then travels approximately 2.26 miles west within a franchise position in Del Dios Highway until connecting with existing SDG&E ROW. This segment of Alternative 13 would include new construction of underground single-circuit 230-kV transmission line. Alternative 13 would then continue south approximately 5.4 miles utilizing existing structures (including 2.1 miles of Segment C of the Proposed Project) until reaching the Peñasquitos Junction. Alternative 13 would utilize Segment D as included within the proposed route.

Alternative 13 would be approximately 4.9 miles longer than the proposed route. This route would also reduce the length of transmission line installed underground by approximately 0.58 mile, and increase the length installed overhead by 5.48 miles. The overall length of the transmission line would increase by approximately 29 percent, underground line length would be reduced by approximately 20 percent, and overhead length would increase by 40 percent compared to the Proposed Project.

3.6.9.2 Rationale for Elimination

Alternative 13 was rejected from further analysis. While Alternative 13 would reduce significant traffic impacts from construction of the underground route, it would have longer and/or more intensive construction schedules resulting in greater and potentially more significant environmental impacts compared to the Proposed Project (refer to Appendix D: Alternatives Screening Report, Section 4.6.4 for further details). This alternative could result in more severe

operational impacts because the additional miles of overhead transmission line would have greater aesthetic impacts than the Proposed Project.

3.6.10 Alternative 14: Southern Alignment Number 5 (SDG&E Application/PEA)

3.6.10.1 Description

Alternative 14 is 12.8 miles long, would not extend further north than the existing Chicarita Substation located south of SR-56, and would essentially replace the Proposed Project Segment B (undergrounding in Carmel Valley Road) and Segment C with an alternative overhead alignment located south of SR-56 (Figure 3.6-4). Southern Alignment Number 5 would utilize approximately half of the alignment included as part of the Proposed Project, including about two thirds of Segment A and all of Segment D.

Alternative 14 would follow Segment A from the Sycamore Canyon Substation north for approximately 5.7 miles to the Chicarita Substation using existing SDG&E ROW. The route would then travel west-southwest for about 3.83 miles along existing unoccupied SDG&E ROW between the Chicarita Substation and the Peñasquitos Junction. A portion of this existing ROW is within the Del Mar Mesa Preserve. New overhead 230-kV structures would be installed along with new single-circuit 230-kV conductor in an area currently unoccupied by any electrical infrastructure, and new access roads and work pads would be required. Alternative 14 would not require any new or amended ROW. The alternative would utilize Segment D as included within the Proposed Project.

Alternative 14 would be installed overhead and would be approximately 3.9 miles shorter than the Proposed Project route, eliminating the 2.84-mile-long underground Segment B and decreasing the length installed overhead by about 1.06 miles compared to the Proposed Project. The overall length of the transmission line would decrease by approximately 23 percent and aboveground length would increase by 8 percent compared to the Proposed Project.

3.6.10.2 Rationale for Elimination

Alternative 14 was rejected because it would likely result in longer, uncertain permitting and mitigation requirements; therefore, the alternative may not meet regulatory feasibility. The alternative would also substantially increase the severity of biological and aesthetic/visual resources impacts of the Proposed Project (refer to Appendix D: Alternatives Screening Report, Section 4.6.5 for further details).

3.6.11 Alternative 15: Southern Alignment Number 6 (SDG&E Application/PEA)

3.6.11.1 Description

Alternative 15 is 13.43 miles long, would not extend further north than the existing Chicarita Substation located south of SR-56, and would essentially replace the Proposed Project Segment B (undergrounding in Carmel Valley Road) and Segment C with an alternative underground alignment located south of SR-56 (Figure 3.6-4). Alternative 15 would utilize approximately half

of the alignment included as part of the Proposed Project, including about two-thirds of Segment A and all of Segment D.

Alternative 15 would follow Segment A from the Sycamore Canyon Substation north for 5.7 miles to the Chicarita Substation using existing SDG&E ROW. The transmission line would then transition underground and travel west-southwest for about 4.46 miles using a combination of existing unoccupied SDG&E ROW, franchise positions within existing streets, and new ROW between the Chicarita Substation and the Peñasquitos Junction. From approximately 500 feet southwest of the existing Chicarita Substation, Alternative 15 would travel west within existing, unoccupied SDG&E ROW for approximately 1.78 miles. The route would then be installed within Park Village Road (franchise position) for approximately 0.92 mile. Finally, the route would require new ROW for approximately 1.76 miles through the Los Peñasquitos Canyon Preserve until reaching the Peñasquitos Junction. The alternative would utilize Segment D as included within the Proposed Project.

Alternative 15 would be approximately 3.27 miles shorter than the Proposed Project route. The length of transmission line installed underground would increase by approximately 1.62 miles, and the length installed aboveground would decreases by about 4.3 miles. The overall length of the transmission line would decrease by approximately 20 percent, the length of underground transmission line would increase by 57 percent, and aboveground length would decrease by 35 percent compared to the Proposed Project.

3.6.11.2 Rationale for Elimination

Alternative 15 was rejected because it does not meet regulatory feasibility criteria. The alternative would also increase the severity of significant impacts to biological resources by resulting in substantially greater impacts from undergrounding within a City MSCP Preserve and causing direct impacts to sensitive vernal pool habitats located within the preserve (refer to Appendix D: Alternatives Screening Report, Section 4.6.6 for further details).

3.6.12 Alternative 16: Underground Alignment Number 7 (SDG&E Application/PEA)

3.6.12.1 Description

Alternative 16 would connect the Sycamore Canyon and Peñasquitos Substations with a new, single-circuit underground 230-kV transmission line utilizing public roadways to the greatest extent possible. The underground alternative would include approximately 12.74 miles of new underground 230-kV transmission line within public roadways (i.e., franchise position) and approximately 2.53 miles of new underground 230-kV transmission line located within the boundaries of MCAS Miramar (Figure 3.6-4). The total length of Alternative 16 would be approximately 15.27 miles. The alternative would not use any of the Proposed Project segments. The underground alternative alignment would be generally west from the Sycamore Canyon Substation, and then generally north to the Peñasquitos Substation.

3.6.12.2 Rationale for Elimination

Alternative 16 was rejected because it does not meet the criteria for regulatory feasibility due to the increased regulatory approval requirements on MCAS Miramar and associated schedule uncertainty. The alternative would reduce the significant aesthetic and biological resource impacts of the Proposed Project; however, it would result in increased air quality, cultural resource, traffic, hazards, and utility impacts (refer to Appendix D: Alternatives Screening Report, Section 4.6.7 for further details).

3.6.13 Alternative 17: Stonebridge—Mira Mesa Alignment (CPUC)

3.6.13.1 Description

The Stonebridge—Mira Mesa Alignment would connect the Sycamore Canyon and Peñasquitos Substations with a new, single-circuit underground 230-kV transmission line utilizing public roadways. The Stonebridge—Mira Mesa Alignment follows Segment A from Sycamore Canyon Substation for a short distance to Stonebridge Parkway, near Stonecroft Terrace and Greenstone Court, and then transitions underground. At this point the alternative would follow Stonebridge Parkway westerly to Pomerado Road, then west within Pomerado Road, which becomes Spring Canyon Road. Where Spring Canyon Road turns north, the route would follow Scripps Ranch Boulevard to the west and south to its intersection with Mira Mesa Boulevard. The alternative route then continues west in Mira Mesa Boulevard until just before I-805. At Vista Sorrento Parkway, the line would transition to overhead and follow an existing SDG&E ROW north to Peñasquitos Substation (Figure 3.6-4). The underground portion of the transmission line would be a total of 10.7 miles long and would include the construction of 33 vaults with manholes.

3.6.13.2 Rationale for Elimination

The Stonebridge—Mira Mesa Alignment was eliminated because it would create greater significant impacts to traffic including increased safety hazards than the Proposed Project. Alternative 5 also provides the same environmental advantages as this alternative, but involves construction on industrial roads west of I-15 where there are fewer sensitive receptors and where the roads are less heavily traveled than Mira Mesa; therefore this alternative is not analyzed further in the EIR (refer to Appendix D: Alternatives Screening Report, Section 4.6.8 for further details).

3.6.14 Alternative 18: Los Rosas—Park Village Alignment (CPUC)

3.6.14.1 Description

The Los Rosas—Park Village Alignment follows SDG&E's proposed Segment A route from Sycamore Canyon Substation until the area of Chicarita Substation and then transitions underground. In lieu of using the existing SDG&E ROW at this point, the line would follow Calle De Las Rosas generally west to Salmon River Road, then north to Adolphia Street and continues west. Adolphia Street becomes Park Village Road and the route continues within the road until it ends near the Peñasquitos Junction, where the line would transition back to overhead and follow the existing SDG&E ROW similar to the proposed route (Figure 3.6-4).

3.6.14.2 Rationale for Elimination

The Los Rosas—Park Village Alignment Alternative would reduce significant aesthetic and biological resource impacts of the Proposed Project by avoiding construction of northern Segment A and all of Segments B and C. The alternative was eliminated from further analysis in the EIR because the alternative would result in substantially greater impacts on traffic, land use, and greater potential hazards than the Proposed Project due to increased length of underground construction and construction in narrow roads within residential communities. Alternative 3 provides comparable reduction in environmental impacts and was selected for further analysis in the EIR instead of the Los Rosas—Park Village Alignment Alternative because Alternative 3 would be constructed primarily in arterial roadways (Mercy Road and Black Mountain Parkway) and further from sensitive receptors, whereas the Los Rosas—Park Village Alignment would be located in residential roadways (refer to Appendix D: Alternatives Screening Report, Section 4.6.9 for further details).

3.6.15 Alternative 19: Sunrise Coastal Link Alignment (Sunrise Powerlink EIR/EIS)

3.6.15.1 Description

The Sunrise Coastal Link Alignment would follow proposed Segment A for approximately 6 miles overhead from Sycamore Canyon Substation to the area of Chicarita Substation just before SR-56. At this point, the 230-kV line would be placed underground in an existing SDG&E ROW for approximately 1.6 miles, heading west to an intersection with Park Village Road, then continue southwest underground in Park Village Road approximately 1 mile to the Los Peñasquitos Canyon Preserve. The underground line continues along a trail within the preserve for about 1.5 miles until it encounters the existing SDG&E North-South transmission corridor near Peñasquitos Junction (Figure 3.6-4). At this point, the line transitions to overhead and follows Segment D.

3.6.15.2 Rationale for Elimination

The alternative would reduce significant aesthetic and biological resource impacts by avoiding construction of northern Segment A and all of Segments B and C of the Proposed Project. The alternative was eliminated due to greater air quality and greenhouse gas emissions, land use, public health and safety, and noise impacts relative to the Proposed Project. Alternative 3 provides comparable reduction in environmental impacts and was selected for further analysis in the EIR instead of the Sunrise Coastal Link alignment because Alternative 3 would have less temporary impacts to traffic and long-term impacts to land use and public health and safety than the Sunrise Coast Link alignment (refer to Appendix D: Alternatives Screening Report, Section 4.6.10 for further details).

3.6.16 Alternative 20: Pomerado Road to Miramar Area North-Combination Underground/Overhead Alternative (Sunrise Powerlink EIR/EIS)

3.6.16.1 Description

The Pomerado Road to Miramar Area North-Combination Underground/Overhead Alternative would run overhead between Sycamore Canyon Substation and Stonebridge Trail within

existing ROW. Just west of Stonebridge Trail, the transmission line would transition to underground and would follow Stonebridge Drive west to Pomerado Road. At Pomerado Road the route would turn south under Pomerado Road. The line would be attached to the Pomerado/Miramar Road bridge over I-15 or on an overhead structure crossing I-15. The route would continue westward under Miramar Road, and turn north on Carroll Road. The transmission line would follow Carroll Road/Carroll Canyon Road to SDG&E ROW at approximately I-805. A new cable pole would be constructed and the line would transition to overhead within SDG&E ROW (Figure 3.6-4). The transmission line would be located on existing 230-kV TSPs within SDG&E ROW heading north into the Peñasquitos Substation.

3.6.16.2 Rationale for Elimination

This alternative would reduce significant aesthetic, biological resources, noise, and recreation impacts of the Proposed Project. This alternative would meet project objectives and potentially meets all feasibility criteria. Alternative 5 provides comparable reduction in environmental impacts by following a similar alignment to this alternative, but follows industrial roads in lieu of Miramar Road west of I-15. Alternative 5 would therefore have reduced impacts on traffic and hazards than construction of this alternative in Miramar Road. This alternative is therefore eliminated from further analysis in the EIR and Alternative 5 was carried forward for analysis in the EIR (refer to Appendix D: Alternatives Screening Report, Section 4.6.11 for further details).

3.6.17 Alternative 21: Mannix—Dormouse Road Alternative (Sunrise Powerlink EIR/EIS)

3.6.17.1 Description

The Mannix—Dormouse Road Alternative follows proposed Segment A to Chicarita Substation, then travels west along a path north of and adjacent to single family residences along Mannix and Dormouse Roads in Rancho Peñasquitos (Figure 3.6-4). This alternative alignment includes an overhead 230-kV transmission line on double-circuit TSPs. The alternative would travel west through Los Peñasquitos Canyon Preserve to Peñasquitos Junction.

3.6.17.2 Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. Regulatory feasibility would be based on consultation with USFWS and CDFW due to impacts to designated critical habitat and special-status species. This route has been eliminated from full consideration in this EIR because of potentially significant visual impacts, impacts to vernal pools, critical habitat, and proximity to adjacent residences, which would be greater under this alternative than the Proposed Project. Alternatives 3 would reduce the same impacts as this alternative and would not result in the same impacts to aesthetics, vernal pools, and critical habitat as the Mannix—Dormouse Road Alternative; therefore, this alternative was eliminated from further consideration (refer to Appendix D: Alternatives Screening Report, Section 4.6.12 for further details).

3.6.18 Alternative 22: SDG&E Segment 13 Scripps Ranch Alternative (Sunrise Powerlink EIR/EIS)

3.6.18.1 Description

The SDG&E Segment 13 Scripps Ranch Alternative would run parallel to existing SDG&E ROW from Sycamore Canyon Substation to the Scripps Substation, and then would terminate at Peñasquitos Substation (Figure 3.6-4). The portion of the line from Scripps Substation to Peñasquitos Substation would follow Pomerado Road through a narrow and heavily traveled roadway through Scripps Ranch where no existing SDG&E ROW exists. This alternative would follow a road with schools, residences and commercial land uses. Portions of this alternative would require new ROW and MCAS Miramar lands would be affected.

3.6.18.2 Rationale for Elimination

The portion of this alternative on MCAS Miramar would not meet regulatory or legal feasibility criteria due to statements by MCAS Miramar that alternatives requiring new ROW on the base could not be permitted in order to preserve its National Defense Mission capabilities without degradation (CPUC and BLM 2008) (refer to Appendix D: Alternatives Screening Report, Section 4.6.13 for further details).

3.6.19 Alternative 23: MCAS Miramar-Underground/Overhead Alternative (Sunrise Powerlink EIR/EIS)

3.6.19.1 Description

Under the MCAS Miramar-Underground/Overhead Alternative, the transmission line would be located underground within existing roads on MCAS Miramar from the Sycamore Canyon Substation to I-805, staying within the base the entire distance. The line would exit the Sycamore Canyon Substation from the south following the path of a paved road named Spring Canyon. The line would continue underground in a southwest direction following Creek Road/Green Farms Road toward the direction of I-15. The line would cross I-15 south of the Miramar Way overpass on an existing bridge structure. The line would continue underground along the northern side of the base south of Miramar Road. Winding its way west, the line would remain north of the MCAS Miramar runways and continue all the way to I-805 where the line would transition to overhead and join the existing 230-kV ROW east of I-805 heading into the Peñasquitos Substation (Figure 3.6-4).

This line retains some design flexibility and could be underground or overhead as needed to avoid impacts to important resources or otherwise sensitive areas as identified by MCAS Miramar.

3.6.19.2 Rationale for Elimination

The portion of this alternative on MCAS Miramar would not be feasible to permit due to statements by MCAS Miramar that alternatives on the base requiring new ROW could not be permitted in order to preserve its National Defense Mission capabilities (CPUC and BLM 2008) (refer to Appendix D: Alternatives Screening Report, Section 4.6.14 for further details). This alternative therefore does not meet regulatory or legal feasibility criteria and has been eliminated from full consideration in the EIR.

3.6.20 Alternative 24: MCAS Miramar-Combination Underground/Overhead Alternative (Sunrise Powerlink EIR/EIS)

3.6.20.1 Description

Under the MCAS Miramar-Combination Underground/Overhead Alternative, the line would exit Sycamore Canyon Substation to the south and would be located overhead following the alignment of existing roads on MCAS Miramar to Pomerado Road, where the line would transition underground. Under this alternative, the rest of the alignment would then follow either Pomerado Road to Miramar Area North–Combination Underground/Overhead Alternative or MCAS Miramar–All Underground and Underground/Overhead Alternative approaching the Peñasquitos Substation from the south along the existing 230-kV ROW east of I-805 (Figure 3.6-4).

This line retains some design flexibility and could be underground or overhead as needed to avoid impacts to important resources or otherwise sensitive areas as identified by MCAS Miramar.

3.6.20.2 Rationale for Elimination

This alternative would meet project objectives and would be potentially technically feasible similar to the Proposed Project. The portion of this alternative on MCAS Miramar would not be feasible to permit due to statement by MCAS Miramar that alternatives requiring new ROW on the base could not be permitted in order to preserve its National Defense Mission capabilities without degradation (CPUC and BLM 2008) (refer to Appendix D: Alternatives Screening Report, Section 4.6.15 for further details). Therefore, this alternative has been eliminated from full consideration in the EIR.

3.6.21 Alternative 25: Rancho Peñasquitos Boulevard Bike Path Alternative

3.6.21.1 Description

The Rancho Peñasquitos Boulevard Bike Path Alternative follows Segment A to Chicarita Substation. From Chicarita Substation, the route would head north for approximately 200 feet and then would transition underground near the entrance to the bike path at Rancho Peñasquitos Boulevard. This alternative would run along the south side of SR-56 until the elevation of the bike path meets up with SDG&E's ROW, approximately 0.25 mile west of Rancho Peñasquitos Boulevard. The transmission line would remain underground within SDG&E ROW along Los Peñasquitos Canyon continuing westward to Peñasquitos Junction. From Peñasquitos Junction, the alternative would follow the overhead alignment for Segment D (Figure 3.6-4).

3.6.21.2 Rationale for Elimination

The portion of this alternative within the SR-56 ROW would not be feasible to permit due to Caltrans regulations. Therefore, this alternative has been eliminated from full consideration in the EIR, because it does not meet the regulatory feasibility criteria (refer to Appendix D: Alternatives Screening Report, Section 4.6.16 for further details). Additionally, Alternative 3 would provide similar reduction of environmental impacts to this alternative and Alternative 3 is carried forward for analysis in the EIR.

3.6.22 Alternative 26: State Route 56 Alternative (Sunrise Powerlink EIR/EIS)

3.6.22.1 Description

The State Route 56 Alternative follows Segment A to the Chicarita Substation. From there, the alternative would transition underground near Rancho Peñasquitos Boulevard at the SR-56 overpass. This alternative would locate the transmission line under the median of SR-56 until it would reach the existing overhead lines north of the western terminus of Park Village Drive. The line would continue south overhead along this existing transmission line ROW until it rejoins Segment D (Figure 3.6-4).

3.6.22.2 Rationale for Elimination

This alternative does not meet regulatory feasibility criteria due to conflicts with Caltrans regulations for limited access roadways (refer to Appendix D: Alternatives Screening Report, Section 4.6.17 for further details). Therefore, this alternative has been eliminated from full evaluation in this EIR.

3.6.23 Alternative 27: Milepost 146.5 to Peñasquitos Substation Underground/ Consolidation Alternative (Sunrise Powerlink EIR/EIS)

3.6.23.1 Description

Under the Milepost 146.5 to Peñasquitos Substation Underground/Consolidation Alternative, the line would remain underground from Chicarita Substation all the way to the Peñasquitos Substation (Figure 3.6-4). In addition, this alternative would include undergrounding and consolidation of all existing electrical 69-kV and 138-kV transmission lines along the segment from Peñasquitos Junction to the Peñasquitos Substation, including H-frame structures and lattice towers.

3.6.23.2 Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically feasible; however, the alternative would be legally infeasible because it would require burial of existing transmission lines not affected by the project. This undergrounding/consolidation of existing electrical transmission lines, especially on steep slopes within the ROW, could also cause additional impacts to biological and cultural resources, soil, and water quality within Los Peñasquitos Canyon Preserve (refer to Appendix D: Alternatives Screening Report, Section 4.6.18 for further details). Therefore, this alternative has been eliminated from full evaluation in the EIR.

3.6.24 Alternative 28: Scripps Poway Parkway to State Route 56 Alternative (Sunrise Powerlink EIR/EIS)

3.6.24.1 Description

Under the Scripps Poway Parkway to State Route 56 Alternative, the line would exit Sycamore Canyon Substation and would transition to underground beneath Scripps Poway Parkway. The line would continue in a northwest direction toward the Chicarita Substation and SR-56. The line would remain underground and would be located beneath SR-56. The line would continue

westward under SR-56 and could turn south at either of the two existing transmission line corridors that intersect SR-56. The route would head south along an existing SDG&E ROW into the Peñasquitos Substation (Figure 3.6-4).

3.6.24.2 Rationale for Elimination

This alternative does not meet the regulatory feasibility criteria due to conflicts with Caltrans regulations for limited access roadways (refer to Appendix D: Alternatives Screening Report, Section 4.6.19 for further details). Therefore, this alternative has been eliminated from full evaluation in the EIR.

3.6.25 Alternative 29: Scripps Poway Parkway—Pomerado Road Underground Alternative (Sunrise Powerlink EIR/EIS)

3.6.25.1 Description

Under the Scripps Poway Parkway—Pomerado Road Underground Alternative, the line would exit the Sycamore Canyon Substation and follow Segment A to Pomerado Road. From there the line would transition underground beneath Pomerado Road, heading northward to Poway Road. At Poway Road, the line would continue underground in a westerly direction where it would rejoin Segment A, as proposed heading into the Chicarita Substation (Figure 3.6-4).

3.6.25.2 Rationale for Elimination

This alternative would meet all of the project objectives and is potentially feasible; however, it would cause greater short-term traffic impacts and would not substantially reduce an environmental impact because of the limited area of reduction in new TSPs and transmission lines (refer to Appendix D: Alternatives Screening Report, Section 4.6.20 for further details). Therefore, the Scripps Poway Parkway—Pomerado Road Underground Alternative has been eliminated from full consideration in the EIR.

3.6.26 Alternative 30: CAISO-Approved Mission—Peñasquitos 230-kV Transmission Line (CAISO; ORA)

3.6.26.1 Description

The CAISO-approved Mission—Peñasquitos 230-kV transmission line alternative would construct a new 230-kV transmission line between Mission Substation and Peñasquitos Substation (Figure 3.6-5). This alternative is approximately 15 miles long and consists of four segments:

- Mission Substation to Copley Drive and San Clemente Canyon Freeway
- Copley Drive and San Clemente Canyon Freeway to Summer Ridge Road and Camino Santa Fe
- Summer Ridge Road and Camino Santa Fe to Peñasquitos Junction
- Peñasquitos Junction to Peñasquitos Substation

Figure 3.6-5 Electrical System Alternative Corridors

The construction within each segment is described below based on a description of the alternative location from CAISO and cross-sections from SDG&E. Cross-sections of these segments are provided in Appendix D, Attachment B.

From Mission Substation to Copley Drive and San Clemente Freeway, approximately 4.3 miles, the alternative would involve bundling the Mission—San Luis Rey 230-kV lines (TL 23001 and TL 23004) on the eastern side of the existing steel lattice towers and TSPs and the new Mission—Peñasquitos Line would then be installed on the western side of the existing structures.

From the area of Copley Drive and San Clemente Canyon Freeway to the area of Summer Ridge Road and Camino Sante Fe, approximately 4.2 miles, the alternative would require removing two sets of single-circuit wood H-Frame structures and replacing the structures with steel H-frame structures to maintain a low-profile in proximity to MCAS Miramar airport. Remove 56 wood H-frames and installs 56 steel H-Frames.

From the area of Summer Ridge Road and Camino Santa Fe to Peñasquitos Junction the alternative would involve bundling TL 23001 and TL 23004 on the eastern side of the existing steel lattice towers for a distance of about 3.2 miles. The new Mission—Peñasquitos Line would then be installed on the western side of the existing structures.

From Peñasquitos Junction to Peñasquitos Substation, the new 230-kV transmission line would be installed comparable to Segment D of the Proposed Project; however, the 69-kV circuits could be underground in Carmel Mountain Road as described in Alternative 4: 69-kV partial underground alternative, to create a new position on the steel structures and avoid installing new 69-kV TSP for 2.8 miles.

Project Objectives

A single Mission-Peñasquitos 230-kV transmission line does not meet any of the basic project objectives. The ability for the alternative to meet project objectives including improving grid reliability and deliverability of renewable energy was evaluated by the CPUC (refer to Appendix D: Alternatives Screening Report). The results of the CPUC's analysis show that the alternative does not achieve the same electrical benefits as the Proposed Project and a range of additional electrical upgrades would be required to address thermal overloads. Even with these additional upgrades, the alternative would not meet most of the project objectives because it would not improve deliverability of renewable energy in SDG&E's RPS portfolio and it would not deliver energy efficiently to the load center.

3.6.26.2 Rationale for Elimination

This alternative does not meet any of the basic project objectives; therefore, the alternative has been eliminated from full consideration in this EIR (refer to Appendix D: Alternatives Screening Report, Section 4.7.1 for further details).

3.6.27 Alternative 31: CAISO-Approved Mission—Peñasquitos 230-kV Transmission Line and New Sycamore—Mission 230-kV Transmission Line (CPUC)

3.6.27.1 Description

The CAISO-approved Mission—Peñasquitos 230-kV transmission line and the new Sycamore—Mission 230-kV transmission line alternative would construct a new 230-kV transmission line between Sycamore Canyon Substation and Mission Substation and a new transmission line between Mission Substation and Peñasquitos Substation. The new transmission line between Sycamore Canyon and Mission Substations would be located within SDG&E's easement on MCAS Miramar and SDG&E's existing ROW within the City of San Diego Mission Trails Regional Park and the communities of Tierrasanta, Serra Mesa, and Mission Valley (Figure 3.6-5). The Sycamore—Mission portion of the alternative consists of four segments:

- Sycamore Substation to Fanita Junction,
- Fanita Junction to Elliott,
- Elliott to I-15, and
- I-15 to Mission Substation

The construction within each segment is described below based on cross-sections provided by SDG&E. Cross-sections of the segments are provided in Appendix D, Attachment B.

From Sycamore Substation to Fanita Junction (approximately 6.4 miles), the Sycamore—Mission transmission line would require the removal of 29 existing steel lattice towers and construction of two new 230-kV transmission lines on 58 230-kV TSPs and 42 temporary structures for shoo-flies within MCAS Miramar.

From Fanita Junction to Elliott (approximately 3.3 miles), 18 existing double-circuit 138-kV steel lattice towers would be removed and replaced with 18 new double-circuit 230-kV TSPs with 22 temporary structures for shoo-flies. The existing 138-kV transmission lines on the steel lattice tower would be bundled and placed on one side of the poles to open a space for the new 230-kV transmission line on the other side of the poles.

From Elliott to I-15 (approximately 2 miles), an existing wood pole supporting a distribution line would be replaced with a double circuit TSP, a 69-kV power line on the existing steel lattice tower would be relocated to the new TSP in a split phase arrangement, and the existing distribution line on the wood poles would be located as underbuild on the new TSP. Eight existing double-circuit 138-kV steel lattice towers and eight distribution towers between Elliott and I-15 would be removed and replaced with eight new double-circuit 230-kV TSPs and eight 69-kV poles with 13 temporary structures for shoo-flies. An existing 138-kV transmission line on the steel lattice tower would be placed on one side of the poles and the new 230-kV transmission line would be placed on the other side of the poles.

From I-15 to Mission, for approximately 1.8 miles, seven existing double circuit 138-kV lattice steel tower would be removed and replaced with seven double-circuit 230-kV TSPs. Seven

existing 69-kV wood H-frame and seven 69-kV poles would be removed and replaced with seven double-circuit 69-kV TSPs and 24 temporary structures for shoo-flies. Existing circuits would be re-arranged resulting in an open position of the 230-kV TSP for the new 230-kV Mission to Sycamore line.

The Mission to Peñasquitos portion of the alternative would be constructed in the same manner as described in Alternative 30, above.

Project Objectives
The combined Mission—Peñasquitos and Sycamore—Mission transmission lines meet all of the basic project objectives. The ability for the alternative to meet project objectives including improving grid reliability and deliverability of renewable energy was evaluated by the CPUC (refer Appendix D: Alternatives Screening Report). The alternative would improve grid reliability, deliverability of renewable energy, and efficiently deliver energy to the load center by adding additional capacity on a higher voltage line between Sycamore Canyon and Peñasquitos Substations via Mission Substation. This alternative is electrically comparable to the Proposed Project.

3.6.27.2 Rationale for Elimination
This alternative would meet all of the project objectives and is potentially feasible; however, it would not reduce overall environmental impacts of the Proposed Project because it would require more new poles and structures and would result in a longer alignment with generally greater impacts than the Proposed Project. This alternative would result in greater impacts to air quality and greenhouse gases, aesthetics, biological resources, cultural and paleontological resources, recreation, noise, hydrology, and geology and soils (refer to Appendix D: Alternatives Screening Report, Section 4.7.2 for further details) Therefore, the CAISO-Approved Mission—Peñasquitos 230-kV Transmission Line and New Sycamore—Mission 230-kV Transmission Line has been eliminated from full consideration in the EIR.

3.6.28 Alternative 32: Loop-in of a Single Mission—San Luis Rey 230-kV Transmission Line into Peñasquitos Substation (CPUC)

3.6.28.1 Description
Alternative 32 would construct two new 230-kV transmission lines from Peñasquitos Junction to Peñasquitos Substation (Figure 3.6-5). One 230-kV transmission line would provide power from San Luis Rey Substation to Peñasquitos Substation and the second would provide power from Mission Substation to Peñasquitos Substation. The alternative would require segmenting one of the Mission—San Luis Rey transmission lines to bring 230-kV power into and out of Peñasquitos Substation.

From the area of Peñasquitos Junction, new 69-kV double-circuit TSPs would be installed west of Peñasquitos Junction to the area of Proposed Project Pole 48. For this section from Peñasquitos Junction to Pole 48 the existing 69-kV wood H-frames would be removed and the new 69-kV double-circuit TSP would be located 130 feet, generally south, of the existing lattice

steel tower (LST) in this corridor. In the area of P48 two new 69-kV cable-poles would be installed to transition the two 69-kV circuits underground. From the area of P48 the two 69-kV circuits would continue underground within Carmel Mountain Road to Peñasquitos substation. The above construction allows for the existing 69-kV circuits on the wood H-frame and on the LST to be transferred to the 69-kV double-circuit TSP and underground ductbank.

From Peñasquitos Junction to Peñasquitos Substation new 138-kV TSPs would be installed. The existing circuit TL 13804 would be transferred from the existing LST to the new 138-kV TSP. The new 138-kV TSP could be configured as either a single-circuit TSP or a double-circuit TSP, with open positions for a "future or spare" 138-kV circuit. Due to their higher voltage, the 138-kV TSP would need to be taller than a 69-kV TSP but shorter than would be necessary for a 230-kV TSP. From Peñasquitos Junction to Peñasquitos Substation the new 138-kV TSP would be located 65 feet, generally south, of the existing LST in this corridor. From P48 to Peñasquitos Substation the existing 69-kV wood H-frames would be removed.

From Peñasquitos Junction to Peñasquitos Substation, the looped TL 23001 would be placed on both sides of the existing 230-kV LST. On the south side of the LST, TL 23001 would be a circuit from Mission Substation to Peñasquitos Substation and on the north side of the LST, TL 23001 would be a circuit from Peñasquitos Substation to San Luis Rey Substation.

Project Objectives

A single loop-in of a Mission—San Luis Rey 230-kV transmission line does not meet any of the objectives of the Proposed Project. The ability for the alternative to meet basic project objectives was evaluated by the CPUC (refer to Appendix D: Alternatives Screening Report). The results of the CPUC's analysis show that the alternative is similar to the existing conditions without the Proposed Project and the alternative does not achieve any of the basic project objectives. SDG&E would likely need to upgrade the Sycamore-Scripps and Poway-Pomerado lines to address thermal overload on those lines; however, the alternative would still fail to meet most objectives even with the line upgrades.

3.6.28.2 Rationale for Elimination

This alternative does not meet any of the basic project objectives (refer to Appendix D: Alternatives Screening Report, Section 4.7.3 for further details); therefore, the alternative has been eliminated from full consideration in the EIR.

3.6.29 Alternative 33: Loop-in of Both Mission—San Luis Rey 230-kV Lines into Peñasquitos Substation (CPUC)

3.6.29.1 Description

Alternative 33 involves construction of four 230-kV transmission lines (twelve wires total) between Peñasquitos Junction and Peñasquitos Substation (Figure 3.6-5). TL 23001 and TL 23004 would be segmented at Peñasquitos Junction using a dead-end structure and both transmission lines would be brought into and out of Peñasquitos Junction. The alternative would require removal of an existing wood H-Frame line supporting a 69-kV line and installation of a set of

new 138-kV TSPs in Segment D (approximately 2.8 miles). The construction of Alternative 33 would be the same as Alternative 32; however both TL 23001 and TL 23004 would be installed on the existing steel lattice tower. The south side of the LST would carry the 230-kV transmission lines originating at Mission Substation from Peñasquitos Junction to Peñasquitos Substation and the north side of the LST would carry the 230-kV transmission lines originating at San Luis Rey Substation from Peñasquitos Junction to Peñasquitos Substation.

Project Objectives

The loop-in of both Mission—San Luis Rey 230-kV transmission lines does not meet any of the basic project objectives. The ability for the alternative to meet basic project objectives was evaluated by the CPUC (refer to Appendix D: Alternative Screening Report). The results of the CPUC's analysis show that the alternative is similar to the existing conditions without the Proposed Project and the alternative does not achieve any of the basic project objectives. SDG&E would likely need to upgrade the Sycamore—Scripps and Poway—Pomerado lines to address thermal overloads; however the alternative would still fail to meet most objectives even with the line upgrades.

3.6.29.2 Rationale for Elimination

This alternative does not meet any of the basic project objectives; therefore, the alternative has been eliminated from full consideration in the EIR (refer to Appendix D: Alternatives Screening Report, Section 4.7.4 for further details).

3.6.30 Alternative 34: New Sycamore—Mission 230-kV Transmission Line and Loop-in of One Mission—San Luis Rey 230-kV Line into Peñasquitos Substation (CPUC)

3.6.30.1 Description

This alternative involves constructing a new 230-kV transmission line between Sycamore Canyon and Mission Substations and loop-in of a Mission—San Luis Rey transmission line to Peñasquitos Substation (Figure 3.6-5). The Sycamore—Mission segment of the alternative would be constructed as described in Alternative 31, above. This alternative differs from Alternative 31 in that it does not add a new transmission line between Mission and Peñasquitos Substations, rather the alternative would loop-in an existing transmission line between Peñasquitos Junction and Peñasquitos Substation. The loop-in would be constructed in the same manner as described in Alternative 32 above.

Project Objectives

The combined Sycamore—Mission transmission line and loop-in of a Mission—San Luis Rey transmission lines meet all basic project objectives. The ability for the alternative to meet project objectives was evaluated by the CPUC (refer to Attachment A). The alternative would improve grid reliability, deliverability of renewable energy, and efficiently deliver energy to the load center by adding additional capacity on a higher voltage line between Sycamore Canyon and Peñasquitos Substations via Mission Substation. This alternative is electrically comparable to the Proposed Project.

3.6.30.2 Rationale for Elimination

This alternative would meet all of the project objectives and is potentially feasible; however, it would result in greater environmental impacts than the Proposed Project because it would require more new poles and structures. It would intensify visual impacts in Segment D by requiring larger TSPs than the Proposed Project (refer to Appendix D: Alternatives Screening Report, Section 4.7.5 for further details). Therefore, the Sycamore—Mission 230-kV Transmission Line and Loop-in of a Mission—San Luis Rey line alternative has been eliminated from full consideration in the EIR.

3.6.31 Alternative 35: New Mission—Peñasquitos 230-kV Line and Reconfigured and Reconductored Power Lines (ORA)

3.6.31.1 Description

On May 7, 2014, ORA filed a protest to the SDG&E Application to construct the Sycamore—Peñasquitos Project. On December 12, 2014 Christopher Myers and William Stephenson provided testimony for an alternative to the proposed project made by the ORA. ORA proposed the Mission—Peñasquitos 230-kV Line project as an alternative for the Proposed Project.

The ORA alternative would construct a new 230-kV line from Peñasquitos Junction to Peñasquitos Substation and would include the following three components:

- Part 1 – Mission—Peñasquitos 230-kV line – Construct Segment D, new 230-kV conductor on existing double-circuit 230-kV steel lattice tower between Peñasquitos Junction and Peñasquitos Substation
- Part 2 - Reconfigure the 69-kV transmission lines near the Miramar Substation
- Part 3 - Reconductor the Poway—Pomerado 69-kV transmission line

On January 30, 2015, Willie Thomas, John Jontry, and Huang Lin (SDG&E 2015a) provided rebuttal testimony regarding the ORA alternative. SDG&E makes the following points:

- A proper load flow analysis that evaluates all of Category B and C contingencies reveals that ORA's alternative fails to mitigate all of the NERC Category B violations eliminated by the Proposed Project and causes other Category B violations
- ORA's alternative would unacceptably reduce reliability at a substation serving an important national security installation
- ORA's alternative would cause additional NERC violations requiring additional mitigations and fail to mitigate other overloads solved by SDG&E's Proposed Project
- ORA's alternative would not address overloads on the 230-kV systems
- ORA alternative would be a short-term solution
- ORA alternative may be more expensive than stated because of additional needed mitigation

ORA subsequently modified the alternative as described in Alternative 36, below.

3.6.31.2 Rationale for Elimination

This alternative is not considered further because it was modified by ORA as shown in Alternative 36, below. This alternative is therefore superseded by Alternative 36.

3.6.32 Alternative 36: New Mission—Peñasquitos 230-kV Reconductored Poway—Pomerado Line and Series Reactor (ORA)

3.6.32.1 Description

The modified ORA alternative would construct a new 230-kV line from Peñasquitos Junction to Peñasquitos Substation and include the following components:

- Part 1. Mission—Peñasquitos 230-kV line – Construct Segment D, new 230-kV conductor on existing double-circuit 230-kV steel lattice tower between Peñasquitos Junction and Peñasquitos Substation
- Part 2. Reconductor the Poway—Pomerado 69-kV transmission line
- Part 3. Series reactor within either the Scripps or Miramar Substation. The series reactor would relieve loadings on the Sycamore to Scripps 69-kV line (Sycamore—Scripps Line). Series reactors shunt the power to other lines and require a combustion turbine like the Sycamore—Peñasquitos line

Project Objectives

The ability for the alternative to meet basic project objectives was evaluated by the CPUC (refer to Appendix D). The alternative would alleviate thermal overloads on two 69-kV lines (Sycamore—Scripps and Poway—Pomerado 69-kV lines); however, there would remain overloads on one Mission—Miguel transmission line and other transmission lines including a second Mission—Miguel line, Eco—Imperial Valley line, and Miguel—Eco line, which would all be loaded above 99 percent of their emergency rating. These circuits would require mitigation. In addition, there are several 230-kV and 69-kV circuits that are loaded above 95 percent, which would likely require mitigation within 3 to 5 years after 2024. This alternative does not achieve two out of three project objectives because it does not deliver energy more efficiently or deliver renewable energy to meet SDG&E's RPS goals. The alternative also involves a number of electrical upgrades that would not deliver energy more efficiently to the load center in San Diego.

3.6.32.2 Rationale for Elimination

The technical, legal, regulatory, and environmental feasibility of this alternative are not considered further because the alternative does not meet most of the basic project objectives (refer to Appendix D: Alternatives Screening Report, Section 4.7.7 for further details).

3.6.33 Alternative 37: Imperial Irrigation District Hoober to SONGS Line (CPUC)

3.6.33.1 Description

Alternative 37 involves construction of a new transmission line from Imperial Irrigation District (IID) to SONGS. The new transmission line would provide another source of renewable energy into SDG&E territory. IID has submitted requests for the Hoober to SONGS line to the CAISO

as part of the Transmission Planning Process and the Hoober to SONGS line has not been approved.

3.6.33.2 Rationale for Elimination

This alternative is speculative and would likely result in greater environmental impacts than the Proposed Project due to the distance required to construct a new line from Imperial Valley to SONGS (over 100 miles) (refer to Appendix D: Alternatives Screening Report, Section 4.7.8 for further details). Therefore, this alternative was eliminated from full consideration in the EIR.

3.6.34 Alternative 38: Increased Generation at Carlsbad or Encina During Peak Loads (CPUC)

3.6.34.1 Description

This alternative includes increased generation of non-renewable power at Carlsbad and/or Encina electric generating facilities. The CPUC recently approved SDG&E's authority to enter into a tolling agreement with Carlsbad Energy Center. The CPUC decision reduces the contract capacity from 600 MW to 500 MW and requires that the 100 MW in residual procurement authority consist of preferred resources or energy storage (CPUC 2015). The Carlsbad Energy Center represents a replacement of the Once-Through-Cooling energy facilities scheduled for retirement at Encina; therefore, it does not directly represent additional energy resources beyond the existing Encina energy facility. The alternative could provide additional energy generation during peak loading to supply additional power into Peñasquitos Substation from the north.

Project Objectives

This alternative does not achieve any of the project objectives. It would not deliver energy more efficiently because it would require generation of non-renewable energy rather than delivering renewable energy that is already in the electric grid. It would also not support delivery of renewable energy because the Carlsbad Energy Center is a gas-fired power plant which would not improve the delivery of renewable energy from the Sunrise Powerlink corridor. The alternative also exacerbates some reliability issues by increasing loading on lines that are already overloaded.

3.6.34.2 Rationale for Elimination

This alternative does not meet any of the basic project objectives; therefore, the alternative has been eliminated from full consideration in the EIR (refer to Appendix D: Alternatives Screening Report, Section 4.8.1 for further details).

3.6.35 Alternative 39: In-Area Distributed Generation of Renewables (Public Scoping; Public Utilities Code Section 1002.3)

3.6.35.1 Description

This alternative would involve deployment of distributed of many small (less than 20 MW) renewable energy projects within the Cities of San Diego and Poway. The Proposed Project would provide over 400 MW of additional energy; therefore this alternative would require more

than 20 separate renewable energy projects to provide the level of energy generation comparable to the Proposed Project. Distributed generation is electricity production that is on-site or close to the load center that it is intended to serve. Distributed renewables refer to the use of renewable energy resources in distributed energy generation. The generating capacity of a distributed generation source is significantly smaller than those of centrally located utility-scale energy generation and can range from generation at a single residence to larger installations for commercial or multi-unit housing applications. Distributed generation is generally limited to systems less than 20 MW and could be interconnected at 16-kV distribution or sub-transmission voltages (CEC 2007).

Examples of distributed renewable generation include small-scale photovoltaic, wind, biomass, and combined cooling and/or heat and power (also known as cogeneration) systems that use renewable-based fuels, as well as fuel cells produced from renewable energy resources. Distributed renewable generation does not include utility-scale photovoltaic, solar thermal, biomass, or wind energy power stations, or hydroelectric, geothermal, and non-combined heat and power-related waste-to energy systems (including digester gas, landfill gas, and municipal solid waste) as load is typically not close to generation and onsite load is negligible. Agreements such as power purchasing agreements may be required for distributed renewables that would support existing agricultural, industrial, or commercial businesses. The businesses would likely be connected to the local power grid; however, agreements would be required to sell electricity to the utility. This approval is in addition to necessary easements or authorizations from property owners.

California Senate Bill (SB) X1-2, signed by Governor Brown in April 2011, codifies California's renewable energy goals at 33 percent by 2020. This law requires all California electricity providers to increase their procurement of eligible renewable resources to at least 33 percent by 2020, and contains interim targets of 20 percent by 2013 and 25 percent by 2016. The RPS Program was originally mandated in 2002 by SB 1078 (Sher, Chapter 516, Statutes of 2002) under Public Utilities Code §381, 383.5, 399.11 through 399.15, and 445.

The CPUC, in collaboration with CEC, is addressing its responsibilities in implementing the RPS through its own proceedings. On April 22, 2004, CPUC issued an Order Instituting Rulemaking to specifically address the RPS (R.04-04-026). The CEC and CPUC approved an Energy Action Plan in 2003, which was finalized in 2005. The Energy Action Plan includes specific measures for building sufficient new generation, accelerating the state's goal for renewable resource generation, and promoting customer- and utility-owned distributed generation.

In January 2006, the CPUC created the California Solar Initiative (CSI) (CPUC ruling R.04-03-017). The initiative moved the consumer renewable energy rebate program for distributed photovoltaic systems serving existing homes and buildings from CEC to the utility companies under the direction of the CPUC. The CPUC also oversees the Self-Generation Incentive Program, which supports existing, new, and emerging distributed energy systems

other than photovoltaic installed on homes and buildings, including small-scale wind and fuel cells.

The CEC manages the New Solar Homes Partnership, which was launched in January 2007 and focuses on distributed photovoltaic systems targeted for new residential building construction. CEC released the Distributed Generation and Cogeneration Policy Roadmap for California in March 2007 (CEC 2007). The report included a vision for Distributed Generation and Cogeneration of being significant components of California's electrical system, meeting over 25 percent of the total peak demand. To achieve its vision, California will support incentives in the near term, transition to new market mechanisms, and reduce remaining institutional barriers.

The California Attorney General's office released the "Clean Energy Jobs Plan" in 2010 that provides possible mechanisms to create 12,000 MW of localized energy generation in California. The Clean Energy Jobs Plan calls for California to develop 12,000 MW of localized energy by year 2020. The Plan describes localized energy as onsite or small energy systems located close to where energy is consumed that can be constructed quickly (without new transmission lines) and typically with low environmental impact. The plan also encourages development of energy storage in combination with renewable generation to address intermittency of renewable generation.

3.6.35.2 Rationale for Elimination

Small-scale distributed renewable generation, such as rooftop solar panels, has the potential to appreciably reduce demand on the electrical system; however, the distributed renewable energy generation industry is still a nascent industry. There are numerous institutional, industry, and market barriers that have impeded the growth and adoption of the industry to date. Although the potential is recognized, distributed generation is not currently a significant energy source to meet electricity demands in the area. As of 2013, distributed generation penetration is below 10 percent of total peak demand in California (CPUC 2013). A Distributed Renewable Generation Alternative would involve deployment of small-scale renewable energy projects within the City of San Diego that is much more aggressive than anticipated by CAISO and SDG&E.

Because the potential for, and timing of, distributed renewable generation within the City of San Diego is uncertain and will not achieve any of the objectives of the Proposed Project, this alternative is not carried forward for full EIR analysis.

3.6.36 Alternative 40: Energy Efficiency and Conservation (Public Utilities Code Section 1002.3)

3.6.36.1 Description

Alternative 40 would implement programs to increase energy efficiency and conservation to reduce system loading and demand for power. Energy efficiency is using less energy to perform the same service or task. Energy conservation is the act of reducing or going without a service

or task in order to save energy. For example, turning off a light is energy conservation; replacing an incandescent light bulb with a different type of light bulb that uses less energy to produce the same amount of light is energy efficiency. Both conservation and efficiency can reduce the amount of energy used.

Energy efficiency and conservation programs are designed to reduce customer energy consumptions. CPUC regulatory requirements dictate that supply-side and demand-side resource options should be considered on an equal basis in a utility's plan to acquire lowest cost resources. These programs are designed to either reduce the overall use of energy or to shift the consumption of energy to off-peak times. Programs can include the installation of high-efficiency appliances (e.g., efficient heating and cooling systems and energy efficient lighting), the installation of insulation and weatherization, and customer behavior changes (e.g., customers that turn off lights more frequently because of increased customer awareness of their electrical usage).

In November 2012, the CPUC approved a two-year "bridge" budget for 2013-2014 energy efficiency programs (including residential and low income programs), as it prepared to synchronize and combine the funding cycles for energy efficiency and demand response programs starting in 2015 (DOE 2013). These programs are administered by the state's four investor-owned utilities as well as two newly formed regional energy networks (one in northern and one in southern California). Demand response programs administered by SDG&E include the Summer Saver Program and the commercial-customer Technical Assistance and Technology Incentives Program, which are designed to reduce peak electrical demand. The Summer Saver Program provides a credit on participants' summer season electric bills in return for allowing SDG&E to cycle air conditioners when needed during the months of May to September. The commercial-customer program applies to any commercial, industrial, or agricultural customer with a monthly on-peak demand of 20 kilowatts or greater and provides financial incentives to offset the costs of fully-automated demand response measures.

SDG&E also continues to deploy smart meters to existing customers and installs them on all newly constructed facilities as part of their normal business practice. Smart meters record hourly electricity consumption and allow customers to reduce their demand for higher-priced energy during peak periods. Smart meters also allow customers to participate in SDG&E's Summer Saver Program.

The CPUC adopted California's first Long Term Energy Efficiency Strategic Plan in September 2008, which presented a roadmap to achieve maximum energy savings in California. Updated in January 2011, the plan includes a comprehensive framework of energy savings goals and strategies through 2020 and holds energy efficiency to its role as the highest priority resource in meeting California's energy needs.

On March 8, 2003, the CEC and CPUC approved an Energy Action Plan. On September 21, 2005, the Energy Action Plan II was finalized. 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 shared goal through specific means, including meeting California's energy growth needs while optimizing energy conservation and resource efficiency and reducing per capita electricity demand. In 2004, California enacted an energy efficiency resource standard (also called an energy efficiency portfolio standard) for electricity. Energy savings goals for the electricity sector were set for both total retail sales and peak demand. The goals consist of separate electricity savings and demand reduction requirements for each of the three investor-owned electrical utilities.

California issued new building standards in July 2008, which mandated that all new construction reduce energy use by 15 percent, water use by 20 percent, and water for landscaping by 50 percent starting in 2010. In April 2008, the CEC approved dozens of changes to the state's building energy efficiency standards for new construction, commonly known as Title 24. In October 2007, the CPUC adopted a target that all homes built in California after 2020 be energy neutral and that all commercial buildings be energy neutral by 2030. Electric ratepayers also receive incentives for installing energy efficient solar hot water systems under the CPUC's CSI-Thermal Program.

The California Attorney General's office released the "Clean Energy Jobs Plan" in 2010, which proposed an action plan to develop renewable energy and energy efficiency technologies. The plan includes specific elements for developing more combined heat and power projects, making existing buildings more energy efficient, and stronger efficiency standards for new appliances and buildings.

3.6.36.2 Rationale for Elimination

Energy efficiency and conservation programs cannot be implemented at a scale that would achieve any of the project objectives. Additional energy efficiency beyond that occurring in the CAISO base case may be technically possible, but it is speculative to assume such a level of energy efficiency is achievable. The alternative is therefore eliminated from full evaluation in the EIR.

3.6.37 Alternative 41: Demand Response (Public Utilities Code Section 1002.3)

3.6.37.1 Description

Demand response is end-use electric customers reducing their electricity usage in a given time period, or shifting that usage to another time period, in response to a price signal, a financial incentive, an environmental condition or a reliability signal. Demand response is among the Commission's top energy priorities because it provides numerous economic and environmental benefits for California ratepayers.

Demand response enables utilities to avoid building new power plants that are used only during the peak hours of the day (typically late afternoon to early evening). Building and operating plants that are used only on occasion (also known as "peaker plants") is expensive, and those costs are eventually passed on to utility ratepayers. Demand response also enables utilities to avoid purchasing high-priced wholesale energy by reducing the demand for that energy at particular times of the day. Wholesale energy costs are eventually passed on to ratepayers. To the extent that those costs can be lowered by demand response, ratepayers benefit. Demand response also provides system and local reliability benefits in that they enable utilities to avoid the use of rolling blackouts when there is not enough generation to satisfy demand. Finally demand response provides environmental benefits by enabling the utilities to avoid the use of peaker plants. Peaker plants typically have higher greenhouse gas and other air emissions. Demand response also has the potential to integrate more renewable energy (wind, solar, etc.) into the grid.

3.6.37.2 Rationale for Elimination

The demand response alternative does not meet most project objectives because it would not improve the deliverability of renewable energy and would not deliver energy more efficiently to the load center. Therefore, this alternative is eliminated from full analysis in the EIR.

3.7 REFERENCES

CEC (California Energy Commission). 2013. *2013 Integrated Energy Policy Report, Preliminary Reliability Plan for LA Basin and San Diego*. Prepared by Staff of the California Public Utilities Commission, California Energy Commission, and California Independent System Operator. August 30, 2013. Accessed September 18, 2014. Available at http://www.energy.ca.gov/2013_energypolicy/documents/2013-09-09_workshop/2013-08-30_prelim_plan.pdf.

_____. 2015. "Nuclear Energy in California." Accessed August 17, 2015. Available at http://www.energy.ca.gov/nuclear/california.html.

CAISO (California Independent System Operator). 2013. *Board-Approved 2012-2013 Transmission Plan.* March 20, 2013. Accessed September 18, 2014. Available at http://www.caiso.com/Documents/BoardApproved2012-2013TransmissionPlan.pdf.

_____. 2014a. *Sycamore-Peñasquitos 230 kV Line Description and Functional Specifications Eligible for Competitive Solicitation*. April 1, 2013. Accessed September 18, 2014. Available at http://www.caiso.com/Documents/Description-FunctionalSpecificationsSycamore-Penasquitos230kVLine.pdf.

_____. 2014b. *Sycamore-Peñasquitos Project, Project Sponsor Selection Report*. March 4, 2014. Accessed September 18, 2014. Available at http://www.caiso.com/Documents/Sycamore-PenasquitosProjectSponsorSelectionReport.pdf.

CPUC and BLM (California Public Utilities Commission and U.S. Bureau of Land Management). 2008. *Final Environmental Impact Report / Environmental Impact Statement and Draft Land Use Plan Amendment, San Diego Gas & Electric Company Application for the Sunrise Powerlink Project*. SCH #2006091071. DOI Control Number FES-08-54. October 2008. Accessed September 18, 2014. Available at http://www.cpuc.ca.gov/environment/info/aspen/sunrise/toc-feir.htm.

_____. 2015. Decision 15-05-051. "Decision Conditionally Approving San Diego Gas & Electric Company's Application for Authority to Enter into Purchase Power Tolling Agreement with Carlsbad Energy Center, LLC." May 29, 2015.

Caltrans. 2013. Encroachment Permits Manual. "300 Exceptions to Policy". Accessed June 15, 2015. Available at http://www.dot.ca.gov/hq/traffops/developserv/permits/pdf/manual/Chapter_3.pdf.

City of San Diego. 2015. Email from Said Mahdavi, Associated Civil Engineer in the City of San Diego Public Utilities Department, Operations Division. April 28, 2015.

NERC (North American Electric Reliability Corporation). 2007. "Reliability Concepts" v 1.0.2. Accessed August 3, 2015. http://www.nerc.com/files/concepts_v1.0.2.pdf

SDG&E (San Diego Gas & Electric Company). 2014. *Proponent's Environmental Assessment, Sycamore to Peñasquitos 230 kV Transmission Line Project*. April 2014. Accessed September 22, 2014 at http://www.cpuc.ca.gov/Environment/info/panoramaenv/Sycamore_Penasquitos/index.html#PEA.

_____. 2015a. San Diego Gas and Electric Company Rebuttal Testimony of Willie Thomas, John Jontry and Huang Lin.

_____. 2015b. SXPQ ED-08-SDGE Partial Response No. 3 – Q3-Q7 (partial), Question #3. April 24, 2015.

_____. 2015c. SXPQ ED-08-SDGE Partial Response No. 3 – Q3-Q7 (partial), Question #7. April 24, 2015.

_____. 2015d. SXPQ ED-08-SDGE Partial Response No. 3 – Q3-Q7 (partial), Question #4. April 24, 2015.

USFWS (United States Fish and Wildlife Service). 2015. San Diego fairy shrimp (Branchinecta sandiegonensis) Map of Species Occurrence. Accessed August 3, 2015. Available at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=K049.

ZGlobal, Inc. 2015. Sycamore-Peñasquitos 230 Kilovolt Transmission Line Project Alternatives Assessment: A Power Flow Analysis for Panorama Environmental, Inc. by ZGlobal, Inc. July 31, 2015.