C. Alternatives – Contents

C. Alternatives

This section summarizes the information presented in Appendix 1 to this EIR/EIS, Alternatives Screening Report, which contains detailed documentation and maps of all alternatives suggested for EIR/EIS consideration. This section is organized as follows: Section C.1 is an overview of the alternatives screening process; Section C.2 describes the methodology used for alternatives evaluation; Section C.3 presents a summary of which alternatives have been selected and which have been eliminated for full EIR/EIS analysis based on CEQA and NEPA criteria; Section C.4 describes the alternatives that have been retained for full EIR/EIS analysis within each individual issue area in Section D; and Section C.5 presents descriptions of each alternative that was eliminated from EIR/EIS analysis and explains why each was eliminated. Section C.6 describes the No Project/No Action Alternative.

C.1 Alternatives Development and Screening Process

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a Proposed Project. In addition to mandating consideration of the No Project/No Action Alternative, CEQA Guidelines (Section 15126(d)) emphasize the selection of a reasonable range of technically feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis for consideration by decision-makers. 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.

The Proposed Project is described in detail in Section B of this EIR/EIS. Appendix 1 describes the alternatives screening analysis that has been conducted for the Proposed Project and provides a record of the screening criteria and results that were reached regarding alternatives carried forward for full EIR/EIS analysis and alternatives eliminated. Appendix 1 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 NEPA; and (3) the results of the alternatives screening. For alternatives that were eliminated from EIR consideration, Appendix 1 explains in detail the rationale for elimination. "Non-Wires Alternatives"[1] are addressed as well.

Numerous alternatives to the Proposed Project were suggested during two scoping periods (September 11 to October 20, 2006 and January 24 to February 24, 2007) by federal, State and local agencies and members of the general public after SDG&E filed its Application for a CPCN. Other alternatives were developed by EIR/EIS preparers or presented by SDG&E in its PEA.

In total, the alternatives screening process has culminated in the identification and preliminary screening of over 100 potential alternatives. These alternatives range from minor routing adjustments to SDG&E's Proposed Project location, to entirely different transmission line routes, to alternative energy technologies, as well as non-wires alternatives.

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

C.2 Alternatives Screening Methodology

The evaluation of the alternatives used 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/NEPA criteria (defined below)

Step 3: Based on the results of Step 2, determine the suitability of the each alternative for full analysis in the EIR/EIS. If the alternative is unsuitable, eliminate it from further consideration.

After completion of the steps defined above, the advantages and disadvantages of the alternatives are carefully weighed with respect to CEQA and NEPA criteria for consideration of alternatives. Both CEQA and NEPA provide guidance on selecting a reasonable range of alternatives for evaluation in an EIR and EIS, and the requirements are similar. This alternatives screening and evaluation process satisfies both State and federal requirements. The CEQA and NEPA requirements for selection of alternatives are described below.

C.2.1 CEQA Requirements for Alternatives

An important aspect of EIR preparation is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a Proposed Project. In addition to mandating consideration of the No Project/No Action Alternative, the State CEQA Guidelines (Section 15126.6(e)) emphasize the selection of a reasonable range of feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis for consideration by decision-makers. The State CEQA Guidelines (Section 15126.6(a)) state 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, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.*

In order to comply with CEQA's requirements, each alternative that has been suggested or developed for this project has been evaluated in three ways:

- Does the alternative accomplish all or most of the basic project objectives?
- Is the alternative feasible (from economic, environmental, legal, social, technological standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the Proposed Project (including consideration of whether the alternative itself could create significant effects potentially greater than those of the Proposed Project)?

Each of these items is described in more detail in the following sections.

C.2.1.1 Consistency with Project Objectives

The State CEQA Guidelines require the consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives" (Section 16126.6(b)). It is not required that each alternative meet all of SDG&E's objectives. While SDG&E identified eight objectives in its PEA (see list below), the alternatives considered

in this EIR/EIS are evaluated as to their ability to meet the basic project objectives as defined by a November 1, 2006 Scoping Memo prepared by the CPUC Assigned Commissioner and Administrative Law Judge, which are:

- Basic Project Objective 1: to maintain reliability in the delivery of power to the San Diego region
- Basic Project Objective 2: to reduce the cost of energy in the region
- Basic Project Objective 3: to accommodate the delivery of renewable energy to meet State and federal renewable energy goals from geothermal and solar resources in the Imperial Valley and wind and other sources in San Diego County.

The determination of whether to eliminate or retain alternatives in this EIR/EIS was based on the alternative's ability to meet these three objectives, keeping in mind the CPUC requirement to consider 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."

SDG&E's eight specific objectives from its Proponent's Environmental Assessment (PEA) are the following:

1. Ensure SDG&E's transmission system satisfies minimum California Independent System Operator (CAISO), North American Electric Reliability Corporation (NERC), and Western Electricity Coordinating Council (WECC) reliability criteria throughout the planning horizon of the Long-Term Resource Plan (LTRP) and beyond, including the requirement that there be no loss of load within the San Diego area under G-1/N-1 contingency conditions.[2] Avoid siting the Proposed Project parallel to Southwest Power Link (SWPL) for long distances especially avoiding areas with fire history or fire potential.
2. Provide a transmission facilities with a voltage level and transfer capability that (a) allows for prudent system expandability to meet both anticipated short-term (2010) and long-term (2015 and beyond) load growth through a total San Diego area import capability of at least 4,200 MW (all lines in service) and 3,500 MW (under G-1/N-1 contingency conditions) and (b) supports regional expansion of the electric grid.
3. Provide transmission capability for Imperial Valley renewable resources for SDG&E customers to assist in meeting or exceeding California's 20% renewable energy source mandate by 2010 and the Governor's proposed goal of 33% by 2020.
4. Reduce the above-market costs associated with maintaining reliability in the San Diego area while mitigating the potential exercise of local market power, particularly the costs associated with inefficient generators such as the South Bay and Encina Power Plants.
5. Improve regional transmission system infrastructure to provide for the delivery of adequate, reliable and reasonably priced energy supplies and implement the transmission elements of state and local energy plans.
6. Obtain electricity generated by diverse fuel sources and decrease the dependence on increasingly scarce and costly natural gas.
7. Avoid, to the extent feasible, the taking and relocation of homes, businesses or industries, in the siting of the transmission line, substation and associated facilities.

[2] This "G-1/N-1" standard requires a defined area system to withstand the simultaneous outage of its largest generating unit (G-1) and largest transmission interconnection (N-1), and be able to withstand the next most critical transmission outage without dropping load.

8. Minimize the need for new or expanded transmission line ROW in urban or suburban areas of the SDG&E service territory already traversed by multiple high voltage transmission facilities and, to the extent feasible, assist in implementing local land use goals.

C.2.1.2 Feasibility

The State 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. Furthermore, of the alternatives identified, the EIR is expected to fully analyze those alternatives that are feasible, while still meeting most of the project objectives.

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

- **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 project objectives or would be more costly" (Guidelines Section 16126.6(b)). The Court of Appeals added in *Goleta Valley v. Board of Supervisors* (2nd Dist. 1988) 197 Cal.App.3d, p. 1181 (see also *Kings County Farm Bureau v. City of Hanford* (5th Dist. 1990) 221 Cal.App.3d 692, 736 [270 Cal. Rptr. 650]): "[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 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, as discussed in Section 2.2.1.3 below.
- **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?

- **Social Feasibility.** Would the alternative cause significant damage to the socioeconomic structure of the community and be inconsistent with important community values and needs? Similar to the environmental feasibility addressed above, this subject is primarily considered in consideration of significant environmental effects.
- **Technical Feasibility.** Is the alternative feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?

C.2.1.3 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" (State CEQA Guidelines Section 16126.6(a)). If an alternative is identified that clearly does not have the potential to provide an overall environmental advantage as compared to the Proposed Project, it is usually eliminated from further consideration. At the screening stage, it is not possible to evaluate all of the impacts of the alternatives in comparison to the Proposed Project with absolute certainty, nor is it possible to quantify impacts. However, it is possible to identify elements of an alternative that are likely to be the sources of impact and to relate them, to the extent possible, to general conditions in the subject area.

Table C-1 presents a summary of the potential significant effects of the Proposed Project. This impact summary was prepared prior to completion of the EIR/EIS analysis, so it may not be complete in comparison to the detailed analysis now presented in Section D of this EIR/EIS. However, the impacts in the table are representative of those resulting from preliminary EIR/EIS preparation and were therefore used to determine whether an alternative met this CEQA requirement.

Table C-1. Summary of Potential Impacts: Sunrise Powerlink Project

Environmental Issue Area	Potential Issues or Impacts

Aesthetics/Visual	• Visual contrast, industrial character, view blockage, and skylining[3] resulting from the placement of the structures in all project segments
	  • New 500 kV transmission line through BLM land outside of designated utility corridor
	  • New 500 kV transmission line through Anza-Borrego Desert State Park
	  • New 500 kV and 230 kV transmission lines through inland and coastal San Diego County

Agricultural Resources	• Imperial Valley Link and other segments cross Prime Farmland, Farmland of Statewide Importance, and Williamson Act Non-Prime Farmland
Air Quality	• Impacts during construction would occur when heavy equipment, support vehicles, and other internal combustion engines creates fugitive dust and/or generates exhaust containing: carbon monoxide (CO), reactive organic compounds (ROC), nitrogen oxide (NOx), sulfur oxides (SOx), and particulate matter (PM10). • Impacts would result from fugitive dust generated from ground clearing, grading, vehicle traffic on the access roads, and vehicle traffic at the construction sites. • Potential ongoing impacts from emissions and fugitive dust produced during operation and maintenance of proposed transmission line. • Potential air quality impacts from power plants providing imported power. • Potential impacts resulting from violation of the Federal Air Quality Conformity Rule in nonattainment areas for one or more air pollutants. • Potential temporary and long-term impacts from toxic air contaminants including diesel particulate matter that have localized effects.

[3] Skylining is the aspect of viewing transmission towers, which are highly visible when located on ridge lines.

Table C-1. Summary of Potential Impacts: Sunrise Powerlink Project

Environmental Issue Area	Potential Issues or Impacts
Biological Resources	• Construction activities and project facilities would result in temporary and permanent loss of native wildlife and habitat. • Loss of habitat for sensitive species designated by State and federal resource agencies. • Construction and operation of the Proposed Project could disturb wildlife and cause changes in wildlife behavior. • Construction activities may conflict with local policies or ordinances protecting biological resources.
Cultural & Paleontological Resources	• Construction of new towers and access roads could damage or destroy historic and archaeological sites or traditional cultural properties. • Temporary use of staging areas and conductor pull sites could damage or destroy historic and archaeological sites or traditional cultural properties. • Excavation of tower footings and grading of access spur roads on the transmission line corridor could disturb outcroppings of high or undetermined paleontological sensitivity
Geology and Soils	• Highly corrosive soils could damage uncoated steel in all Links of the Proposed Project. • Soil erosion on low fill slopes and steeply graded areas could result in sedimentation of water bodies. • Soil volume changes resulting from change in moisture content in the Inland Valley and Coastal Links could damage proposed facilities. • Seismic activity in the San Jacinto, Elsinore, Coronado Bank, Superstition Hills, Rose Canyon, and Earthquake Valley Faults, which are known to be active, could damage project facilities. The towers along the alignment in this area would be subject to severe seismic shaking within the lifetime of the Proposed Project. • Ground surface rupture could occur where the proposed transmission line would cross active fault lines. • Landslides, mudslides, or other related ground failures from seismic activity, could occur and damage facilities, particularly where the proposed transmission line would cross active fault lines.
Hazards and Hazardous Materials	• Wildfires could be caused by the transmission lines or could damage Proposed Project facilities. • Temporary relocation of residents along parts of the project might be required where helicopter construction is required (FAA safety regulations of helicopter flight paths). • Improper storage or handling or hazardous materials and/or hazardous wastes during project construction, operations, or maintenance could present hazards to construction workers or the public. • Leaking or spilling of petroleum or hydraulic fluids from construction equipment or other vehicles during project construction, operation, or maintenance could contaminate soils, surface waters, or groundwater. • The inadvertent uncovering of hazardous materials during excavation activities could cause toxic releases to the environment.
Hydrology and Water Quality	• Increased surface water runoff, erosion, siltation, and sedimentation could diminish water quality • Water quality of streams or washes could be diminished from violation of water quality standards or waste discharge requirements. • Mudflows in the Poway and Miramar Reservoir watersheds along portions of the Coastal Link could damage project facilities.
Land Use	• Conflicts with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. • Construction would temporarily disturb the land uses it traverses or adjacent land uses. • Operation would result in permanent preclusion of land uses it traverses or adjacent land uses.
Noise	• During construction, noise generated by construction equipment could create nuisance to nearby residents, park users, or other sensitive receptors. Volume range could be 80 to 100 dBA at a range of 50 feet from the active construction site. • Corona noise generated during the operation of the proposed transmission line would increase ambient noise levels surrounding the corridor. • Construction or corona noise in residential areas along the proposed transmission corridor could violate local noise ordinances (for volume and hours of operation).

Table C-1. Summary of Potential Impacts: Sunrise Powerlink Project

Environmental Issue Area	Potential Issues or Impacts
Socioeconomics	• Employment of construction personnel could be beneficial to regional economy. • Remote areas of Imperial and San Diego Counties could lose access to temporary housing due to the possible influx of construction labor, if housing is required during construction of the proposed transmission line. • Additional property-taxes could be provided to local jurisdictions. • Potential for project impacts to disproportionately affect low-income or minority populations (environmental justice).
Public Services and Utilities	• Construction activities could cause increased usage of public resources, services, and utilities. • Construction activities could result in increased generation of waste and disposal needs.
Recreational Resources	• Construction or operation could cause conflicts with established or pending resource management or conservation plans. • Recreational land users would be disturbed by construction and operation where the proposed transmission line would cross or be near Anza-Borrego Desert State Park, Off-Highway Vehicle (OHV) designated areas, open spaces and parks, and major trails. • Road closures and increased traffic during construction activities may impede access to recreational areas.
Transportation and Traffic	• Construction could result in a temporary disruption of traffic flow, disruption of transit services, or disruption of rail services:
Other Issues	• Cumulative impacts could occur (considering other projects that are proposed or under construction in the project area) • Growth-inducing effects could occur

C.2.2 NEPA Requirements for Alternatives

According to the Council on Environmental Quality's (CEQ) NEPA Regulations (40 C.F.R. 1502.14), an EIS must present the environmental impacts of the proposed action and alternatives in comparative form, defining the issues and providing a clear basis for choice by decision-makers and the public. The alternatives section shall:

(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.

(c) Include reasonable alternatives not within the jurisdiction of the lead agency.

(d) Include the alternative of no action.

(e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.

(f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

The CEQ has stated that "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense rather than simply desirable from the standpoint of the applicant" (CEQ, 1983).

In addition to the CEQ NEPA regulations, CEQ has issued a variety of general guidance memoranda and reports that concern the implementation of NEPA. One of the most frequently cited resources for NEPA practice is CEQ's *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* (Forty Questions). Although a reviewing federal court does not always give the Forty Questions the same deference

as it does the CEQ NEPA Regulations, in some situations the Forty Questions have been persuasive to the judiciary. For example in one decision, a federal court relied heavily on one of the Forty Questions in interpreting the treatment of alternatives under NEPA [*American Rivers et al. v. Federal Energy Regulatory Commission*, 187 F.3d 1007 (9th Cir. 1999)] (Bass et al., 2001).

In general, alternatives are discussed in Forty Questions Nos. 1 through 7. Question No. 5b asks if the analysis of the "proposed action" in an EIS is to be treated differently than the analysis of alternatives. The response states:

> *The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the "proposed action." Section 1502.14 is titled "Alternatives, including the proposed action" to reflect such comparable treatment. Section 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative including the proposed action. This regulation does not dictate an amount of information to be provided but rather, prescribes a level of treatment, which may in turn require varying amounts of information, to enable a reviewer to evaluate and compare alternatives.*

NEPA (40 C.F.R. 1502.14(c)) also requires the consideration of the No Action Alternative as a basis for comparison even if it would not satisfy the proposed action's purpose and need. The definition of the No Action Alternative depends on the nature of the project and in the case of the proposed SRPL project the No Action Alternative describes what would occur without the federal agency's (BLM) approval.

C.2.2.1 Consistency with Purpose and Need

CEQ NEPA Regulations (40 C.F.R. 1502.13) require a statement "briefly specifying the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." In addition to the project objectives defined in Section C.2.1.1 above, SDG&E's PEA presents the following statement regarding the purpose and need for the SRPL project:

> *Californians have learned from painful experience during the 2000-2001 electricity crisis that the market for electricity in California is susceptible to volatile commodity prices, the exercise of market power, and the risk of supply shortages. Development of new transmission facilities to gain greater access to generation may help California avoid or limit similar experiences. Additionally, development of new transmission facilities to areas where generation has been more easily sited and constructed may spur development of new competitive generation to provide further insurance against future electricity crises.*

C.2.2.2 Feasibility

The environmental consequences of the alternatives, including the proposed action, are to be discussed in the EIR/EIS in accordance with CEQ NEPA Regulations (40 C.F.R. 1502.16). The discussion shall include "Possible conflicts between the proposed action and the objectives of federal, regional, State, and local land use plans, policies and controls for the area concerned." Other feasibility factors to be considered may include cost, logistics, technology, and social, environmental, and legal factors (Bass et al., 2001). The feasibility factors are substantially the same as described for CEQA in Section C.2.1.2, above.

C.2.3 Summary of CEQA and NEPA Screening Methodology

Unlike CEQA's requirements, NEPA does not require screening of alternatives based on their potential to avoid or lessen significant environmental effects. However, to ensure that the alternatives considered in the EIR/EIS would meet the requirements of both CEQA and NEPA, the stricter requirements of CEQA have been applied as the screening methodology. As such, a reasonable range of alternatives has

been considered and evaluated as to whether or not the alternatives meet (1) most of the project objectives/purpose and need, (2) are considered feasible, and (3) would avoid or substantially lessen any significant effects of the Proposed Project.

C.2.4 Other Considerations for Alternatives

The final project decision by the CPUC will be guided by the Public Utilities Code in addition to the requirements of CEQA. The Public Utilities Code in Section 1002 states that:

> *Section 1002. (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 SRPL project and in comments on the Draft EIR/EIS.

C.3 Summary of Screening Results

Alternatives identified by the Applicant, agencies, EIR/EIS preparers, and the public are listed below according to the determination made for analysis. Alternatives considered included alternative route alignments and other transmission alternatives, alternatives that could replace the Proposed Project as a whole, Non-Wire Alternatives, and the No Project/No Action Alternative. If so desired, in its decision, the CPUC could elect to combine or match certain alternatives and project components. The potential to create different permutations of alternatives in reality creates many more overall alternatives.

C.3.1 Alternatives Fully Analyzed in the EIR/EIS

The alternatives listed below have been chosen for detailed analysis in this EIR/EIS through the alternative screening process. These alternatives are briefly described in Section C.4 and in greater detail in Section 4 of Appendix 1. The preliminary conclusions generated during the screening process are presented briefly below and each of these alternatives is evaluated within each environmental issue area of Parts D and E of this EIR. Overview maps of these alternatives are included in this section, but more detailed, individual maps of each alternative are in Section 4 of Appendix 1 of this EIR/EIS, as well as Sections D and E. Table C-2 summarizes the rationale for carrying forward each of these alternatives.

C.3.2 Alternatives Eliminated from Full Consideration in the EIR/EIS

There were 68 alternatives eliminated after a detailed alternatives screening process (Section 3.1 of Appendix 1 describes screening methodology). Table C-3 summarizes the rationale for eliminating each of these alternatives from further consideration.

Table C-2. Alternatives Fully Analyzed in EIR/EIS

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects
IMPERIAL VALLEY LINK ALTERNATIVES			
FTHL Eastern Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. 1.5 miles shorter, farther from proposed land use development, and reduces biological impacts to the BLM FTHL Management Area.
SDG&E West of Dunaway Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Avoids major land development project.
SDG&E West Main Canal–Huff Road Modification Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Would not interfere with planned IID 230 kV upgrades.	Meets environmental criteria. Avoids Bullfrog Farms and planned land development, co-locates transmission lines along a portion of Huff Road.
ANZA-BORREGO LINK ALTERNATIVES			
Partial Underground 230 kV ABDSP SR78 to S2 Alternative	Meets most project objectives. Additional 230 kV circuits for future phases could be required underground and overhead in SR78/S2 or underground through Borrego Springs, if feasible.	Meets legal, regulatory, and technical feasibility criteria. Similar to the Proposed Project, w~~W~~ould also require a de-designation of Wilderness Area and a State Park Plan Amendment, which could potentially cause regulatory infeasibilities and/or project delays. The All Underground Option would not require de-designation of Wilderness.	Meets environmental criteria. Reduces effects on State-designated Wilderness, avoids cultural resources in Grapevine Canyon, avoids need for construction of Central East Substation, and avoids overhead structures through the Park, directly eliminating significant visual impacts.
Overhead 500 kV ABDSP Within Existing ROW	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Would not require the de-designation of State-designated Wilderness.	Meets environmental criteria. Avoids direct impacts to State-designated Pinyon Ridge Wilderness Area by being located outside the designated area.
CENTRAL LINK ALTERNATIVES			
Santa Ysabel Existing ROW Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Reduces visual impacts in Santa Ysabel Valley and would follow an existing corridor.
Santa Ysabel Partial Underground Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Reduces visual impacts in Santa Ysabel Valley, agricultural impacts, and fire risk.
Santa Ysabel All Underground Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Reduces visual impacts in Santa Ysabel Valley, agricultural impacts, and fire risk.
SDG&E Mesa Grande Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Reduces visual resources impacts, requires fewer access roads, and is landowner's preference.
INLAND VALLEY LINK ALTERNATIVES			
CNF Existing 69 kV Route Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Requires amendment of Forest Plan.	Meets environmental criteria. Shorter and less visible to nearby residences, no new access roads required, and relocation of existing 69 kV line not be required

Table C-2. Alternatives Fully Analyzed in EIR/EIS

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects
Oak Hollow Road Underground Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Eliminates visual impacts to residents in the valley area east of Mt Gower Open Space Preserve and from the Preserve.
San Vicente Transition Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Minimizes visibility of transition from San Vicente Rd and reduces land use disturbance.
Chuck Wagon Road Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Reduces visual impacts of transition poles, avoids Barnett Ranch Preserve, shorter route, reduces visibility of new 230 kV line from residences, and eliminates an overhead crossing of San Vicente Rd.
COASTAL LINK ALTERNATIVES			
Pomerado Road to Miramar Area North Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Avoids residences in Rancho Peñasquitos and Los Peñasquitos Canyon Preserve.
Los Peñasquitos Canyon Preserve–Mercy Road Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Avoids Los Peñasquitos Canyon Preserve and reduces residential land use and visual impacts.
Black Mountain to Park Village Road Underground Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Moves line farther from residences in Rancho Peñasquitos community.
Coastal Link System Upgrade Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Eliminates all impacts associated with the project segment between Sycamore Canyon and Peñasquitos Substations
SUBSTATION ALTERNATIVES TO CENTRAL EAST SUBSTATION			
Top of the World Substation Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. VID (landowner) preference over other options on their land, reduces visual, geologic, and biological impacts, requires less grading.
SOUTHWEST POWERLINK ALTERNATIVES			
Interstate 8 Alternative	Meets most project objectives. Would meet SDG&E's reliability objective due to collocation with SWPL for only 35 miles in low fire risk area.	Meets legal, regulatory, and technical feasibility criteria. Requires amendment of Forest Plan.	Meets environmental criteria. Shorter route, follows existing linear corridor, and avoids ABDSP.
BCD Alternative	Meets most project objectives. Would meet SDG&E's reliability objective due to collocation with SWPL for only 35 miles in low fire risk area.	Meets legal, regulatory, and technical feasibility criteria. Requires amendment of Forest Plan.	Meets environmental criteria. Shorter route and avoids ABDSP and most residential areas.
Route D Alternative (North of I-8)	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Requires amendment of Forest Plan.	Meets environmental criteria. Shorter route and avoids ABDSP.

Table C-2. Alternatives Fully Analyzed in EIR/EIS

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects
Modified Route D Alternative (South of I-8)	Meets all project objectives. Would meet SDG&E's reliability objective due to collocation with SWPL for only 35 miles in low fire risk area.	Meets legal, regulatory, and technical feasibility criteria. Would not require amendment of Forest Plan to land use zones, but amendment would be required due to SIO incompatibility.	Meets environmental criteria. Shorter route and avoids ABDSP.
NON-WIRES ALTERNATIVES			
New In-Area Renewable Generation	Meets most project objectives. Would not provide direct access to renewable generation in Imperial Valley.	Meets legal and technical feasibility criteria. Possible regulatory feasibility issues because no way to ensure that in-area renewable generation will be constructed or operational within project timeframe.	Meets environmental criteria. Impacts of the Proposed Project would be eliminated.
New In-Area All-Source Generation	Meets most project objectives. Would not provide direct access to renewable generation in Imperial Valley.	Meets legal and technical feasibility criteria. Possible regulatory feasibility issues because no way to ensure that in-area renewable generation will be constructed or operational within project timeframe.	Meets environmental criteria. Impacts of the Proposed Project would be eliminated.
FULL PROJECT ROUTE AND SYSTEM ALTERNATIVES			
LEAPS Generation and Transmission Alternative	Meets most project objectives. Would not provide direct access to renewable generation in Imperial Valley, but may provide access to renewable generation developed in Tehachapi and San Gorgonio wind resource areas.	Meets legal, regulatory, and technical feasibility criteria. May require amendment of Forest Plan and would require upgrades in both SDG&E and SCE service territories.	Meets environmental criteria. Shorter route and avoids ABDSP, San Felipe and the central Santa Ysabel Valley.
LEAPS Transmission-Only Alternative	Meets most project objectives. Would not provide direct access to renewable generation in Imperial Valley, but may provide access to renewable generation developed in Tehachapi and San Gorgonio wind resource areas.	Meets legal, regulatory, and technical feasibility criteria. May require amendment of Forest Plan and would require upgrades in both SDG&E and SCE service territories.	Meets environmental criteria. Shorter route and avoids ABDSP, San Felipe and the central Santa Ysabel Valley.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
IMPERIAL VALLEY LINK ALTERNATIVES				
SDG&E Desert Western Alternative	Meets all project objectives.	Meets legal feasibility criteria. Not regulatory feasible, because crosses through DOD restricted airspace and/or obstruction-free zone. Not technically feasible to construct a 500 kV line and structures within height requirements	Shorter than the proposed route and reduces biological impacts to the BLM FTHL Management Area, but would traverse bighorn sheep critical habitat and would be closer to designated Wilderness Areas.	Not analyzed due to regulatory and technical feasibility issues with DOD restricted airspace.
Imperial Valley FTHL Alternative	Meets all project objectives.	Meets legal and regulatory feasibility criteria. Reduces segment length with BLM FTHL Management Area. Technical feasibility conflicts with IID planned 230 kV upgrades along Westside Main Canal.	Reduces impacts to BLM FTHL Management Area, but impacts proposed residential development in the area and agricultural resources.	Not analyzed due to greater impacts on land use and agricultural resources and conflicts with IID planned 230 kV upgrades. Replaced with FTHL Eastern Alternative.
SDG&E Imperial Valley FTHL Modification Alternative	Meets all project objectives.	Meets legal and regulatory feasibility criteria. Reduces segment length with BLM FTHL Management Area. Technical feasibility conflicts with IID planned 230 kV upgrades along Westside Main Canal.	Reduces impacts to BLM FTHL Management Area, but greater impacts to agricultural resources.	Not analyzed due to greater impacts on agricultural resources and conflicts with IID planned 230 kV upgrades. Replaced with FTHL Eastern Alternative.
SDG&E Bullfrog Farms Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Avoids main building of Bullfrog Farms, but it impacts its dairy calving operations. The route would also impact a planned development south of Bullfrog Farms.	Not analyzed due to greater impacts to planned development and dairy calving operations. Replaced with SDG&E West Main Canal–Huff Road Modification Alternative.
Huff Road Bullfrog Farms Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Avoids main building of Bullfrog Farms, but it impacts its dairy calving operations. The route would also impact a planned development south of Bullfrog Farms.	Not analyzed due to greater impacts to planned development and dairy calving operations. Replaced with SDG&E West Main Canal–Huff Road Modification Alternative.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
New River Alternative	Meets all project objectives.	Meets legal and regulatory criteria. Technical feasibility risk of installing a major transmission line in or directly adjacent to an active riverbed with year-round flow. U.S. Army Corps of Engineers likely would not permit a line running within the New River.	Reduces impacts to agricultural resources, but causes greater erosion and water resource impacts and bisects valley causing great visual resources impacts as well.	Not analyzed due to greater impacts to hydrologic resources, visual impacts, and issues with constructing towers in river or floodplain.
ANZA-BORREGO LINK ALTERNATIVES				
SDG&E ROW Shorter Structure Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Would not require the de-designation of State-designated Wilderness.	Use of shorter towers would not eliminate significant visual impacts, because they would be wider and there would be a greater number within the Park. The 100' ROW goes through the Angelina Springs cultural district and the new double-circuit 69 kV lines from Warner to Borrego Substation would create additional new significant impacts in many areas.	Not analyzed due to significant visual impacts, greater cultural impacts, and creation of a new double-circuit 69 kV transmission corridor along S2.
SDG&E Segment A/ Northern Borrego Springs via S22 Alternative	Meets all project objectives.	Meets legal and technical criteria with the de-designation of Wilderness. Requires a de-designation of Wilderness for a new corridor and a State Park Plan Amendment, thus facing potential regulatory infeasibility.	Passes through more populated areas (Borrego Valley) and would be constructed within bighorn sheep habitat adjacent to S22. It would also create a new transmission corridor within 4 State Wilderness areas along Highway S22.	Not analyzed due to regulatory hurdles with crossing Wilderness areas and greater environmental impacts of a new corridor in more populated areas.
SDG&E Segment 1/ Imperial Valley via 92 kV Alternative	Meets all project objectives.	Meets technical and legal criteria, but would not make sense from a construction and engineering perspective. Would not be regulatory feasible, because it would bisect the center of DOD height limitation and/or obstruction-free zone.	Affects more agricultural land and would traverse a much greater distance through BLM Flat-Tailed Horned Lizard Designated Management Areas.	Not analyzed due to regulatory feasibility and engineering concerns, as well as greater agricultural and FTHL impacts.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SDG&E Segment 4/ ABDSP via S2 Alternative	Meets all project objectives.	Meets legal and technical criteria with the de-designation Wilderness. Requires a de-designation of Wilderness for a new corridor and a State Park Plan Amendment, thus facing potential regulatory infeasibility.	Crosses high-value scenic viewshed, greater amounts of bighorn sheep habitat, and a greater length of new transmission corridor within State-designated Wilderness.	Not analyzed due to regulatory hurdles with crossing Wilderness and greater environmental impacts of a new highly visible corridor in bighorn sheep habitat.
SDG&E SR78 West of Anza Alternative	Meets all project objectives.	Meets technical and legal criteria. Passes within FAA obstruction-free area around Ocotillo Wells County Airport raising regulatory feasibility issues.	Highly visible along the main entrance to ABDSP, passes by residential and commercial receptors, and would need to be relocated due to FAA regulations to avoid Ocotillo Wells Airport, which would move the line to a more highly sensitive area.	Not analyzed due to greater visual and land use impacts and would need to be relocated due to FAA regulations.
SDG&E ABDSP North Side of SR78 Alternative	Meets all project objectives.	Meets legal, regulatory, and technical criteria.	Longer route, establishes a new highly visible transmission line corridor along SR78, and would not reduce any significant impacts of the proposed route.	Not analyzed because longer, new corridor, and greater visual impacts.
SDG&E Borrego Valley Alternative	Meets all project objectives.	Meets legal and technical criteria with the de-designation Wilderness. Requires a de-designation of Wilderness for a new corridor and a State Park Plan Amendment, thus facing potential regulatory infeasibility.	Creates new utility corridor within State-designated Wilderness, crosses high value habitat of the Peninsular bighorn sheep population in Tubb Canyon, visual impacts from Montezuma Grade and throughout the Borrego Springs and Ranchita areas, and the introduction of a major industrial facility (500/12 kV substation) in a low density residential community.	Not analyzed due to regulatory hurdles with crossing Wilderness and greater impacts of a new highly visible corridor in bighorn sheep habitat and Borrego Springs and Ranchita areas.
SDG&E Borrego Valley Underground Alternative	Meets most project objectives. Additional 230 kV circuits for future phases could be required underground and overhead in SR78/S2 or underground through Borrego Springs, if feasible.	Meets legal and technical criteria with the de-designation Wilderness. Requires a de-designation of Wilderness for a new corridor and a State Park Plan Amendment, thus facing potential regulatory infeasibility.	Similar significant impacts as the Borrego Valley overhead route discussed above.	Not analyzed due to similar significant impacts as the Borrego Valley overhead route discussed above.
SDG&E SR78 Julian Alternative	Meets all project objectives.	Requires a de-designation of Wilderness for a new corridor and a State Park Plan Amendment, thus facing potential regulatory infeasibility. Meets legal criteria with the de-designation of Wilderness. Difficult construction along Banner Grade, but technically feasible.	Creates a new transmission line corridor through Grapevine Mountain Wilderness Area, and would pass by Julian High School, residences, and through the center of the town of Julian.	Not analyzed due to regulatory hurdles with crossing Wilderness, difficult construction on Banner Grade, and greater impacts of a new highly visible corridor through Julian.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SDG&E Overhead ABDSP SR78 to S2 Central Alternative	Meets all project objectives.	Requires a de-designation of Wilderness for a new corridor and a State Park Plan Amendment, thus facing potential regulatory infeasibility. Meets technical and legal criteria with the de-designation of Wilderness.	Establishes a new transmission line corridor through designated Wilderness, and causes visual impacts along heavily traveled SR78 and S2 through the scenic and currently undeveloped San Felipe Valley	Not analyzed due to regulatory hurdles with crossing Wilderness, and greater impacts of a new highly visible corridor along SR78 and S2.
Overhead 230 kV ABDSP Alternative	Meets all project objectives, but future 230 kV expansion would require additional disturbance within ABDSP.	Meets legal, regulatory, and technical feasibility criteria. Would also require a de-designation of Wilderness Area and a State Park Plan Amendment.	Impacts of the proposed route would not be noticeably reduced, and because future 230 kV expansion would require additional disturbance within ABDSP. Towers would be shorter so span lengths would also be shorter, which would result in a greater number of towers and would negate ground-disturbance advantages of the smaller 230 kV-tower footprints	Not analyzed because impacts of the proposed route would not be noticeably reduced, and because future 230 kV expansion would require additional disturbance within ABDSP.
HVDC Light Underground Alternative	Meets most project objectives. Cost would diminish the economic performance of the line and reduce the likelihood of achieving the economic objectives to reduce energy costs in the San Diego region.	Meets legal, regulatory, and technical feasibility criteria, but higher costs of this alternative make it infeasible using CEQA guidelines	Converter stations would require additional land disturbance creating greater land use and visual resources impacts. There would be less flexibility for interconnections with other existing or proposed AC lines in the CAISO system, which could lead to construction of additional AC facilities.	Not analyzed due to economic infeasibility and impacts of converter stations and connection to the AC grid.
CENTRAL LINK ALTERNATIVES				
SDG&E Central East Substation to SR79 Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Does not reduce impacts of the Proposed Project and Vista Irrigation District, the landowner, prefers the proposed route because of its limited visibility and it avoids disturbance to existing land uses.	Not analyzed because it does not reduce impacts of the Proposed Project and VID, the landowner, prefers proposed route.
SDG&E Warner S2 to SR79 Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Much greater visual impacts than proposed route in the valley area.	Not analyzed due to much greater visual impacts than proposed route.
SDG&E San Dieguito Park Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Would cross two parcels of the Santa Ysabel Reservation, which could create legal feasibility issues.	Creates a new corridor on pristine County Park land that is highly visible to recreationists and crosses Santa Ysabel Open Space Preserve.	Not analyzed due to greater biological and recreation impacts and legal feasibility issues on Santa Ysabel Reservation.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Volcan Mountain Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Transfers impacts from ABDSP to an equally sensitive area, creates a new corridor across Volcan Mountain and Santa Ysabel Open Space Preserves, areas rich in biological and cultural resources and important watershed areas. Creates visual impacts from SR78 and SR79, from the preserves which have many hiking trails, and from around Julian.	Not analyzed because transfers impacts from ABDSP to an equally sensitive area, and because it creates a new corridor across two preserves.
INLAND VALLEY LINK ALTERNATIVES				
SDG&E Segment 10/Inland Valley SR78 Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Establishes a new transmission line corridor along SR78, which is heavily traveled and a main route into Ramona, longer route, and passes a greater number of residences, through agricultural land, and through designated critical habitat.	Not analyzed due to creation of a new transmission corridor, longer route, and greater land use and biological resources impacts.
SDG&E Creelman Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Transfers impacts without reducing any impacts of the Proposed Project due to its longer length, greater ground disturbance, and location in more sensitive habitat.	Not analyzed due to longer length, greater ground disturbance, and location in more sensitive habitat.
West of San Vicente Road Underground Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Would be technically challenging to install underground line on steep slopes.	Requires underground construction through the Barnett Ranch Open Space Preserve, resulting in much greater ground disturbance and effects to important biological resources. Also eliminated due to topography and construction/erosion impacts of installing underground line on steep slopes.	Not analyzed due to greater disturbance, effects to biological resources, and topography and construction/erosion impacts of installing underground line on steep slopes.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
COASTAL LINK ALTERNATIVES				
SDG&E Northwest Corner Alternative	Meets all project objectives.	Meets technical and legal criteria. Could be regulatory infeasible due to opposition by the San Diego County, CDFG & USFWS because inconsistent with County MHCP/MHPA.	Greater biological impacts to vernal pools.	Not analyzed due to regulatory feasibility conflicts with existing vernal pool complex and other biological resources impacts.
SDG&E Mannix-Dormouse Road Alternative	Meets all project objectives.	Meets technical and legal criteria. Traverses designated Critical Habitat and thus requires coordination with USFWS & CDFG, which could delay project timeline but it would likely be regulatory feasible.	Greater impacts to designated critical habitat and special status species, and conflicts with existing residential land uses.	Not analyzed due to impacts to vernal pools and conflicts with existing residential land uses.
SDG&E Segment 12 Poway Substation to Peñasquitos Substation Alternative	Meets all project objectives.	Meets technical, legal, and regulatory criteria. Requires acquisition of new ROW, which could lengthen the project timeline.	Creates new ROW/transmission corridor in undeveloped areas, would create greater visual impacts with an all-overhead line, land use impact in Poway, and would not offer any real environmental benefits or advantages.	Not analyzed due to acquisition of new ROW in undeveloped areas and greater land use incompatibilities particularly in developed areas of Poway.
SDG&E Segment 13 Scripps Ranch Alternative	Meets all project objectives.	Meets technical feasibility criteria. Not regulatory or legally feasible due to MCAS Miramar statement that alternatives on the base could not be permitted in order to preserve its National Defense Mission capabilities without degradation	Increases residential land use conflicts and visual impacts, shifts environmental impacts to different area.	Not analyzed due to residential land use conflicts, visual impacts, regulatory and legal infeasibility on MCAS Miramar.
SDG&E Segment 14 Poway Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Creates new ROW on undisturbed lands with sensitive biological resources, critical habitat and special status species, impacts County of San Diego's Blue Sky Canyon Ecological Preserve, and it does not appear to offer any environmental benefits.	Not analyzed due to increased impacts to biological resources and natural resources within Preserve lands.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SDG&E Segment 15 Warren Canyon Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Increased biological resources impacts due to the presence of critical habitat in the general vicinity of the alignment and it could impact County of San Diego and local open space and parks. Because the route would shift impacts and does not appear to offer any clear environmental benefit relative to the Proposed Project.	Not analyzed due to potential effects on the County of San Diego and local open space and parks, and potential for increased biological resources impacts.
SDG&E Segment 16 North of Peñasquitos Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria. Challenging construction in places due to steep topography.	Creates greater land use impacts in populated areas and would be substantially longer resulting in increased ground disturbance and thus overall greater impacts to all issues areas.	Not analyzed because would not substantially reduce impacts and would be much longer in populated areas.
Pomerado Road to Miramar Area North–Combination Underground/ Overhead Alternative	Meets all project objectives.	Meets legal and regulatory feasibility criteria. May be technical feasibility issues with existing sand and gravel quarry.	Would impact and could disrupt an existing sand and gravel quarry operating in Carroll Canyon	Not analyzed because of conflicts with an existing sand and gravel quarry operating in Carroll Canyon.
MCAS Miramar–All Underground and Underground/ Overhead Alternative	Meets all project objectives.	Meets technical feasibility criteria. Not regulatory or legally feasible due to MCAS Miramar statement that alternatives on the base could not be permitted in order to preserve its National Defense Mission capabilities without degradation	Meets environmental criteria. Could result in land use incompatibilities and impacts on biological resources and traffic (especially during underground construction) with construction on MCAS Miramar.	Not analyzed due to regulatory infeasibility of siting alternative transmission line on MCAS Miramar.
MCAS Miramar–Combination Underground/ Overhead Alternative	Meets all project objectives.	Meets technical feasibility criteria. Not regulatory or legally feasible due to MCAS Miramar statement that alternatives on the base could not be permitted in order to preserve its National Defense Mission capabilities without degradation	Meets environmental criteria. Could result in land use incompatibilities and impacts on biological resources and traffic (especially during underground construction) with construction on MCAS Miramar.	Not analyzed due to regulatory infeasibility of siting alternative transmission line on MCAS Miramar.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Rancho Peñasquitos Boulevard Bike Path Alternative	Meets all project objectives.	Meets technical and legal criteria. However the portion of this alternative within SR56 ROW would not be regulatory feasible to permit due to Caltrans regulations.	Meets environmental criteria by moving line farther from residences.	Not analyzed because once the city transfers the land to Caltrans, Caltrans does not allow longitudinal encroachments within its restricted highways.
Carmel Valley Road Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Longer than the Proposed Project segment and would merely transfer potential environmental impacts from one community to another without any net benefit.	Not analyzed due to longer length and would just shift impacts to another residential area.
State Route 56 Alternative	Meets all project objectives.	Meets technical and legal criteria. Not regulatory feasible to permit/ construct within SR56 ROW due to Caltrans regulations.	Meets environmental criteria but would have greater traffic impacts on heavily traveled SR56.	Not analyzed because not regulatory feasible due to Caltrans regulations.
MP 146.5 to Peñasquitos Substation Underground and Consolidation Alternative	Meets all project objectives.	Meets regulatory and technical feasibility criteria. Not legally feasible because it would require burial of existing transmission lines not affected by the project.	Causes additional ground disturbance with undergrounding and consolidation of existing lines to biological and cultural resources, soil, and water quality. Steep topography of existing ROW would result in substantial erosion.	Not analyzed because legally infeasible with burial of existing transmission lines not affected by the project.
Scripps-Poway Parkway to State Route 56 Alternative	Meets all project objectives.	Meets technical and legal criteria. Not regulatory feasible to permit/ construct within SR56 ROW due to Caltrans regulations.	Meets environmental criteria but would have greater traffic impacts on heavily traveled SR56.	Not analyzed because not regulatory feasible due to Caltrans regulations.
Scripps-Poway Parkway – Pomerado Road Underground Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Requires new ROW close to an existing ROW, causes greater short-term traffic impacts and increases visual impacts from the additional transition structures adjacent to residences. Provides questionable aesthetic benefit because existing lines would remain in place, partially offsetting perceived visual benefit from burial of new line.	Not analyzed because greater environmental impacts.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SUBSTATION ALTERNATIVES TO CENTRAL EAST SUBSTATION				
SDG&E Central South Substation Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Requires 20-mile-longer 500 kV line with taller towers that would be required through the Santa Ysabel Valley.	Not analyzed due to the 20-mile-longer 500 kV line that would be required through the Santa Ysabel Valley.
Mataguay Substation Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Creates unmitigable impacts to Stephens' kangaroo rat, visual and recreation impacts to Boy Scout camp and Highway S2. VID, the landowner, prefers the Top of the World site, which has been retained.	Not analyzed due to greater visual, recreation, and biological resources impacts.
SDG&E Warner West Substation Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Longer route, crosses numerous private parcels, high density of historical and archaeological sites, and agricultural and residential land-use constraints.	Not analyzed due to longer length and greater environmental impacts.
Warner Substation Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria.	Located on VID preserve land in flat open space and so would be highly visible to travelers on SR79 and for a far distance across the valley. Longer route with increased ground disturbance.	Not analyzed due to greater environmental impacts and higher visibility.
SOUTHWEST POWERLINK ALTERNATIVES				
West of Forest Alternative	Meets most project objectives. Would not fully meet SDG&E's reliability objective due to collocation with SWPL for 52 miles.	Meets technical, legal, and regulatory feasibility criteria. Would require a Forest Plan Amendment.	Meets environmental criteria. Avoids ABDSP and 28 miles shorter, but would cross through more private land and rugged open space.	Not analyzed due to moderate wildfire risk that could result in double line outage. The 12-mile segment north of I-8 has been retained as part of I-8 Alternative.
SDG&E Route B Alternative	Meets most project objectives. Would meet SDG&E's reliability objective due to collocation with SWPL for only 39 miles in lower fire risk area.	Meets legal criteria. Would require a Forest Plan Amendment and State Park Plan Amendment, which could present regulatory feasibility issues. Likely technical infeasibility of constructing a 500 kV line through central historic Julian,	Passes by area of high scenic value (Highway S1 is a National Scenic Byway), residences around Julian, and through a portion ABDSP.	Not analyzed due to impacts along S1, residences around Julian, likely infeasibility of constructing a 500 kV line through central Julian, and it would pass through ABDSP.
SDG&E Route Segment C Alternative	Meets most project objectives. Would not fully meet SDG&E's reliability objective due to collocation with SWPL for 60 miles.	Meets technical, legal, and regulatory feasibility criteria. Would require a Forest Plan Amendment.	Avoids ABDSP, but passes adjacent to many residential receptors in Campo, Pine Valley, and Descanso.	Not analyzed due to large number of residences along the corridor.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SDG&E Route Segment BC Alternative	Meets most project objectives. Would meet SDG&E's reliability objective due to collocation with SWPL for only 35 or 39 miles in lower fire risk area.	Meets technical and regulatory feasibility criteria. Would require a Forest Plan Amendment. Legal feasibility hinges on approval by Campo Indian Tribe for an easement on the Reservation.	Passes through areas with residential development, around Old Highway 80, such as the communities of Boulevard, Manzanita, Live Oak Springs, and would be within the Campo Indian Reservation, in the vicinity of the Golden Acorn Casino, for about 1.5 miles.	Not analyzed due to large number of residences along the corridor.
West of Forest – Otay Segment Alternative	Meets most project objectives. Would not meet SDG&E's reliability objective due to collocation with SWPL 73 miles within "Very High Fire Risk" areas.	Meets technical, legal, and regulatory feasibility criteria.	Pass through more residential areas along the SWPL (in the vicinity of Highway 94 and Campo Reservation), sensitive biological resources near Otay Mesa, and through an area of high fire risk.	Not analyzed due to impacts to residential areas and require a longer collocation of 500 kV lines within Very High Fire Risk" areas, reducing the reliability value of the new line.
FULL PROJECT ROUTE AND SYSTEM ALTERNATIVES				
Mexico Light 230 kV Alternative	Objectives not fully met, because an incremental increase of ~140 MW provides only a short-term solution to SDG&E's need for additional import capacity. Is considered as part of No Project/No Action Alternative or in combination with other alternatives.	Meets technical feasibility criteria. Legal and regulatory feasibility is uncertain due to the need to implement procedures and reach operating agreements with the CFE.	Meets environmental criteria. Defers need for the Proposed Project and thus defers all impacts.	Could provide a short-term solution to SDG&E's need for additional import capacity, but would not fully meet project objectives. It is considered as a component of the No Project/No Action Alternative (see Section C.8).
Path 44 Upgrade Alternative	Objectives not fully met, because an incremental increase of ~300 MW provides only a short-term solution to SDG&E's need for additional import capacity. Is considered as part of No Project/No Action Alternative or in combination with other alternatives.	Meets legal and technical feasibility criteria. Requires transmission upgrades in SCE territory, which could delay project timeline.	Meets environmental criteria. Defers need for the Proposed Project and thus defers all impacts.	Could provide a short-term solution to SDG&E's need for additional import capacity, but would not fully meet project objectives. It is considered as a component of the No Project/Action Alternative (see Section C.8).

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SDG&E Southwest Powerlink (SWPL) No. 2 Alternatives	Would not meet reliability objective due to collocation with SWPL. Would not meet objective to reduce energy costs because of congestion problems around the Miguel Substation and north of Miguel, which would require prohibitively costly upgrades to resolve.	Meets legal and regulatory criteria. Technical feasibility issues because would be extremely challenging and expensive to construct additional lines out of the Miguel Substation due to the need to re-design the existing lines within this heavily used and constrained corridor.	If feasible, these new lines would create potentially significant impacts on the many developed areas adjacent to the Miguel-Mission transmission corridor.	Not analyzed because would not meet project objective due to reliability concerns and would be challenging to construct.
Convert SWPL to DC Alternative	Would provide transmission capability for renewable energy. Would escalate project and congestion costs to a point where second objective (reduce congestion costs) would not likely be achieved. Would also not enhance system reliability.	Assuming space exists around the Miguel Substation to accommodate the converter station and the transmission upgrades, this alternative would be technically, legally, and regulatory feasible.	DC converter stations would cause short- and long-term impacts at Imperial Valley and Miguel Substations, including new visual and possibly biological and cultural impacts adjacent to the two substations. Also, it would require construction of more or upgraded transmission lines north of Miguel Substation through densely populated areas.	Not analyzed because would not meet two major project objectives due to reliability concerns with a loss of an expanded SWPL and would result in the exacerbation of congestion problems and costs around Miguel Substation.
Upgrade Series Capacitors along SWPL	Provides capability for only a marginal increase in capacity on existing SWPL. Utilizes an existing circuit, so there would be no increase to system reliability or import capability under G-1/N-1 conditions. Additional capacity would be delivered to Miguel Substation thereby exacerbating existing congestion problems.	Meets technical, legal, and regulatory feasibility criteria.	Most major impacts of the Proposed Project would be avoided because no new transmission facilities would be built in ABDSP or in the vicinity of Santa Ysabel, Ramona, or Sycamore Canyon. However, would cause construction-phase impacts of installing series capacitors along SWPL. Would likely require construction-phase and permanent impacts of more transmission lines north of Miguel Substation through densely populated areas where corridors are already at capacity.	Not analyzed because would not meet two major project objectives due to reliability concerns with a loss of an expanded SWPL and congestion problems and costs around Miguel Substation. Would not improve SDG&E's import capability during N-1 conditions.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
SDG&E 230 kV CFE Alternative	Technical studies would be needed to determine whether it could achieve the objective of maintaining reliability.	Although technically feasible, the CFE 230 kV system is already interconnected with SDG&E's & under CFE control. Involves uncertain timing and potentially insurmountable regulatory and legal feasibility issues. CFE is not subject to the FERC, so there would be no overriding authority to direct the outcome of negotiations.	Meets environmental criteria. Eliminates all impacts of the Proposed Project replacing it with construction of a shorter 230 kV lines.	Not analyzed due to uncertainty of the timing and outcome of the required regulatory and legal negotiations. CFE is not subject to the FERC so there would be no over-riding authority to direct the outcome.
Serrano/Valley-Central 500 kV Alternative	Meets all project objectives.	Meets technical, legal, and regulatory feasibility criteria. Would require a Forest Plan Amendment.	It would create a new corridor through highly sensitive areas of the CNF, resulting in substantial ground disturbance and visual impacts.	Not analyzed due to environmental impacts as severe as those of the Proposed Project
Valley-Rainbow 500 kV Alternatives [Includes Devers-Pala, Devers-Ramona, Coachella-Ramona-Miguel, Devers-Miguel via Northern San Diego County, and Devers-Miguel via Imperial County]	Meets all project objectives.	Meets technical criteria. Legal feasibility hinges on approval by Pechanga Tribe to cross reservation lands. Regulatory feasibility issues with permitting a crossing of Roadless Area, national monuments, Wilderness Study Area, and ABDSP.	Creates potential land use impacts to national monuments, Roadless Areas on national forest lands, Indian reservations, the Beauty Mountain Wilderness Study Area, and ABDSP. Also creates land use impact in the vicinity of Temecula.	Not analyzed because no corridors are available that would reduce impacts in comparison to those of the Proposed Project.
V-R Serrano-Talega Alternative	Would not provide direct access to renewable generation in Imperial Valley. Meets most project objectives.	Meets legal and regulatory criteria. The feasibility of using this route is highly questionable because surrounding urban development constrains the corridor with little or no space for addition of new 500 kV towers at reasonable cost.	Passes through highly developed urban area.	Not analyzed due to technical feasibility issues and land use impacts of urban area.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Valley-Central 500 kV Alternative	Would not provide direct access to renewable generation in Imperial Valley. Meets most project objectives.	Meets technical and legal criteria. Regulatory feasibility is uncertain.	Due to potential land use impacts to the Southwest Riverside County Multi-Species Reserve and communities of Winchester, Hemet, and Temecula.	Not analyzed due to significant land use impacts.
SDG&E 500 kV Full Loop or Full Loop North Alternatives	Meets all project objectives.	Meets technical, legal, and regulatory criteria. However, substantial regulatory hurdles would need to be overcome to permit the route.	Additional length would add to the impacts of the Proposed Project due to the additional construction and ROW required.	Not analyzed due to the additional construction and ROW required.
Northern Service Territory Upgrades Alternatives [Includes SONGS Light and SONGS Heavy 230 kV Alternatives]	Would not provide direct access to renewable generation in Imperial Valley. Meets most project objectives.	The feasibility of using the Serrano-Talega route is highly questionable because surrounding urban development constrains the ROW. The existing Serrano-Talega corridor has little or no space for addition of new 500 kV towers at reasonable cost.	Passes through highly developed urban area.	Not analyzed due to technical feasibility issues and land use impacts of urban area.
SDG&E Imperial Valley-Central 230 kV ("Four 230 kV Circuits") Alternative	Meets all project objectives.	Meets technical, legal, and regulatory criteria.	Requires additional towers so impacts would be more severe than those of the Proposed Project, and would outweigh the environmental advantages of placing portions of the Imperial Valley-Central segment underground.	Not analyzed due to greater environmental impacts from additional towers.
HTLS Composite Conductor Alternative	Meets project objectives, except those relating to economics.	Meets legal and regulatory criteria. To date there are no examples of 500 kV HTLS conductor in use or being installed so technical feasibility is uncertain. The higher costs of this alternative make it prohibitive.	Provides slightly greater span lengths and a marginal reduction in the number of towers required. The same ROW width would be required.	Not analyzed due to technical uncertainties and higher costs.
All Underground 230 kV or 500 kV Alternative	Meets project objectives, except those relating to economics.	Meets legal and regulatory criteria. Placing 500 kV lines underground is generally not technically feasible except for very short segments. Would involve higher construction and operating costs.	Undergrounding all of the multiple 230 kV circuits would involve much greater ground-disturbing impacts.	Not analyzed due to much greater ground disturbance impacts and technical feasibility concerns associated with undergrounding long segments of 500 kV line.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Green Path Coordinated Projects Alternative	Would not meet any of the objectives. Green Path Projects are being developed to export power from the IID service area to points on the periphery of its service area including San Diego and LADWP system. Could provide increased access to Imperial Valley renewable resources if it were combined with an interconnection from SDG&E's territory to SCE or IID, such as the LEAPS Project or the Proposed Project.	Meets technical, legal, and regulatory feasibility criteria. IID/ Citizens and LADWP are actively pursuing without CPUC involvement. Substantial regulatory hurdles would need to be overcome to permit the route; it would pass through protected BLM lands and near residential communities.	No new transmission facilities would be built in ABDSP or in the vicinity of Santa Ysabel, Ramona, or Sycamore Canyon, and Proposed Project would be avoided. However, new transmission facilities would be constructed in the Imperial Valley, Riverside County, and San Bernardino County. This would introduce construction-phase impacts and the permanent effects of new infrastructure to these areas.	Not analyzed because no facilities would be provided to expand the deliverability of this power to load centers in San Diego County. Only in combination with an interconnection from SDG&E territory to SCE or IID might this alternative marginally achieve any of the three basic objectives.
NON-WIRES ALTERNATIVES				
Non-Renewable Distributed Generation (DG) Alternative	Improves in-area reliability, because provides a valuable local resource. However, would not alone achieve the reliability goals set for SRPL. Assumed to meet the "reduced energy cost" criterion. While some DG may be renewable, DG does not directly promote renewable energy or directly contribute to SDG&E meeting its renewable portfolio standard obligations.	DG would be a feasible only for partially meeting load growth. DG is limited relative to the need for in-area generation to meet local area reliability tests. Since SDREO administrates the SGIP, SDG&E has limited ability to increase DG through programmatic means.	Environmental impacts of the Proposed Project would not occur under the Non-Renewable Distributed Generation Alternative. Potential new impacts would depend on type of DG that would be used. Conventional fossil-fueled DG facilities would create air quality and noise impacts in the vicinity of each generating facility.	Not analyzed because DG deployment could not provide sufficient in-area generation alone to satisfy the reliability objective. However, it would be feasible to develop ~ 35 MW of additional, reliable DG, this alternative could be part of other non-wires alternatives.
Energy Efficiency Alternative	Contributes to maintaining or improving reliability. Would be cost-effective relative to SDG&E purchasing or developing supply-side resources to meet the displaced load. However, cannot directly promote renewable energy or directly contribute to SDG&E meeting its renewable portfolio standard obligations, and therefore it fails to meet the renewable energy objective.	Achieving incremental savings beyond the baseline level is speculative at best. Therefore, energy efficiency alone is not a technically feasible alternative to the Proposed Project to meet load growth.	Meets environmental criteria. Would reduce energy consumption, and therefore reduce the need for power generation and new transmission lines. All effects of the Proposed Project would be avoided.	Not analyzed because additional energy efficiency beyond the baseline condition is speculative and it could not provide the capacity that would be deliverable by SRPL. Fails to meet the renewable energy objective.

Table C-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Potential Feasibility	Avoid/Reduce Environmental Effects?	Conclusions
Demand Response (DR) Alternative	Would not meet reliability objective because CAISO policy does not include DR in local reliability assessments. By curtailing utility purchasing during the highest-cost hours, DR would meet the objective of reducing energy costs. Would not contribute to promoting renewable energy.	The level of reductions associated with DR and deployment of AMI involve speculation. The residential class represents half of projected demand reductions from AMI deployment, but performance is highly dependent upon program participation. There are potential concerns regarding the feasibility of DR.	Meets environmental criteria. This alternative would reduce peak demand, and therefore reduce the need for power generation and new transmission lines. All effects of the Proposed Project would be avoided.	Not analyzed because speculative and could not replace the capacity associated with SRPL. Fails to meet the renewable energy objective. However, could be used as part of any feasible alternative that meets the project objectives.
All Solar Alternative	Would contribute to local reliability but would not satisfy the CAISO G-1/N-1 reliability objective through 2020. Would not reduce energy costs before 2017. Meets the renewable energy objective.	Unknown level of incentives would be required to drive unprecedented rapid deployment necessary to meet reliability objective.	Meets environmental criteria. This alternative would provide sufficient generation capacity to defer the need for the Proposed Project and for centralized power generation. All effects of the Proposed Project would be avoided.	Not analyzed because development is infeasible within the short timeframe. The New In-Area Renewable Generation Alternative (Section 4.10.2), however, would partially implement this with other renewable generation components.

C.4 Alternatives Evaluated in this EIR/EIS

C.4.1 Introduction

As discussed in Section C.2, 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 alternatives described in this section were selected for detailed analysis within this EIR/EIS.

C.4.2 Transmission Line Route Alternatives: Imperial Valley Link Route Segment

Three of the Imperial Valley Link alternatives were retained for further analysis in the EIR/EIS (Figure C-1 and in detail in Figure Ap.1-2 in Appendix 1 and on figures within Section D). Each of the Imperial Valley Link Alternatives is described below and Imperial Valley Link route segment alternatives that were eliminated from full analysis in the EIR/EIS are discussed in Section C.5.1 (Figure C-9). All of the route alternatives considered within this link are shown on Figure Ap.1-1 (Appendix 1).

C.4.2.1 FTHL Eastern Alternative

Description

This alternative was developed by the EIR/EIS team as a way to avoid almost 2 miles within the Flat-Tailed Horned Lizard (FTHL) Management Area. This route is shown in Figure C-1 and in detail in Figure Ap.1-2 (Appendix 1). It would begin at MP 3 by turning north and diverging from the proposed route. The alternative would travel for approximately 4.5 miles north following section lines across agricultural lands and crossing I-8 (approximately 1mile east of where the proposed route would cross I-8) to rejoin the Proposed Project at MP 8.8. This route would be approximately 1.5 miles shorter than the proposed route.

Rationale for Full Analysis

This alternative would meet project objectives and would be potentially feasible. Although the alternative would have greater agricultural, land use and public health and safety impacts, it would reduce impacts to the BLM FTHL Management Area, would be shorter and would be farther from a master plan community development.

C.4.2.2 SDG&E West of Dunaway Alternative

Description

This alternative was suggested by SDG&E and approved by the proposed land use developer in the area. This route is shown in Figure C-1 (and in more detail in Ap.1-2 of Appendix 1) and would diverge from the Proposed Project at MP 4. The SDG&E West of Dunaway Alternative would follow SWPL approximately 1.7 miles farther west-northwest than the Proposed Project. The route would turn north for approximately 2.5 miles, paralleling Dunaway Road (approximately 0.25 miles west of the roadway) and would traverse BLM land to meet the Arizona and San Diego Railroad ROW. South of the railroad ROW, the route would turn east and would parallel the tracks for 1.25 miles before turning briefly north to cross the tracks and Evan Hewes Highway and then turn northeast to rejoin the proposed route at MP 7.9. This route would be 2.2 miles longer than the proposed route.

Figure C-1. Imperial Valley Link: Alternatives Retained
CLICK HERE TO VIEW

Rationale for Full Analysis

This alternative would meet project objectives and would be potentially feasible. Although the route would be longer, it would avoid a major planned land development project that the proposed route would bisect.

C.4.2.3 SDG&E West Main Canal–Huff Road Modification Alternative

Description

SDG&E suggested a modification to the two Bullfrog Farms Alternatives described below (see Sections 4.2.8 and 4.2.9), in which the transmission line route would diverge from the proposed route at MP 11 and follow the IID Westside Main Canal to the east-northeast, and then turn north on Huff Road. The route would head north for 1.5 miles along the east side of Huff Road. Existing IID 92 kV transmission lines are located on the west side of Huff Road along most of this segment; however, where the IID line would turn northwest, this alternative would continue straight along Huff Road to reconnect with the Proposed Project at Tower AG46, 0.2 miles south of Wheeler Road (MP 15.9). The lengths of the alternative and the proposed routes would be essentially the same; however, this route would avoid direct effects to the Bullfrog Farms and also to the Raceway development. The route is shown on Figure C-1 (and in more detail on Figure Ap.1-2 in Appendix 1).

Rationale for Full Analysis

Planned IID system upgrades that could affect the existing 92 kV line along Huff Road would not affect the potential technical feasibility of this alternative. As a result, this alternative would meet project objectives and would be potentially feasible. It would also avoid Bullfrog Farms and impacts to a planned land development. Therefore this alternative has been retained for full evaluation in this EIR/EIS.

C.4.3 Transmission Line Route Alternatives: Anza-Borrego Link Segment

Of 13 route alternatives developed in Anza-Borrego Link, two were retained for further analysis in the EIR/EIS (~~Figure C-2 and in detail in Figure Ap.1-3 in Appendix 1 and on figures within Section D~~ Anza-Borrego Link Alternatives and revisions to these alternatives can be found on Figure ES-13). Each of the Anza-Borrego Link Alternatives is described below and Anza-Borrego Link route segment alternatives that were eliminated from full analysis in the EIR/EIS are discussed in Section C.5.2.

C.4.3.1 Partial Underground 230 kV ABDSP SR78 to S2 Alternative

Description

This alternative was developed by the EIR/EIS team and would include installation of a double-circuit bundled 230 kV line (as opposed to 500 kV with the Proposed Project) that would be installed underground in SR78 through ABDSP (including the segment of SR78 in which SDG&E is proposing to underground the existing 92 and 69 kV lines as part of the Proposed Project). The underground ROW and survey area for all options would be 60 feet wide.

The proposed Central East Substation would not be constructed with this alternative. Instead, a new 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line. The alternative configuration would consist of two 230 kV underground circuits installed in separate, concrete-encased duct banks. It would be designed to accommodate a future 230 kV circuit in the event of future transmission system expansion. In addition to the two 230 kV

circuits, an existing 69/92 kV circuit could also be undergrounded in and along SR78 between Old Kane Springs Road (MP 68.2) and Yaqui Pass Road (S3). A description of this option to consolidate proposed with existing 69/92 kV lines is also in Appendix 1 under the route alternative.

The alternative line would transition underground at a new 230/500 kV San Felipe Substation Alternative (MP 58.8), approximately two miles east of the eastern ABDSP boundary. The 230 kV underground line would travel north in Split Mountain Road for 2.6 miles and then west in SR78 for 8.2 miles to the intersection of SR78/Old Kane Springs Road at MP 68.2 where it would meet back up with the proposed route. It would then travel approximately 13 miles in SR78 to a point 1.0 miles east of the intersection with S2 (San Felipe Road) where it would transition overhead on the north side of the roadway at a point that would be 50 to 100 feet east of the Earthquake Valley Fault and the Alquist-Priolo Zone. San Felipe Creek is adjacent to the north side of SR78 and steep hills with washes border SR78 to the south.

After traveling one mile overhead to the west, around the northeast corner of the SR78 intersection with S2, the route would transition back to underground and would turn northwest in S2 for 3 miles. Approximately 50 to 100 feet west of the Earthquake Valley Fault zone, the line would transition to overhead once again and would continue north adjacent to the east side of S2 (San Felipe Road) outside of ABDSP for 8.8 additional miles, bypassing the Central East Substation area. The route would rejoin the proposed route on S2 at MP 92.7 near Montezuma Valley Road (S22). The route is illustrated in ~~Figure C-2~~ Figure ES-13 of the Final EIR/EIS.

Detailed descriptions of the substation expansion, underground line configuration, 69/92 kV line consolidation option, and all-underground option associated with this route alternative are in Appendix 1. Please refer to Appendix 1, Section 4.9.27 for a discussion of underground transmission lines. Related discussion of High Voltage Direct Current (HVDC) underground transmission technology is in Appendix 1, Section 4.3.12.

All Underground Option. An all-underground option is also considered in this EIR/EIS, in which the two overhead segments of this alternative would remain underground within Highways SR78 and S2. These segments would cross and parallel the Earthquake Valley Fault.

Rationale for Full Analysis

Despite capacity limitation and future expandability concerns, an underground 230 kV from the San Felipe Substation would meet most of the project objectives. The route would transition overhead to cross the Earthquake Valley Fault in order to eliminate technical feasibility concerns related to the underground crossing of the fault; however, an all-underground option is also retained to reduce visual and recreational and visual impacts. Some blasting and road closures may be necessary as a result of space limitations in the existing roadways; however, this alternative would avoid Grapevine Canyon and much of it would be constructed within paved roadways reducing visual, biological, and cultural resources impacts. Because this alternative would reduce significant impacts of the proposed route within ABDSP, it has been retained for full evaluation in this EIR/EIS.

Project Objectives, Purpose and Need. This alternative would meet most project objectives. It would maintain reliability of service, provide transmission capability for renewable resources and would reduce energy costs in the San Diego region, which are the three primary objectives. It would, however, require that future expansion of a 500 kV line and 230 kV lines beyond one additional circuit would possibly be built along overhead routes through the Park.

Figure ES-13. Anza-Borrego Link Alternatives Retained
CLICK HERE TO VIEW

Technical Feasibility. Construction in S2 and S78 would be difficult but potentially feasible. To match the narrow dimensions of the existing roads, the underground cables would be closer together than an ideal design and would suffer a lower transfer capacity as a result of heating. Transfer capacity limits the technical feasibility of this alternative.

Overhead segments in this alternative were placed to minimize impacts of the Elsinore and Earthquake Valley Faults so the alternative should not present any technical feasibility issues. However, the All Underground Option would place a double-circuit 230 kV transmission line underground within SR78 near the Earthquake Valley Fault, which would increase reliability concerns. However, due to the relative inactivity of the fault and the low likelihood of this type of natural disaster occurring, it is not anticipated that the fault would rupture during the expected life of the project (i.e., 50 to 100 years). Therefore, it is not expected that reliability performance thresholds would be violated, which generally determine that an outage once in every 30 years is acceptable. The All Underground Option's location crossing and parallel to the Earthquake Valley Fault is not considered to pose a significant reliability concern and the option would be technically feasible.

Regulatory Feasibility. There are several regulatory feasibility issues including:

- *California Department of Parks and Recreation*. Potentially significant impacts of five to six equipment and materials lay-down areas would occur to the ABDSP, and notably to designated state wilderness and designated critical habitat. Mitigation measures and restoration techniques for these impacts would be subject to approval of the ABDSP and the appropriate resource agencies. Construction of the overhead portion of this alternative would be within State-designated Grapevine Mountain Wilderness Area, requiring a de-designation of approximately one mile of Wilderness Area and a State Park Plan Amendment which are regulatory infeasibilities that could delay the in-service date.
- *California Department of Transportation*. In the narrow roadway areas bordered by steep rock cuts on one side and down slopes on the other side, there is limited work space for equipment. The limited work space afforded by the narrow roadway would require different and slower operations than what are normally used, and would require road closures and detours during these operations, which would need to be approved by Caltrans. Approval from Caltrans for bridge attachments would be required to add the line to an existing bridge on SR78.
- *San Felipe Hills Wilderness Study Area*. The line would be west of and outside of the WSA, so there would be no regulatory feasibility issues.
- *San Felipe Valley Wildlife Area*. Consultation would be required with CDFG to cross this area along S2, but it would potentially be regulatory feasible.

Legal Feasibility. This alternative is potentially legally feasible.

Lessen Significant Environmental Impacts. This alternative has the potential to lessen environmental impacts as follows.

- **Elimination of Central East Substation Construction**. Under this alternative, the proposed Central East Substation would not be constructed, but a new 230/500 kV substation would be constructed adjacent to the existing San Felipe Substation.
- **Visual Resources**. Underground installation of the transmission line would eliminate visual impacts within all but one mile of ABDSP. The All Underground Option would eliminate all visual impacts along the proposed route in this segment except for at the San Felipe Substation and the overhead transition structure at its northwestern end.

- **Biological Resources**. Construction would occur in a paved roadway, which is in good condition, and therefore, vegetation and wildlife habitat would not be disturbed unless the roadway needs to be widened to accommodate the underground duct banks and vaults.
- **Cultural Resources**. Construction would occur in a paved highway and therefore the potential to impact known or unknown cultural or archaeological resources is less than that of the Proposed Project. This underground route would avoid Grapevine Canyon and would eliminate potential archaeological impacts in that area and to resources in the Angelina Springs District.
- **Residential Use.** This alternative would avoid rural residences along Old Kane Springs Road.
- **Noise.** This alternative would eliminate corona noise impacts to the residences along Old Kane Springs Road.

C.4.3.2 Overhead 500 kV ABDSP within Existing ROW

Description

This alternative was suggested by SDG&E and developed by the EIR/EIS team in an attempt to minimize impacts on Pinyon Ridge Wilderness Area by staying within a 100-foot-wide corridor along the existing ROW, and not requiring the additional 50-foot-wide expansion needed by the Proposed Project. The alternative is shown on Figure ES-13 of the Final EIR/EIS ~~Figure C-2~~. The alternative would follow the same route as the proposed route, except in the Grapevine Canyon area in the Angelina Springs Cultural District where the alternative would remain within the existing SDG&E 69 kV ROW/easement and towers would not be located on State-designated Wilderness. Section B.2.2 includes a discussion of the history and width of the existing easement through the State Park.

The existing 69 kV and 92 kV lines would be installed as an underbuild on 500 kV Delta lattice towers. Taller than the proposed 130-foot structures, alternative structures would range in height from 135 feet to 175 feet (median height of 160 feet and mean height of 157 feet), with the exception of three steel poles (median height of 170 feet), which may be required in a few locations due to close proximity to SR78. The total structures in ABDSP, including the starting and ending towers at MPs 60.9 and 83.5, would be 143 for the Proposed Project and 147 for the Existing ROW Alternative because of shorter alternative span lengths.

East of Tamarisk Grove Campground Option. This option was suggested by SDG&E in which the alternative would follow the proposed 150-foot-wide ROW, and not the existing ROW, between the eastern Park boundary (MP 60.9) and the west side of Tamarisk Grove Campground (MP 74.8) near the SR78/Highway S3 intersection. Figure D.5-12 in Section D.5, Wilderness and Recreation, shows a map of this option. In comparison to the Overhead 500 kV ABDSP within Existing ROW Alternative, this option would move the new 500 kV transmission line farther from SR78 and Tamarisk Grove Campground, reducing highway encroachment and tree trimming around the campground. Use of the option would require discretionary action/approval from California State Park that may not be otherwise required under the Overhead 500 kV ABDSP within Existing ROW Alternative.

This alternative would begin where the Proposed Project intersects with the east boundary of the State Park. Similar to the Proposed Project described in Section B.2.2, SDG&E would remove the 92 kV conductors from the existing wood poles between MP 60.9 and MP 68.2 and attach them to the new 500 kV lattice steel towers as an underbuild. At MP 68.2, the 92 kV circuit would transition from overhead to underground, and continue within SR78 road ROW while the 500 kV line would continue as an overhead line on the north side of SR78. The relocated 92 kV underground transmission line would terminate at the existing Narrows Substation. The 500 kV line would not connect with the Narrows Substation.

SDG&E's existing 69 kV line to Borrego Springs would intersect the Overhead 500 kV ABDSP within Existing ROW Alternative corridor just west of the Narrows Substation (MP 69.7). Between MP 69.7 and MP 74.8, the existing 69 kV line would be placed underground within the SR78 road ROW, whereas the 500 kV line would continue west as an overhead line within the SDG&E's existing easement on the north side of SR78.

At the intersection of S3 and SR78 (MP 74.8), the 69 kV line would transition back to an overhead configuration and would be attached (underbuilt) onto the new 500 kV lattice steel towers. This segment would traverse Grapevine Canyon following the existing ROW to the western boundary of ABDSP (MP 83.5). The wood poles that currently support the 69 or 92 kV segments that would be underbuilt on the new 500 kV structures or placed underground would be removed (MP 61.7 to MP 83.5).

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested that the following reroutes be considered:

- **Overhead 500 kV ABDSP Within Existing ROW Alternative Revision.** This reroute was suggested by SDG&E so that all project activities would remain within the existing ROW within the ABDSP. This design revision would relocate access roads, pull sites, etc. and would thereby locate the 500 kV transmission line entirely within a 100-foot corridor and out of State-designated Wilderness through ABDSP. Therefore, the 100-Ft ROW in ABDSP Revision has been incorporated into the Overhead 500 kV ABDSP Within Existing 100-Foot Corridor Alternative as a reroute as well as into SDG&E's Enhanced Northern Route. However, this reroute would not be incorporated into the Environmentally Superior Northern Alternative.

This reroute is shown on Figure ES-13 of the Final EIR/EIS. Discussion of this reroute is presented in Section D.4.6 of the Final EIR/EIS.

- **Around Narrows Substation Revision.** This reroute was suggested by SDG&E due to updated engineering, and would apply to the Proposed Project and SDG&E's "Enhanced" Northern Route in the vicinity of the Narrows Substation within ABDSP (MP 69.7). Instead of crossing over the existing substation to its south side, the reroute would remain within SDG&E's easement and the 500 kV line would be rerouted to the north side of the substation. The reroute would result in aerial encroachment over Caltrans ROW, but it would reduce health and worker safety concerns by not crossing over the 69/92 kV equipment inside the substation. No other new impacts would be create or reduced. Therefore, the Around Narrows Substation Reroute has been incorporated into the Proposed Project as a reroute as well as into SDG&E's "Enhanced" Northern Route. This reroute would not be incorporated into the Environmentally Superior Northern Alternative.

This reroute is shown on revised Figure B-4b of the Final EIR/EIS. Discussion of this reroute is presented in Section D.4.15.2 of the Final EIR/EIS.

Rationale for Full Analysis

This Overhead 500 kV ABDSP Within Existing ROW Alternative would meet project objectives and would be potentially feasible. The alternative would cause greater impacts to almost all issue areas due to taller and additional towers within ABDSP, and it would cross directly through the Angelina Springs Cultural District. However, because it would stay within SDG&E's 69 kV existing easement and thereby eliminate direct impacts to State-designated Wilderness and the need to de-designate Wilderness, this alternative has been retained for full evaluation in this EIR/EIS.

C.4.4 Transmission Line Route Alternatives: Central Link Segment

Eight Central Link alternatives have been developed. Four of the Central Link alternatives were retained for further analysis in the EIR/EIS (~~Figure C-3 and in detail in Figure Ap.1-10 in Appendix 1~~ Figure ES-14 in the Final EIR/EIS, Figure 3-4 of the Recirculated Draft EIR/Supplemental Draft EIS and on figures within Section D). Each of the Central Link Alternatives is described below and Central Link route segment alternatives that were eliminated from full analysis in the EIR/EIS are discussed in Section C.5.3.

C.4.4.1 Santa Ysabel Existing ROW Alternative

Description

This alternative was developed by the EIR/EIS team and was also suggested during scoping by the San Dieguito River Valley Regional Open Space Park, who suggested that the line be placed along the toe of the slope to the east so the line would be less visible. Therefore, this alternative would follow an existing 69 kV transmission line ROW, east of SR79 and along the toe slope for the southern portion of the alternative. The northern portion of the route (between MP 100 and MP 106 of the proposed route) was also evaluated by SDG&E as PEA Alignment N18-N68 in San Diego County and as part of SDG&E's Segment 9.

This alternative would begin at MP 100 and would travel south for approximately 4.7 miles on the west side of SR79, following the west side (farther from SR79) of an existing SDG&E 69 kV transmission line. Around MP 1.1, the line would be located approximately 400 feet farther west for approximately 0.8 miles to reduce impacts to residential receptors.

Where the southern border of the Santa Ysabel Reservation no longer parallels the east side of SR78 and the valley begins to open up, the alternative route and the existing 69 kV transmission line would cross to the east side of SR79 (approximately 1,800 feet south of School House Canyon Road). The route would be located approximately 800 to 1,600 feet east of SR79 and east of the existing 69 kV poles. The route would continue south for 3.2 miles (19 towers) on the east side of SR79, behind the Santa Ysabel Mission until it would pass east of the Santa Ysabel Substation and then cross SR78 as it turns south in the town of Santa Ysabel. The route would continue south for 0.5 miles before turning southwest for 1.0 mile and rejoining the Proposed Project at approximately MP 109.5 (Tower C11). The alternative would be 0.5 miles shorter than the Proposed Project.

Rationale for Full Analysis

The Santa Ysabel Existing ROW Alternative would meet all project objectives and has the potential to be technically, legally, and regulatory feasible. It was designed to have overhead crossings through the Alquist-Priolo Fault Zone of the Elsinore Fault and its fault strands so it should not present any technical feasibility concerns. The southern part of the alternative on the east side of SR79 would move the route away from the center of Santa Ysabel Valley so impacts there would be less than the proposed route.

C.4.4.2 Santa Ysabel All Underground Alternative

Description

This alternative was suggested by several commenters and San Dieguito River Valley Regional Open Space Park during scoping and it is illustrated in Figure ES-14 ~~Figure C-3~~ (~~and in detail on Figure Ap.1-12 in Appendix 1~~). This alternative would include undergrounding the 230 kV transmission line within

Figure ES-14. Central Link Alternatives Retained
CLICK HERE TO VIEW

SR79 through Santa Ysabel. A portion of the Santa Ysabel All Underground Alternative under SR79 would be located partially on Santa Ysabel Tribal lands. The underground ROW would be 60 feet wide.

With the landowner's suggestion during scoping, the route has been modified to include an overhead segment at the north end to cross the active fault zone of the Elsinore Fault, which is located parallel to SR79 and the Santa Ysabel Valley in the northern portion of this alternative. The underground route would be in dirt roads and hay fields on private ranch lands generally parallel to SR79.

The 8.9-mile alternative route would diverge from the proposed route at MP 100 and would follow the existing 69 kV ROW overhead for approximately 1,100 feet south until the line would be west of the Alquist-Priolo Fault Zone. The line would transition underground and would travel south for approximately 0.9 miles while being located east of and parallel to the existing 69 kV ROW. The Santa Ysabel All Underground Alternative would then turn east for approximately 1,500 feet and would cross a drainage area that would require a horizontal directional drill as well as existing hay fields to intersect SR79. To the extent feasible, any vaults in operational agricultural fields would be located to line up with fence lines in the field to minimize interference with plowing operations. The alternative route would enter SR79 south of the designated Elsinore Fault Alquist-Priolo Fault Zone and would travel south in the roadway.

South of Mesa Grande Road, this alternative would be the same as the Santa Ysabel Partial Underground Alternative (see Section 4.4.3). The route would travel underground in SR79 for 3.5 miles to its intersection with SR78. The line would jog east passing the existing Santa Ysabel Substation and turning south for 0.6 miles on access roads for the existing Santa Ysabel–Creelman 69 kV transmission line. Where the existing 69 kV line turns southwest, this alternative would turn west-southwest and would follow an existing dirt road for approximately one mile. The underground segment would rejoin the proposed route at approximately MP 109.4.and would transition overhead.

Rationale for Full Analysis

This underground alternative would meet project objectives and has the potential to be feasible, because it would cross the Elsinore Fault overhead and would be west of the Alquist-Priolo Fault Zone where it would be underground. Even though it may be located on the Santa Ysabel Reservation at its western boundary, it would likely be legally feasible pending tribal approval, because construction would be entirely in the SR79 roadway. This alternative would eliminate visual, recreational, and biological impacts because construction would be primarily within existing ranching roads or SR79. It should be noted that a partial underground alternative in this area is also retained for full analysis (see Section C.4.4.3, Santa Ysabel Partial Underground Alternative).

C.4.4.3 Santa Ysabel Partial Underground Alternative

Description

This alternative was developed by the EIR/EIS team as a way to reduce visual impacts in the Santa Ysabel Valley and avoid underground crossings of the Elsinore Fault, which parallels SR79. The route is shown in ~~Figure C-3~~ Figure ES-14 of the Final EIR/EIS ~~and in more detail in Figure Ap.1-12 (Appendix 1)~~. The underground portion of this route would require a 60-foot-wide ROW.

This 230 kV alternative would begin at MP 105.5 where the proposed route would join Mesa Grande Road at the base of the hills at the western side of the Santa Ysabel Valley. The alternative would transition underground at the southern side of Mesa Grande Road and would travel underground a short

distance to the roadway where it would turn southeast for 1.3 miles to the Mesa Grande Road/SR79 intersection. This point along SR79 would be south of the Elsinore Fault, which parallels and crosses SR79 a little over one mile to the north.

Once this alternative turns south in SR79, it would be the same as the Santa Ysabel All Underground Alternative (see Section 4.4.2). The route would travel underground in SR79 for 3.5 miles to its intersection with SR78. The line would jog east, passing the existing Santa Ysabel Substation and turning south for 0.6 miles on access roads for the existing Santa Ysabel–Creelman 69 kV transmission line. Where the existing 69 kV line turns southwest, this alternative would turn west-southwest and would follow an existing dirt road for approximately one mile. It would rejoin the proposed route at approximately MP 109.5 and would transition overhead. The route would be 0.7 miles longer than the proposed route

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested that the following reroute be considered:

- **SDG&E Santa Ysabel Partial Underground Alternative Revision.** This reroute was suggested by SDG&E to reduce potential impacts to cultural resources, including human remains buried at the cemetery at the Santa Ysabel Mission, and to also minimize impacts to properties and traffic in SR79. The underground reroute would diverge from the original Santa Ysabel Partial Underground Alternative approximately 2,200 feet east of where it would originally reach SR79. The reroute would turn south in ranching roads cutting across grazing lands along parcel boundaries for approximately one mile. At this point, the reroute would turn east along a parcel boundary for 1,900 feet and would rejoin the original alternative in SR79, near MP SYPU-2. Approximately one mile south of this point the next segment of the reroute would diverge from the original alternative just north of the town of Santa Ysabel. From near MP SYPU-3, the reroute would turn west for 600 feet and then south for 0.7 miles, passing the west side of the town and rejoining the original alternative along a private ranching road at a parcel boundary.

  At approximately Milepost SYAU-9, the SDG&E Santa Ysabel Partial Underground Alternative Revision would transition from underground to overhead. From the new transition structure, the revised route would travel approximately 1,100 feet south overhead to the next structure and then southwest for 1,200 feet, where it would rejoin the Proposed Project at approximately MP SYR-8.8.

  The transition structure for the SDG&E Santa Ysabel Partial Underground Alternative Revision would be approximately 1,400 feet northeast of the transition structure that is proposed for the original Santa Ysabel Partial Underground Alternative and Santa Ysabel All Underground Alternative.

This reroute is shown on Figure ES-14 of the Final EIR/EIS and Figure 3-4 of the RDEIR/SDEIS. Discussion of this reroute is presented in Section 3.2.2 of the RDEIR/SDEIS.

Rationale for Full Analysis

This alternative would meet project objectives and is potentially feasible because it would have an overhead crossing of the Elsinore Fault and would join SR79 south of the fault crossing. The alternative would reduce significant visual impacts in the Santa Ysabel Valley and to the Santa Ysabel Mission located east of SR79. The portions of the alternative within SR79 would reduce temporary and permanent impacts to biological resources as well.

C.4.4.4 SDG&E Mesa Grande Alternative

Description

This 230 kV alternative to a one-mile portion of the proposed overhead 230 kV route was proposed by the landowner and also by SDG&E in order to reduce visibility of the overhead line west of Mesa Grande Road. The route is shown in ~~Figure C-3~~ Figure ES-14 and in greater detail in Figure Ap.1-14 (Appendix 1). The route would diverge from the proposed route at MP 101.5 and would travel southeast for approximately 0.7 miles. At MP 102.2 it would turn southwest along the lower portion of the northwesterly facing slope of a small valley running from the northeast to the southwest to cut the angle and rejoin the Proposed Project at MP 103.5, on the southerly side of Mesa Grande Road.

Rationale for Full Analysis

This alternative would meet project objectives and has the potential to be feasible. It would reduce visual resources impacts, require fewer access roads, and it is the landowner's preference.

C.4.5 Transmission Line Route Alternatives: Inland Valley Link Segment

Seven Inland Valley Link alternatives have been developed. Four of the Inland Valley Link alternatives were retained for further analysis in the EIR/EIS (Figure C-4 and in detail in Figure Ap.1-15 in Appendix 1 and on figures within Section D). Each of the Inland Valley Link Alternatives is described below and Inland Valley Link route segment alternatives that were eliminated from full analysis in the EIR/EIS are discussed in Section C.5.4.

C.4.5.1 CNF Existing 69 kV Route Alternative

Description

This alternative was suggested during scoping to avoid scattered single-family residences on SR78 and Deer Canyon Drive in unincorporated San Diego County. At MP 111.5 where the proposed 230 kV and existing 69 kV transmission lines would be routed west for 0.5 miles and then south for approximately 0.5 miles to avoid Cleveland National Forest (CNF), the CNF Existing 69 kV Route Alternative would remain in the existing 69 kV ROW heading southwest through Cleveland National Forest for approximately 0.5 miles to rejoin the proposed route at MP 112.5. Therefore, this alternative would be 0.5 miles shorter than the Proposed Project and the existing 69 kV transmission line would not need to be relocated. The route appears on Figure C-4 and is shown in detail in Ap.1-16 (in Appendix 1).

Rationale for Full Analysis

This alternative would meet project objectives and be potentially feasible. Although the route would be located within Cleveland National Forest and may require a Plan Amendment, the route would be 0.5 miles shorter than the proposed route and would stay within the existing corridor. No new access roads or relocation of the existing 69 kV transmission line would be required.

Figure C-4. Inland Valley Link Alternatives Retained
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C.4.5.2 Oak Hollow Road Underground Alternative

Description

During scoping, comments from the Starlight Mountain Estates Owners (SMEO) suggested that the project be constructed as an underground facility within a 60-foot-wide ROW, following a portion of Oak Hollow Road, in order to avoid existing improvements and follow a route currently agreed upon among the Starlight Mountain Estates Owners. The purpose of this alternative would be extend the proposed underground segment of the 230 kV line further east so it would be underground through the residential valley area. This alternative is shown on Figure C-4 and in more detail on Figure Ap.1-17 in Appendix 1.

This alternative would transition underground at approximately MP 116.7 (around proposed Tower I93) within Mt. Gower Open Space Preserve on a hill approximately 100 feet north of an existing dirt access road. The alternative would enter private property and would travel underground in the dirt road for approximately 1,400 feet before passing between a residence and a fenced pasture to join the residence's paved driveway at its intersection with Oak Hollow Road. The route would turn west and would travel underground in paved Oak Hollow Road for approximately 1,300 feet. When Oak Hollow Road turns into a dirt road, just west of the most western driveway in the SMEO area, the line would continue west-southwest in a maintained dirt and gravel access road (Oak Hollow Road) to exit SMEO private property, traveling under a fenced gate into Mt. Gower Open Space Preserve for approximately 600 feet to west of Structure I125. The alternative would continue into Gunn Stage Road and would rejoin the underground segment of the proposed route at MP 117.3 along Gunn Stage Road.

The alternative transition tower would replace proposed Tower I93, and Proposed Project Towers I92, I91, I90, and I89 and the proposed transition poles would be eliminated. The alternative would require 0.6 miles of additional underground transmission line.

Rationale for Full Analysis

This alternative would meet project objectives and is potentially feasible. It would reduce visual impacts to the valley area, from Mt. Gower Open Space Preserve, and to residents in the Starlight Mountain Estates.

C.4.5.3 San Vicente Transition Alternative

Description

This alternative has been developed by the EIR/EIS team in response to scoping comments. It is shown on Figure C-4 and in detail on Figure Ap.1-18 (Appendix 1). The alternative would move the transition structure from its proposed location along San Vicente Road (MP 121.9) approximately 0.3 miles west to MP 122.2. The underground line would follow San Vicente Road within a 60-foot-wide ROW for an additional 2,100 feet and would cross under an existing 69 kV transmission line, before it would turn north and would travel through open space for approximately 200 feet to the overhead transition point. The line would transition overhead south of proposed Structure I8-5 and would travel west-northwest for 2,200 feet slowly converging with the proposed route at Structure I8-3. Both the proposed and alternative transition poles would be within Barnett Ranch Open Space Preserve.

Rationale for Full Analysis

This alternative would meet project objectives and would be potentially feasible. It would increase construction impacts, especially to traffic along San Vicente Road, associated with 2,100 additional feet of underground construction and trenching. However, the alternative would minimize visibility of the transition from San Vicente Road and would thereby reduce land use disturbance in the surrounding area.

C.4.5.4 Chuck Wagon Road Alternative

Description

This route was suggested during scoping and has been slightly modified by the EIR/EIS team to follow existing roads and transmission rights-of-way. It appears on Figure C-4 and in detail on Figure Ap.1-19 (Appendix 1). The underground transmission line would diverge from the underground proposed route at MP 121.7 (approximately 0.2 miles east of the proposed transition point) and would turn south in Chuck Wagon Road. The alternative route would continue underground south in Chuck Wagon Road for approximately 1.6 miles until it passes existing residences and under the existing Creelman-Los Coches 69 kV line ROW. The route would transition to overhead and would turn west for 1.2 miles to rejoin the proposed route at MP 125.6. The underground portion of this route would require a 60-foot-wide ROW.

Rationale for Full Analysis

This alternative would meet project objectives and would be potentially feasible. Although the alternative would result in greater construction impacts associated with 1.4 additional miles of construction, the route would avoid Barnett Ranch Open Space Preserve and would reduce the visual and land use impacts of the transition poles and 230 kV line along San Vicente Road.

C.4.6 Transmission Line Route Alternatives: Coastal Link Segment

Twenty Coastal Link alternatives have been developed. Four of the Coastal Link alternatives were retained for further analysis in the EIR/EIS (~~Figure C-5 and in detail in Figure Ap.1-20 in Appendix 1~~ Figure ES-16 in the Final EIR/EIS, Figure 3-5 in the Recirculated Draft EIR/EIS and on figures within Section D). Each of the Coastal Link Alternatives is described below and Coastal Link route segment alternatives that were eliminated from full analysis in the EIR/EIS are discussed in Section C.5.5.

C.4.6.1 Pomerado Road to Miramar Area North Alternative

Description

This alternative combines two alternatives suggested by the public during the scoping period by multiple commenters including Rancho Peñasquitos Concerned Citizens and Todd Saier. It appears on ~~Figure C-5~~ Figure ES-16 and is shown in detail in Appendix 1, Figures Ap.1-22a and Ap.1-22b.

The majority of this alternative is underground with the exception of the east and west ends where the line is overhead within existing ROW. This alternative would exit the Sycamore Substation at MCAS Miramar overhead westerly within an existing ROW toward Pomerado Road. The line would cross Pomerado Road just north of Legacy Road and would transition underground just east of the roadway and south of a stand of trees on an old road grade that is cut into the hillside. From there the route would travel underground beneath Pomerado Road to the south. 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

Figure ES-16. Coastal Link Alternatives Retained
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Miramar Road, turn north on Kearny Villa Road, west on Black Mountain Road, west on Activity Road to Camino Ruiz. The line 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 line would continue west for approximately 400 feet behind commercial buildings and near to an existing transmission pole. At this location the line would transition to overhead and would be located within the existing 230 kV ROW heading northward into the Peñasquitos Substation. Specific construction techniques at the Pomerado/Miramar Road/I-15 crossing would need to be defined and coordinated with Caltrans.

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 potential effects to residents in Rancho Peñasquitos and avoid impacts within Los Peñasquitos Canyon Preserve. The alternative would also have greater land use compatibility due to the presence of surrounding commercial and industrial land uses and undergrounding of the line.

C.4.6.2 Los Peñasquitos Canyon Preserve and Mercy Road Alternative

Description

This alternative was suggested by the West Chase Homeowners Association (WCHOA) during the scoping process. The WCHOA identifies this as Alternative 3. This alternative was also suggested by Rancho Peñasquitos Concerned Citizens (RPCC). It is shown on ~~Figure C-5~~ Figure ES-16 and in detail on Figure Ap.1-23 (Appendix 1). This alternative varies from the project route east of the Chicarita Substation. The entire alternative would be underground except the eastern and western ends where the line transitions to overhead structures. Under this alternative, the transmission line would bypass the Chicarita Substation and would come from the Sycamore Substation and connect to an existing ROW along Scripps-Poway Parkway in the vicinity of Ivy Hill Drive. From here the line would transition to underground and continue west on Scripps Poway Parkway/Mercy Road. The line would continue under Mercy Road to its terminus at Black Mountain Road. At Black Mountain Road the line would remain underground heading north then west at Park Village Drive where the line would rejoin the proposed alignment.

Rationale for Full Analysis

This alternative would meet project objectives and is potentially feasible. The route would avoid Los Peñasquitos Canyon Preserve and would thereby reduce land use, noise, and visual issues within a residential area of Rancho Peñasquitos.

C.4.6.3 Black Mountain to Park Village Road Underground Alternative

Description

This alternative was suggested by the City of San Diego during a meeting conducted with City staff. It is shown on ~~Figure C-5~~ Figure ES-16 and in detail on Figure Ap.1-24 (Appendix 1). This alternative would deviate from the Proposed Project alignment where the line approaches Black Mountain Road. Under this alternative, the line would remain underground but would be located underneath Black Mountain Road and would turn west onto Park Village Drive, following the project alignment into the Peñasquitos Substation via the Los Peñasquitos Canyon Preserve. This alternative would avoid some of the homes in Rancho Peñasquitos that are located along the existing vacant ROW proposed to be used by the project.

Rationale for Full Analysis

This alternative would meet project objectives and is potentially feasible. The route would reduce effects on residents within Rancho Peñasquitos by traversing more roadways rather than a vacant SDG&E ROW which is currently used as recreational open space by residents. Therefore, this alternative has been retained for evaluation in this EIR/EIS.

C.4.6.4 Coastal Link System Upgrade Alternative

Description

This alternative evaluates one of three optional approaches to avoid the construction of the Proposed Project's 230 kV transmission line from Sycamore Canyon to Peñasquitos Substation. The three options for this alternative were originally suggested in public scoping comments (Rancho Peñasquitos Concerned Citizens, RPCC) and the commenting organization has focused its study on one of the three, which it finds to be the most viable.

The selected alternative is shown in Appendix 1, Figure Ap.1-25. The most viable option under this alternative is analyzed in the EIR/EIS because it is supported by the CAISO as the most economical of the three options. It is **Coastal Link Upgrade Option #1 Alternative,** a transmission system modification that would require the following:

- Installation of a third 230/69 kV transformer at the existing Sycamore Canyon Substation. Expansion of the Sycamore Canyon Substation would occur within the existing easement of the substation.
- Installation of a new 230/138 kV transformer at the existing Encina Substation or upgrading (reconductoring the existing Sycamore Canyon–Chicarita 138 kV circuit using 34 existing[4] wood frame structures.

Rationale for Full Analysis

The Coastal Link Upgrade Option #1 Alternative would be the most economically viable of the three options introduced here, would meet project objectives, and is considered to be feasible. It would eliminate all associated impacts of the Coastal Link of the Proposed Project between Sycamore Canyon and Peñasquitos Substation.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested that the following reroute be considered:

- **Coastal Link System Upgrades Alternative Revision.** The Coastal Link System Upgrade Alternative Revision would include one additional transmission upgrade to the Coastal Link System Upgrades Alternative analyzed in the Draft EIR/EIS. The upgrade of the Sycamore-Scripps 69 kV line. The Sycamore-Scripps 69 kV reconductoring would use a single 900 kcmil ACSS conductor and would be installed on the existing overhead transmission structures. The reconductor project would entail the replacement of the conductor and would not require the replacement of any overhead transmission structures. Upgrades of associated substation breakers and disconnects would occur within SDG&E's Scripps, and Sycamore Canyon Substations.

[4] SDG&E Response to CPUC Energy Division Data Request No. 9, ALT-81, April 25, 2007.

In addition, as part of the Sycamore-Scripps 69 kV reconductoring, the Coastal Link System Upgrades Alternative Revision would require the upgrade of an existing underground portion of the Sycamore-Scripps 69 kV circuit from single to bundled cable (remove 1750 AL kcmil and install bundled 3000 CU in a new trench). A short segment (930 feet) of underground construction would be required in Rue Biarritz to re-locate the line into city streets. The work would take approximately one month and occur in phased segments along the route.

This reroute is shown on Figure ES-16 of the Final EIR/EIS and Figure 3-5 of the RDEIR/SDEIS. Discussion of this reroute is presented in Section 3.2.3 of the RDEIR/SDEIS.

C.4.7 Substation Alternatives to Central East Substation

Out of five 230/500 kV substation site alternatives considered in the screening process, one site, the Top of the World Substation Alternative, was analyzed in the EIR/EIS (~~Figure C-3~~ Figure ES-14 and in detail in Figure Ap.1-26 in Appendix 1 and on figures within Section D). Substation Alternatives that were eliminated from full analysis in the EIR/EIS are discussed in Section C.5.6.

C.4.7.1 Top of the World Substation Alternative

Description

This site was suggested by the landowner, Vista Irrigation District, during scoping. The site would be located approximately one mile west of the proposed Central East Substation and is shown on Figure ES-14 ~~Figure C-3~~ in a regional context and Figure Ap.1-26 in detail (see Appendix 1).

The transmission line routes into the substation would follow the Proposed Project route to the point where the line to the proposed Central East Substation site is proposed to jog southeast (approximately MP 92.7). At this point the alternative 500 kV route would turn west for 1.1 miles to enter the alternative site. Exiting the substation, the line would travel southwest for 400 feet and then west and north-northwest to rejoin the Proposed Project around MP 95. Details about substation components and site development are included in Appendix 1.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested that the following reroute be considered:

- **Top of the World Substation Alternative Revision.** The principal revisions are that the reroute would shorten a bend in the 500 kV ingress transmission line east of the Top of the World Substation Alternative, and the 230 kV egress line would parallel the ingress line, rather than heading northwest from the substation. The reroute would diverge from the original Top of the World Substation Alternative ingress line approximately 3,400 feet south of the start of the alternative. This is the same point where the Proposed Project would jog southeast to the proposed Central East Substation site (approximately MP 92.7). The reroute would cut the corner of the alternative ingress alignment and would be located a maximum of about 300 feet north of the original alternative route for approximately 1,400 feet before rejoining the alternative approximately 3,000 feet east of the Top of the World Substation (TOTW) Alternative.

  The reroute would diverge again from the TOTW Alternative approximately 1,000 feet after leaving the substation. At this point, the 230 kV line of the original alternative would travel north-northwest to rejoin the Proposed Project around MP 95. The 230 kV line of the reroute would

travel to the northeast, around the substation, and then would turn east and north, paralleling the ingress line at a distance approximately 600 feet to its north, to where it would join the Proposed Project route at MP 92.2.

This reroute is shown on revised Figure ES-14 of the Final EIR/EIS and Figure 3-3 of the RDEIR/SDEIS. Discussion of this reroute is presented in Section 3.2.1 of the RDEIR/SDEIS.

Rationale for Full Analysis

This substation site would meet project objectives and would be potentially feasible. This alternative has the potential to reduce impacts to visual, geologic, and biological resources in comparison with the proposed Central East Substation site. In addition, less grading would be required.

C.4.8 Transmission Line Route Alternatives: Southwest Powerlink (SWPL)

The SWPL transmission line and all SWPL alternatives considered for EIR/EIS analysis are shown on ~~Figure C-6~~ Figure ES-17, Southwest Powerlink Alternatives Retained. All SWPL alternatives would avoid Anza-Borrego Desert State Park, which is the major reason that they are being considered. The different challenges these alternatives present are addressed in Appendix 1 and Attachment 1A to Appendix 1.

Fire and Transmission Line Reliability. Attachment 1A (Fire and Reliability) concludes that the reliability implications of collocating a second circuit along the existing SWPL are not constant along the entire route. The high fire risk in the area and the history of outages along the existing SWPL due to fire creates an additional reliability concern for two parallel 500 kV lines that would import the bulk of SDG&E's power. The smoke from wildfires can trip a circuit, causing it to go out of service, or outages can result from emergency line de-rating or shutdowns during a nearby fire in order to prevent thermal damage to the line or a smoke-caused trip. In order to minimize the risk of a double line outage, the length of collocated 500 kV lines has been kept to a minimum, and the collocated segment is east of the areas with severe fire risk in San Diego County.

Tower Type. Another issue considered was tower type. Where parallel transmission lines are to be constructed, transmission line engineers generally recommend for visual consistency that the second line use of the same type of towers that were used for the first line even though site-specific impacts may be reduced by use of tower types different from the existing SWPL structures. A 400-foot separation between the new and existing line is recommended. This is the same separation proposed by SDG&E for the first four miles of the Proposed Project where it would parallel the SWPL.

Substation Location. Substation location was also a consideration in the SWPL alternatives. In order to best meet project objectives and to minimize environmental impacts, the new 500/230 kV substation should be as close as possible to the center of the county — not too far south or east. While substation locations along or near the SWPL corridor were initially considered by the EIR/EIS Team, it was determined that locations further north would provide better service and reduce regional environmental impacts. For the discussion about future transmission system expansion, see Sections B.2.7 and E.1.2 and Appendix 1, Section 4.8.

Cleveland National Forest. All transmission line routes that would follow a portion of the SWPL would pass through the Cleveland National Forest (CNF), which require an amendment of the recently approved Forest Plan, and the Interstate 8 Alternative and options would pass through some tribal lands, across which SDG&E would have to negotiate easements with Native American tribes.

Figure ES-17. Southwest Powerlink Alternatives Retained
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Future Transmission System Expansion. As described in Section B.2.7, the Central East Substation that would be part of the Proposed Project would accommodate up to four additional 230 kV lines and one additional 500 kV line. Future transmission system routes have also been identified for each of the SWPL alternatives. Routes are described in Appendix 1, Section 4.8 and illustrated on Figure Ap.1-29 in Appendix 1, as well as in Section E.1.2.

C.4.8.1 Interstate 8 Alternative

Description

The Interstate 8 freeway runs on an east-west path across the southern Imperial and San Diego Counties. An alternative that generally follows this freeway was developed in response to numerous public and agency comments requesting consideration of use of the existing linear corridor in which Interstate 8 (I-8) is located, rather than creating a new major linear transmission corridor in less developed areas (especially Anza-Borrego Desert State Park). The entire route is shown on Figure ES-17 in the Final EIR/EIS ~~Figure C-6~~ (and in detail on Figures E.1.1-2a through E.1.1-2d in Section E.1).

Alternative Segments. There are three alternative route segments for the I-8 Alternative that are addressed separately in this report:

- **BCD Alternative**: Replacement of MP I8-39.5 to MP 58, described in Section 4.8.2 below.
- **Route D Alternative**: Replacement of the Interstate 8 Substation and 230 kV segment with a continuation of the 500 kV segment that would turn north at MP I8-70 and pass through the Boulder Creek area of the Cleveland National Forest, joining the Proposed Project route at MP 114 at the Central South Substation Alternative.
- **Modified Route D Alternative**: Replacement of the Interstate 8 route from about MP 47 to MP 70 and of the Interstate 8 Alternative Substation. It would require a new 500/230 kV substation south of the I-8 freeway.

Interstate 8 Route Options: Five short options are included in this description of the Interstate 8 Alternative: the Campo North Option, the Buckman Springs Underground Option, the West Buckman Springs Option, the South Buckman Springs Option, and the Chocolate Canyon Option. These options are described after the description of the main route below.

Route Description. The route of the I-8 Alternative would be located adjacent to the existing 500 kV SWPL, separated by an average of 400 feet, for the first 35.7 miles. This segment generally parallels I-8. The route would begin at the Imperial Valley Substation, paralleling the SWPL to a point about six miles west of the San Diego/Imperial County line. At that point, the 500 kV line would turn northwest, passing less than one mile southeast of the southwest corner of ABDSP and crossing I-8 freeway just west of the BLM Carrizo Gorge Wilderness Area and one mile east of the community of Boulevard.

Initially, the I-8 Alternative was defined as a 500 kV transmission line within a new 200-foot-wide corridor located immediately outside of the Caltrans ROW in order to consolidate the linear corridors of the freeway and the transmission line. However, based on preliminary assessments of visual impacts, the route was re-defined to be located at varying distances from I-8, utilizing nearby topography to shield direct views of the transmission line where possible.

After approaching I-8 from the southeast, the alternative route would cross to the north side of I-8 about a mile east of Boulevard, then turn west following the freeway. The route would cross the freeway sev-

eral times in order to avoid residential areas and a major wind farm. The following detailed route description treats the alternative in four sections from east to west (see Section E.1 for maps of each of these sections).

- **MP I8-0 to MP I8-23.** The Interstate 8 Alternative would follow the SWPL corridor for over 35 miles. It would follow the SWPL route beginning at the Imperial Valley Substation, then head northwest for approximately 10 miles through BLM land, crossing Interstate 8 at MP I8-7 and crossing County Highway S80 (Evan Hewes Highway) and turning west at MP I8-10. The route would follow the SWPL west on BLM land for approximately 3.5 miles, then west-southwest for approximately 5 miles. It would turn southwest for approximately 10 miles, passing through BLM and private land, and crossing Interstate 8 again at MP I8-22, and passing adjacent to the Jacumba Federal Wilderness Area.
- **MP I8-23 to MP I8-48.** After crossing Interstate 8 westbound at MP I8-22, the route would pass adjacent to the Jacumba Federal Wilderness Area for four miles and cross I-8 eastbound at MP I8-26. The I-8 Alternative would diverge northwest from the SWPL corridor at MP I8-35.7. At MP I8-39.5, the **BCD Alternative** diverges from the I-8 Alternative (see description in Section 4.8.2). The I-8 Alternative would generally follow the freeway through private land and the Campo Indian Reservation, crossing to the south side of the freeway just east of the Kumeyaay Wind Energy Project. This route would remain on the south side of the freeway for 1.2 miles (note that an option is also considered in which the route would remain on the north side of the freeway; see discussion of route options at the end of this section). The alternative would cross back to the north side of the freeway just east of the Crestwood freeway exit, and would remain on the north (east) side of the freeway for approximately 15 miles.
- **MP I8-48 to MP I8-79.** The route would pass through a portion of the La Posta Reservation (note that the "South Buckman Springs Route Option" described below would turn south across the I-8 freeway east of the La Posta Reservation). Just west of the La Posta Reservation, the line would enter the Cleveland National Forest. Still on the north/east side of I-8, the route would cross the Pacific Crest National Scenic Trail. The route would be just east of the Buckman Springs Caltrans Rest Area and the hang glider/paraglider landing area. Two route options are considered to avoid impacts in this area (see "Buckman Springs Route Options" below). Three miles north of the Rest Area, the route would cross the freeway to avoid the community of Pine Valley, continuing northwest, into the Interstate 8 Alternative Substation at MP I8-65. The route then continues west for approximately 6 miles as a 230 kV overhead line.
- **MP I8-79 to MP I8-92.7.** At the western end of Alpine Boulevard, the route would transition to overhead, cross the I-8 freeway, and head north and then west, passing within one mile of El Capitan Reservoir and through one mile of Cleveland National Forest. The route would continue west-northwest, crossing Wildcat Canyon Road, Moreno Avenue, and SR67. It would parallel SR67 on the west side until joining the Proposed Project at its MP 131.

West of Pine Valley, the I-8 Alternative would continue west, converting to 230 kV at the I-8 Alternative Substation. However, the route could remain at 500 kV and follow the **Route D Alternative**, diverging to the north just west of MP I8-70 (see description in Section 4.8.3). This combination alternative would continue at 500 kV to the Central South Substation Alternative. Immediately east of the Viejas Reservation, the I-8 Alternative would cross to the south side of I-8 and convert to underground, within Alpine Boulevard for 8.8 miles.

The total length of the I-8 Alternative would be would be 92.8 miles, 38.2 miles shorter than the portion of the proposed route it would replace.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroutes be considered:

- **SWPL Archaeological Site (Plaster City) Reroute.** A 3.3 mile segment of the I-8 Alternative would diverge from the existing SWPL to the north, in order to avoid passing through an archaeological site. No new impacts would be created. This reroute begins just west of Evan Hewes Highway (about 11 miles west of the Imperial Valley Substation), and at its widest point of diversion the reroute would be located about 700 feet north of the original route (about 1,100 feet north of the existing SWPL). This reroute would be incorporated into the Environmentally Superior Southern Alternative, as was shown on Figure 5-1 in the Recirculated Draft EIR/Supplemental Draft EIS.
- **Jacumba SWPL Breakaway Point Reroute.** This reroute was suggested by SDG&E, because it would eliminate the need for one large angle structure by spanning directly between two smaller angle structures without impacting additional parcels. The reroute would break away from the existing SWPL line and the Interstate 8 Alternative, which parallels the SWPL corridor, at a point 1,700 feet to the east of where the Interstate 8 Alternative would diverge from the existing SWPL corridor. Specifically, at MP 35.2 the reroute would diverge from the alternative and head north-west for 1,700 feet. This would have the effect of shortening the Interstate 8 Alternative by cutting across a "V" in the original alternative's alignment.
- **High Meadows Reroute.** The High Meadows Reroute was suggested by SDG&E to minimize land use and visual impacts to the High Meadows Ranch Subdivision, and is included in the Recirculated Draft EIR/EIS because new landowners would be affected. The reroute would diverge south from the Interstate 8 Alternative at MP I8-87.1 and would parallel the Interstate 8 Alternative to its south and then west. The reroute would be separated from the original alternative alignment by approximately 500 feet and would be located down the hill slope. After a distance of approximately 2 miles, the High Meadows Reroute would rejoin the Interstate 8 Alternative at MP I8-89.3.
- **Highway 67 Hansen Quarry Reroute.** This reroute was suggested by SDG&E and EnviroMine, Inc. during the comment period to minimize impacts to aggregate mineral resources at an operational quarry along the Interstate 8 Alternative. The Highway 67 Hansen Quarry Reroute would continue from the northern end of the High Meadows Reroute at MP I8-89.3. It would diverge from the Interstate 8 Alternative on the east side, heading north and then northeast of the original route by a maximum of approximately 500 feet for a distance of about 1.5 miles before rejoining the Interstate 8 Alternative at MP I8-91.9. From that point to the end of the Interstate 8 Alternative at MP 92.7, there would be minor adjustments to structure locations

These reroutes are shown on Figure ES-17 of the Final EIR/EIS and on Figure E.1.1-4e of the Final EIR/EIS and Figure 3-6, Figure 3-8, and Figure 3-9 of the RDEIR/SDEIS. The reroutes are discussed in Section E.1.7.2 of the Final EIR/EIS and Section 3.3.1, Section 3.3.3, and Section 3.3.4 of the RDEIR/SDEIS.

Interstate 8 Alternative Substation. The Interstate 8 Alternative Substation would be used if the adopted transmission line route requires a conversion to 230 kV to allow the underground segment through Alpine. Maps of this alternative substation and the transmission line route to and from the substation are in Section E.1. The substation location is also depicted on Figure ES-17 ~~Figure C-6~~ and in detail on Figure E.1.1-3 in Section E.1. It would be located southwest of Descanso on private land adjacent to Cleveland National Forest land. The 500 kV line would enter the substation from the east, and a double-circuit 230 kV transmission line would exit the substation to the west after conversion from 500 to 230 kV.

Interstate 8 Route Options

Campo North Route Option. In response to a request from the Campo Tribe, an option is considered in which the route would remain north of the freeway in the vicinity of the wind farm, passing immediately adjacent to the southernmost wind turbine in the Kumeyaay Wind Energy Project (at about MP I8-45) and just north of the Caltrans ROW (Figure E.1.1-4a in Section E.1). This option would avoid two freeway crossings and shorten the route by about 0.5 miles.

Buckman Springs Route Options. In the area of Buckman Springs, three route options are considered, two to preserve hang gliding and paragliding opportunities in Horse Canyon and one to utilize an existing transmission line corridor. The I-8 Alternative as defined would be located between the Horse Canyon take off and landing points, presenting a safety risk to glider pilots. ~~Figure C-6~~ Figure ES-17 shows these options in a regional context and Figure E.1.1-4b (Section E.1) shows a detail of the area.

- **Option 1 – Buckman Springs Underground Option**. This option would require construction of two overhead/underground transition stations for the 500 kV line and installation of an underground route segment for approximately 1.9 miles (Figure E.1.1-4b in Section E.1). For a discussion and history of Underground 500 kV Transmission Lines, please see Appendix 1 (Section 4.8.1).
- **Option 2 – West Buckman Springs Option**. This option would minimize hang gliding and paragliding impacts by moving the transmission line to a location west of Buckman Springs Valley, rather than east where the route is currently proposed. Figure ES-17 ~~Figure C-6~~ shows this option and Figure E.1.1-4b in Section E.1 is a detail map. At MP I8-54, the route would cross to the south side of the interstate heading west and crossing the Pacific Crest National Scenic Trail to follow the west side of Buckman Springs Road north for approximately 4 miles, passing just west of the Boulder Oaks Campground and within two miles northeast of the Morena Reservoir.
- **Option 3 – South Buckman Springs Option**. This option would avoid passing through Backcountry Non-motorized land use zones within the CNF that occur north and east of Interstate 8, by crossing south of the freeway. The route would follow the **Modified Route D Alternative** route for its first 4 miles (see description in Section 4.8.4). It would follow the southern boundary of the Cleveland National Forest, then continue due west at the point where the Modified Route D Alternative would turn southwest at MP MD-4.5. This option would continue 2 miles to the west and southwest, turn northwest along Buckman Springs Road, and join the West Buckman Springs Option at about MP BSW-1.7. This route option is shown in detail on Figure E.1.1-4c and regionally on Figure ES-17 ~~Figure C-6~~.

Chocolate Canyon Option. This 230 kV segment option was designed to minimize visibility of the underground-overhead transition towers at the west end of Alpine Boulevard and also to reduce the visibility of the 230 kV overhead segment along the west side of Chocolate Canyon. It would also reduce ground disturbance because the option would follow an existing road, minimizing the need for construction of a new access road. This option would replace the Interstate 8 Alternative from MP I8-79.0 to MP I8-82.3, and it is illustrated in Figure ES-17 ~~Figure C-6~~ and in detail in Figure E.1.1-4d in Section E.1. The route would run at a much lower elevation in the canyon so it would be less visible from residences west of the canyon. It would be 3.7 miles long.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroute be considered:

- **SDG&E Chocolate Canyon/Peutz Valley Revision.** This revision would be a reroute for the Interstate 8 Alternative at the west end of the underground segment in Alpine Boulevard. The revised route would minimize visual impacts by keeping the transmission line underground, below the I-8 Freeway, until the north side of the freeway. Therefore, the Chocolate Canyon/Peutz Valley Revision has been incorporated into the Interstate 8 Alternative as a mitigation reroute, as well as into the Final Environmentally Superior Southern Route Alternative.

This reroute is shown on Figure ES-17 of the Final EIR/EIS and in detail on Figure E.1.1-4d. The reroute is discussed in Section E.1.4.2 of the Final EIR/EIS.

Rationale for Full Analysis

The Interstate 8 Alternative meets all project objectives and is feasible. It would avoid Anza-Borrego Desert State Park, and it would be shorter than the Proposed Project segment that it would replace. It would also avoid effects on agricultural lands in Imperial County, and by collocating with the existing SWPL it would follow an established transmission corridor for the easternmost 36 miles. This alternative would pass through sensitive areas of the Cleveland National Forest and would require an amendment to the Forest's Land Management Plan.

C.4.8.2 BCD Alternative

Description

This alternative was originally designed by SDG&E to avoid ABDSP and also avoid the residential areas through which the existing 69 kV lines pass (along SDG&E's routes B, C, and D). ~~Figure C-6~~ Figure ES-17 shows this alternative and Section E.2 includes detail maps. Much of this route paralleled the Interstate 8 freeway, so the portions following the freeway have been consolidated into a single route (described in Section 4.8.1 above as the Interstate 8 Alternative). This alternative would replace the portion of that alternative between MP I8-39.5 to MP I8-58 (18.5 miles) with a route that is one mile longer (19.5 miles long).

This 500 kV alternative would diverge from the Interstate 8 Alternative about one mile northeast of Boulevard, where it would cross I-8 to the north, then it would head north-northwest, generally paralleling McCain Valley Road. It would pass directly adjacent to and west of the Carrizo Gorge Wilderness ACEC. The route would pass within one mile and east of Lark Canyon Campground and OHV Area and pass about three miles southwest of the Carrizo Overlook. It would cross Lost Valley Road, Manzanita Cottonwood Road, Canebrake Road, and Old Mile Road, then enter the Cleveland National Forest, crossing Thing Valley Road (La Posta Truck Trail), Fred Canyon Road, and the Pacific Crest National Scenic Trail, and passing within one mile of Cibbets Flat Campground at MP BCD 17. The route would cross Kitchen Creek Road three times and Sheephead Mountain Road. After passing through the CNF, the route would join the Interstate 8 Alternative north of Buckman Springs. The 19.5 miles BCD segment of this route would include 6.5 miles within the CNF, 11 miles on BLM land, 0.2 miles on State of California conservation land, and 1.8 miles on private lands.

BCD South Option

This route segment would eliminate the westernmost 6 miles of the BCD Alternative by turning southwest just one mile after entering the Forest. It would remain within the Backcountry Land Use Zone of the Forest, which allows transmission lines, and it would eliminate effects on the Cibbets Flat Campground and the nearby crossing of the Pacific Crest Trail.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroutes be considered:

- **BCD Alternative and BCD South Option Revisions.** Revision of these two alternative segments was suggested by SDG&E with input from the U.S. Forest Service, as well as the CPUC and BLM, to avoid back country non-motorized land use zones on the Cleveland National Forest and to minimize disturbance and visibility on the Forest. The BCD Alternative and BCD South Option Revisions would replace part of the BCD Alternative and all of the BCD South Option. The BCD Alternative Revision would diverge from the BCD Alternative at MP BCD-9. It would head to the northwest for just over four miles and then turn and head south-southwest for two miles to where it would cross the original BCD Alternative. This is the point where the BCD South Option Revision begins. The BCD South Option Revision would roughly parallel the BCD South Option's original route for 3.8 miles, crossing Interstate 8 approximately 0.25 miles west of the original BCD South Option crossing. The revised route would remain approximately 0.5 miles west of the original BCD South Option and join the Modified Route D Alternative at MP MRD-3.6.

These reroutes are shown on Figure ES-17 of the Final EIR/EIS and Figure 3-7 of the RDEIR/SDEIS. Impact analysis for these reroutes is presented in Section 3.3.2 of the RDEIR/SDEIS.

Rationale for Full Analysis

This alternative meets most project objectives and is potentially feasible. The BCD Alternative and BCD South Option, as a component of the Interstate 8 Alternative, would also avoid ABDSP. The BCD South Option would also avoid all tribal land, so it could be used if the Campo and/or La Posta Bands decided that a 500 kV transmission line on their land was not appropriate.

C.4.8.3 Route D Alternative (North of I-8)

Description

The Route D Alternative would be a 500 kV alternative that would diverge from I-8 Alternative at MP I8-70.3 (see Section 4.8.1 above for a description of the Interstate 8 Alternative up to MP I8-70.3). It appears in ~~Figure C-6~~ Figure ES-17 and detail maps are in Section E.3.

The Route D Alternative would pass through the Boulder Creek Valley north of the town of Descanso. It would pass between the Cuyamaca Rancho State Park and the Capitan Grande Reservation. While there is an existing 69 kV line in this area, that line passes through the center of several residential areas with insufficient space for a 500 kV transmission line. As a result, the line would be sited west of these areas and within a new transmission corridor. About two miles of the 500 kV line would still parallel the existing 69 kV line ROW.

Incorporation of the 16.8-mile Route D Alternative into the Interstate 8 Alternative would result in that alternative being 87.1 miles, 26.9 miles shorter than the proposed route to the same point.

Central South Substation Alternative

The Route D Alternative would require use of the Central South Substation Alternative in order to convert from 500 kV to 230 kV. This substation would be located on private land at the north end of the Route D transmission line segment, west of the crossing of the San Diego River gorge.

Rationale for Full Analysis

The alternative meets all major project objectives and is feasible. However, approval of this route would require that only existing roads be used through a 1.5-mile segment that would pass through an Inventoried Roadless Area (IRA) northwest of Descanso in the CNF. The Roadless Area Conservation Policy prohibits road-building in IRAs. This route would also require a Forest Land Management Plan (LMP) amendment as it would pass through several sensitive areas of National Forest System lands, as addressed in Appendix 1 (Section 4.8.4).

The Route D Alternative (in conjunction with the Interstate 8 Alternative) would also avoid ABDSP and would be about 27 miles shorter than the Proposed Project route, which would affect the length and intensity of short-term construction impacts and ground disturbance, and decrease impacts to air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. This alternative would avoid impacts to the ABDSP including State-designated Wilderness areas.

C.4.8.4 Modified Route D Alternative (South of I-8)

Description

This alternative was suggested by the Cleveland National Forest in an April 6, 2007 letter to the CPUC and BLM. It was identified as a route to be evaluated because the alternative transmission line route would be consistent with the Forest Land Management Plan's Land Use Zones and it would diverge from the SWPL at a point east of the area of greatest fire risk. This alternative has also been identified as a 368 corridor by the Department of Energy's Draft West-wide Corridor Programmatic EIS. The route is shown in Figure ES-17 ~~Figure C-6~~ and described below in three segments. Detail maps are Figures E.4.1-1b through d in Section E.4.

MP MD-0 to MD-8. The Modified Route D Alternative route would start by diverging from the Interstate 8 Alternative at MP I8-48.7, crossing the freeway and turning southwest on BLM land for most of the first three miles, then entering Forest Service land, following the southern boundary of the Forest for 1.5 miles. At MP MD-4, the route would turn southwest onto BLM land, then entering private land. This segment passes through and adjacent to the BLM land proposed for withdrawal by the U.S. Navy for use as a warfare training site.

MP MD-8 to MD-22.5. The route would leave BLM land and cross Buckman Springs Road to the west, just north of the existing SDG&E Cameron Substation. It would jog to the northwest to avoid the proposed "Father Joe's Village" development, then turn west to follow the existing 69 kV line and remain south of the southern border of the Forest. It would cross the southern edge of the "Chicken Ranch" property (being evaluated for purchase by Blackwater USA as a training facility), then continue west-northwest, mostly on BLM land generally following SDG&E's "C-D Route." This route segment would pass between BLM's Hauser Mountain Wilderness area and the CNF's Hauser Wilderness. At MP MD-22.5, the route would pass the existing SDG&E Barrett Substation.

MP MD-22.5 to MD-36. The route would pass immediately east of the existing Barrett Substation, heading north and would re-enter the CNF. This route would diverge from the SDG&E Route D (the existing Barrett-Descanso 69 kV corridor) in places north of the Barrett Substation in order to avoid passing through residential areas. This segment would include the Modified Route D Substation, located on private land about 1.5 miles south of Interstate 8.

The Modified Route D Alternative would be 36 miles long, eliminating about 22 miles of the Interstate 8 Alternative. However, even with this additional 14 miles of length, the Interstate 8 Alternative with the Modified Route D Alternative segment would be 24 miles shorter than the portion of the Proposed Project it would replace.

The Modified Route D Alternative would have two options for connecting with the Proposed Project route:

- Remain at 500 kV, cross Interstate 8 and connect with the Route D Alternative, continuing north through the Boulder Creek area to the Central South Substation Alternative (MP 113.5).
- Convert to 230 kV at a new substation, the Modified Route D Alternative Substation (see description below). In this option, an overhead double-circuit 230 kV transmission line would exit the substation, continue north for about 2 miles to the Interstate 8, then turn west to transition underground at the same point as the Interstate 8 Alternative (at the east end of Alpine Boulevard). The line would continue underground following the Interstate 8 Alternative route until it would transition overhead at MP 79, cross I-8, and would rejoin the Proposed Project at MP 131 (also MP I8-92.7).

In addition, the 230 kV conversion option has a route option, the Star Valley Option (see below), which would reduce the length of underground construction in Alpine Boulevard and would avoid cultural resources of concern.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroutes be considered:

Cameron Reroute. This reroute was suggested by SDG&E to reduce impacts to properties and avoid CNF back country non-motorized land use zone. The reroute would diverge from the Modified Route D Alternative just west of Buckman Springs Road. The reroute would head northwest for 0.6 miles converging again with the original alternative route near MP MRD-9.2.

The reroute would again diverge from the Modified Route D Alternative at MP MRD-9.6, just west of Big Potrero Truck Trail. The rerouted line would be located a maximum of approximately 150 feet southeast of its original location for 0.3 miles in order that the line does not cross a corner of a CNF land use zone that does not allow transmission lines, and it would remain entirely on private land.

Pacific Crest Trail (PCT) Route Options. The original Modified Route D Alternative, also called PCT Option A below, has been retained in this Final EIR/EIS as part of the Final Environmentally Superior Southern Route Alternative. PCT Option B was described and analyzed in the RDEIR/SDEIS, but it has since been eliminated from consideration. Finally, PCT Reroute Option C/D, which is preferred by the USFS, has been analyzed in the Final EIR/EIS in order to allow agencies the opportunity to include either option as part of the approved route and/or the Agency Preferred Alternative (should a southern route be chosen). The three options are described as follows:

- **PCT Option A (original Modified Route D Alternative route).** PCT Option A is the same as the original Modified Route D Alternative route that was analyzed in the Draft EIR/EIS. The route would be located on BLM land just south of the CNF boundary between MP MRD-11.7 and MP

MRD-14. The route would follow the existing 69 kV transmission corridor, and would maximize use of existing access roads. Both the 69 kV and 500 kV lines would cross the PCT three times within a space of about 0.25 mile.

- **PCT Option B (PCT Reroute from the RDEIR/SDEIS).** This reroute, which was included in the RDEIR/SDEIS, was suggested by SDG&E, with input from the USFS, CPUC and BLM, to minimize impacts to its crossing of the Pacific Crest Trail; however, due to the development of PCT Option C/D, it has been eliminated from consideration and deleted from the text of the RDEIR/SDEIS. The reroute would diverge from the Modified Route D Alternative at MP MRD-11.7. The reroute would head southwest for 0.45 miles where it would cross the PCT and then would continue for another 0.15 miles before it would turn west. The route would travel west and west-northwest for approximately two miles, rejoining the original Modified Route D Alternative at MP MRD-14.
- **PCT Option C/D**. PCT Option C/D is a further revision by SDG&E, USFS, CPUC and BLM that replaces PCT Option B. PCT Option C/D would create a new transmission line right-of-way and the towers would be constructed by helicopter (thus eliminating the need for access roads to the extent feasible). With this reroute, PCT users would cross under the 69 kV line, then cross below the 500 kV line only once farther to the southwest. This option would begin at MP MRD-11.0 and would travel southwest for approximately 1.7 miles before turning west-northwest for approximately 1.7 miles and rejoining the Modified Route D Alternative at MP MRD-14.

Western Modified Route D Alternative Reroute. This reroute was suggested by SDG&E after consultation with the U.S. Forest Service, CPUC, and BLM to minimize impacts to properties. The portion of the reroute around the Modified Route D Alternative Substation has been modified to fit updated substation civil and electrical engineering and to provide for increased separation between the incoming 500kV line and the outgoing 230kV line to accommodate future transmission expansion. The Western MRDA Reroute would parallel the Modified Route D Alternative, being alternately east or west of the alternative at various locations.

It would first diverge from the north side of Modified Route D Alternative at MP MRD-18.5, heading northwest for 0.4 miles, then west for 2.2 miles, and north for 1.5 miles before rejoining the alternative just north of MP MRD-23. The reroute would be separated from the Modified Route D Alternative by a maximum of 0.3 miles. At MP MRD-23.8 the reroute would jog west of the original alternative for two structures then return to the original alternative alignment. Beginning at MP MRD-25.7, it would again jog west of the original route for 2.7 miles and rejoin the alternative at MP MRD-28.5. From that point to MP MRD-31, the reroute and the alternative would be in close proximity. At MP MRD-31, the reroute would be located east of the original alternative until it would cross to its west and continue 0.2 miles into the alternative substation.

These reroutes are shown on Figure ES-17 and Figure E.4.1-4 of the Final EIR/EIS and Figure 3-10 and Figure 3-12 of the RDEIR/SDEIS. Impact analysis for these reroutes is presented in Section 3.3.5 and 3.3.7 of the RDEIR/SDEIS and in Section E.4 of the Draft EIR/EIS.

Modified Route D Alternative Substation

This substation would be located on private land west of Japatul Valley Road. It would be the same size (about 40 acres) as the proposed Central East Substation, and it would have to accommodate future 230 kV circuits exiting the substation when demand growth justifies the need for additional lines. In this segment, there would be the Modified Route D Alternative Substation where the 500 kV line would convert to 230 kV. The line would exit the substation overhead, then continue north into the CNF, joining the Interstate 8 Alternative where it transitions to underground at the east end of Alpine Boulevard.

Star Valley Option

As a 230 kV conversion option to reduce the length of underground construction in Alpine Boulevard and to avoid cultural resources of concern, the Star Valley Option, as discussed above, would exit the Modified Route D Alternative Substation to the west-northwest (as illustrated in Figure E.4.1-3, Section E.4.1). This option would be an overhead double-circuit 230 kV transmission line, heading west and northwest from the substation for 2.2 miles, then north for approximately 0.3 miles to meet Star Valley Road, 0.7 miles east of I-8 Exit 33 for Willows Road. On the southwest side of the bend in Star Valley Road, the route would transition underground and continue north to Alpine Boulevard. This option would join the Interstate 8 Alternative at Alpine Boulevard at MP I8-73.6.

Transmission Line Reroutes

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroute be considered:

Star Valley Option Revision. This reroute was suggested by SDG&E in an effort to reduce visual impacts to residences, and it is included in the Recirculated Draft EIR/EIS because it would affect new private landowners. The outgoing 230 kV line was modified leaving the Modified Route D Substation Alternative to accommodate future transmission expansion. The reroute would extend in nearly a straight line between the Modified Route D Substation Alternative to a point where the Star Valley Option turns due north. It would replace with a straight alignment a portion of the Star Valley Option that has two dog legs in its alignment. The reroute would exit the Modified Route D Substation and travel west to the south side of the original route for 0.75 miles. Although in a straight line, because of a dogleg in the option, the reroute would fall to the north of the option alignment for one structure. The revised route would cross to the south of the original option at MP SVO-0.9. The reroute would then continue northwest for another 1.3 additional miles before rejoining the Star Valley Option at MP SVO-2.3.

This reroute is shown on Figure ES-17 of the Final EIR/EIS and Figure 3-13 of the RDEIR/SDEIS. Impact analysis for this reroute is presented in Section 3.3.8 of the RDEIR/SDEIS.

Rationale for Full Analysis

In conjunction with the Interstate 8 Alternative, this route would also avoid ABDSP and would be about 25 miles shorter than the Proposed Project route. This alternative is potentially feasible, although it would require a Forest Plan Amendment to change the Scenic Integrity Objectives (SIO) in the area of the transmission line. SIOs in the area of this and other alternatives crossing CNF are discussed in Appendix 1 and shown on Figure D.17-3.

Lessen Significant Environmental Impacts. The Modified Route D Alternative has the potential to lessen environmental impacts as follows.

- **Wilderness and Recreation.** This alternative avoids impacts to the ABDSP including State-designated Wilderness areas. It would also avoid the Buckman Springs area where the Interstate 8 Alternative would conflict with hang-glider and paraglider landing zones.
- **Shorter Length and Less Ground Disturbance**. This alternative, as a component of the Interstate 8 Alternative, is shorter than the Proposed Project, which would reduce the length and intensity of short-term construction impacts and ground disturbance, and decrease impacts to air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion.
- **Visual Resources**. The Modified Route D Alternative would allow avoidance of the central segment of the Interstate 8 Alternative, including the scenic Buckman Springs Valley.

C.4.9 Transmission Line Route Alternatives: Full Project Route and System Alternatives

System Alternatives rely on different transmission line upgrades and interconnections. Within the project area, these alternatives include upgrades to the existing transmission infrastructure, different voltage configurations of the proposed lines, interconnections to points other than the Imperial Valley Substation, or alternative transmission technologies. Figure C-7 illustrates the system alternatives that were carried forward for analysis. System alternatives eliminated from full analysis in the EIR/EIS are discussed in Section C.5.8 and mapped on Figure C-15.

Two options from the **LEAPS Project Alternative** are recommended for retention in the EIR/EIS for detailed analysis and are described in Sections 4.9.1 through 4.9.4 below:

- **LEAPS Generation and Transmission.** This includes the pumped storage generation and all transmission upgrades that have been proposed by the developers of the LEAPS Project.
- **LEAPS Transmission-Only.** This alternative involves no pumped storage but includes 500 kV transmission interconnection of the LEAPS Project plus an upgrade to the 230 kV SDG&E Talega-Escondido transmission line.

Full project route or transmission system alternatives that have been considered by transmission planning groups or suggested during the scoping process can be grouped according to their general configuration and location.

- **SWPL No. 2 Alternatives.** These would generally occur between the existing Imperial Valley and Miguel Substations.
- **CFE Alternatives.** These would generally occur between the existing Imperial Valley Substation and Mexico, to improve the transmission capability into San Diego County via Mexico.[5]
- **Valley-Rainbow Alternatives.** These would generally occur between the southwestern portion of the SCE service territory in Riverside County and northern or central San Diego County.
- **Full Loop Alternatives.** These would expand the Proposed Project by continuing the 500 kV transmission line from central San Diego County to the SCE service territory. These would complete a "full loop" of 500 kV transmission infrastructure between San Diego, the SCE service territory, and the Palo Verde Hub in Arizona.
- **Northern Service Territory Alternatives.** These would generally occur between Orange County and coastal San Diego County, to improve the transmission capability into San Diego County via SONGS.
- **Project System Alternatives.** These would generally occur within or near the corridor of the Proposed Project but would entail different system configurations or alternative transmission technologies.

Although it would not satisfy the objectives of the Proposed Project, a **Green Path Alternative** is also described here (Section 5.8.25). The Green Path Coordinated Projects would generally occur within Imperial County, to deliver renewable energy to the SCE and LADWP service territory with potential indirect benefits to SDG&E customers but no direct connection to the SDG&E territory.

[5] CFE is the Comisión Federal de Electricidad which is the Federal entity in Mexico responsible for operating their electric grid.

Figure C-7. System Alternatives Retained
CLICK HERE TO VIEW

C.4.9.1 LEAPS Project Transmission and Generation Alternative

Description

The Lake Elsinore Advanced Pumped Storage (LEAPS) Project, described in SDG&E's PEA Section 3.3.3.10 and in the LEAPS Project Final EIS (published by the Federal Energy Regulatory Commission as Lead Agency, with U.S. Forest Service as a cooperating agency, FERC Project No. 11858, FERC/ FEIS-0191F, January 2007), proposes to generate power at a new pumped-storage facility located in the City of Lake Elsinore and in the Cleveland National Forest. The Alternative also proposes to transmit electric power along a proposed 32 miles 500 kV new transmission line between proposed Lake and Pendleton Substations (the proposed Lake-Pendleton transmission line) and an additional 48 miles 230 kV circuit on existing 230 kV transmission towers between the existing Talega and Escondido Substations (the existing Talega-Escondido transmission line). The LEAPS Project generation and transmission components are considered as a system alternative to the SRPL in this EIR/EIS, and are known henceforth as the LEAPS Generation and Transmission Alternative (see Section 4.9.1 of Appendix 1 of this document for a detailed description). The LEAPS Project is co-sponsored by the Elsinore Valley Municipal Water District, a public non-profit agency, and the Nevada Hydro Company, Inc. (co-applicants). This alternative would fully implement the "preferred alternative" or "staff alternative" identified in the January 2007 LEAPS Project Final EIS, with both pumped storage and transmission components.

LEAPS Transmission-Only Alternative, discussed separately in Section C.4.9.2, would traverse Riverside County Cleveland National Forest, Trabuco Ranger District) and northern San Diego County, including Marine Corps Base Camp Pendleton (MCBCP). This alternative appears on Figure C-7 and Figure Ap.1-31b in Appendix 1 is a detailed map.

The LEAPS Generation and Transmission Alternative would include:

- A lined upper reservoir (Decker Canyon reservoir) with a usable storage volume of 5,500 acre-feet, a 240-foot-high main dam, and a perimeter dike up to 50 feet high, with a surface area of about 80 acres at a normal maximum water surface elevation of 2,830 feet mean sea level (msl). The Decker Canyon reservoir dam and dike would have a crest elevation of 2,860 feet msl and a combined fill volume of about 3 million cubic yards.
- Two parallel high-pressure water conduits each consisting of a 9,190-foot-long concrete-lined channel and tunnel transitioning to a 250-foot-long, 12-foot-diameter steel penstock.
- An underground powerhouse (Santa Rosa Powerhouse) with two reversible pump-turbine units capable of generating 500 MW. When pumping water from Lake Elsinore to the new upper reservoir, the facility would consume approximately 600 MW.
- Use of the existing Lake Elsinore as a lower reservoir, with a surface area of 3,319 acres and a storage capacity of 54,504 acre-feet at a normal pool elevation of 1,245 feet msl.
- Two 1,950-foot-long, 20-foot-wide and 20-foot-high concrete-lined tailrace tunnels.
- 32.4 miles of new single-circuit 500 kV transmission line forming the Lake-Pendleton 500 kV transmission line. This line would interconnect with a new 40-acre surface switchyard/substation (Midpoint Substation) above the proposed Santa Rosa Powerhouse for the LEAPS generators via an underground 500 kV line.

- New 500 kV switching station (Lake Substation) to interconnect with SCE's existing Valley-Serrano 500 kV line.
- New 500/230 kV substation (Pendleton Substation) within Camp Pendleton including two phase-shifting transformers.
- New second Talega-Escondido 230 kV line.
- Modification of SDG&E's existing Talega-Escondido 69 kV transmission circuit on new wood and steel poles adjacent to the existing 230 kV poles within the existing Talega-Escondido ROW.
- System voltage support including static synchronous compensators at SDG&E's existing Mission, Miguel, Sycamore Canyon, Talega, and Escondido Substations and possibly similar upgrades at SCE's Valley, Devers, and Serrano Substations as needed and determined by CAISO. These modifications, should they be determined to be necessary, would occur within the existing substations. Additional environmental analysis may be required subject to final engineering specifications.
- Other transmission facility upgrades within SCE territory identified in an Interconnection Facilities Study prepared by SCE for LEAPS, December 1, 2006. The study is preliminary and confidential because the upgrades need to be determined by CAISO with a Facilities Study review meeting. SCE requests that CPUC maintain the confidentiality of the Interconnection Facilities Study and submits it under the provisions of Public Utilities Code Section 583 and General Order 66c. The preliminary study recommends that SCE: eliminate line-to-ground clearance restrictions on the existing Etiwanda–San Bernardino 220 kV transmission line; upgrade the Etiwanda Switchyard; and reconductor the San Bernardino–Vista 220 kV transmission line. These modifications, should they be determined to be necessary, may require additional environmental analysis subject to final engineering specifications.
- Other transmission facility upgrades within SDG&E territory identified in an Interconnection Facilities Study prepared by SDG&E for LEAPS, February 27, 2007. This preliminary study recommends that SDG&E (in addition to the new second Talega–Pendleton and second Escondido–Pendleton 230 kV circuit, analyzed here): reconductor the existing Talega-Escondido 230 kV line between Talega and Pendleton, and upgrade the circuit breakers at the Escondido and Peñasquitos Substations. These modifications, should they be determined to be necessary, may require additional environmental analysis subject to final engineering specifications.

Rationale for Full Analysis

The transmission component of this alternative would meet most of the Sunrise Powerlink Project Objectives and the pumped storage component would provide important ancillary services to help support SDG&E's transmission system. From a permitting perspective this alternative was expected to be ahead of the Proposed Project and to be in-service by the proposed 2010 date for the Proposed Project. (Nevada Hydro, 2007), but given delays in the LEAPS permitting process, it is unclear which project would be completed first, if either is approved.

The LEAPS Project Alternative would provide a new second extra-high voltage (EHV) interconnection into the SDG&E system. This would substantially satisfy two of the major project objectives: to maintain reliability in the delivery of power and reduce the cost of energy in region. It also avoids the "common corridor" concern expressed by SDG&E for alternatives that would follow the path of the existing 500 kV Southwest Power Link (SWPL) between the Imperial Valley and Miguel Substations.

By providing a second 500 kV interconnection to San Diego, along with 500 MW of pumped storage generation, the LEAPS Project Alternative would help address SDG&E's concerns regarding the poten-

tial for in-basin generation to exercise market power, improving the regional transmission system, and obtaining electricity from diverse fuel sources. A more detailed discussion of this alternative's ability to meet Proposed Project objectives is included in Section 4.9.1 of Appendix 1.

Feasibility. The LEAPS Project is nearing the final stages of obtaining the necessary Federal licenses and permits from the Federal Energy Regulatory Commission and U.S. Forest Service. LEAPS Project sponsors expected the remaining permitting process may be completed in 2007, but the process has experienced delays. If approved, the transmission component of the LEAPS Project could be in service within three years, and the generation component could be in service within five years (PEA, Nevada Hydro, 2007). Thus, it appears that the LEAPS Project Alternative is technically, legally, and regulatory feasible.

Lessen Significant Environmental Impacts. This alternative has the potential to lessen environmental impacts because if the LEAPS Project Alternative is constructed, most of the impacts of the 150-mile Proposed Project would be avoided. No new transmission facilities would be built in Imperial County or ABDSP or in the vicinity of Santa Ysabel, Ramona, or Sycamore Canyon. Impacts to private land would be minimized with most LEAPS Project components confined to federal lands.

C.4.9.2 LEAPS Project Transmission-Only Alternative

Description

The LEAPS Transmission-Only Alternative is an optional alternative to the LEAPS Generation and Transmission Alternative. The LEAPS Transmission-Only Alternative would include a new 500 kV line known as the Talega-Escondido/Valley-Serrano (TE/VS) Interconnect, and this alternative would be similar to the Serrano/Valley-North (or Northern) Alternative that was considered in SDG&E's Transmission Comparison Study (TCS) and carried forward as one of the final four alternatives in that study (SDG&E, 2005). The Serrano/Valley-North 500 kV Alternative is also described in the SDG&E's testimony supporting the Purpose and Need for the Sunrise Powerlink Project CPCN.

This alternative would involve only the transmission components of the LEAPS Project (see Section 4.9.1 above) and modifications to the existing SDG&E Talega-Escondido 230 kV transmission lines to accommodate the interconnection of the new 500 kV line and northern substation. The new 500 kV transmission line would be constructed along the same corridor as the LEAPS Project, but no reservoir or pumped storage generation would be built. The LEAPS Transmission-Only Alternative would traverse Riverside County Cleveland National Forest, Trabuco Ranger District) and northern San Diego County, including Marine Corps Base Camp Pendleton (MCBCP). The alternative appears on Figure C-7 and Figure Ap.1-31a is a detail map.

This alternative would include:

- 33 miles of new single-circuit 500 kV transmission line forming a Talega-Escondido to Serrano-Valley 500 kV transmission interconnection between SCE and SDG&E. This is also called the Lake-Pendleton 500 kV Transmission Line in Section D of the EIR/EIS.
- New 500 kV switching station to interconnect with SCE's existing Serrano-Valley 500 kV line (also called Lee Lake Substation).
- New 500/230 kV Northern Substation either within Camp Pendleton or at an alternative location along SDG&E's Talega-Escondido 230 kV line (also called Camp Pendleton Substation) including two phase-shifting transformers.

- Modifications to loop SDG&E's existing Talega-Escondido 230 kV line into the new Northern Substation, forming Talega-North #1 230 kV line and Escondido-North #1 230 kV line.
- New Talega-North #2 230 kV line (30.4 miles, second circuit on existing structures).
- New Escondido-North #2 230 kV line (20.6 miles, second circuit on existing structures).
- Modification of SDG&E's existing Talega-Escondido 69 kV transmission circuit on new wood and steel poles adjacent to the existing 230 kV poles within the existing Talega-Escondido ROW.
- System voltage support including static synchronous compensators at SDG&E's existing Mission, Miguel, Sycamore Canyon, Talega, and Escondido Substations and possibly similar upgrades at SCE's Valley, Devers, and Serrano Substations as needed and determined by CAISO.

This alternative would include a phase angle regulator to regulate flow on the new 500 kV line and new 230 kV lines, which would establish a robust connection to SDG&E's 230 kV system, as was proposed as part of the Valley-Rainbow Project (described in Section 4.9.10 of Appendix 1). The phase shifting transformers would help to regulate the flow of capacity from south to north along the transmission line. The new TE/VS Interconnect 500 kV transmission line would have a designed capacity of 1,300 to 1,600 MW.

Rationale for Full Analysis

Project Objectives, Purpose and Need. This alternative would substantially satisfy the objectives to maintain reliability in the delivery of power to SDG&E territory and reduce the cost of energy in the region, but it would be less likely to meet objectives related to delivery of renewable energy. The ability to facilitate import of renewable energy to San Diego depends on whether other proposed transmission system upgrades are actually completed, as described for the LEAPS Project Alternative (Section 4.9.1 of Appendix 1). Although this transmission alternative would not provide direct access to renewable generation to be developed in the Imperial Valley, this alternative may provide SDG&E with access to renewable generation developed in the Tehachapi and San Gorgonio wind resource area and improved ability to low cost conventional generation from the Palo Verde hub in Arizona, which would free capacity on the existing SWPL to import renewable power from the Imperial Valley.

Feasibility. As with the LEAPS Generation and Transmission Alternative, the Transmission-Only Alternative is technically, legally, and regulatory feasible.

Environmental Advantages. With the LEAPS Transmission-Only Alternative, most major impacts of the Proposed Project would be avoided. No new transmission facilities would be built in Imperial County, in the ABDSP, or in the vicinity of Santa Ysabel, Ramona, or Sycamore Canyon. Impacts to private land would be minimized with most of the LEAPS Transmission-Only Alternative alignment confined to federal lands of the Cleveland National Forest. In addition, there would only be a second circuit added to the Talega-North #2 and Escondido North #230 existing structures.

C.4.10 Non-Wires Alternatives

The non-wires alternatives would avoid major new transmission projects by focusing on generation as a way for SDG&E to perform its function as a load-serving entity. The projects considered in this EIR/EIS are representative of reasonable generation scenarios, and are not intended to depend on the progress of contracts for individual utility projects. Locations of non-wires alternative projects evaluated in the EIR/EIS are shown regionally in Figure C-8.

Figure C-8. Components of New In-Area All-Source and Renewable Generation Alternatives
CLICK HERE TO VIEW

Including the components of the non-wires alternatives in the Sunrise Powerlink EIR/EIS does not automatically lead these alternatives to be built because additional approvals or agency actions would be necessary to implement them. Each generator included in the non-wires scenarios would require permitting and CEQA and/or NEPA compliance for each project.

C.4.10.1 New In-Area Renewable Generation

Description

The New In-Area Renewable Generation Alternative would involve development of various in-area renewable projects that together could provide sufficient generation capacity to defer the need for the Proposed Project. No single in-area renewable generation project would be likely by itself to provide the necessary capacity to serve as a viable alternative to the Sunrise Powerlink Project. By considering the availability of in-area renewable resources as a whole, this alternative offers a viable scenario of in-area renewable generation development. The types of resources involved would be solar thermal, solar photovoltaic, wind, and biomass/biogas. For a detailed description of renewable projects contributing to this alternative, please see Appendix 1.

Solar Thermal

The New In-Area Renewable Generation Alternative would include large-scale solar thermal energy development in the Borrego Springs area. As mentioned above, the gross technical potential for solar thermal power that could likely be generated in the unincorporated Borrego Springs area is approximately 6,000 MW. Between 2010 and 2016, up to an overall nameplate potential of ~~300~~ 290 MW of new solar thermal generating resources, or approximately ~~240~~ 232 MW for reliability accounting purposes, could be added near Borrego Springs. Although no developers have identified sites in Borrego Springs for such a large solar thermal project, this alternative assumes that development would occur near existing transmission infrastructure, namely the existing 69 kV Borrego Springs Substation.

The existing 69 kV transmission infrastructure would need to be substantially upgraded to deliver the output of this solar development. Although interconnection would be at Borrego Springs, such a large generator in this remote area of the SDG&E grid would require upgrading at least the 69 kV line from Borrego Springs to Narrows and Warner Substations (about 40 miles), and further upgrades between Warner and the Escondido area or Sycamore Canyon could also be needed. Two transmission options are considered:

- Option 1: Modify the existing 69 kV line to at least 138 kV, requiring 40 miles of new, taller poles from Borrego Springs to Narrows and Warner Substations. The existing alignment for this transmission is through ABDSP and Grapevine Canyon.
- Option 2: Install the new 138 kV line underground in Highway S3 and SR78, then overhead or underground along Highway S3 in the San Felipe Valley.

For either option, the need for additional upgrades between Warner and the Escondido or Sycamore Canyon areas would also need to be determined with future transmission interconnection studies.

Solar Photovoltaic

The New In-Area Renewable Generation Alternative would include solar PV installations dispersed throughout the SDG&E territory and in new production homes after 2011 (SB1, 2006). This alternative assumes approximately 5 percent of the technical potential solar PV resources would be developed by 2010, and 10 percent of the technical potential would be developed by 2016. This is a level of development that

would be above the baseline. No specific locations have been identified, but individual systems would likely be small-scale. The New In-Area Renewable Generation Alternative includes adding 105 MW of reliable solar PV by 2010, or 210 MW nameplate capacity, above what SDG&E expects to occur in the baseline conditions.

Wind

The New In-Area Renewable Generation Alternative would include new wind power projects in the San Diego area similar to four projects identified on the SDG&E transmission interconnection queue with the California Independent System Operator (CAISO, 2007). These projects would each be located in the Crestwood area in southeastern San Diego County, west of the Carrizo Gorge, north of Boulevard and the I-8 Freeway. Projects could be located on tribal land (Campo, Manzanita, or La Posta Reservations) or on BLM or private land.

The existing Kumeyaay wind project includes 25 2-MW propeller-type turbines. It is expected that future wind projects would also employ similar turbines. Under this New In-Area Renewable Generation Alternative, approximately 200 MW of wind power would need to come on line by 2010, of which 46 MW has been achieved by the Kumeyaay project, and by 2016, the total incremental wind generation would be 400 MW of nameplate capacity. It is assumed that 177 2-MW turbines would be used to add the additional 354 MW of capacity although larger turbines could be utilized. Wind farms typically require 5 to 17 acres per MW generated. Thus, 354 MW under this alternative would use between 1,770 and 6,018 acres (2.8 to 9.6 square miles). The available acreage for the identified Wind Alternative areas is 4,988 acres of reservation land (Campo, Manzanita, and La Posta lands) and 2,275 acres for the northern wind component area (BLM land), for 7,263 acres total. Wind turbine "footprints," however, utilize only about 5 percent of the land on which the system is built.

The wind generation component would require a new switchyard (to gather wind generation from individual turbines to a single transmission line), a new substation (to convert power from 230 to 500 kV or other voltages), and a transmission line to connect with the 500 kV SWPL line. The transmission line is assumed to follow the corridor that has been evaluated for the Interstate 8 Alternative from the Campo Reservation to the SWPL, just northwest of the town of Jacumba.

Biomass/Biogas

A component of the New In-Area Renewable Generation Alternative would be development of new or expanded biomass/biogas projects. The alternative calls for biomass/biogas to be used to fuel 50 MW of capacity by 2010 and 100 MW of capacity by 2016. The biomass/biogas component of the alternative includes three new facilities: Fallbrook Renewable Energy Facility, Miramar Renewable Energy Facility, and Miramar Landfill cogeneration expansion. Detailed discussion and maps of these potential facilities are in Section E.5.1.3.

- The **Fallbrook Renewable Energy Facility** would be a biomass facility located on approximately 80 acres of Pankey Ranch property on Pala Road, east of the intersection of Pala Road (Highway 76) and Interstate 15 and south of the Luis Rey River in the Pala Mesa Valley. Envirepel, Inc. would be the facility owner and is preparing an Application for Certification to the California Energy Commission for project approval. The facility's three 30 MW steam turbine generators would provide 90 MW of capacity. From these, the facility would be capable of exporting 67 MW of electricity on a continuous basis (Envirepel, 2007 web site; pers comm Tony Arand 2007). The facility would deliver power to an existing 69 kV circuit approximately one mile from the site. The existing circuit runs between the Via Monserate and Pala Substations.

- **Miramar Landfill** is a joint public and private facility operated by the City of San Diego on MCAS Miramar. Within the landfill property, two fill sites are closed: North Landfill and West Landfill Phase 1. Operations continue at the West Landfill Phase 2 site. Established in 1959, the landfill has had a generation facility since 1997. The cogeneration facility relies on eight Caterpillar 3516 reciprocating engine generators. The current capacity of the facility is 10 MW. Some of the generated power is used for operations, however 3.7 MW is excess to facility needs and is sold to SDG&E. In addition to landfill gas, the generation facility receives about 10% of its gas from the Metro Biosolids Center digesters. Untapped gas in Miramar Landfill reportedly has the potential to permit expand electric generation capacity to 13 MW, providing an additional 3 MW to SDG&E (Ray Purtee, San Diego County, 2007). This expansion would occur adjacent to the existing co-generation facility at the landfill. The site is already developed and sits amid existing structures and paved areas. A connection to the grid already exists at the site.
- The **Miramar Renewable Energy Facility** would be a new biomass facility developed by Envirepel, Inc. at the existing Miramar Landfill. The biomass-fueled facility would be separate from the landfill's existing biogas-fueled electric generation facility, and would be either at the landfill or nearby. Biomass materials bound for the landfill would be diverted to the new facility, where they would be processed and combusted. The facility would use a 30 MW steam turbine generator. From the 30 MW capacity installed in the facility, 26 MW would be supplied to the electric grid.

Geothermal

Geothermal energy resources for the region are generally located to the east and south of San Diego County. As a result, geothermal energy is not considered to be a feasible technology within San Diego County under the New In-Area Renewable Generation Alternative.

Ocean Thermal and Wave Energy

Ocean energy is not considered to be a feasible technology for development by 2016 in the San Diego area under the New In-Area Renewable Generation Alternative.

Rationale for Full Analysis

Project Objectives, Purpose, and Need. The various components of the New In-Area Renewable Generation Alternative would, in combination, satisfy the objectives, purpose, and need of the Proposed Project. Their separate roles in doing so are outlined below.

- **Reliability.** The New In-Area Renewable Generation Alternative would provide reliable capacity of 203 MW in 2010 and 513 MW in 2016. This level does not allow SDG&E to meet all of its local reliability requirements through 2020. Solar thermal and wind resources developed under this alternative would help SDG&E meet the reliability objective, although the effective load carrying capability (ELCC) of solar thermal and wind generators (i.e., the capacity of the power plant that can be considered "firm" for reliability calculations) would be less than the nameplate capacity. New solar photovoltaic installations also can help SDG&E to meet the reliability objective (assuming that the generators are geographically dispersed), because it is technically possible for SDG&E to partially depend on PV systems to maintain system reliability.
- **Low-Cost Power.** The various technologies that would be developed under the New In-Area Renewable Generation Alternative might not reduce costs, since the renewable energy projects might require Supplemental Energy Payments to be financially viable. Additionally, the economic viability of solar thermal and wind projects within San Diego County also depends on the costs of transmission upgrades

necessary to interconnect the projects. The cost to achieve the anticipated levels of PV installation-related to hundreds of individual PV systems would also likely be prohibitive. Landfill gas plants can generate electricity at competitive prices while electricity generated by biomass plants is generally more expensive. The cost of energy from a biomass plant is directly related to the cost of the fuel source, but the California Biomass Energy Alliance estimates electricity generated by biomass plants can range from competitive 6 cents per kilowatt-hour to as high as 10 cents per kilowatt-hour (SDRRESG, 2005). Although individual projects could involve relatively high development costs, under renewable resource procurement rules, SDG&E's ratepayers would only be responsible for costs of renewable power up to the Market Price Referent, which is a proxy for the market price of power.

- **Renewables.** The New In-Area Renewable Generation Alternative would meet the objective for promoting renewable energy as part of SDG&E's generation portfolio.

Feasibility

Solar Thermal. The world's largest solar thermal power generation facilities are located in Southern California, in the Southern California Edison territory, and there is considerable technical potential for solar thermal located in the Borrego Springs area of San Diego County. Thus, solar thermal is a feasible component of this alternative. Although there are no publicly announced solar thermal projects in this particular area, solar thermal projects could be feasibly developed prior to 2016.

Solar Photovoltaic. Economic, legal, and technical feasibility challenges would need to be overcome in order to develop numerous individual PV installations throughout San Diego County. SDG&E claims that to obtain 394 MW for reliability accounting by 2010 would require incentives of approximately $1.1 billion (assuming an incentive of $2.80 per installed watt), and these additional funds would be over and above the $2.8 billion currently allocated under the CSI program. The level of incentives required to implement the 210 MW contemplated under this alternative is not known. However, the PV rebates funded by the CSI and NSHP programs must decline with time, so it would be difficult, perhaps even requiring legislation, to increase PV rebates to increase penetration.[6] Furthermore, SDG&E doesn't administer the CSI (the San Diego Regional Energy Office does), so the utility does not have control of rebate policy or other any other programmatic details.[7] Although PV would not alone be technically feasible as an alternative to meet project objectives, it would be technically feasible on the smaller-scale as a component in a larger renewables package/alternative.

Wind. Economic feasibility is uncertain because development of wind projects in the nation has historically been closely linked to the availability of a federal production tax credit (PTC). The PTC is subject to Congressional renewal on a periodic basis, and the threat of losing the PTC creates uncertainty for wind project developers and lengthens project development timelines. However, because areas with wind resources have been identified close to a potential new substation and there are several wind projects in the CAISO interconnection queue for the existing SWPL, the development of new wind projects would be technically feasible.

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[6] SB 1, August 21, 2006 calls for the incentives to "decline each year following implementation of the California Solar Initiative, at a rate of no less than an average of 7 percent per year, and shall be zero as of December 31, 2016." California PU Code Section 2851(a)(1).

[7] SDG&E is currently slated to administer the program targeting new residential construction, but this market segment accounts for 15% or less of the overall solar PV program.

Biomass/Biogas. Existing biomass/biogas technologies using urban wood wastes and landfill gas are feasible under this alternative.

Environmental Advantages. Even though it would create certain visual, biological, air quality, and noise impacts, this alternative has the potential to lessen environmental impacts because those of the Proposed Project would not occur under the New In-Area Renewable Generation Alternative.

C.4.10.2 New In-Area All-Source Generation

Description

The New In-Area All-Source Generation Alternative would include a combination of fossil-fired central station generation, renewable generation, and non-renewable distributed generation (DG). The capacity provided by conventional generation projects under this alternative could include 620 MW from the South Bay Replacement Project proposed by LS Power to come online in 2010 or 750 MW from the San Diego Community Power Project proposed by ENPEX Corp., and 250 MW from multiple peaking power plants assumed to come online by 2008. The Carlsbad Energy Center proposed by NRG Energy at the existing Encina Power Plant could also be developed to provide up to 540 MW of fast-start generation, although this is not selected as part of this alternative. Peaking generators could be sited at several locations including: the existing Encina Power Plant; other existing peaking power plant sites in Escondido or Chula Vista; existing SDG&E substations in San Diego and Orange Counties (e.g., the Miramar, Pala, Margarita, and Borrego Springs Substations); or at new sites (e.g., in the Kearney Mesa district of San Diego). Figure C-8 shows a regional map of the components of this alternative.

This alternative would also involve renewable projects discussed in Section C.4.10.1 and 70 MW of nameplate capacity incremental distributed generation ~~by 2015~~ before 2016, along with the various conventional gas-fired generation projects. This section describes only the conventional generation components of the New In-Area All-Source Generation Alternative.

Summary of Conventional Generation Projects

The conventional generation considered under New In-Area All-Source Generation Alternative includes a range of specific conventional generation projects, listed below.

- Either the South Bay Replacement Project[8], the San Diego Community Power Project (also known as "ENPEX"), or the Carlsbad Energy Center (repowering project for Encina Power Plant)
- Four peaking gas turbines from which SDG&E could procure in response to the 2008 Peaker RFO
- Fossil fuel-fired distributed generation facilities

It is assumed that the proposed South Bay Repower Project, the San Diego Community Power Project, or the Carlsbad Energy Center (Encina) would be constructed, and that four of the 250 MW of peakers solicited by SDG&E in the 2008 Peaker RFO can feasibly be built by 2010. Other new combined cycle projects or peaker projects may not be feasible in the 2010 time-frame because they have not yet submitted applications for permits and/or they do not have power purchase agreements.

[8] The South Bay Replacement Project was under consideration by the California Energy Commission during 2006 and 2007, but was withdrawn by the applicant in October of 2007. Even thought the application is not active, this project is retained as a potential component of the In-Area All Source Alternative as a representative baseload power plant.

South Bay Replacement Project

LS Power proposed to construct and operate the South Bay Replacement Project (SBRP), but has now withdrawn its application to the Energy Commission. The plant described in the application is still considered in this analysis as having impacts that represent a large gas-fired plant. The SBRP would have been a nominal 620 MW gas-fired combined cycle power plant (of which 120 MW would result from duct firing). The SBRP would have replaced the existing South Bay Power Plant, which is operated by LS Power. The existing South Bay Power Plant, which is more than 50 years old, would be shut-down. It would not be necessary to demolish the existing South Bay Power Plant to successfully complete the proposed SBRP. For purposes of long-term resource planning, SDG&E assumes that the existing South Bay Power Plant will be shut-down after 2009, but this would likely occur only if the CAISO approves that action because adequate generation capacity is available in the San Diego area. A description and map of the replacement project are in Section E.6.1.2.

The SBRP would be located immediately adjacent to and south of the existing South Bay Power Plant in the City of Chula Vista, California. Interconnection with the high voltage transmission system would be through a relocated South Bay Substation, which will be on the site of the SBRP and require 400 feet of new transmission lines. According to the AFC, the current South Bay Power Plant has a capacity rating of 700 MW and consists of four gas-fired steam generation units and a diesel-fired combustion turbine. Thus, if the SBRP (620 MW) replaces the existing South Bay plant, then there would be a reduction in generating capacity at the South Bay site of approximately 80 MW.

San Diego Community Power Project

The San Diego Community Power Project (SDCPP), sponsored by ENPEX Corp., would be a nominal 750 MW gas-fired combined cycle power plant. The heat recovery steam generators would incorporate duct burners, designed to burn only natural gas, to provide additional generation capacity during peak demand periods, such as the summer months. SDCPP has been under development by ENPEX since 2000. The project site would be on the Marine Corp Air Station (MCAS) Miramar property near the City of Santee, with a likely electrical interconnection to the SDG&E Sycamore Canyon Substation (SDCPP, 2000). The City of Santee, however, opposed the power plant in early 2007 based on a proposal to develop 1,380 homes on land east of the SDCPP site (the Fanita Ranch development).

The proposed SDCPP at Miramar has been designed by ENPEX to serve as another potential generation option to replace the existing South Bay Power Plant. The proposed 750 MW combined cycle power plant would include a power island, switchyard, electrical control rooms, administration buildings, storage tanks, and ancillary facilities (utility and road connections). SDCPP would connect to the SDG&E Sycamore Canyon Substation via an existing 230 kV transmission line.

Encina Power Plant Repowering

NRG Energy owns the existing Encina Power Plant in the City of Carlsbad and has announced plans to construct a large peaking plant on the site. The existing plant has a nominal rated capacity of 965 MW, and consists of five gas-fired steam generation units and one combustion turbine with blackstart capability. NRG has been examining options for redevelopment of the Encina site since it became sole owner of the plant in 2005. The new Carlsbad Energy Center would retire existing steam boilers at the Encina Power Plant and replace them with a more efficient combined-cycle 540 MW power plant. NRG also announced that it is in discussions with a third party (e.g., ENPEX) to develop a 730 MW gas-fired combined cycle plant inland from Encina, but no further information is available on this concept (Burge, 2006).

NRG filed an AFC to the CEC in September 2007 for the 540 MW Carlsbad Energy Center. The NRG project would include a fast-start high-efficiency, combined-cycle 540 MW power plant and shutdown of the existing steam boiler Units 1, 2, and 3. The retirements would occur upon the successful commercial operations of the new Carlsbad Energy Center generating units.

Peaking Power Plants in Response to 2008 Peaker RFO

This alternative would include various peaking power plant projects that could be developed in order for SDG&E to comply with prior CPUC rulings. On August 15, 2006, CPUC President Peevey issued an Assigned Commissioner's Ruling in Rulemaking R.06-02-013 ordering SDG&E to provide the CPUC with information regarding the need for peaking resources for the summer of 2007.[9] This ruling was in response to the heat storm during the summer of 2006. On August 31, 2006, SDG&E responded to President Peevey's ruling and indicated that, in addition to an increased level of demand response associated with its air conditioner cycling program, SDG&E would also issue an expedited solicitation (the 2008 Peaker RFO) for new utility-owned peaking resources for 2007 and 2008.[10]

In Application A.07-05-023, filed May 11, 2007, SDG&E selected five proposals for a total of approximately 229 MW. The five proposals are contracts for peakers at Pala and Margarita, "plus a proposal for a fee-for-service development at Borrego Springs, an expected EPC contract for Miramar II and exercise of an option on distributed generation. The three projects not presented [in this application] will be filed at a later time." Four projects are considered as part of the All Source Alternative (more detailed descriptions are presented in Appendix 1, Section 4.10.3.

- **Miramar Substation**. SDG&E's existing Miramar Energy Facility presently includes one combustion turbine rated at 47 MW, and a second could be added. The maximum estimated peaking capacity of the site is 49 MW.
- **Pala Substation**. SDG&E's existing Pala Substation is located in northern San Diego County within proximity to the Pala Indian Reservation. The Pala Substation is located on 15 acres of mildly sloping land.
- **Margarita Substation**. SDG&E's existing Margarita Substation is located in the community of Ladera Ranch is located east of Interstate 5 between Mission Viejo and State Route 74 in Orange County. The substation is located on 3.0 acres of undeveloped land, and it could be developed to provide a maximum estimated peaking capacity of 99 MW.
- **Borrego Springs Substation**. SDG&E's existing Borrego Springs Substation is located on Borrego Valley Road in Borrego Springs in northeastern San Diego County. The substation site includes 2 acres of graded but undeveloped desert land that could be developed to accommodate 15 MW of peaking power. Because of limited natural gas supplies, the site has been identified by SDG&E as suitable only for biodiesel (e.g., B20 grade or 20 percent biodiesel mixed with 80 percent conventional diesel fuel). The winning bidder in SDG&E's 2008 RFO won the right to help SDG&E develop a generation facility in Borrego Springs (CPUC Data Request 28, dated May 6, 2008).

[9] Assigned Commissioner's Ruling Addressing Electric Reliability Needs in Southern California for Summer 2007, R.06-02-013, August 15, 2006.

[10] Response Of San Diego Gas & Electric Company (U 902 E) To The Assigned Commissioner's Ruling Addressing Electric Reliability Needs In Southern California For Summer 2007, R.06-02-013, August 31, 2006.

In-Area Renewable Generation

Except for Solar Thermal, which would not occur under the New In-Area All Source Alternative, the New In-Area All-Source Generation Alternative would also involve development of all the renewable resources described under the New In-Area Renewable Generation Alternative in Section C.4.10.1 and Section 4.10.2 in Appendix 1. The various renewable power projects would involve solar PV, wind, and biomass/biogas as follows:

- **Solar Photovoltaics**: Individual solar PV systems would be installed on residential and commercial buildings totaling up to a nameplate capacity of 210 MW or 105 MW for reliability accounting by 2010.
- **Wind:** Approximately 200 MW of wind power nameplate capacity or 48 MW for reliability accounting would need to come on line by 2010~~, with 400 MW of nameplate capacity or 96 MW for reliability accounting by 2016~~, most likely in the Crestwood wind resource area.
- **Biomass/Biogas:** Approximately 50 MW of new biomass/biogas generation by 2010~~, with 100 MW of biomass/biogas by 2016~~, from new landfill gas-to-energy projects or wood waste projects at unspecified locations.

Distributed Generation

This alternative would also include deployment of approximately 70 MW of nameplate capacity DG, or 35 MW for reliability accounting, before 2016. These non-renewable distributed generation resources could be located anywhere in the SDG&E service territory, but they would likely occur at existing facilities that have a need for cogeneration or combined heat and power. Individual DG projects are likely to vary in size and configuration as well as type.

All-Source Generation with Demand Response

One optional scenario, or "resource bundle," that could occur in conjunction with the New In-Area All-Source Generation Alternative would be to include 231 and 249 MW of demand response by 2010 and 2016, respectively. These demand response levels would be consistent with the CPUC's demand response goals and SDG&E's updated goals in its 2007–2016 Long-Term Procurement Plan filed in late 2006 (SDG&E, 2006b). Including this level of demand response with this alternative would improve the likelihood of this alternative in meeting reliability objectives.

All-Source Generation with Demand Response and RECs

A second optional scenario, or second "resource bundle," that could occur in conjunction with the New In-Area All-Source Generation Alternative would be to combine the All-Source Generation Alternative with demand response and the use of Renewable Energy Credits (RECs) for RPS compliance. This would allow SDG&E to avoid congestion costs associated with delivery of renewable energy generated outside of San Diego County. Implementing a RECs program as a part of this alternative should reduce the cost of meeting SDG&E's renewable goals, since the delivery of renewable energy into the SDG&E load center would not be necessary. With SDG&E using RECs for RPS compliance, the congestion costs associated with purchasing renewable power for San Diego County could be greatly reduced or eliminated.

Rationale for Full Analysis

Project Objectives, Purpose, and Need. The various components of the New In-Area Renewable Generation Alternative would, in combination, satisfy the objectives, purpose, and need of the Proposed Project.

The New In-Area All-Source Generation Alternative would satisfy reliability and low-cost power objectives. Adding renewable projects and the capability of trading RECs for RPS compliance may also result in a lower-cost power supply to SDG&E than could be supplied without In-Area renewables and RECs. With renewable generation projects, this alternative would enable SDG&E to achieve the renewable power objective.

Feasibility. Construction of new gas-fired generation within the SDG&E service area is potentially feasible. The new Palomar Energy Center is an example of a gas-fired generating station that has come online since 2005 and another major generating station (the Otay Mesa Power Plant) is under construction now. The feasibility of this alternative depends on the actions of SDG&E and third-party developers. There is no single process or agency action that can ensure that new in-area generation projects would, in fact, be built, or that they would be operational within a certain timeframe. Potential project ownership and CPUC market structure are discussed in Section E.4.10.3.

Generation projects are subject to various regulatory processes that can delay the project schedule. While the South Bay Replacement Project was withdrawn from review by the CEC, but for new development, obtaining offsets would be a challenge because of the lack of available offsets in the San Diego basin (Eastman, 2006). Even if the CEC were to approve the project, the decision could contain conditions that would make development impractical. New large thermal power plant projects competing with the South Bay Replacement Project would also need CEC approval. Because of the uncertainty of securing these approvals and agreements, there can be significant delays in project online dates.

Environmental Advantages. Even though it would create certain visual, biological, air quality, and noise impacts, this alternative has the potential to lessen environmental impacts because those of the Proposed Project would not occur under the New In-Area All Source Generation Alternative.

C.5 Alternatives Eliminated from Full EIR/EIS Evaluation

Maps of all route alternatives eliminated from full evaluation are in Figures C-9 to C-15. System alternatives eliminated from evaluation are shown in Figure C-15.

C.5.1 Transmission Line Route Alternatives: Imperial Valley Link Segment

Maps of all routes in this Link that were considered but eliminated from full evaluation are in Figure C-9.

C.5.1.1 SDG&E Desert Western Route Alternative

Description

This alternative was initially considered to be the preferred alignment by SDG&E during its public alternatives development process. Although it is no longer SDG&E's proposed route for the Sunrise Powerlink Project, the route was evaluated in the PEA as Alternative Alignment N2-N4-N41-N38 under the Desert Link discussion of "500 kV Transmission Line from Imperial Valley Substation to the Western ABDSP Boundary."

The SDG&E Desert Western Route Alternative would diverge from the Proposed Project approximately 4 miles northwest of Imperial Valley Substation. The alternative would continue northwest and then west for approximately 8.64 miles following the existing SWPL #1 line within the BLM Dedicated

Figure C-9. Imperial Valley Link Alternatives Eliminated
CLICK HERE TO VIEW

Utility Corridor, through Plaster City and crossing SR80. The route would then diverge from SWPL #1 and would head north for 14.79 miles along an existing disturbed jeep trail on BLM land, east of and outside of Coyote Mountains and Fish Creek Federal Wilderness Areas. From Milepost (MP) 23.4 the route would follow the existing IID 92 kV transmission line for 8.34 miles to where it would rejoin the Proposed Project at MP 54.1. As shown in Figure C-9, the alternative route would be 20 miles shorter than the proposed route in the Desert Link.

The portion of this alternative that would follow the existing SWPL line would be within a designated utility corridor. However, the remainder of the alternative on BLM land would not be within a designated utility corridor and would require a BLM Land and Resource Management Plan Amendment for a 1,500 feet corridor.

Initial Route Segments Considered by SDG&E. Four different routes spanning the western boundary of Desert Range military lands were initially considered by SDG&E prior to development of the route used for the SDG&E Desert Western Alternative and based on the goal of following linear features. Three of the routes would parallel north-south section lines through undisturbed areas and Segment 3D would parallel a jeep trail in an already disturbed area. Although the three routes that would parallel section lines would be farther from designated wilderness area to the west, they would travel through undisturbed lands closer to the center of the Desert Range and its height limitation area. Therefore, Segment 3D, which traverses more disturbed terrain closer to the western boundary of the Desert Range, was carried forward. Using GPS (global positioning system) and field reconnaissance, Segment 3D was then refined to more closely parallel the existing jeep trail and it is the precursor to what is described above as the SDG&E Desert Western Route Alternative.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be legally feasible. It would be 20 miles shorter than the Proposed Project in the Desert Link. In addition, it would be entirely along an already disturbed corridor on federal land, which would avoid agricultural lands in the Imperial Valley, and would thereby result in substantially less ground disturbance and impacts to all issue areas. However, the alternative would traverse Department of Defense Military Operations Area that includes DOD restricted airspace and/or an obstruction-free zone thereby making this alternative regulatory infeasible and technically infeasible to construct within the 20-foot-height limitation (DON, 2007). Due to future aircraft operations, IID has decided that this route is no longer feasible to pursue (Sandoval, 2007).

C.5.1.2 SDG&E Segment 1/Imperial Valley via 92 kV Alternative

Description

This alternative is part of an alternative that was originally developed (and eliminated) in PEA Section 3.3.1.2 and would begin at the existing Imperial Valley Substation. The route would head north paralleling roadways, section lines, and canals for 11 miles through agricultural lands, as is shown on Figure C-9.

Specifically, the route would depart from Imperial Valley Substation heading north through open desert and agricultural lands for 3,500 feet before crossing an unnamed roadway and paralleling Liebert Road for another 3,500 feet to Wixom Road. The line would continue north-northwest for approximately 4,000 feet through agricultural land to West Diehl Road where it would join and parallel Jessup Road for 3.3 miles, crossing over I-8. After crossing County Highway S80, the route would jog approximately 875 feet to the west would continue north paralleling Molitor Road for 7,000 feet. At Curtis Road

where Molitor Road jogs to the east, this route would continue north through agricultural land to join and begin paralleling Huff Road at a point approximately 1,750 feet north of Hetzel Road. Existing IID 92 kV transmission lines are located on the west side of Huff Road along most of this segment and the alternative would turn northwest and would traverse for 23 miles through mostly unoccupied BLM lands following the existing IID Imperial Valley–Narrows 92 kV transmission line corridor to a point where it would intercept the Proposed Project outside of the military facility at approximately MP 54. This route would be 20 miles shorter than the Proposed Project.

Rationale for Elimination

This alternative would meet project objectives but it would not be regulatory feasible and it would cause much greater impacts to agricultural operations and residential receptors even though it would be 20 miles shorter. It would cross through the center of the height limitation and restricted airspace/obstruction-free zones within the DOD lands it would traverse. If it is even technically feasible, prudent engineering would not design and construct a 500 kV transmission line that is 65 feet high.

C.5.1.3 Imperial Valley FTHL Alternative

Description

This alternative was developed by the EIR/EIS team as a way to avoid the Flat-Tailed Horned Lizard (FTHL) Management Area. This route is shown in Figure C-9 and would begin at Imperial Valley Substation traveling northwest for almost 1.0 mile through open desert to the edge of the cultivated agricultural land and an unnamed road that becomes Dixie Drain 4. The route would turn west-northwest and then north as it would parallel the edge of the agricultural land on the north side of Dixie Drain 4/unnamed road, outside of the BLM FTHL Management Area on private land for 3.7 miles. Approximately 1,300 feet south of Hardy Road, the route would turn west parallel to the edge of agricultural land for 1.0 mile to rejoin the proposed route at MP 5. This route would be 0.7 miles longer than the proposed route.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be legally and regulatory feasible. There would be technical feasibility issues due to IID 230 kV planned upgrades along the Westside Main Canal in this area. In addition, the route would pass adjacent to a large proposed residential development and could result in potential agricultural conflicts. Although this route would avoid BLM Flat-Tailed Horned Lizard Designated Management Area, it would be located almost entirely in agricultural land with greater environmental impacts. Therefore, due to the technical feasibility issues as well as greater land use, visual, contamination, ground disturbance, and agricultural impacts, this alternative has been eliminated for full analysis in this EIR/EIS and has been replaced with FTHL Eastern Alternative (see Section C.4.2.1), which would reduce impacts to the BLM FTHL Management Area while also avoiding these feasibility concerns and minimizing other environmental impacts.

C.5.1.4 SDG&E Imperial Valley FTHL Modification Alternative

Description

This alternative was suggested by SDG&E and is similar to the Imperial Valley FTHL Alternative (see C.5.1.3) beginning at Imperial Valley Substation and traveling north to the agricultural lands, which are north of and outside of the BLM FTHL Management Area. However, the SDG&E Imperial Valley

FTHL Modification Alternative would follow the east side of the Westside Main Canal, crossing I-8 to Stevens Road where it would turn west, cross the canal, and follow Strobel Road to rejoin the proposed route one structure north of I-8 at MP 6.1. This route is shown in Figure C-9.

Rationale for Elimination

This alternative would meet project objectives and would potentially be legally and regulatory feasible. There would be technical feasibility issues due to IID 230 kV planned upgrades along the Westside Main Canal in this area. Although this route would avoid much of the BLM Flat-Tailed Horned Lizard Designated Management Area, it would be located almost entirely in agricultural land with greater environmental impacts to land use, visual resources, contamination as well. Therefore, this alternative has been eliminated for full analysis in this EIR/EIS and has been replaced with FTHL Eastern Alternative (see Section C.4.2.1), which would reduce impacts to the BLM FTHL Management Area while also avoiding these feasibility concerns and minimizing other environmental impacts.

C.5.1.5 SDG&E Bullfrog Farms Alternative

Description

Several scoping comments expressed concerns about the impacts of the 500 kV transmission line on dairy operations at Bullfrog Dairy Farm. As a result, this alternative was submitted by SDG&E in response to Data Request No. 1 (dated September 27, 2006). It would be a 1.9 miles segment that would diverge from the Proposed Project at approximately MP 13.5 and would continue east across agricultural land where the proposed route would turn north following the Desert Range boundary (at Tower AG35). The alternative would travel east following the property lines where possible for 0.7 miles (3 towers) before turning north. The route would head north for 1.2 miles and would reconnect with the Proposed Project at Tower AG42 (MP 15.2). This alternative would be 0.2 miles longer than the proposed route. This route is shown in Figure C-9.

Rationale for Elimination

This alternative would meet project objectives and would be potentially feasible. It would also avoid the main building of Bullfrog Farms; however, it would impact its dairy calving operations. The route would also impact a planned development south of Bullfrog Farms. Therefore this alternative has been eliminated from full evaluation in this EIR/EIS and has been replaced with SDG&E West Main Canal–Huff Road Modification Alternative suggested by SDG&E (see Section C.4.2.3).

C.5.1.6 Huff Road Bullfrog Farms Alternative

Description

Several scoping comments expressed concerns about the impacts of the 500 kV transmission line on dairy operations at Bullfrog Farms. This alternative was developed in response by the EIR/EIS team. It would be a 3.0 miles segment that would diverge from the Proposed Project at approximately MP 13.8 by turning east and paralleling Payne Road. The alternative would travel east adjacent to Payne Road for 1.7 miles before turning north onto Huff Road. The route would head north for 1.3 miles along the east side of Huff Road. Existing IID 92 kV transmission lines are located on the west side of Huff Road along most of this segment; however, where the IID line would turn northwest, this alternative would continue straight along Huff Road to reconnect with the Proposed Project at Tower AG46, 0.2 miles south of Wheeler Road (MP 15.9). The lengths of the alternative and the proposed routes would be essentially the same. This route is shown on Figure C-9.

Rationale for Elimination

Planned IID system upgrades that could affect the existing 92 kV line along Huff Road would not affect the technical feasibility of this alternative. This alternative would meet project objectives and would be potentially feasible. It would also avoid the main building of Bullfrog Farms; however, it would impact its dairy calving operations. The route would also impact a planned development south of Bullfrog Farms. Therefore this alternative has been eliminated from full evaluation in this EIR/EIS and has been replaced with SDG&E West Main Canal–Huff Road Modification Alternative suggested by SDG&E (see Section C.4.2.3).

C.5.1.7 New River Alternative

Description

This alternative was suggested during scoping and would diverge from the Proposed Project around MP 11 and briefly following section lines to the New River, which roughly runs southwest to northeast across the valley (see Figure C-9). The route would follow the north side of the river (adjacent to but not on the agricultural land) in the northeast direction for almost 8 miles to its intersection with the existing IID transmission corridor where it would turn northwest for 1.2 miles and would rejoin the Proposed Project around MP 20.5. The route would be essentially the same length as the proposed route.

Rationale for Elimination

This alternative would meet project objectives and would be potentially legally feasible. There are regulatory concerns with permitting from the U.S. Army Corps of Engineers and technical feasibility issues due to the risk of installing a major transmission line in or in the floodplain directly adjacent to an active riverbed with year-round flow. Flowing water can undermine tower footings and riverbed soils can be unstable, presenting challenges to engineering. Although this alternative would reduce impacts to agricultural resources, it would be challenging to construct and would cause greater erosion and water resource impacts.

C.5.2 Transmission Line Route Alternatives: Anza-Borrego Link Segment

All route alternatives in this Link that were considered but eliminated from full analysis are shown in Figure C-10.

C.5.2.1 SDG&E ROW Shorter Structure Alternative

Description

This alternative was suggested by SDG&E on May 19, 2007 as an unsolicited supplemental response to a CPUC Data Request (dated March 28, 2007). This alternative would eliminate the 69/92 kV underbuild and would utilize different structure configurations, specifically narrower steel H-frames and 3-pole structures. This alternative would both reduce the structure heights and width to stay within a 100-foot-wide right-of-way (ROW). To further reduce the structure height to an average of approximately 100 feet, additional structures would be needed as compared to the Proposed Project.

This configuration could be used within a 100-foot-wide ROW either following the centerline of the existing 69/92 kV transmission line or the East of Tamarisk Grove Campground 150-Foot Option discussed under the Overhead 500 kV ABDSP within Existing ROW Alternative in Section 4.3.2, which is a combination of the Proposed Project and the existing 69 kV right-of-way. As discussed above, the option

Figure C-10. Anza-Borrego Link Alternatives Eliminated
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would reduce the number of times the transmission line would cross SR78 by staying north of SR78 from the junction of SR78 and Old Kane Springs Road to just west of the junction of SR78 and S3. Drawings of typical 500 kV structures for this alternative are shown in Figure Ap.1-8 in Appendix 1.

To eliminate the 69/92 kV underbuild, a double-circuit 69 kV transmission line with both overhead and underground segments would be constructed from the existing Warner Substation to the existing Borrego Substation. This transmission line would support the existing 69 kV circuit and a new 69 kV circuit. From Warner Substation to the S2/S22 intersection, the proposed 69 kV transmission line would be constructed on double-circuit poles and would replace the existing overhead 69 kV transmission line. The proposed overhead 69 kV transmission line would continue south along the east side of S2 until reaching the ABDSP boundary located north of the S2/SR78 intersection (Scissors Crossing).

Near the western ABDSP boundary, the 69 kV circuits would transition underground and would continue through the park within S2, SR78 and S3 (Yaqui Pass Road) ROW. After crossing the ABDSP boundary along S3, the circuits would transition to overhead and continue north through Borrego Springs ultimately terminating at the Borrego Substation. The proposed alignment would generally follow the existing 12 kV and 69 kV overhead lines. The existing overhead lines would be replaced with double-circuit 69 kV poles with distribution underbuild as required. This configuration for the 69 kV circuits would eliminate the need for both Narrows Substation and the existing 92 kV circuit east of Narrows. Drawings of typical 69 kV structures for this alternative are shown in Figure Ap.1-9 in Appendix 1.

Another option to serve Borrego Springs customers would be to construct a single-circuit 69 kV transmission line and install a small generator adjacent to Borrego Substation for backup power in the event of an outage. This configuration would reduce the amount of new 69 kV transmission line construction, as portions of the existing 69 kV transmission lines would not have to be replaced. Between the S2/S22 crossing and the intersection with the existing 69 kV transmission line in Borrego Springs, construction and routing of the underground and overhead segments would be the same as described above except only a single circuit would be installed.

Rationale for Elimination

The SDG&E ROW Shorter Structure Alternative would meet project objectives and would be feasible, but it would have greater environmental impacts. Although this alternative would remain within the existing ROW, thereby avoiding Pinyon Ridge Wilderness Area, and would have shorter structures by eliminating underbuild, it would result in wider, additional towers within ABDSP. It would go directly through Angelina Springs Cultural District and would include underground construction in a narrow, windy portion of SR78, creating greater ground disturbance and major traffic impacts. Additionally, the alternative would also create a new transmission corridor along S2 through the scenic San Felipe/Earthquake Valley. Therefore, due to greater environmental impacts, this alternative has been eliminated from full consideration in this EIR/EIS.

C.5.2.2 SDG&E Segment A/Northern Borrego Springs via S22 Alternative

Description

The SDG&E Segment A/Northern Borrego Springs via S22 Alternative was discussed and eliminated in PEA Section 3.3.1.2. SDG&E states that it was designed because it would follow an existing linear feature, S22. As shown in Figure C-10, the route would begin at the Imperial Valley Substation and would extend north for 5.4 miles paralleling an existing IID 92 kV transmission line through private agricultural lands west of El Centro, following property boundaries and section lines to a point near an existing IID 161 kV transmission line. The alternative would then follow an existing IID 161 kV transmission line for 37.5 miles until it would meet S22.

From this point, the route would parallel S22 (Borrego Salton Seaway) westward for 7.8 miles through Imperial County before entering San Diego County and traversing the ABDSP via S22 for 12 miles, crossing south of Santa Rosa Mountains Wilderness and north of Desert Oasis Wilderness. The alternative would continue to parallel S22 west through unincorporated San Diego County and the town of Borrego Springs for 9.2 miles, following S22 by turning south on Peg Leg Road and then west on Palm Canyon Road. Where S22 turns south and becomes Montezuma Valley Road, the route would again enter ABDSP for 11.2 miles until it would reach the town of Ranchita, just west of the Park boundary. The route would continue along S22 past the intersection with Grapevine Canyon Road until it would rejoin the Proposed Project at MP 87.6. Like the Proposed Project, this segment would also traverse the Park Wilderness Area that has been designated by statute. At 91.8 miles long, the SDG&E Segment A/Northern Borrego Springs via S22 Alternative would be 4.2 miles longer than the Proposed Project.

If the alternative were to diverge near SR86 (at MP 37.8 of the Proposed Project) instead of at the Imperial Valley Substation, then the alternative route at 58.8 miles would be approximately 9 miles longer than the Proposed Project.

Rationale for Elimination

This alternative would meet project objectives but was eliminated due to the regulatory and technical hurdles associated with traversing through four State Designated Wilderness Areas and down the steep Montezuma Grade. In addition, this route has significantly more impacts compared to the Proposed Project since it would create a new transmission line corridor parallel to heavily traveled Park roadways, would be longer, would travel through critical bighorn sheep habitat, and would pass by several populated areas and an airport.

C.5.2.3 SDG&E Segment 4/ABDSP via S2 Alternative

Description

SGD&E suggested this alternative in PEA Section 3.3.1.3 because it would follow linear features through ABDSP; however, SDG&E eliminated the alternative due to increased environmental impacts, namely to visual resources within ABDSP.

As shown in Figure C-9, the route would begin at the existing Imperial Valley Substation and would parallel the existing SWPL line to the northwest and then west for almost 21 miles. Where the SWPL #1 line intersects S2, the alternative segment would turn northwest and would parallel S2 for approximately 44.1 miles until it would terminate at the SR78 and S2 intersection or at the proposed Central East Substation. The major portion of this alternative along S2 would travel through the ABDSP for approximately 42 miles (Figure C-10). The alternative would be 65.1 miles long to SR78.

If the alternative route were to continue north along S2 for an additional 11 miles (for a 76.1-mile total length), it would rejoin the Proposed Project at the proposed Central East Substation, thereby replacing a 91-mile segment of the Proposed Project.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. Due to the much greater distance through ABDSP including State-Designated Wilderness Areas, the regulatory feasibility of this alternative is in question. In addition, the visual and biological impacts of a new transmission line corridor along S2 and through Wilderness Areas would create additional significant impacts, even though the route would be 15 miles shorter.

C.5.2.4 SDG&E SR78 West of Anza Alternative

Description

This alternative was suggested (and then eliminated) by SDG&E in PEA Section 3.3.1.3 and described as part of Segment 2, because it would provide a continuous alignment along SR78.

The alternative route would diverge from the Proposed Project at MP 47.1 in Imperial County. Where the proposed route would turn south and away from SR78, this alternative would continue to follow SR78 westward for 6 miles in Imperial County and 12 miles in San Diego County until it would rejoin the Proposed Project at MP 68.2 (see Figure C-10). This alternative would be approximately 3.1 miles shorter than the proposed route.

Rationale for Elimination

This alternative would meet project objectives and would be potentially technically and legally feasible. It would have, however, greater environmental impacts and regulatory feasibility issues associated with FAA regulations. Although the route would be over 3 miles shorter than the proposed route, this alternative would pass within the FAA obstruction-free area around the Ocotillo Wells County Airport on SR78 thus raising regulatory feasibility issues. Avoiding the FAA obstruction-free area would effectively push the alignment into other constraint areas, such as undisturbed ABDSP lands, desert washes, campground, and commercial uses. SR78 is considered a main eastern entrance to ABDSP and a new transmission line paralleling the road would be highly visible to Park visitors and other travelers along this scenic highway.

C.5.2.5 SDG&E ABDSP North Side of SR78 Alternative

Description

This alternative was discussed and retained for analysis by SDG&E in the PEA as Alignment N10-N11-N62-N12 and is considered as the western part of SDG&E's Segment 2. It could also be used in conjunction with SDG&E ABDSP Borrego Valley Alternative (see Section 4.3.8).

The alternative route would diverge from the Proposed Project at MP 61.9 and would travel north, just east of and outside of the ABDSP boundary, for approximately 2.35 miles to SR78. At SR78, the route would turn west and follow the north side of SR78 approximately 6.61 miles and would rejoin the Proposed Project at MP 68. The alternative, which is shown in Figure C-10, would be 8.96 miles long and the proposed route would be 6.1 miles long.

The existing 92 kV transmission line would be removed along the proposed route from MP 61.9 to MP 68 and would be underbuilt on the 500 kV lattice structures along the alternative route.

Rationale for Elimination

This alternative would meet project objectives and would be feasible. However, the route would be longer, thereby creating greater construction impacts to almost all issue areas, and it would establish a new highly visible transmission line corridor along SR78, which is considered a main eastern entrance to ABDSP. In addition, it would not reduce any significant impacts of the proposed route.

C.5.2.6 SDG&E Borrego Valley Alternative

Description

This alternative was developed by SDG&E in the PEA as N62-N66 and is shown on Figure C-10. The route would be approximately 19.69 miles long (from its departure from SR78) and would follow parcel boundaries/section lines and other linear features where possible using lattice steel towers. This alternative would diverge from SR78 so it could diverge from the SDG&E ABDSP North Side of SR78 Alternative at MP 7.1 or from the Proposed Project at MP 68.

At MP 68, the alternative would turn northeast where the proposed route would intersect (and would turn west on) SR78. The route would travel approximately 2 miles on SR78 and then would turn northwest crossing through ABDSP towards Borrego Springs for approximately 1.1 miles before exiting the Park. Once outside the Park the route would turn west and would parallel the Park boundary to the north for 4.0 miles before turning northwest for 5 miles continuing to remain outside of ABDSP. At this point the route would turn west and would reenter ABDSP for approximately 7 miles and would cross through Pinyon Ridge Wilderness Area.

After exiting ABDSP, the alternative would continue west for 2.6 miles before rejoining the Proposed Project at MP 86. The alternative would be approximately 4 miles longer than the Proposed Project but would travel through 5.5 miles less of ABDSP and 130 less acres of designated Wilderness.

This alternative would require the construction of a new 500/12 kV substation described below and in SDG&E's PEA Section 3.5.1. However, the existing Narrows Substation and Borrego Substation would be removed, and the existing Narrows-IID San Felipe 92 kV, Narrows-Borrego 69 kV, and Narrows-Warner 69 kV transmission facilities located in ABDSP would be removed.

Borrego Springs 500/12 kV Substation

A new 500/12 kV distribution substation would be required in the Borrego Springs area to feed the Borrego load if the 500 kV transmission line is routed through this area. The substation would be located in the southern portion of the Borrego Springs community. It would be located directly west of S3 and southeast of S22, and it would occupy approximately 10 acres fenced area. If this alternative is selected, the existing Borrego and Narrows Substations would be dismantled and removed. Details on the components and construction of this alternative substation are in Section 4.3.8 of Appendix 1.

Rationale for Elimination

The SDG&E Borrego Valley Alternative would meet all project objectives. It would, in addition, enhance reliability for Borrego Springs and remove all the existing transmission facilities in the Park. It would also improve voltage levels and power quality in Borrego Springs. Construction along the Montezuma Grade into Borrego Valley would be challenging but should be technically feasible. This alternative creates new challenges, however, of questionable regulatory feasibility, steeper topography, and greater environmental impacts. Although fewer acres of designated Wilderness would be impacted, there would be regulatory feasibility issues associated with construction of a new transmission line corridor through State Park Designated Pinyon Ridge Wilderness Area (the proposed route would follow an existing transmission corridor). Also, although the alternative would result in the removal of substation and transmission facilities within ABDSP, it would result in the construction of a much larger and visible Borrego Springs 500 kV substation in the Borrego Valley. In addition, the route would be highly visible in the Borrego Valley and would cross nearby residences in both Borrego Spring and Ranchita. It would also create a new transmission corridor through sensitive bighorn sheep habitat and Wilderness, and would be approximately 4 miles longer, creating greater temporary and permanent impacts in most issue areas.

C.5.2.7 SDG&E Borrego Valley Underground Alternative

Description

This alternative was suggested by SDG&E and would begin at an expanded 500 kV/230 kV San Felipe Substation (MP 58.9), as is shown on Figure C-10 (in detail on Figure Ap.1-5 in Appendix 1), and the underground ROW would be 60 feet wide. The 230 kV underground line would travel north in Split Mountain Road for 2.6 miles and then west in SR78 for 6.5 miles to Borrego Valley Road/S3. The route would continue for 9 miles in Borrego Valley Road and Highway S3 to a new 230/12 kV substation in Borrego Springs. From there, the route would travel within Tubb Canyon Road for approximately 1.5 miles to the base of the escarpment where it would transition overhead and would follow the SDG&E Borrego Valley Alternative overhead route, as described in Section 4.3.8 above, but at 230 kV.

Similar to the Partial Underground 230 kV ABDSP SR78 to S2 Alternative, this alternative would require expansion of the San Felipe Substation to a 500/230 kV substation. Like the SDG&E 500 kV Borrego Valley Alternative, this partial underground alternative would require the construction of a new 230/12 kV substation (except at 230 kV rather than 500 kV) in the Borrego Springs area to feed the Borrego load. The substation would be located in the southern portion of the Borrego Springs community. It would be located directly west of S3 and southeast of S22. The access road would be approximately 0.75-mile-long and 20-foot-wide to accommodate transportation of the substation equipment. An 8-foot chain link fence with barbed wire on top would surround the substation pad. Additional property chain link fence may be required for security reasons.

However, this alternative and the new substation would also allow for removal of the existing Narrows and Borrego Substations and the existing Narrows-IID San Felipe 92 kV, Narrows-Borrego 69 kV, and Narrows-Warner 69 kV transmission facilities.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be legally feasible. Construction along the Montezuma Grade into Borrego Valley would be challenging but should be technically feasible. Although fewer acres of designated Wilderness would be impacted, there would be regulatory feasibility issues associated with construction of a new transmission line corridor through State Park Designated Pinyon Ridge Wilderness Area (the proposed route would follow an existing transmission corridor). Also, although the alternative would result in the removal of substation and transmission facilities within ABDSP, it would result in the construction of a much larger and visible Borrego Springs 500 kV substation in the Borrego Valley. In addition, the route would be highly visible in the Borrego Valley and would cross nearby residences in both Borrego Spring and Ranchita. It would also create a new transmission corridor through sensitive bighorn sheep habitat and Wilderness. As a result, this alternative would create similar severe impacts, namely to Tubb Canyon and from the construction of a new 230 kV/12 kV substation in Borrego Springs, as the SDG&E Borrego Valley Alternative discussed in Section 4.3.8 above. Due to regulatory issues that question the feasibility of this alternative, and coupled with steeper topography and greater environmental impacts, this alternative has been eliminated from full consideration in this EIR/EIS.

C.5.2.8 SDG&E SR78 Julian Alternative

Description

This alternative was discussed and eliminated by SDG&E in PEA Section 3.3.1.3 as an option using SDG&E Segments 6 and 8 to connect into the Central Substation area. The route, as shown in Figure C-10, would slowly diverge from the Proposed Project at MP 75 east of Grapevine Canyon and would turn southwest to travel along the northwest side of SR78. The alternative would then continue to extend west and southwest for 26.3 miles paralleling SR78 past S2 and through the town of Julian until it would terminate at the existing Santa Ysabel Substation, approximately 1.0 mile east of the Proposed Project at MP 108.5. This alternative would be 7.2 miles shorter than the Proposed Project.

This alternative could also be used together with portions SDG&E ABDSP SR78 to S2 Central Alternative. This alternative would be used in conjunction with the Central South Substation Alternative, and therefore, the transmission line would be 500 kV in this segment.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be legally feasible. It poses, however, technical and regulatory feasibility issues and greater significant environmental impacts. The Banner Grade would require difficult construction due to steep, rocky slopes and creating a new transmission line corridor through Grapevine Mountain Wilderness Area would create regulatory feasibility issues. Although this alternative would be shorter and would avoid the cultural resources associated with Grapevine Canyon, this alternative would pass nearby residences and through the center of the town of Julian, would establish a new transmission line corridor through valuable biological habitat and Wilderness, and would pass within 350 feet of Julian High School.

C.5.2.9 SDG&E ABDSP SR78 to S2 Central Alternative

Description

This alternative was suggested during scoping and was discussed by SDG&E in the PEA as Alignment N74-N15-N42 in the Desert Link together with PEA Alignment N42-N67A to proposed Central Substation or N42-N16A to an alternative substation in the Central Link. It uses portions of SDG&E's Segments 6 and 7 discussed in Appendix B of the PEA. The route is shown on Figure C-10.

The route would diverge from the Proposed Project at MP 78 and would turn southeast to travel along the northwest side of SR78 for 3.69 miles. At the intersection with S2, the route would turn northwest and would follow the north side of S2 (San Felipe Road) alignment through the ABDSP for approximately 2.22 miles. Outside of the Park the route would then continue to follow S2 for 8.53 additional miles and would rejoin the Proposed Project at the proposed Central East Substation or 0.28 miles farther north on S2 at MP 90 if an alternative substation is used.

This alternative would use lattice towers with the existing 69 kV circuit underbuilt. The existing 69 kV transmission line from MP 78 to MP 88 that is proposed to be underbuilt along the Proposed Project route would be removed. This alternative could also be used together with portions SDG&E SR78 Julian Alternative (see Section 4.3.10).

Rationale for Elimination

While this alternative would meet project objectives and has the potential to be legally feasible, it has technical and regulatory feasibility issues and would create environmental impacts associated with a new transmission line corridor in the San Felipe Valley. Construction and engineering would be challenging due to the topography along SR78 and the alternative would establish a new transmission line corridor through Wilderness, which would present regulatory feasibility issues. In addition, SR78 and S2 are more heavily traveled roadways through the scenic and currently undeveloped San Felipe Valley. It should be noted that an underground transmission line along this same route has been retained for full analysis in this EIR/EIS as the Partial Underground 230 kV ABDSP SR78 to S2 Alternative (see Section C.4.3.1).

C.5.2.10 Overhead 230 kV ABDSP Alternative

Description

This alternative was developed by the EIR/EIS team in order to replace the 500 kV transmission line through ABDSP with a smaller 230 kV double-circuit line and in an attempt to minimize impacts on Wilderness Areas by staying within the existing ROW, and not requiring the additional 50-foot expansion needed by the Proposed Project.

The existing San Felipe Substation, approximately two miles east of ABDSP, would be converted to a 500 kV/230 kV substation. The 230 kV towers and transmission line would begin at the San Felipe Substation (MP 58.8), approximately 32.2 miles east of the Central East Substation (MP 91), thereby replacing the 500 kV towers and transmission line with 230 kV towers through ABDSP. Towers for a 230 kV transmission line would be approximately 20 feet shorter than 500 kV towers. The alternative would end at MP 90, one mile north of the proposed Central East Substation.

It should be noted that the proposed Central East Substation would not be constructed with this alternative and approximately 2 miles of transmission line (one mile of 500 kV and one mile of 230 kV) to and from the substation would be eliminated. Instead a new 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line.

Rationale for Elimination

This alternative would meet most of the project objectives, although placing future expansion circuits through ABDSP could be difficult and there could be capacity limitation issues associated with using two 230 kV lines instead of one 500 kV line. In addition, this alternative would not reduce impacts of the proposed route and would be environmentally inferior in the long-term due to future expansion plans that could place additional lines through ABDSP. Although the 230 kV towers would be approximately 20 feet shorter, consequentially, span lengths would also have to be closer, which would result in a greater number of towers and would thus negate the ground-disturbance advantages associated with the smaller 230 kV tower footprints.

C.5.2.11 HVDC Light Underground Alternative

Description

This alternative is based on scoping comments requesting consideration of advanced technologies that could place substantial portions of the Proposed Project underground (comments from Joanne Fogel, Carmel Valley Neighborhood 10 North HOA). The HVDC Light Underground Alternative would involve

installation of a proprietary transmission line system called HVDC Light (developed by ASEA Brown Boveri/ABB; ABB, 2007 and ABB,2008) with one converter station at a new location near IID's existing San Felipe Substation and a second converter station at or near the location of the proposed Central Substation (ABB, 2007). Two ~~Three~~ HVDC Light cables, providing a total of ~~circuits, each with approximately 350 MW~~ 1,000 capacity, would be installed underground in roadways through ABDSP and along Highway S2, with potential overhead segments at fault crossings. This alternative would follow the same route as the Partial Underground 230 kV ABDSP SR78 to S2 Alternative (see Section 4.3.1), which is shown on ~~Figure C-2~~ Figure ES-13.

This alternative would include:

- Approximately 58.8 miles of new 500 kV transmission line overhead from the existing Imperial Valley Substation to a new San Felipe Converter Station and approximately 10.8 miles of overhead construction to cross and parallel the Earthquake Valley Fault along SR78 and S2;
- Approximately 26.8 miles of new underground HVDC Light transmission line from the new San Felipe Converter Station to the proposed Central Substation.;
- New HVDC Light converter stations at San Felipe and the proposed Central Substation, with each station occupying approximately 5 acres housed within a structure with height up to 80 feet; and
- Other Proposed Project components west of the Central Substation.

According to information obtained from the manufacturer, ABB, HVDC Light technology was first introduced in 1997. This technology is being employed in a number of locations around the world. However, the high-capacity projects are presently in the ~~300 to 400~~ 600 to 700 MW range. ABB is pursuing the development of HVDC Light underground cable capacity ratings up to about 1,100 MW at ± 320 kV ~~300 MV.~~, which would ~~Thus, in order for the current state of this technology to~~ provide for the same import capacity as the Proposed Project~~, this alternative would require three or more circuits, assuming 350 MW per circuit~~.

Advantages of the HVDC Light technology are: (1) the associated ROW width requirements for underground or overhead DC circuits are substantially reduced from that required for similar AC operation; (2) in the event of a line outage, the converter stations can provide voltage support to the local transmission/distribution system; and (3) the DC circuits can be readily undergrounded. Disadvantages of this technology include: (1) ~~each circuit would require its own~~ the two terminals with converter stations costing between ~~$100 to~~ $250 to $280 million for connecting the ~~per station at each end of the~~ DC circuit with the surrounding transmission system; (2) the current limitations on the capacity of ~~each~~ the DC circuit~~;~~ and ~~(3)~~ the need for multiple DC-circuits to allow expansion beyond the 1,000 MW level; and (3) the limited ability to interconnect the surrounding transmission system with the DC circuit ~~could more than offset the reduced tower height and ROW width benefits of a single DC circuit. Installing three 350 MW circuits in modules could be accomplished with equipment that is commercially viable~~. An HVDC Light system with capacity up to 1,100 MW would be by far the largest of its kind anywhere.

This alternative would occur along the route of the Proposed Project, except within ABDSP, where the route would be underground in existing roadways. The underground duct bank would be approximately two feet wide and installed at a depth of at least three feet with one duct for each of the two HVDC Light cables. Although substantial space exists around the Imperial Valley Substation for converter stations, multiple converter stations and transitions between underground and overhead HVDC Light conductors would be impractical. To provide the future option of an interconnection to the IID system at the San Felipe location, this alternative would include San Felipe as the eastern converter location.

Because there are likely space limitations on the number of converters that could be placed at the Sycamore Canyon Substation, the western converter location would be at the proposed Central Substation site. ~~Although~~ Because this alternative ~~offers the ability to~~ would place the cables ~~circuits~~ underground, installation costs would substantially exceed those of the Proposed Project and those of the Four 230 kV Circuits Alternative (described in Section 4.9.25).

Rationale for Elimination

This alternative would meet most project objectives and is technically feasible. Although the ability to place HVDC Light transmission cables underground for extended distances offers the ability to avoid the impacts of the proposed 500 kV overhead lines through ABDSP, the higher costs of this alternative make it infeasible using CEQA guidelines. Specifically, costs associated with the schedule delay to restart planning, construction of the converter stations, and other upgrades would reduce the likelihood of achieving the economic objectives of the Proposed Project to reduce energy costs in the San Diego region. In addition, DC lines would allow for less interconnection flexibility into the AC CAISO system, resulting in additional AC lines, increased ground disturbance from underground trenching and the converter stations, and the converter stations would also create an added visual and land use impact to the residences along Kane Springs Road. The added impacts and costs of the converter stations would be greater for the HVDC Light Underground Alternative than those for the Partial Underground 230 kV ABDSP SR78 to S2 Alternative, which has been retained for analysis.

C.5.3 Transmission Line Route Alternatives: Central Link Segment

Route alternatives in this Link that were eliminated from full evaluation are shown on Figure C-11. All alternatives considered in this Link appear in Figure Ap.1-10 (Appendix 1).

C.5.3.1 SDG&E Central East Substation to SR79 Alternative

Description

This alternative was suggested during scoping and was retained for evaluation by SDG&E as PEA Alignment N67B-N17 and N16A-N16B. The route is illustrated in Figure C-11. This alternative would begin at the west side of the Central East Substation and would travel west and northwest approximately 5.0 miles crossing to the north of the San Felipe Hills Wilderness Study Area through Vista Irrigation District land to rejoin the proposed route at MP 97.4. Lattice steel towers would be used for this alternative and it would be 0.75 miles shorter than the proposed route.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be feasible. Even though visual impacts could be reduced in the Central East Substation area, overall this alternative, which is located on preserve land, does not reduce significant impacts of the Proposed Project and Vista Irrigation District, the landowner, prefers the proposed route.

C.5.3.2 SDG&E Warner S2 to SR79 Alternative

Description

This alternative was suggested by SDG&E in the PEA. It would begin at the Central East Substation and would travel north and then northwest parallel to S2 to its intersection with SR79 at the site of the Warner Substation Alternative (see Section 4.7.4). It would then turn southwest paralleling SR79 to rejoin the proposed route at MP 99.9. The route is depicted in Figure C-11.

Figure C-11. Central Link Alternatives Eliminated
CLICK HERE TO VIEW

Rationale for Elimination

This alternative would meet project objectives and would be potentially feasible. Although it would follow developed transportation corridors, the SDG&E Warner S2 to SR79 Alternative would be much more visible in the scenic valley creating new significant visual impacts. Therefore, due to greater environmental impacts, this alternative has been eliminated from full consideration in this EIR/EIS.

C.5.3.3 SDG&E San Dieguito Park Alternative

Description

This alternative was suggested by SDG&E as PEA Alignment N46-N76-N20B in San Diego County. The alternative would begin at MP 103.5 and would travel south for approximately 5.97 miles through San Dieguito River Valley Regional Open Space Park and east of the Mesa Grande Reservation, following parcel and agency boundaries to rejoin the Proposed Project at MP 110.5 (adjacent to the site of the SDG&E alternative Central South Substation site). This alternative is illustrated in Figure C-11 and would be 1.03 miles shorter than the Proposed Project.

For this alternative segment, the existing 69 kV transmission line would be relocated to parallel the new 230 kV transmission line. The new 69 kV transmission structures would be tubular steel poles. The existing 69 kV transmission line would be removed from MP 100 to Santa Ysabel Substation (east of MP 108).

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically feasible. Legal feasibility would hinge on approval by the Santa Ysabel Tribe for a ROW Grant/Easement for the project to cross their two parcels. This alternative would improve the visual impacts in the Santa Ysabel Valley by moving the line west and away from SR79; however, it would place the transmission line in a new corridor on County Park and preserve lands that is highly visible to recreationists and is located in less disturbed habitat. In addition, it has legal feasibility issues concerning tribal approval and would relocate instead of reduce visual impacts.

C.5.3.4 Volcan Mountain Alternative

Description

This alternative was developed by the EIR/EIS team to avoid much of the San Felipe Valley and the Santa Ysabel Valley. It would be 15 miles shorter than the proposed route and would eliminate construction of the Central East Substation. The route is shown on Figure C-11.

This alternative would begin at the San Felipe Substation (MP 58.8), approximately two miles east of ABDSP, and would include installation of a double-circuit bundled 230 kV line underground in Old Kane Springs Road and in SR78 through ABDSP. East of the Earthquake Valley Fault, which is one mile east of the SR78/S2 intersection, this alternative transition overhead on the north side of SR78 (to avoid an overhead crossing of SR78) would continue west and southwest paralleling SR78 (past S2) for approximately 5.0 miles to just east of the Banner Grade.

Just east of the Banner Grade, the route would turn north-northwest across BLM land and the Volcan Mountains and then west for approximately 7.5 miles passing less than 2 miles north of the town of Julian. Where the alternative would intersect the existing SDG&E 69 kV Warner-Santa Ysabel corridor

just east of SR79, the route would turn south for 0.3 miles paralleling SR79 and the 69 kV line (east of SR79) across the Santa Ysabel Open Space Preserve. The alternative would pass east of the Santa Ysabel Substation and then cross SR78 as it turn south, just south of the town of Santa Ysabel. The route would continue to follow the 69 kV line south for 0.5 miles before turning southwest for 1.0 mile and rejoining the Proposed Project at approximately MP 110 (Tower C11).

As mentioned above, the proposed Central East Substation would not be constructed with this alternative. Instead a new 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. This alternative would, however, have regulatory feasibility issues associated with the creation of a new transmission corridor in Wilderness and would create new significant impacts. The route would create a new corridor through Grapevine Mountain Wilderness, which would create regulatory feasibility issues. In addition, a new overhead transmission corridor would be created across Volcan Mountain Open Space Preserve and Santa Ysabel Open Space Preserve. The Volcan Mountains are rich with biological and cultural resources and are important watershed areas. The line would be visible from a portion of SR78, from the preserves, which have many hiking trails, and from the town of Julian. Although the Volcan Mountain Alternative would reduce significant impacts of the proposed route in ABDSP and Santa Ysabel Valley and would be approximately 15 miles shorter, it would simply transfer the significant impacts to the Volcan Mountains.

C.5.4 Transmission Line Route Alternatives: Inland Valley Link Segment

Figure C-12 shows all route alternatives considered but eliminated from EIR/EIS analysis in this Link. All route alternatives considered in this Link are shown in Appendix 1, Figure Ap.1-15.

C.5.4.1 SDG&E Segment 10/Inland Valley SR78 Alternative

Description

This alternative was discussed by SDG&E in PEA Section 3.3.1.2 as part of Segment 10, which was designed to be an alternate route to the existing transmission line in the Ramona to connect the Santa Ysabel Substation area to the existing Creelman Substation.

This alternative would begin at the existing Santa Ysabel Substation or 0.9 miles west at MP 108.3 along the proposed route. The line would parallel SR78 to the west and then south for 16.6 miles to the existing Creelman Substation. It would join the SDG&E Creelman Alternative at this point and continue west and then south for approximately 2.0 miles to reconnect with the proposed route at MP 123.3. The Proposed Project would be 15 miles long and the alternative would be 17.7 miles long (see Figure C-12).

Rationale for Elimination

This alternative would meet project objectives and would be potentially feasible. However, construction would occur on steep terrain, the route would be longer, and there would be greater impacts from a new transmission corridor to visual, biological, and agricultural resources, as well as to traffic along SR78 and nearby residences around Ramona.

Figure C-12. Inland Valley Link Alternatives Eliminated
CLICK HERE TO VIEW

C.5.4.2 SDG&E Creelman Alternative

Description

This alternative was suggested by SDG&E as PEA Alignment N77-N22-N58-N23-N26-N70-N27 and is illustrated in Figure C-12.

Underground Transmission Line. This alternative would diverge from the 230 kV double-circuit underground proposed route northeast of Ramona at MP 117.4. The alternative would follow the existing SDG&E 69 kV transmission line ROW and then west in Vista Ramona Road for 2.06 miles to Vista Ramona Road. The route would turn south along an existing trail for 0.4 miles until it would transition overhead at this point.

Overhead Transmission Line. At MP 119.9, the 230 kV transmission line would transition from underground to overhead and would follow the existing SDG&E 69 kV transmission line ROW for approximately 1.15 miles through critical habitat for species, such as the San Diego thorn mint and the coastal California gnatcatcher. The existing 69 kV overhead transmission line would remain. Double-circuit 230 kV tubular steel poles would be used for this segment.

Underground Transmission Line. The 230 kV transmission lines would transition from overhead to underground again and would continue to the west in the Creelman Lane ROW for 0.8 miles passing the existing Creelman Substation and continuing for 1.1 miles until reaching Keyser Road where it would continue south in Keyser Road ROW for 0.26 miles until it would transition overhead again. This segment would be approximately 2.07 miles long.

Overhead Transmission Line. The overheard line would continue south and then southwest for approximately 1.03 miles to rejoin the Proposed Project at MP 123.1. It would be consolidated in the existing ROW with the existing 69 kV transmission line. The proposed structures would be double-circuit 230 kV tubular steel poles.

Rationale for Elimination

The SDG&E Creelman Alternative would meet project objectives and would be feasible; however, it would increase the environmental impacts to almost all issue areas without reducing any impacts of the Proposed Project.

C.5.4.3 West of San Vicente Road Underground Alternative

Description

This alternative was suggested during scoping to reduce impacts in the area of Ramona Holly Oaks Ranch, which is a housing development that is located just west of San Vicente Road and just west of proposed transmission line as it turns south near MP 124.3.

With the West of San Vicente Road Underground Alternative, the underground segment of the proposed route would continue underground west of MP 121.9 where it is proposed to transition overhead. The line would remain underground in San Vicente Road to MP 123.3 and then would continue underground in SDG&E's 69 kV ROW for 1.0 mile to MP 124.3 where it would transition overhead. The line would then transition overhead at a transition station, would turn south, and would be located in valley and removed from view. The alternative would require 2.4 miles of additional underground transmission line and is illustrated in Figure C-12. The underground portion of this route would require a 60-foot ROW.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be legally and regulatory feasible. It would create technical feasibility issues and greater environmental impact, however. Due to the steep topography in the western area and the Barnett Ranch Open Space Preserve, this alternative would require trenching though open space and on steep slopes raising technical feasibility concerns. Continuous trenching through open space and construction of a permanent dirt access road along the route would cause extensive ground disturbance on preserve land with the potential to greatly impact biological and cultural resources and cause serious erosion.

C.5.5 Transmission Line Route Alternatives: Coastal Link Segment

All route alternatives identified in this Link and eliminated from full evaluation appear in Figure C-13.

C.5.5.1 Northwest Corner Alternative

Description

This alternative was presented in SDG&E's PEA where it is referenced as Coastal Link Alternative Alignment N56-N75-N30-N71-N52-N33A-N33B; it is shown in Figure C-13. This 2.3 miles alternative was retained in the PEA and is intended to replace a 2.1 miles segment in Rancho Peñasquitos from MP 143.8 to MP 146.7. This alternative alignment would impact slightly more acreage compared to the Proposed Project. Under implementation of this alternative, a total of approximately 14 acres could be temporarily impacted during construction. This alternative segment is intended to bypass a Rancho Peñasquitos community and avoid impacts within Park Village Drive and the Los Peñasquitos Canyon Preserve.

This alternative is the same width and approximately the same length as the segment of the Proposed Project that it would replace (up to 300 feet wide and 13.5 miles in length). The first one-quarter mile segment of this alternative would be located underground within an SDG&E vacant ROW. Approximately 0.58 miles would be overhead and located within an existing 150-foot-wide ROW. The next mile of this alternative would follow section lines. This alignment would traverse areas of vernal pools that vary in habitat quality. Due to the presence of vernal pools along the existing ROW between N30-N33A-N33B, this alternative has been sited to the north in order to avoid an area of higher quality vernal pool habitat to the south. The alternative would be parallel to a SDG&E ROW with an existing double-circuit 230 kV transmission line on lattice towers, which would remain intact. The existing 138 kV transmission line on wood H-frame structures would be removed, consolidated, and relocated to the proposed 230 kV double-circuit tubular steel poles.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. However, it has been eliminated from further analysis in the EIR/EIS due to the potential adverse impacts on vernal pools, likely opposition by the County of San Diego, CDFG and USFWS and due to inconsistency with the County MHCP/MHPA, which could make this alternative regulatory infeasible.

Figure C-13. Coastal Link Alternatives Eliminated
CLICK HERE TO VIEW

C.5.5.2 Mannix-Dormouse Road Alternative

Description

This alternative is from SDG&E's PEA and is referenced as Coastal Link Alternative Alignment N30-N33A-N33B and is shown in Figure C-13. This alternative consists of an overhead segment that follows a straight line, and is the shortest route among the alternatives, between MP 143.8 to 146.7. This alternative follows a path north of and adjacent to single family residences along Mannix and Dormouse Roads in Rancho Peñasquitos. SDG&E retained this alternative in their PEA because it offers an Alternative to undergrounding in Park Village Drive and avoids a vernal pool complex located to the north which would be potentially affected by the Northwest Corner Alternative described above. This alterna

tive would connect to the SDG&E vacant ROW. This segment would include an overhead transmission line on double-circuit 230 kV tubular steel poles.

Rationale for Elimination

The Mannix-Dormouse Road 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 CDFG due to impacts to designated critical habitat and special status species. As a result, this route has been eliminated from full consideration in this EIR/EIS, because of potentially significant visual impacts, impacts to vernal pools, critical habitat, and proximity to adjacent residences, which would be greater under this alternative compared to the Proposed Project.

C.5.5.3 SDG&E Segment 12 Poway Substation to Peñasquitos Substation Alternative

Description

This alternative was presented in PEA Section 3.3.1.2 (alternatives considered but eliminated) and is shown in Figure C-13. This route (in combination with either SDG&E Segment 14 or Segment 15 Alternatives, which deviate from the project west of Ramona and are discussed in Sections 4.6.9 and 4.6.10, respectively) is an alternative to the Proposed Project between the existing Poway Substation and the Peñasquitos Substation and would be located entirely aboveground. From the Poway Substation to the Chicarita Substation, this alternative would deviate from the Proposed Project alignment by following an existing transmission line from the Poway Substation to roughly the western municipal boundary of Poway.

From this point, the line would head southwest into the Chicarita Substation. The portion of SDG&E's corridor from Pomerado Road west to Chicarita Substation is currently vacant. The key difference with this alternative is that it would not include a tie-in to the Sycamore Canyon Substation and the entire segment would be aboveground. This alignment also would diverge from the project alignment in Rancho Peñasquitos area by following the short Mannix-Dormouse Road Alternative segment described above (see Section 4.6.6) following the project route into the Peñasquitos Substation.

Rationale for Elimination

This alternative would meet project objectives and is potentially feasible. It has been eliminated from full consideration in this EIR/EIS because it would require acquisition of significant new right-of-way/transmission corridor in undeveloped areas, would create greater visual impacts with an all-overhead line, and would not offer any environmental benefits or advantages relative to the Proposed Project.

C.5.5.4 SDG&E Segment 13 Scripps Ranch Alternative

Description

This alternative is from SDG&E's PEA Section 3.3.1.2 (PEA eliminated) and is shown in Figure C-13. This route is an alternative route to the Proposed Project within an existing SDG&E transmission line ROW for its entire length. This alternative would begin at the existing Creelman Substation in Ramona and would extend along an existing SDG&E transmission line ROW to the Sycamore Canyon Substation. It would continue to parallel this ROW to the Scripps Substation, and then would terminate at the existing Peñasquitos Substation. 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 diverge from the Proposed Project at the Sycamore Canyon Substation where it 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 similar to the Pomerado Road–Miramar North Alternative (see Section 4.6.1).

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically feasible. The portion of this alternative on MCAS Miramar, however, would degrade the base's National Defense Mission and would not be regulatory feasible (Miramar, 2007). In addition, there would be increased residential land use conflicts and visual impacts, as this alternative would shift environmental impacts to a new area.

It should be noted that a portion of this alternative is similar to the Pomerado Road to Miramar Area North–Combined Underground Alternative and Underground/Overhead Alternative (see Section C.4.6.1), which was retained for analysis, and the Pomerado Road to Miramar Area North–All Underground Alternative (see Section C.4.6.1) that was eliminated.

C.5.5.5 SDG&E Segment 14 Poway Alternative

Description

This alternative is from the SDG&E PEA Section 3.3.1.2 (PEA eliminated) and is shown in Figure C-13. This route alternative was considered in connection with SDG&E Segment 15 Warren Canyon Alternative and would connect into SDG&E Segment 12 Poway Substation to Peñasquitos Substation Alternative (see Section 4.6.7). This alternative would vary from the Proposed Project at MP 125.8 to the Chicarita Substation. This alternative would follow a portion of an existing ROW and section lines, but it would also require new and expanded ROW to be acquired. This alternative is essentially a straight east-to-west alignment that terminates in the City of Poway where it transitions to SDG&E Segment 12 (see Section 4.6.7).

Rationale for Elimination

This alternative would meet project objectives and would be potentially feasible, but it would require significant new right-of-way on undisturbed and preserve lands with sensitive biological resources and it does not appear to offer any environmental benefit relative to the Proposed Project.

C.5.5.6 SDG&E Segment 15 Warren Canyon Alternative

Description

SDG&E Segment 15 Warren Canyon Alternative was developed in SDG&E's PEA Section 3.3.1.2 (PEA eliminated) and is shown in Figure C-13. This route alternative was considered in connection with SDG&E Segment 14 and would connect into SDG&E Segment 12 Poway Substation to Peñasquitos Substation Alternative at or near the existing Poway Substation (see Section 4.6.7 above). This alternative would vary from the Proposed Project from the Creelman Substation to the Chicarita Substation, similar to the SDG&E Segment 14 Poway Alternative described above in Section 4.6.9. This alternative would follow a portion of an existing ROW and section lines and would also require new and expanded ROW to be acquired in the City of Poway and portions of unincorporated San Diego County.

Rationale for Elimination

This alternative would meet project objectives and is potentially feasible. The presence of critical habitat and County of San Diego and local open space and parks in the general vicinity of the alignment creates the potential for increased biological and recreational resources impacts. The route would only move impacts to a different location and does not offer any clear environmental benefit relative to the Proposed Project.

C.5.5.7 SDG&E Segment 16 North of Peñasquitos Alternative

Description

This alternative is from SDG&E PEA Section 3.3.1.2 (PEA eliminated) and is shown in Figure C-13. SDG&E Segment 16 North of Peñasquitos Alternative would begin at the proposed Central East Substation site and would follow SR78 westerly toward the existing Felicita Substation near Escondido. At this point the segment would follow an existing transmission line heading west toward San Marcos then southwest to Olivenhain. From here the line would follow a ROW along Del Dios Highway, west of Lake Hodges toward Rancho Santa Fe, Solana Beach and Del Mar. The line would continue south toward a crossing of SR56 and into the existing Peñasquitos Substation. The alternative would reach farther north and west than any other alternative and is longer than the project route. The area traversed by this alternative is densely populated and development in this area is built up close to the existing ROW.

Rationale for Elimination

This alternative would meet project objectives and would be potentially feasible. This alternative would not, however, substantially reduce potentially significant impacts compared to the Proposed Project and it would create greater land use impacts in populated areas and would be substantially longer resulting in increased ground disturbance and thus overall greater impacts to all issues areas.

C.5.5.8 Pomerado Road to Miramar Area North–Combination Underground/Overhead Alternative

Description

This alternative was developed during the scoping period by the public and has been suggested by the Rancho Peñasquitos Concerned Citizens. This alternative would exit the Sycamore Substation at MCAS Miramar overhead west within an existing ROW toward Pomerado Road. The line would transition to underground beneath Pomerado Road in the vicinity of Legacy Road. The line could 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, turn north on Kearny Villa Road/Black Mountain Road. South

of the intersection of Carroll Centre and Black Mountain Road, the line would enter the southeastern end of Carroll Canyon/Fenton Canyon. At Carroll Canyon the line would transition to overhead.

The line would continue west through Fenton Canyon, west of Camino Santa Fe on the south side of the canyon. The line would again transition to underground at Brown Deer Road just south of the Canyon edge. The line would continue south on Brown Deer Road and west on Carroll Canyon Road to Scranton Road and would rejoin the existing 230 kV ROW heading north into the Peñasquitos Substation. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and is legally and has the potential to be regulatory feasible. There are, however, possible technical feasibility issues in the potential disruption of an existing sand and gravel quarry operating in Carroll Canyon.

It should be noted that most of this alternative (except at the eastern and western ends) is the same as the Pomerado Road to Miramar Area North–Combined Underground Alternative and Underground/Overhead Alternative that has been retained for full evaluation (see Section 4.6.1).

C.5.5.9 MCAS Miramar–All Underground and Underground /Overhead Alternative

Description

This alternative is a hybrid alternative combining two alignments developed during the scoping period by the public including Rancho Peñasquitos Concerned Citizens and Mike and Jennie Vildibill. 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.

Under this alternative, the line would be located beneath existing roads on MCAS Miramar from the Sycamore Canyon Substation to I-805 staying on 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-5 where the line would transition to overhead and join the existing 230 kV ROW east of I-805 heading into the Peñasquitos Substation. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically feasible. The portion of this alternative on MCAS Miramar, however, would degrade the base's National Defense Mission and would not be regulatory feasible (Miramar, 2007).

C.5.5.10 MCAS Miramar – Combination Underground/Overhead Alternative

Description

This alternative was developed during the scoping period and has been suggested by the Rancho Peñasquitos Concerned Citizens. This alternative is essentially a hybrid, and somewhat redundant, combining a couple of previously suggested routing modifications. Under this alternative, the line would exit Sycamore Can-

yon 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 to underground. Under this alternative, the rest of the Alignment could then follow either Pomerado Road to Miramar Area North–Combination Underground/Overhead Alternative (see Section 4.6.12) or MCAS Miramar–All Underground and Underground/Overhead Alternative (see Section 4.6.13) approaching the Peñasquitos Substation from the south along the existing 230 kV ROW east of I-805. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and would be potentially technically feasible. The portion of this alternative on MCAS Miramar, however, would degrade the base's National Defense Mission and would not be regulatory feasible (Miramar, 2007).

C.5.5.11 Rancho Peñasquitos Boulevard Bike Path Alternative

Description

This alternative was developed during the scoping period and has been suggested by the Rancho Peñasquitos Concerned Citizens and Melody Herbert. This alternative would diverge from the Proposed Project at the Chicarita Substation and it was designed to avoid impacts to a riparian area west of Rancho Peñasquitos Boulevard and I-15. The route would start at the location of the transition tower near the Chicarita Substation and 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 State Route 56 until the elevation of the bike path meets up with the ROW, approximately one-quarter mile west of Rancho Peñasquitos Boulevard. The transmission line would remain underground rejoining the Proposed Project alignment continuing westward toward its terminus at the Peñasquitos Substation. Under this alternative, the overhead/underground transition structure near Chicarita Substation would be moved south of it currently planned location. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. The portion of this alternative within the SR56 ROW, however, would violate Caltrans regulations.

The bike path property is currently owned by City of San Diego. The city and Caltrans have a prior agreement, however, to transfer all property acquired by City for the SR56 project to Caltrans upon completion of the project and intend to complete the right-of-way transfer which includes the bike path right-of-way. Caltrans' general policy on use of its controlled access roadways does not permit longitudinal encroachments. SDG&E would have to show that there are no other options. It would be difficult or impossible to obtain Caltrans approval within a reasonable period of time, as required by the project objective timeframes.

C.5.5.12 Carmel Valley Road Alternative

Description

This alternative was suggested by the West Chase Homeowners Association (WCHOA) during the scoping process and is shown in Figure C-13. The WCHOA identifies this as Alternative 1. This alternative would diverge from the Proposed Project route at the Chicarita Substation. This alternative would follow the path of existing overhead transmission lines heading northwest to Carmel Valley Road, just east of Black Mountain Road. The line would transition to underground and be located within the median of

Carmel Valley Road a distance of approximately 2.7 miles. Near the intersection of Via Abertura and Carmel Valley Road, this alternative would again transition to overhead and would travel a distance of 2.2 miles, heading south along an existing transmission line ROW to the west end of Park Village Drive. This alternative would rejoin the Proposed Project route overhead in the Los Peñasquitos Canyon Preserve.

Rationale for Elimination

This alternative would meet project objectives and is potentially feasible. It has been eliminated from further analysis in the EIR/EIS, because it would be longer than the Proposed Project segment, would have increased traffic impacts on the heavily–traveled Carmel Valley Road, and would merely transfer potential environmental impacts from one community to another without any net benefit.

C.5.5.13 State Route 56 Alternative

Description

This alternative was suggested by multiple commenters including the West Chase Homeowners Association (WCHOA); Del Mar Mesa Community Planning Board; Melody Herbert; Rajesh and Joyce Dias; Jeff and Kim Gross; and Mike and Jennie Vildibill; Carmel Valley Concerned Citizens; Laura Copic, and the Carmel Valley Community Planning Board during the scoping process. This alternative would diverge from the Proposed Project route starting at the Chicarita Substation.

From the Chicarita Substation, this alternative would continue on an overhead structure transitioning to an underground structure near Rancho Peñasquitos Boulevard at the State Route (SR) 56 overpass. This alternative would locate the powerline under the median of SR56 until it would reach the existing overhead lines north of the western terminus of Park Village Drive. The line would continue south along this existing transmission line ROW on overhead structures until it would rejoin the project alignment near MP 146.5. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. Similar to the Rancho Peñasquitos Boulevard Bike Path Alternative (Section C.5.5.11), however, due to conflicts with Caltrans regulations for limited access roadways, it would be regulatory infeasible.

C.5.5.14 MP 146.5 to Peñasquitos Substation Underground and Consolidation Alternative

Description

This alternative was suggested during the public scoping process for the project by Carmel Country Highlands Owners; Joanne Fogel; Carmel Valley Concerned Citizens; Carmel Valley Community Planning Board; Todd Saier; Nbild; and Dwight and Cara Baker. Under this alternative the line would follow the project alignment but would remain underground from Chicarita Substation all the way to the Peñasquitos Substation. In addition, this alternative would include undergrounding/consolidation of all existing electrical 69 kV and 138 kV transmission lines along the segment from MP 146.5 to the Peñasquitos Substation (and unaffected by the project) including H frame structures and lattice towers. No transition structure would be built at the west end of Park Village Drive as the line would remain buried. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and regulatory 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, would also cause additional ground disturbances to biological and cultural resources, soil, and erosion water quality within Los Peñasquitos Canyon Preserve.

C.5.5.15 Scripps-Poway Parkway to State Route 56 Alternative

Description

This alternative was provided by Melody Herbert, Tom and Laura Mauro and Curt Baldwin during the public scoping process conducted for the project. Under this 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 SR56. The line would remain underground and would be located beneath SR56. The line would continue westward under SR56 and could turn south at either of the two existing transmission line corridors that intersect SR56. The route would head south along an existing ROW into the Peñasquitos Substation. The route is shown in Figure C-13.

Rationale for Elimination

This alternative would meet project objectives and has the potential to be technically and legally feasible. Similar to the Rancho Peñasquitos Boulevard Bike Path Alternative (Section C.5.5.11), however, it would conflict with Caltrans regulations for limited access roadways, which would make it regulatory infeasible.

C.5.5.16 Scripps-Poway Parkway – Pomerado Road Underground Alternative

Description

This alternative was provided by Mike and Jennifer Vildibill and Tom and Laura Mauro during the public scoping process conducted for the project and it is shown in Figure C-13. Under this alternative, the line would exit the Sycamore Canyon Substation overhead along the path of the project. At Pomerado Road, 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 the overhead ROW heading into the Chicarita Substation.

Rationale for Elimination

This alternative would meet project objectives and is potentially feasible. However, it would require new ROW in close proximity to an existing ROW, would cause greater short-term traffic impacts and would result in increased visual impacts from the additional transition structures. Additionally, this alternative would provide questionable aesthetic benefit because the existing lines would remain in place partially offsetting perceived visual benefit.

C.5.6 Substation Alternatives to Central East Substation

C.5.6.1 SDG&E Central South Substation Alternative

Description

This alternative was evaluated by SDG&E in PEA Section 3.5.2 and is shown on Figure C-11. The Central South Substation Alternative site includes an 80-acre rectangular-shape area (on a parcel that is approximately 20,500 acres), located north of the CNF near the base of the Mesa Grande Reservation east of MP 110.7. In this area the general topography and terrain would allow for a new substation. This location is within the existing SDG&E 69 kV transmission line ROW. A parcel of land approximately 194 acres in size would be required to be purchased or leased to accommodate the required substation, associated drainage, access road, transmission getaway, and buffer zone. Access could be possible from SR78.

The required substation at this location will be similar to the proposed Central East Substation (see Section B for a discussion of substation construction). However, if this site is selected additional substation facilities will be required to consolidate the existing Santa Ysabel Substation into the new substation. The additional facilities include installation of additional transformers, electrical equipment and distribution facilities to supply the 12 kV circuits feeding the Santa Ysabel load. The Santa Ysabel Substation would be dismantled and removed.

A modified Central South Substation Alternative has been retained for full analysis in the EIR/EIS for use with the Route D Alternative. Based on landowner preference, the site would be located approximately three miles south of the SDG&E site along the proposed route (see Section C.4.8.3 and Figure E.3.1-2 in Section E.3).

Rationale for Elimination

This substation would meet project objectives and would be potentially feasible. Use of the SDG&E Central South Substation Alternative with the proposed route has been eliminated from full consideration in this EIR/EIS due to the 20 miles longer 500 kV line that would be required through the Santa Ysabel Valley.

C.5.6.2 Mataguay Substation Alternative

Description

This alternative would be located east of SR79 near MP 98 on land owned by Vista Irrigation District. The line would exit the substation and would travel for 0.3 miles in a private dirt road that leads to Mataguay Reservation, a Boy Scout camp to connect with the proposed route or an alternative along SR79. The site is shown on Figure C-11.

Rationale for Elimination

This alternative would meet project objectives and would be potentially feasible. Although this substation site would require less grading, it would be visible from Highway S2 and the Mataguay Boy Scout camp and would create significant impacts to Stephen's kangaroo rat habitat. Based on landowner preference, this site has been eliminated and the Top of the World site, also on VID land, has been retained for analysis (see Section C.4.7.1).

C.5.6.3 SDG&E Warner West Substation Alternative

Description

This alternative was suggested by SDG&E in PEA Sections 3.3.1.3 and 3.3.1.4 as an alternative substation site and it is shown on Figure C-11. The Alternative Warner West Substation Site is larger (approximately 530 acres), square-shaped area, located to the southwest of the proposed Central South Substation and Lake Henshaw between two boundaries of the Santa Ysabel Reservation. The footprint of the substation and the associated construction activities would be similar to those proposed for the Central East Substation.

The transmission line connection to the Warner West Substation would diverge from the proposed route at MP 100. At the intersection of SR79 and SR76, the 500 kV alternative transmission line segment would follow SR76 and then would cut due west at a point one mile north of the northern Santa Ysabel Reservation boundary. At the western extent of the Santa Ysabel Reservation, the line would turn and head due south and then southwest along the outside of the reservation boundary to the SDG&E Warner West Substation Alternative site.

Exiting the substation, the 230 kV line would travel in a southeastern direction roughly paralleling the south side of Mesa Grande Road to rejoin the proposed route at MP 103.6 in the Santa Ysabel Valley.

Rationale for Elimination

The Warner West Substation Alternative would meet project objectives and would be potentially feasible. The site was eliminated from full consideration in this EIR/EIS due to a longer 500 kV and 230 kV transmission line that this option would require, the numerous private parcel owners that would have to be consulted, the density of historical and archaeological sites in the area, and residential land-use constraints.

C.5.6.4 Warner Substation Alternative

Description

This alternative was suggested during scoping when a commenter suggested using the existing Substation on Highway SR79 as an alternative to the proposed Central East Substation. The Warner Substation is located at the intersection of SR79 and S2, north of the proposed route and is shown on Figure C-11.

The Warner Substation would need to be expanded to a 500 kV/230 kV substation, similar to the proposed Central East Substation configuration as described in the Project Description in Section B, which requires a substantially bigger footprint than the existing substation.

Rationale for Elimination

This substation alternative would meet project objectives and would be potentially feasible. Although it would eliminate construction of the proposed Central East Substation and the required grading at that site, the Warner Substation Alternative would be much more visible in the scenic valley, would be located on VID preserve land, and is in a sensitive area for biological and cultural resources.

C.5.7 Transmission Line Route Alternatives: Southwest Powerlink (SWPL)

SWPL alternatives eliminated from full evaluation are shown in Figure C-14.

Figure C-14. SWPL Alternatives Eliminated
CLICK HERE TO VIEW

C.5.7.1 West of Forest Alternative

Description

This route was developed in order to define a non-Forest, non-Park route and to see if such a route would be feasible. It would follow the Route D Alternative, diverging from the SWPL after 52 miles of collocation. It would diverge from the Route D Alternative one mile south of SDG&E's Barrett Substation, using the route from SWPL defined for the Route D Alternative above. The route is shown on Figure C-15.

Leaving the Route D Alternative south of Barrett Substation, the route would continue west for three miles, then turn north for 4 miles along the western boundary of the Forest. It would then turn north-northwest, continuing to the southern edge of the community of Alpine. At this point the route would turn west for 2 miles, crossing Harbison Canyon. The route would turn north-northeast for 5 miles, circling the western edge of Alpine and crossing I-8 one-half mile east of the Old Hwy 80 exit (near the community of Dunbar at Chocolate Summit Road and Alpine Blvd).

The West of Forest Alternative would require construction of a 40-acre substation just south of Interstate 8 on private land. At this point the 500 kV transmission line would convert to 230 kV, and the line would continue overhead across the freeway.

The remainder of this route has been incorporated into the Interstate 8 Alternative (MP I8-79 to I8-92.7). North of I-8, the route would be located just east of a residential area along the western edge of Chocolate Canyon, continuing north for about a mile. At this point, it would not be possible to avoid residential areas and still stay outside of the Forest, because this route runs along the eastern edge of suburban San Diego. The residential area could be avoided with a one mile diagonal route through the Forest although this would defeat the goal of avoiding the Forest completely.

After crossing the San Diego River just west of the dam of the El Capitan Reservoir, the route would turn to the west, crossing the SDG&E Miguel-Mission transmission corridor then turning northwest to join the Proposed Project route at MP 131 (near Hwy 67) about four miles east of the Sycamore Canyon Substation.

Rationale for Elimination

The West of Forest Alternative would be potentially feasible, but would not meet reliability objectives due to collocation with the SWPL through a high fire risk area. A summary of fire risk assessment is included in Section 4.8 above and a detailed discussion is in Section 4.8 of Appendix 1.

C.5.7.2 SDG&E Route B Alternative

Description

This alternative was considered by SDG&E in its Routing Study but eliminated by SDG&E from detailed consideration in that document because of the high scenic and recreational value of the corridor (PEA, 2006). It does not follow existing transmission line corridors, but follows roadways for much of its length. The route is shown on Figure C-14.

This route would diverge from the SWPL corridor after 40 miles, three miles west of the location where the BCD Alternative and I-8 Alternative routes would diverge. It would turn north-northwest from the SWPL, passing the community of Boulevard, then crossing I-8 at MP B-4 and continuing north-northwest approx-

Figure C-15. System Alternatives Eliminated
CLICK HERE TO VIEW

imately 7 miles through the McCain Valley. It would enter BLM land and the McCain Valley Wildlife Management Area, turning west, just north of the Manzanita Indian Reservation. The route would continue across BLM land, entering the CNF at MP B-15.5, then turning north-northwest and continuing through the Forest for approximately 13 miles, and following SR1 for 18 miles into Julian. In this segment, it would cross the Pacific Crest Trail and pass 1-2 miles west of Mount Laguna and very near to the following CNF Campgrounds: Wooded Hill, Agua Dulce, Laguna, Horse Heaven, and El Prado Campgrounds.

Leaving the CNF, the route would be within the ABDSP for about 3 miles, closely paralleling both the Pacific Crest Trail, still following SR 1, the Sunrise National Scenic Byway, for 12 miles into the community of Julian at MP B-41.1. At this point, the route would follow SR78 west from Julian for about 8 miles to the Central South Substation.

Rationale for Elimination

The Route B Alternative would be potentially feasible and would meet most project objectives. It was eliminated because it would pass through highly scenic and nationally designated roads (SR79) and passing through Julian, a small community that could not be avoided with this route.

C.5.7.3 SDG&E Route Segment C Alternative

Description

This alternative segment was included in SDG&E's PEA and Routing Study, but eliminated from detailed consideration by SDG&E due to its potential effect on residences (communities of Campo, Pine Valley, Descanso and scattered residences between these). It would follow 69 kV line corridors for its entire length, except for the 4-mile portion between the SWPL and the Cameron Substation (vicinity of Campo). The route is shown on Figure C-14. Note that a 5-mile segment of this route (from Cameron Substation to the north) is now included as a component of the Modified Route D Alternative (see Section 4.8.4).

The alternative would diverge from the SWPL corridor at SWPL milepost 50, just southeast of the community of Campo. It would cross SR94 at MP C 3 at Cameron Corners, the intersection of SR94 and Buckman Springs Road (Highway SR1). It would be entirely on private land for the first 8 miles, then entering the CNF. Starting at MP C 8, the route is in and out of the CNF and private land. At MP C 10, the route meets I-8 and would parallel I-8, somewhat paralleling SR1 into the community of Pine Valley. In Pine Valley, where SR1 turns northeast, the route would turn northwest, following Old Highway 80 (with residential areas along it), into Descanso. The route would enter Descanso from the east, then turn north at the point where the existing 69 kV line from Glencliff Substation (southeast of Pine Valley) meets the 69 kV line existing Descanso Substation. From this point north, the route could follow SDG&E's original D Route, the 69 kV corridor leading north to the Santa Ysabel Substation.

Rationale for Elimination

The Route C Alternative would be potentially feasible and would meet most project objectives. It is eliminated due to large number of residences affected.

C.5.7.4 SDG&E Route Segment BC Alternative

Description

This 13.8-mile alternative segment was considered by SDG&E in its Routing Study but eliminated by SDG&E from detailed consideration in that document because of the large number of residences along the I-8 corridor (primarily near Boulevard), through the Campo Reservation, and because of effects on

Forest land. It would follow existing 69 kV transmission lines along its entire length, requiring construction of a parallel transmission line along these routes. The route is shown on Figure C-14. A 7-mile segment of this alternative (just west of the Campo Reservation) is now incorporated into the Modified Route D Alternative (see Section 4.8.4).

The route would diverge from the SDG&E Route B Alternative four miles north of the SWPL, then turn west, paralleling I-8 at distances ranging from zero to three miles between the communities of Boulevard and the intersection with SDG&E Route C. Much of the route would pass through areas with residential development, following (or within a mile of) Old Highway 80. It would pass through the communities of Boulevard, Manzanita, Live Oak Springs, and would be within the Campo Indian Reservation, in the vicinity of the Golden Acorn Casino, for about 1.5 miles.

Rationale for Elimination

The Route Segment BC has been eliminated due to its proximity to residences near the community of Boulevard.

C.5.7.5 West of Forest – Otay Segment Alternative

Description

This route segment would create a new transmission corridor upon diverging from the existing SWPL right-of-way and would join the West of Forest Alternative (see Section 5.7.1 above) just north of the intersection of Lyons Valley Road and Skyline Truck Road. From this point north, it would be the same as the West of Forest Alternative.

This route would maximize the use of the SWPL corridor, collocating with it for 73 miles. However, the segment would require use of the SWPL through areas with many residences along the SWPL corridor, and it would pass through the portion of the SWPL with the highest fire risk. The route is shown on Figure C-14.

Rationale for Elimination

The Otay Mountain segment would be potentially feasible and would meet two of three objectives. However, collocation with the SWPL through its area of highest fire risk would not meet reliability objectives. Collocation with SWPL would affect numerous residences, south of the Campo Reservation, and in several areas west of the town of Campo. This segment is located in the Otay Mesa area, an area of concern for numerous sensitive species.

C.5.8 Full Project Route and System Alternatives

System alternatives eliminated from full evaluation in the EIR/EIS are illustrated in Figure C-15.

C.5.8.1 Mexico Light 230 kV Alternative

This alternative could provide a short-term solution to SDG&E's need for additional import capacity, even though it would not fully meet project objectives. It was described in the January and March 2007 Notices on alternatives, but is now considered as a component of the No Project/No Action Alternative (see Section C.8).

C.5.8.2 Path 44 Upgrade Alternative

This alternative could provide a short-term solution to SDG&E's need for additional import capacity, even though it would not fully meet project objectives. It was described in the January and March 2007 Notices on alternatives, but is now considered as a component of the No Project/No Action Alternative (see Section C.8).

C.5.8.3 SDG&E Southwest Powerlink (SWPL) No. 2 Alternatives

Description

The SWPL No. 2 Alternative is described in the SRPL Purpose and Need, Section 3.3.3.6 of the SRPL PEA, and Section III of the SDG&E's Transmission Comparison Study (TCS)(SDG&E, 2005). This alternative is also known as the Imperial Valley-Miguel 500 kV #2 Alternative, and it is identified in the STEP report as Option 5 for a new line into San Diego. The SWPL No. 2 Alternative would include construction of a new 500 kV transmission line between the existing Imperial Valley Substation and the existing Miguel Substation, forming a second Imperial Valley-Miguel 500 kV transmission line within a new right-of-way parallel to the existing line. This alternative would include 83.5 miles of new 500 kV line between the existing Imperial Valley and Miguel Substations (See Figure C-15).

This alternative would create part of a second SWPL, because the existing 500 kV line from Imperial Valley to Miguel Substations is the westernmost section of SWPL, which runs from Arizona's Hassayampa Substation to North Gila to Imperial Valley and finally to Miguel Substation. Arizona utilities are presently planning the eastern segment of a second SWPL between Hassayampa and North Gila.

Substation modifications and other system upgrades would likely be necessary, because there is presently no available position within the Miguel Substation for a second 500 kV line. The Miguel Substation and the lower voltage lines out of Miguel Substation would need to be expanded. SDG&E has recently been working to increase the capability of the transmission system north of Miguel to relieve this congestion point. The necessary new transmission north of Miguel would likely require SDG&E to acquire new rights-of-way, because existing corridors are fully occupied by multiple transmission lines.

In this alternative, the new 500 kV transmission line would parallel the existing SWPL from the Imperial Valley Substation to the Miguel Substation. As discussed in Attachment 1A to this appendix, the collocation of two 500 kV lines for over 80 miles through an area with extremely high fire risk would create a likelihood for the occurrence of a common mode failure or outage. A "common mode outage" refers to the potential for a single event to cause multiple transmission lines to be taken out of service. In the case of two transmission lines in a common corridor between the Imperial Valley and Miguel Substations, a common mode outage would most likely be caused by a wildfire.[11] Many outages on the existing Imperial Valley-Miguel portion of SWPL have been caused by wildfires, which are especially frequent along the western half of the SWPL route. These fires typically occur during the summer and autumn periods when SDG&E's system demand is high. The reason that high voltage transmission lines are taken out of service during vegetation fires is that thick smoke can conduct electricity. This could result in a short between two phases of the line resulting in damage to the transmission line and possibly interconnected facilities.

[11] See Attachment 1A to this appendix for detailed discussion of fire and other risks related to a collocated 500 kV transmission line following the existing SWPL.

The required separation between transmission lines, in a common corridor, is dependent upon the "credible" events that might cause an outage of the circuits. If the credible event is the collapse of a tower then the required separation would be approximately equal to the height of the towers. If the credible event is a wildfire then the required separation would need to be sufficient to minimize the potential for a single fire to necessitate the simultaneous outage of the circuits in that corridor. In this area, that separation would have to be several thousand feet in order to avoid the risk of a single fire causing a concurrent outage of the two lines. Even if such a separation were feasible, fires in this area are almost always associated with high winds that could cause the smoke to impact both circuits. SWPL alternatives that are analyzed in detail in this EIR/EIS include collocated portions only in areas where fire and smoke hazards would be lowest, as described in Section 4.8 of this Appendix.

Rationale for Elimination

This alternative has been eliminated from further consideration because of a failure to meet two of the three major project objectives. This alternative would not improve reliability because there would be few options to prepare for a simultaneous loss of the two lines. The inability of this alternative to address system reliability issues and the probable exacerbation of congestion problems and costs around the Miguel Substation pose serious concerns about this alternative.

C.5.8.4 Convert SWPL to DC Alternative

Description

This alternative was suggested at one of the public scoping meeting conducted in the initial phase of the CEQA review of the Sunrise Project (by Mussey Grade Road Alliance). Technically, this alternative would entail conversion of the existing Imperial Valley-Miguel 500 kV line from alternating current (AC) to direct current (DC). The existing conductors on the SWPL could be utilized in the DC conversion. Two of the three conductors would be used as the positive and negative poles, and the remaining conductor would act as the ground return.

Accomplishing this conversion would require the placement of what are called "converters" at both the Imperial Valley and Miguel ends of the SWPL. Converter stations at both ends of the SWPL would involve installation of large new structures on a land area of approximately 20 to 40 acres each. The structure housing each converter station would be approximately 70 to 100 feet tall, and the footprint of the building would be approximately 400 to 600 feet on each side. This would introduce a new industrial land use to the Imperial Valley and Miguel Substations.

To provide the maximum value of changing the existing line from AC to DC the converter stations would need to be sized to accommodate the emergency rating of the existing conductor, but the line would be operated up to the continuous thermal rating except in the case of a system emergency. In response to the CPUC's Data Request No. 1, Alt-8, SDG&E stated that the emergency rating of the existing conductor is 2,727 MW. This same response lists the continuous thermal rating at 2,364 MW. Conversion to DC operation would also permit bypassing the series capacitor bank on the Imperial Valley-Miguel segment of the SWPL. This capacitor bank is the current limiting element on the line with a thermal rating of approximately 2,000 MW. An alternative to upgrade this capacitor bank is identified as the Upgrade Series Capacitor on SWPL Alternative (Section 4.9.7).

Once converted to DC operation the rating of the SWPL would be based upon the capacity of the converter stations. The actual flow on the line would be controlled by the CAISO. Similar to the SWPL No. 2 Alternative (Section C.5.8.1), one ancillary consequence of this alternative would be the need to substantially upgrade and/or add additional transmission facilities emanating from the Miguel Substa-

tion. Studies have not been conducted to describe the specific facilities that could be overloaded by this alternative or identify what other transmission facilities would need to be expanded to accommodate this alternative.

Rationale for Elimination

This alternative has been eliminated from further consideration because of a failure to meet two of three major project objectives. This alternative would not improve reliability because there would be few options to prepare for the loss of an expanded SWPL. This alternative would likely result in the exacerbation of congestion problems and costs around the Miguel Substation. The inability to easily expand transmission facilities north and west of Miguel would escalate project and congestion costs, so the second of three project objectives (reduce congestion costs) would not be achieved.

C.5.8.5 Upgrade Series Capacitors along SWPL

Description

This alternative would involve modifications to the existing SWPL (Imperial Valley-Miguel 500 kV line) to improve its transfer capability. This alternative would be an expansion of modifications that were identified in the STEP report as part of the Miguel Area Improvements, including a series capacitor upgrade on the existing Imperial Valley-Miguel 500 kV line. This capacitor bank is the current limiting element on the line with a thermal rating of approximately 2,000 MW. The thermal capacity of the series capacitors could be upgraded to the emergency rating of the existing conductor. This alternative would upgrade the thermal capacity of the series capacitors along SWPL to the emergency rating of the existing conductor (2,727 MW). This would allow the line to be operated at the conductor's continuous rating of 2,364 MW, 364 MW above the current capacitors' limitation. Each series capacitor bank would involve about 2 acres of new permanent electrical infrastructure along the existing SWPL, and two locations would likely be needed.

Rationale for Elimination

This alternative has been eliminated from further consideration because of a failure to meet two of three major project objectives. This alternative would not improve reliability because, compared to the Proposed Project, there would be fewer options to prepare for the loss of an expanded SWPL and congestion problems and costs around the Miguel Substation would be exacerbated. The incremental transfer capability on SWPL, afforded by this alternative, would provide only a short-term solution to SDG&E's need for additional import capacity, and it would not improve SDG&E's import capability during N-1 conditions.

This alternative would cause the construction-phase impacts of installing series capacitors along SWPL. In addition, it would likely require the construction-phase and permanent impacts of possibly more transmission lines north of Miguel Substation through densely populated areas where corridors are already at capacity.

C.5.8.6 SDG&E 230 kV CFE Alternative

Description

The 230 kV CFE Alternative is briefly described in Section 3.3.3.7 of the PEA. This alternative is also known as SDG&E's Imperial Valley-Miguel 230 kV via Mexico Alternative. This alternative has been considered by SDG&E in its analysis of Purpose and Need for the Proposed Project and by the STEP

group as Option 6 in the 2004 STEP report for a new line into San Diego. Scoping comments including those from Mussey Grade Road Alliance urge consideration of this alternative. The 230 kV CFE Alternative would be an expansion of the Mexico Light 230 kV component of the No Project Alternative described in Section C.8(See Figure C-15).

This alternative would include:

- 9.5 miles of a new double-circuit 230 kV lines from Imperial Valley to CFE's La Rosita Substation
- 85 miles of two new double-circuit 230 kV lines from CFE's La Rosita to CFE's Tijuana Substation
- 13 miles of three new 230 kV circuits from CFE's Tijuana to Miguel Substation

A more detailed description of this alternative can be found in SDG&E's Transmission Comparison Study (TCS) (SDG&E, 2005). The basis for this alternative is the use of existing transmission corridors in Mexico, just south of the border, to provide for additional capacity to serve SDG&E's loads. Specifically, new 230 kV circuits would be constructed south from the Imperial Valley Substation to an existing La Rosita Substation, west to CFE's existing Tijuana Substation, and then north to SDG&E's Miguel Substation.

As described in the TCS, two new 230 kV circuits would be constructed to interconnect the Imperial Valley Substation to CFE's La Rosita Substation following an existing 230 kV corridor. Each circuit would be approximately 9.5 miles in length. From La Rosita four new 230 kV circuits would be constructed heading west to the Tijuana Substation. Each of these circuits would be approximately 85 miles in length. From the Tijuana Substation three new 230 kV circuits would head north to the Miguel Substation. Each of these circuits would be approximately 13 miles in length.

Rationale for Elimination

This alternative has potential to meet project objectives, but technical studies would be needed to determine whether it could maintain reliability. This alternative is eliminated from further analysis due principally to the uncertainty of the timing and outcome of the required regulatory and legal negotiations. Although technically feasible, since the CFE 230 kV system is already interconnected with SDG&E's system, the regulatory and legal feasibility issues may be insurmountable. CFE is not subject to the FERC so there would be no overriding authority to direct the outcome.

C.5.8.7 Serrano–Valley–Central 500 kV Alternative

Description

The Serrano–Valley–Central 500 kV Alternative would be similar to the LEAPS Transmission-Only (TE/VS Interconnect or Serrano–Valley–North 500 kV) Alternative (Section 4.9.2) but with a new 500/230 kV substation at the location of the Proposed Project's Central East Substation instead of at Camp Pendleton in northern San Diego County. However, this alternative would involve an expansion of the TE/VS Interconnect 500 kV line to extend it and 500 kV infrastructure into central San Diego County.

This alternative would establish a new 500 kV interconnection from the SCE service territory along SDG&E's existing Talega-Escondido 230 kV corridor, then to the Rincon area and parallel SR76 to the Warner Springs area (see Figure C-15). This 500 kV route would avoid the Anza-Borrego Desert State Park by approaching the proposed Central East Substation from the north of Lake Henshaw.

This alternative would include:

- New Serrano–Valley 500 kV Switching Substation (also called Lee Lake Substation)
- New 500/230 kV Central East Substation (a component of the Proposed Project)
- New Serrano–Valley–Central 500 kV line
- All of the other 230 kV Proposed Project components located west of the Central East Substation.

Rationale for Elimination

This alternative has been eliminated from further analysis because although it would meet most of the Proposed Project's objectives and is likely feasible, it would have environmental impacts as severe as those of the Proposed Project.

C.5.8.8 Valley-Rainbow 500 kV Alternatives

Description

The Valley–Rainbow 500 kV Alternative described here would be essentially identical to SDG&E's original Valley–Rainbow Interconnection Project. It would differ from the LEAPS Project Alternative (Section C.4.9.1) because it would not involve pumped storage generation and it would terminate directly at SCE's Valley Substation rather than at a new connection on the Serrano-Valley line. The Valley-Rainbow 500 kV Alternative would include transmission system upgrades and support throughout SDG&E's service area to address some of the system stability and voltage issues associated with establishing a robust interconnection with SCE. Figure C-15 shows the study corridor for this alternative.

This alternative would include:

- New single-circuit Valley-Rainbow 500 kV transmission line, approximately 30 miles long.
- New 500/230 kV Rainbow Substation including two transformers each rated at 1,120 MVA.
- Modifications to loop SDG&E's existing Talega-Escondido 230 kV line into the new Rainbow Substation, forming Talega-Rainbow #1 230 kV line and Escondido-Rainbow #1 230 kV line.
- New 230 kV Talega-Rainbow #2 230 kV (second circuit on existing structures).
- New 230 kV Escondido-Rainbow #2 230 kV (second circuit on existing structures).
- Modification of SDG&E's existing Talega-Escondido 69 kV transmission circuit on new wood and steel poles adjacent to the existing 230 kV poles within the existing Talega-Escondido ROW.
- System voltage support including static synchronous compensators at SDG&E's existing Mission, Miguel, Sycamore Canyon, Talega, and Escondido Substations and possibly similar upgrades at SCE's Valley, Devers, and Serrano Substations.

Rationale for Elimination

This alternative would meet most project objectives, but it is eliminated because it is not feasible because a viable transmission corridor is no longer considered available in the Valley-Rainbow area.

C.5.8.9 V-R Devers-Pala Alternative

Description

This alternative is identified in the November 2002 Interim Preliminary Report on Alternatives Screening for the SDG&E Valley-Rainbow 500 kV Interconnect Project (the V-R Alternatives Report). This alternative is based on the description in Section 3.3.1 of the V-R Alternatives Report, based on the past efforts to identify a feasible alternative to the Valley-Rainbow Interconnect Project (described in Section 4.9.10).

This alternative would provide an interconnection between SCE's existing Devers Substation and SDG&E's Pala Substation. Alternative routings between the Devers and Pala Substations were suggested during SDG&E's preparation of the Valley-Rainbow PEA in 2000, and during the CPUC and BLM public scoping period in the summer of 2001. Three possible 500 kV routes were considered in the analysis, but each would occur along the route of the Valley-Rainbow Interconnect Project in the vicinity of Temecula and the Pechanga Indian Reservation. The following three routes were considered.

V-R Devers-Pala Alternative Route 1. Follow existing transmission line corridors between SCE's Devers and Valley Substations (approximately 40 miles through the northern portion of the Santa Rosa and San Jacinto Mountains National Monument and along the northern boundary of the Potrero ACEC). From the Valley Substation this route would continue to the area of the Rainbow Substation and SDG&E's Pala Substation along a new corridor for approximately 40 miles. The new corridor would pass through portions of the Southwestern Riverside County Multi-Species Reserve and continue south to SR79 where it would turn southwest toward the Great Oak Ranch, just west of the Pechanga Indian Reservation. From there the new corridor would extend south to Pala.

V-R Devers-Pala Alternative Route 2. Follow the existing 500 kV transmission line corridors approximately 15 miles west from Devers Substation, and then establish a new approximately 35-mile north south transmission corridor, parallel to the western edge of the SBNF, to a new approximately 10-mile east-west corridor that would pass north of Vail Lake and then connect to the route of Devers-Pala Alternative Route 1 approximately 1.5 miles northeast of where it would cross SR79.

V-R Devers-Pala Alternative Route 3. Follow existing 500 and 230 kV transmission line corridors approximately 10 miles southeast from the Devers Substation, establishing approximately 70 miles of new utility corridor across the Santa Rosa and San Jacinto Mountains National Monument. The alternative route would connect to the route of Devers-Pala Alternative Route 1 approximately 1.5 miles northeast of where it would cross SR79.

These three routes are shown on Figure C-15. Alternative Routes 1 and 2 would each be approximately 65 to 70 miles in length, and Route 3 would be approximately 80 miles in length.

Rationale for Elimination

These alternative route options are rejected because they generally follow the Valley-Rainbow corridor where no viable transmission corridor is available due to conflicts with existing residential and recreational land uses and resulting regulatory challenges.

C.5.8.10 V-R Devers–Ramona Alternative

Description

This alternative is identified in Section 3.3.2 of the November 2002 V-R Alternatives Report. Based on the past efforts to identify a feasible alternative to the Valley–Rainbow Interconnect Project (Section 4.9.10 above), this alternative would provide a new 500 kV interconnection between SCE's Devers Substation and a new major substation located in an unincorporated area of San Diego County near Ramona.

This alternative would include the following:

- 90 miles of new 500 kV line within a new utility corridor between the Devers Substation and a new substation near Ramona.
- New 500/230 kV substation facility near Ramona.
- 12 miles of new 230 kV line between the new 500 kV Ramona Substation and SDG&E's existing Sycamore Canyon Substation.
- 17 miles of new 230 kV line between the 500/230 kV Ramona Substation and SDG&E's Escondido Substation.

Two different 500 kV corridor routes between the Devers and Ramona Substations were considered in the V-R Alternatives Report and are shown on Figure C-15.

V-R Devers–Ramona Alternative Route 1. The northern portion of this alternative would follow the V-R Devers to Pala Alternative Route 2 above (Section 4.9.11), and the southern portion would travel southward along SR79, from the Riverside County line via Santa Ysabel to SR78 and Ramona.

V-R Devers–Ramona Alternative Route 2. The northern portion of this alternative would follow the V-R Devers to Pala Alternative Route 3 above (Section 4.9.11), and the southern portion would travel southward along SR79, from the Riverside County line via Santa Ysabel to SR78 and Ramona.

Both routes would cross SR371 just west of the Cahuilla Indian Reservation and travel south along the western boundary of the Beauty Mountain Wilderness Study Area into San Diego County, parallel to SR79. In San Diego County, the 500 kV line would generally pass north-south to the Warner Springs and Lake Henshaw area parallel to SR79. From Santa Ysabel, the 500 kV line would run along SR78 to enter a new substation near Ramona. For this analysis, the location of the 500/230 kV substation could be at either the proposed Central East Substation or at the Central South Substation Alternative site. The double-circuit 230 kV line to Sycamore Canyon would pass through the Ramona area as it would with the Proposed Project, and the 230 kV line to Escondido would parallel SR76.

Rationale for Elimination

This alternative would meet two of three objectives but may not be feasible. It is rejected because it would occur in a corridor where the prospects of regulatory approval are remote and environmental impacts would be at least as severe as those of the Proposed Project.

C.5.8.11 V-R Coachella– Ramona-Miguel Alternative

Description

This alternative is identified in Section 3.3.3 of the November 2002 V-R Alternatives Report. Based on the past efforts to identify a feasible alternative to the Valley–Rainbow Interconnect Project (Section 4.9.10 above), this alternative would provide a new 500 kV interconnection between SCE's Devers Substation and a new substation located in the unincorporated area near Ramona.

This alternative would entail constructing a new 90-mile 500 kV transmission line from SCE's existing Devers–Palo Verde 500 kV line or IID's existing Coachella Valley Substation southwest to a new substation in the area of Ramona and then south to SDG&E's existing Miguel Substation.

This alternative was suggested as a means of providing for bulk power transfers between the SDG&E and SCE systems, as well as facilitating power transfers from generation sources under development in Arizona. According to the 2002 V-R Alternatives Report, the new transmission line would need to be initially operated as a 230 kV line because there is no source of 500 kV power at Coachella Valley, but projects planned by IID may bring 500 kV service to a new 500 kV substation at nearby Indian Hills, which could be interconnected in the future (as a result of Green Path Coordinated Projects, Section 5.8.23). The Coachella–Ramona corridor would cross through portions of the Santa Rosa and San Jacinto National Monument, Anza-Borrego Desert State Park, and possibly portions of the Santa Ysabel and Mesa Grande Indian Reservations (Figure C-15).

Rationale for Elimination

This alternative has been eliminated from further analysis because although it could meet most of the Proposed Project's objectives, it would have substantially more severe environmental impacts than the Proposed Project. Even if a ROW could be obtained through the various national monuments, state park, and Indian reservation along the proposed route, termination of this alternative at the Miguel Substation would only add to the existing congestion problems.

C.5.8.12 V-R Devers – Miguel via Northern San Diego County Alternative

Description

This alternative is identified in Section 3.3.4 of the November 2002 V-R Alternatives Report. Based on the past efforts to identify a feasible alternative to the Valley-Rainbow Interconnect Project (Section 4.9.10 above), this alternative would provide a new 500 kV interconnection between SCE's Devers Substation and SDG&E's Miguel Substation in southern San Diego County.

The V-R Devers–Miguel via Northern San Diego County Alternative would include:

- 30 miles of new 500 kV line within a new utility corridor from Devers Substation to IID's Coachella Valley Substation.
- 100 miles of new 500 kV line within a new utility corridor from Coachella Substation to Miguel Substation via the Ramona area.

This alternative would follow the route of SCE's existing Devers–Palo Verde 500 kV transmission line from Devers Substation to the vicinity of the Coachella Valley Substation before turning southwesterly to follow the route of the V-R Coachella–Ramona–Miguel Alternative (see Section 4.9.13) through the Santa Rosa and San Jacinto Mountains National Monument and Anza-Borrego Desert State Park. However, rather than connecting with a new substation in Ramona, the new 500 kV line would continue directly to the Miguel Substation. The total length of this new line would be approximately 130 miles (Figure C-15).

Rationale for Elimination

This alternative has been eliminated from further analysis because although it could meet most of the Proposed Project's objectives, it would have substantially more severe environmental impacts than the Proposed Project.

C.5.8.13 V-R Devers – Miguel via Imperial County Alternative

Description

This alternative is identified in Section 3.3.4 of the November 2002 V-R Alternatives Report. Based on the past efforts to identify a feasible alternative to the Valley–Rainbow Interconnect Project (Section 4.9.10 above), this alternative would provide a new 500 kV interconnection between SCE's Devers Substation and SDG&E's Miguel Substation in southern San Diego County via the Imperial Valley.

The V-R Devers–Miguel via Imperial County Alternative would include:

- New 500 kV line from Devers Substation to Imperial Valley Substation (155 miles).
- New 500 kV line from Imperial Valley Substation to Miguel Substation.

As described in Section 3.4.1 of the Valley Rainbow Alternatives Report, with this alternative, a 500 kV line would be constructed from SCE's Devers Substation to the Imperial Valley Substation, parallel to IID's existing 230 kV corridor (passing by the existing Mirage, Coachella, Niland, Midway, and Highline Substations). Additionally, a second 500 kV line would be built from the Imperial Valley Substation to the Miguel Substation. This second line would parallel the existing SWPL 500 kV line along Imperial Valley-Miguel as described for the SWPL No. 2 Alternative (Section C.5.8.1). The route of this alternative is shown conceptually on Figure C-15.

Rationale for Elimination

This alternative has been eliminated from further analysis because although it could meet one of the Proposed Project's objectives and would be feasible, it would have substantially more severe environmental impacts than the Proposed Project by causing a much longer new transmission corridor through the entire Imperial Valley and southern San Diego County.

C.5.8.14 V-R Serrano-Talega Alternative

Description

This alternative is identified in Section 3.4.6 of the November 2002 V-R Alternatives Report. Based on the past efforts to identify a feasible alternative to the Valley-Rainbow Interconnect Project (Section 4.9.10 above), this alternative would provide a new 500 kV interconnection along the existing transmission corridor between SCE's existing Serrano Substation in Orange County to SDG&E's coastal 230 kV system at the existing Talega or SONGS Substations.

This alternative would establish a new 500 kV line along the route of the 230 kV lines from the Serrano Substation in the Anaheim foothills south of SR91 through Orange County to SDG&E's Talega Substation just north of Camp Pendleton. This alternative would utilize SCE's existing 220 and 500 kV rights-of-way for its entire 35-mile distance, through rural and urban parts of Orange County. Existing rights-of-way vary from 200 to 580 feet and contain existing 66 kV, 220 kV and 500 kV lines along various stretches.

The northernmost portion of the Serrano-Talega corridor would be adjacent to SCE's existing Serrano-Valley 500 kV line, and space would be available in the corridor further south, until the Lake Forest and Mission Viejo areas. Existing double-circuit 220 kV and 66 kV facilities between SCE's Viejo Substation and SR73 in Laguna Niguel would need to be rebuilt to accommodate the 500 kV line. South of SR73, substantial reconstruction would also be needed to place SCE's existing 220 kV circuits underground from Laguna Niguel through recent housing developments in Ladera to Talega. In some areas, the existing ROW could be expanded, but in the southernmost portions, at least one 220 kV circuit and up to three 138 kV circuits would need to be placed underground to avoid condemnation of homes in surrounding communities. The route of this alternative is shown on Figure C-15.

Rationale for Elimination

The ability of this alternative to succeed in the regulatory process is doubtful. The existing urbanized corridor has little or no space for addition of new 500 kV towers at reasonable cost, and the ultimate scope of transmission upgrades needed to achieve basic project objectives is uncertain. Placing the line in a common corridor with SCE's existing transmission system also would not be consistent with project objectives. The uncertainty of being able to obtain the necessary additional ROW, plus associated environmental implications of the new facilities, raises serious concerns about the feasibility of this alternative.

C.5.8.15 Valley-Central 500 kV Alternative

Description

This alternative would introduce a new 500 kV interconnection in a new corridor between SCE's Valley Substation in unincorporated Romoland in Riverside County and the Warner Springs area of San Diego County where it would continue to the Central East Substation that is part of the Proposed Project. The northern part of the route would follow that shown in the PEA for the Valley-Rainbow Interconnect Project developed by SDG&E before 2001, and the southern part would head eastward north of the Pechanga Indian Reservation and Agua Tibia Wilderness Area. It would be similar to the Valley–Rainbow Interconnect Project north of SR79 in Riverside County but would take the new 500 kV line eastward along a route generally parallel of SR79 from Temecula, north of the Agua Tibia Wilderness Area. From the Temecula area, this alternative would follow SR79 via Aguanga and Sunshine Summit and Warner Springs to the location of the Proposed Project's Central East Substation. This alternative would include:

- New single-circuit 500 kV line from SCE's Valley Substation to the Proposed Project's Central East Substation, approximately 50 miles long.
- Other Proposed Project components west of the Central East Substation.

The route would need to avoid Indian Tribal lands, the Agua Tibia Wilderness Area and the Southwest Riverside County Multi-Species Reserve, as well as the communities of Winchester, Murrieta, Temecula, and Warner Springs.

Rationale for Elimination

This alternative would occur where no feasible corridor is available, where the prospects of regulatory approval are remote, and environmental impacts would be at least as severe as those of the Proposed Project.

C.5.8.16 SDG&E 500 kV Full Loop

Description

The 500 kV Full Loop Alternative is briefly described in Section 3.3.3.9 of the PEA, and it is also known as the Imperial Serrano–Valley–Central 500 kV Alternative, as in SDG&E's TCS. There were seven Full Loop alternatives studied during SDG&E's TCS. In these planning studies for grid reliability, access to renewable resources, and economics, the best-performing alternative was the 500 kV Full Loop Alternative that provided a 500 kV transmission line from the existing Imperial Valley Substation to the Proposed Project's new Central East Substation to a new substation in SCE's territory between the existing Serrano and Valley Substations in southwestern Riverside County. This alternative would join the proposed Sunrise Powerlink Project (Imperial Valley-Central 500 kV) with transmission similar to that of the separately proposed LEAPS Project Alternatives (Sections 4.9.1 and 4.9.2).

The route of the 500 kV Full Loop Alternative would follow that of the Proposed Project from the Imperial Valley Substation to the proposed Central East Substation. Then it would continue to a new substation in SCE's service territory between the Serrano and Valley Substations (possibly near Lee Lake), as shown on Figure C-15. This alternative would include:

- New Imperial Valley-Central 500 kV line of Proposed Project
- New 500/230 kV Central East Substation of Proposed Project
- New Serrano–Valley–Central 500 kV line
- New Serrano–Valley 500 kV Switching Substation (also called Lake Substation)
- Other 230 kV Proposed Project components west of the Central East Substation.

The combination of the Proposed Project and the TE/VS Interconnect would encompass most of the components of the 500 kV Full Loop Alternative. Beyond the combination of the Proposed Project and the LEAPS transmission facilities, a 500 kV connection from the proposed Central East Substation to the vicinity of the southern terminus of the LEAPS transmission would need to be built.

Rationale for Elimination

This alternative has been eliminated from further consideration because it does not pose an option to the Proposed Project, but rather an expansion of the Proposed Project. By expanding the Sunrise Powerlink Project to include an interconnection with the SCE system, this alternative would enhance the Proposed Project's ability to meet several of the project objectives. However, this alternative would not avoid or minimize any of the Proposed Project's environmental impacts, but rather it would add impacts due to the additional construction and ROW required.

C.5.8.17 Full Loop North Alternatives

Description

This alternative is briefly described in Section 3.0 of the IVSG Report as Alternative 3b, and it is also known as the Imperial Valley–North–Serrano 500 kV Alternative. This alternative would be similar to the 500 kV Full Loop Alternative described above (Section 4.9.18) with the addition of a new substation in northern San Diego County instead of in central San Diego County. This alternative would involve an expansion of the Imperial Valley-Rainbow (or Imperial Valley–North) 500 kV Alternative (Section 4.9.21) to join it with transmission similar to that of the separately proposed LEAPS Project Alternatives (Sections 4.9.1 and 4.9.2).

The route of the 500 kV Full Loop North Alternative would follow that of the Proposed Project from the Imperial Valley Substation to a new 500/230 kV North Substation that would likely be located near the unincorporated community of Rainbow or within Camp Pendleton. Instead of connecting to a new Central East Substation, this alternative would differ from the Proposed Project by establishing a new 500 kV route north of the Santa Ysabel area to Rainbow. The route of the 500 kV line would follow that of the Proposed Project through the Anza-Borrego Desert State Park, then via the Warner Springs area, north of Lake Henshaw. The route would then parallel SR76 to the Rincon area where it would continue west to join SDG&E's existing Talega-Escondido 230 kV corridor, where it would head north to a new 500 kV substation in Camp Pendleton. From there, the new 500 kV transmission line would continue to a new substation in SCE's service territory between the existing Serrano and Valley Substations (one option for this substation would be the Lee Lake Substation proposed as part of the LEAPS Project), as shown on Figure C-15.

This alternative would include:

- New Imperial Valley–North 500 kV line along Proposed Project alignment and SR76 west of Lake Henshaw
- New 500/230 kV North Substation (also called Camp Pendleton Substation)
- New North–Serrano–Valley 500 kV line (similar to TE/VS Interconnect or Lake-Pendleton 500 kV)
- New Serrano/Valley 500 kV Switching Substation (also called Lee Lake Substation)
- Upgrades to SDG&E's Talega-Escondido 230 kV line to loop into the North Substation and add a second 230 kV circuit on existing poles.

Rationale for Elimination

This alternative has been eliminated from further consideration because it does not pose an option to the Proposed Project, but rather an expansion of the Proposed Project. As a result, it would have greater impacts than the project as proposed.

C.5.8.18 Imperial Valley–Ramona 500 kV Alternative

Alternative Description

The Imperial Valley–Ramona 500 kV Alternative is identified in the STEP report as Option 3 for a new line into San Diego. This alternative would provide a 120-mile 500 kV line between the existing Imperial Valley Substation and a new 500/230 kV substation in the area of Ramona and a double-circuit 230 kV line between Ramona and the existing Sycamore Canyon Substation. As such, this alternative would include many features similar to the Proposed Project or the Proposed Project with the Central South Substation Alternative, which would be about 15 miles east of Ramona.

The 500 kV line would follow the route of the Proposed Project from Imperial Valley Substation through Anza-Borrego Desert State Park. Instead of connecting to a new Central East Substation, this alternative would differ from the Proposed Project by following the route of the Proposed Project at 500 kV through the Santa Ysabel area to connect to a new 500/230 kV substation near Ramona or San Diego Country Estates. All of the transmission and substation modifications west of Ramona that are associated with the Proposed Project would also occur under this alternative.

Rationale for Elimination

This alternative is eliminated from further consideration because it would not provide any benefits beyond those afforded by the Proposed Project, and it would cause greater environmental impacts related to the additional length of 500 kV transmission line near Ramona.

C.5.8.19 Imperial Valley–Rainbow 500 kV Alternative

Alternative Description

The Imperial Valley-Rainbow 500 kV Alternative is identified in the STEP report as Option 2 for a new line into San Diego. This alternative is also known as the Imperial Valley-North 500 kV Alternative, which is identified in Section 3.0 of the IVSG Report as Alternative 3a.

Instead of connecting to the Central East Substation of the Proposed Project, this alternative would differ from the Proposed Project by establishing a new 500 kV route north of the Santa Ysabel area to Rainbow. The route of the 500 kV line of this alternative would follow that of the Proposed Project and the 500 kV Full Loop North Alternative (Section 4.9.19) through the Anza-Borrego Desert State Park, then via the Warner Springs area, north of Lake Henshaw. The route would then parallel SR76 to the Rincon area where it would continue west to join SDG&E's existing Talega-Escondido 230 kV corridor, where it would head north to a new Rainbow Substation (See Figure C-15).

This alternative would include:

- New Imperial Valley-Rainbow 500 kV line along Proposed Project alignment and SR76 west of Lake Henshaw
- New 500/230 kV Rainbow Substation
- Upgrades to SDG&E's Talega-Escondido 230 kV line to loop into the North Substation and add a second 230 kV circuit on existing poles.

Rationale for Elimination

This alternative meets all project objectives and is feasible. However, it has been eliminated from further consideration because it does not provide any benefits beyond those achieved by the Proposed Project, but it would cause additional environmental impacts related to the additional length of 500 kV transmission line into the northern part of SDG&E's service area.

C.5.8.20 East of Escondido 500 kV Alternative

Alternative Description

The Imperial Valley–East of Escondido 500 kV Alternative is identified in the STEP report as Option 4 for a new line into San Diego. This alternative would provide a new 500 kV line between the existing Imperial Valley Substation and a new 500/230 kV substation east of the existing Escondido Substation and a new double-circuit 230 kV line from the new substation to the existing Escondido Substation. No location has yet been identified for the East of Escondido Substation under this alternative. The 500 kV line under this alternative would about 15 miles longer than the Imperial Valley-Ramona Alternative, but the STEP analysis found there would be improved electrical performance due to fewer impacts on the underlying system. SDG&E believes that the 500/230 kV substation would need to be located outside of the existing Escondido Substation because it could not be expanded to accommodate a 500 kV termination (see Figure C-15).

Rationale for Elimination

This alternative would meet all project objectives and would be feasible. However, it has been eliminated from further consideration because it would not provide any benefits beyond those achieved by the Proposed Project, and it would cause additional environmental impacts related to the additional length of 500 kV transmission line into the Escondido area.

C.5.8.21 Northern Service Territory Upgrades Alternatives [Includes SONGS Light and SONGS Heavy 230 kV Alternatives]

Description

This alternative would provide system modifications to establish a coastal 500 kV interconnection and create a reinforced 230 kV interface between SCE and SDG&E territories. In 2004, components of this alternative were described by SCE as a possible transmission configuration in the case of SONGS shut-down (i.e., an alternative to the then-proposed SONGS Steam Generator Replacement Project, A.04-02-026, approved by CPUC December 20, 2005, D.05-12-040). Components of other alternatives identified by UCAN in 2006 (i.e., SONGS Light and SONGS Heavy) would also be grouped into this alternative. Scoping comments also suggested including a new 500 kV overhead line through Orange County in the existing ROW between SCE's Serrano Substation and the Talega Substation near SONGS. With these changes, the South of SONGS transmission path (Path 44) would be substantially reconfigured under this alternative. This alternative would occur along existing disturbed ROWs owned by SDG&E or SCE, but expansion of some ROWs may be necessary.

The Northern Service Territory Upgrades Alternative would include:

- New 500 kV line along the route of the 230 kV lines from the Serrano Substation in the Anaheim foothills south of SR91 through Orange County to SDG&E's Talega Substation just north of Camp Pendleton (the V-R Serrano-Talega Alternative described in Section 4.9.16).
- New 500/230 kV transformers at SDG&E's Talega Substation.
- New Talega-Escondido 230 kV #2 line on existing poles within the existing 230 kV corridor.
- New 230 kV line from Talega or SONGS to San Luis Rey Substation to create a fourth South of SONGS 230 kV line (SONGS-San Luis Rey 230 kV #4).
- Loop one of SCE's four existing North of SONGS 230 kV lines into SDG&E's Talega Substation. This would transfer one of the North of SONGS paths to South of SONGS, and it would require transferring ownership of the 230 kV line from SCE to SDG&E.
- Modifications and voltage support at SCE's Serrano, Valley, and Devers Substations and SDG&E's Talega, Escondido, San Luis Rey, and Imperial Valley Substations.
- Other system modifications within SCE's territory including reconductoring SCE's existing 13-mile 230 kV Barre-Ellis transmission line, potentially with HTLS conductors, and upgrading towers for the Del Amo-Ellis 230 kV transmission line within this transmission corridor in Orange County.

The "SONGS Light" and "SONGS Heavy" options are part of the Northern Service Territory Upgrades Alternative, and these were originally described in a UCAN memo to CAISO dated April 11, 2006 regarding CAISO's analysis of the "Sun Path Project." At that time, UCAN predicted that SONGS Light would provide an increase the Non-Simultaneous Import Limit to San Diego by 350 MW from 2500 MW to 2850 MW. CAISO found that in order to increase the South of SONGS path rating under this alternative, upgrades to SCE's Barre-Ellis 230 kV line would be needed (CAISO, July 28, 2006, CSRTP-2006). The CAISO concluded their study of SONGS Light by reporting that SCE's Barre-Ellis 230 kV line is built to its maximum capacity for the towers in the corridor. UCAN predicted that SONGS Heavy would increase the Non-Simultaneous Import Limit to San Diego by 1,000 MW from 2,500 MW to 3,500 MW, but as with SONGS Light, CAISO found that upgrades to Barre-Ellis would be needed without identifying how the upgrades could occur. The CAISO study did not consider HTLS conductors as an option for Barre-Ellis and/or Del Amo-Ellis. The Path 44 Upgrade Alternative, described in Section 4.9.4 would include the necessary Barre-Ellis upgrades.

Rationale for Elimination

This alternative is feasible, although it is not clear if it would meet most project objectives. The ability of this alternative to succeed in the regulatory process is doubtful. The existing urbanized corridor has little or no space for addition of new 500 kV towers at reasonable cost, and the ultimate scope of transmission upgrades needed to achieve basic project objectives is uncertain. The uncertainty of being able to obtain the necessary additional ROW, plus associated environmental implications of the new facilities, places in doubt the ability to pursue this alternative.

C.5.8.22 SDG&E Imperial Valley-Central 230 kV ("Four 230 kV Circuits") Alternative

Description

The Imperial Valley–Central 230 kV Alternative is described in Section 3.3.3.8 of the PEA, and it is analyzed conceptually in Section 3.0 of the IVSG Report as Alternative 1. This alternative would involve construction of new 230 kV lines from the existing Imperial Valley Substation to a new Central East Substation in San Diego County. In order to achieve a similar level of thermal power transfer capability as the Proposed Project's single 500 kV circuit and to allow for SDG&E's goal of expandability for the proposed Central East Substation, SDG&E includes four 230 kV circuits (rather than one 500 kV circuit) along the Imperial Valley–Central segment under this alternative. Thus, this alternative is also known as the Four 230 kV Circuits Alternative. The analyses of this alternative by SDG&E and IVSG concluded that this alternative resulted in less future expansion capability and higher ongoing transmission costs from line losses and higher construction costs when compared to the Proposed Project. It is included here in response to scoping comments from Community Alliance For Sensible Energy (CASE).

This alternative would include:

- Approximately 90 miles of two new double-circuit 230 kV transmission lines from the existing Imperial Valley Substation to the proposed Central East Substation.
- Other Proposed Project components west of the Central East Substation.

This alternative would involve a combination of overhead and underground 230 kV lines along the Imperial Valley–Central segment. Two sets of structures or underground facilities would largely follow the route of the Proposed Project from Imperial Valley Substation through Anza-Borrego Desert State Park. Overhead portions would require more than twice as many overhead structures as the Proposed Project because the span lengths for 230 kV lines are shorter than those for 500 kV lines. In areas with high levels of aesthetic impacts, the 230 kV lines could be placed underground, at approximately six to ten times the cost of a similar overhead configuration.

This alternative, like the Proposed Project, would include an option to follow portions of SR78 to Borrego Springs Road and the Northern Borrego Springs route via S22 (Section 4.3.3) in an underground position then go into an overhead position outside the park. From the Ocotillo Wells area, one or both of the two double-circuit 230 kV lines could be underground in SR78 then overhead around Borrego Springs then underground again through ABDSP along S22. Under this alternative route, a 230/12 kV substation could be placed in the same location as the Borrego Springs 500/12 kV Substation (Section C.4.3.7). This option would allow for removal of all existing 69 kV and 92 kV transmission line facilities in the park, including the existing Narrows Substation and Borrego Substation, as well as the existing 69 kV transmission line traversing Grapevine Canyon. If one of the double-circuit lines follows the Northern Borrego Springs route, then the second could follow SR78 through ABDSP.

Another option under this alternative would be to continue the four 230 kV circuits west of ABDSP along the Proposed Project alignment to the existing Sycamore Canyon Substation, eliminating the need for the Central East Substation. Under this option, the route of the Proposed Project would be followed with four 230 kV circuits over the Central and Inland Valley Links, and these four new circuits would have to terminate at the Sycamore Canyon Substation. However, SDG&E believes that the existing Sycamore Canyon Substation would not be able to accommodate the four new 230 kV circuits because expansion of the substation is constrained by the terrain surrounding the substation and limitations on Department of Defense right-of-way. Because of the constraints at Sycamore Canyon Substation, this option of the Four 230 kV Circuits Alternative is not considered further.

Rationale for Elimination

Although this alternative may satisfy all of the major project objectives, albeit at higher construction and operating costs, the greater environmental impacts of this alternative in Imperial County would outweigh the environmental advantages of placing portions of the proposed Imperial Valley–Central segment underground. The Partial Underground 230 kV ABDSP SR78 to S2 Alternative (Section 4.3.1) would reduce significant impacts of the Proposed Project within ABDSP without the environmental disadvantages of placing a greater number of towers across agricultural lands in Imperial County. This alternative is eliminated from further analysis.

C.5.8.23 HTLS Composite Conductor Alternative

Description

This alternative would involve a relatively new technology of high-temperature low-sag (HTLS) conductors. This alternative would use HTLS composite material conductors along the Proposed Project alignment instead of the proposed industry-standard aluminum-core steel-reinforced (ACSR) conductors. This alternative is presented in response to numerous comments made during the scoping process by conservation groups. The conductors could also be used in other existing corridors such as the Imperial Valley–Miguel (or SWPL), Miguel–Mission, and Miguel–Sycamore Canyon corridors as a means of increasing the capacity of the existing lines.

To date there are no examples of 500 kV HTLS conductor in use or being installed. However, HTLS conductors could provide slightly greater span lengths and a marginal reduction in the number of towers required. The same ROW width would be required. Although it appears to technologically possible to produce an adequately sized HTLS conductor, economics has prohibited their development. A major reason for this is that the thermal limitations of standard 500 kV conductors are rarely a limiting problem with existing 500 kV circuits. The usual limitation of a 500 kV system is based on the ratings of the capacitor banks or of the breakers and transformers at the connecting substations.

Using an HTLS conductor could offer an alternative to the Proposed Project in that a single 230 kV circuit, strung with HTLS conductor, could accommodate the Proposed Project's 1,000 MW import capacity. As noted by SDG&E, ACCR can be operated at temperatures of 200 to 250 degree Celsius. These properties allow this conductor to carry up to three times the load of an ACSR, with less sag (SDG&E's response to CPUC Data Request No. 1, ALT-31). However, although 230 kV HTLS conductor may be able to thermally accommodate the 1,000 MW capacity, due to the higher impedance of the 230 kV circuit the same amount of power may not flow on this circuit as compared to its operation at 500 kV. Additional uncertainty is associated with the ability to underground HTLS conductor. If, as an alternative to the Proposed Project's 500 kV line, a 230 kV HTLS line were employed, it would operate at a substantially higher temperature than a standard 230 kV circuit. Examples of composite conductors being put to use as underground cables are unavailable (SDG&E's response to ALT-31, part b).

Rationale for Elimination

This alternative is eliminated from further consideration because higher costs would make it prohibitive with no notable environmental advantages. The only environmental benefit of employing 500 kV HTLS conductor would be a marginal reduction in the number of towers required. The same ROW would be required regardless of the conductor employed since the required width is determined by the voltage of the line. Employing multiple-circuits of a lower voltage would allow this alternative to meet project objectives but would not offer the ability to underground these circuits through environmentally sensitive areas. HTLS conductors could be used elsewhere in the SDG&E system to improve the capacity of existing transmission lines that operate near thermal limits.

C.5.8.24 All Underground 230 kV or 500 kV Alternative

Description

This alternative is based on numerous scoping comments requesting that substantial portions of the Proposed Project be built underground (comments from Community Alliance for Sensible Energy, CASE). The All Underground Alternative could be implemented in two optional ways. The first approach would underground all of the Proposed Project transmission line components rated at 230 kV or below, and the second approach would underground all of the components of the Four 230 kV Circuits Alternative so that no overhead transmission would occur.

This alternative would differ from the Proposed Project by putting all proposed 230 kV transmission line segments underground. In contrast to the Proposed Project, which involves undergrounding in selected urban locations, this alternative would place all new 230 kV lines underground. Undergrounding a 230 kV line would require a 3- to 4-foot-wide continuous trench for each bundled double-circuit 230 kV cable along the Proposed Project west of the proposed Central East Substation or along the entire Four 230 kV Circuits Alternative alignment.

Placing a 500 kV circuit underground involves substantially more space and cost than placing a 230 kV circuit underground. In order to construct an underground 500 kV transmission line, insulated power cables could be placed underground along specific high-impact segments or the entire transmission line alignment. Various extra-high voltage technologies are available, but none have been implemented at 500 kV in the United States close to the length of even a portion of the Proposed Project and there has been only limited implementation in other countries. Therefore, the reliability of very long underground 500 kV circuits has not been fully demonstrated. This alternative would not involve undergrounding the 500 kV portion of the Proposed Project because this is generally cost-prohibitive except for very short line segments in areas where ground disturbance impacts would not be severe. The HVDC Light Underground Alternative would involve a more practical application of undergrounding (as discussed in Section C.5.2.11~~4.3.10~~).

Rationale for Elimination

This alternative has been eliminated from further consideration because the environmental impacts of undergrounding all of the multiple 230 kV circuits included in the Proposed Project or the Four 230 kV Circuits Alternative would outweigh the environmental advantages. It is not technically or economically feasible to underground very long distances of 500 kV lines. The Partial Underground 230 kV ABDSP SR78 to S2 Alternative (described in Section 4.3.1) would reduce significant impacts of the Proposed Project within ABDSP without the environmental disadvantages of undergrounding all proposed circuits.

C.5.8.25 Green Path Coordinated Projects Alternative

Description

This alternative is based on a combination of coordinated projects that would occur as part of the Green Path Transmission Expansion Plan, the Green Path Southwest Project, and Green Path North, which are being jointly sponsored by IID, Citizens Energy Corporation, and LADWP.

The IID/Citizens portion of the Green Path Coordinated Projects Alternative would consist of upgrading various existing 161 kV and 230 kV transmission lines within IID's service territory to increase the deliverability of existing and future renewable resources from Imperial County to the west and north. Under the IID/Citizens proposal, the Sunrise Powerlink Project would connect to the IID/Citizens 500 kV system at a new San Felipe Substation, from where the remainder of the Proposed Project would continue west to SDG&E. The alternative described here would include only the upgrades within IID's service territory and those outlined by LADWP. Without the Proposed Project, Green Path would not connect directly to San Diego County.

Green Path sponsors, SDG&E, and CAISO view the Green Path Coordinated Projects as complimentary to the Proposed Project, rather than as a stand-alone alternative. Because IID does not operate within the CAISO control territory, the CAISO has not studied the new 230 kV portions of Green Path that would be internal to IID. The 500/230 kV San Felipe Substation, however, was taken by CAISO as an integral component of the "Sun Path Project." The 500/230 kV San Felipe Substation is considered as a component of the Partial Underground 230 kV ABDSP SR78 to S2 Alternative (see Section C.4.3.1). The following upgrades have been described in the 2005 IVSG report and in presentations by the sponsors of the Green Path Coordinated Projects at CAISO-sponsored STEP meetings.

Figure C-15 shows this alternative in the context of the SRPL Project area. The IID/Citizens components of the Green Path Coordinated Projects Alternative would include:

- New 500/230 kV IID San Felipe Substation.
- New 500 kV line from Imperial Valley to San Felipe Substation.
- New IID Bannister Substation to be located along the existing 161 kV line north of IID's existing El Centro Substation for collecting power from geothermal generation.
- New 230 kV lines between IID's existing Midway Substation and the new Bannister Substation (15 miles) and from Bannister to the new San Felipe Substation (20 miles).
- New IID 230 kV Imperial Valley Substation north of the existing Imperial Valley Substation.
- Add second circuit to IID's existing 230 kV line between the Imperial Valley Substation and El Centro Substation (18 miles).
- New double-circuit 230 kV lines between IID's existing El Centro and Highline Substations (20 miles).
- Upgrade existing 161 kV lines to 230 kV from El Centro to the Bannister Substation (25 miles), then further to the north through the Lake Cahuilla area (IID's existing Cahuilla or Avenue 58 Substation) to IID's existing Coachella Valley Substation.
- Modify and expand IID's existing El Centro, Midway, Cahuilla, and Coachella Valley Substations to accommodate the new connections to Bannister.

The LADWP components of this alternative, called Green Path North, would involve a new 500 kV circuit connecting LADWP's transmission system in San Bernardino County with IID's by adding:

- A new Indian Hills 500/230 kV Substation in Riverside County, east of Palm Springs, along IID's existing Mirage – Coachella Valley 230 kV corridor.
- Two new upgraded 230 kV lines from Indian Hills to the existing Coachella Valley Substation that would be modified by IID/Citizens above.
- New 500 kV line from Indian Hills to a new Devers II Substation which would be located adjacent to SCE's existing Devers Substation, near Desert Hot Springs.
- One new 500 kV line exiting the new Devers II Substation to the existing Devers Substation.
- One new 500 kV line exiting the new Devers II Substation running 85 miles northwest to a new Hesperia 500/287 kV Substation, in San Bernardino County. The new Hesperia 500/287 kV substation would tie into the two existing 287 kV lines between LADWP's existing Victorville and Century Substations.
- Upgrade one of LADWP's existing 287 kV lines between Hesperia and Victorville (17 miles) to 500 kV.

Based on the technical analysis performed by LADWP, the Green Path Coordinated Projects would be capable of importing 1,200 MW into the LADWP transmission system. Based on the current plan-of-service the new transmission line is to be operational sometime in late 2010.

Rationale for Elimination

The Green Path Coordinated Projects are feasible. Green Path would improve the deliverability of renewable resources from Imperial County to the Los Angeles area, but absent the Proposed Project, no facilities would be provided to expand the deliverability of this power to load centers in San Diego County. Any benefits this alternative could provide to the SDG&E service area would be ancillary to its intended purpose and would depend upon other upgrades such as the Proposed Project or upgrades within SCE's service territory. Only in combination with an interconnection from SDG&E territory to SCE or IID might this alternative marginally achieve any of the three basic objectives.

C.5.9 Non-Wires Alternatives

C.5.9.1 Non-Renewable Distributed Generation Alternative

Description

This alternative would involve an expansion of non-renewable DG beyond that contemplated by SDG&E in the PEA Section 3.3.3.4, which anticipates a minimal increase in DG. As of mid-2006, SDG&E reports to have a total of 61 installed self-served load DG units totaling approximately 105 MW of nameplate capacity, with six pending DG projects for a total of approximately 5 MW (SDG&E, 2006a). SDG&E expects that with or without the Proposed Project, the use of DG in the San Diego area will grow by adding nameplate capacity of 11 MW in 2010 and 17 MW by 2016. SDG&E discounts the nameplate capacity of DG by 40 to 60 percent to reflect its historic experience that DG systems' outputs at times of system peak are about half of their nameplate rating (SDG&E, 2006c). Renewable distributed generation (solar PV and wind) is considered separately under the New In-Area Renewable Generation Alternative in Section 4.10.1.

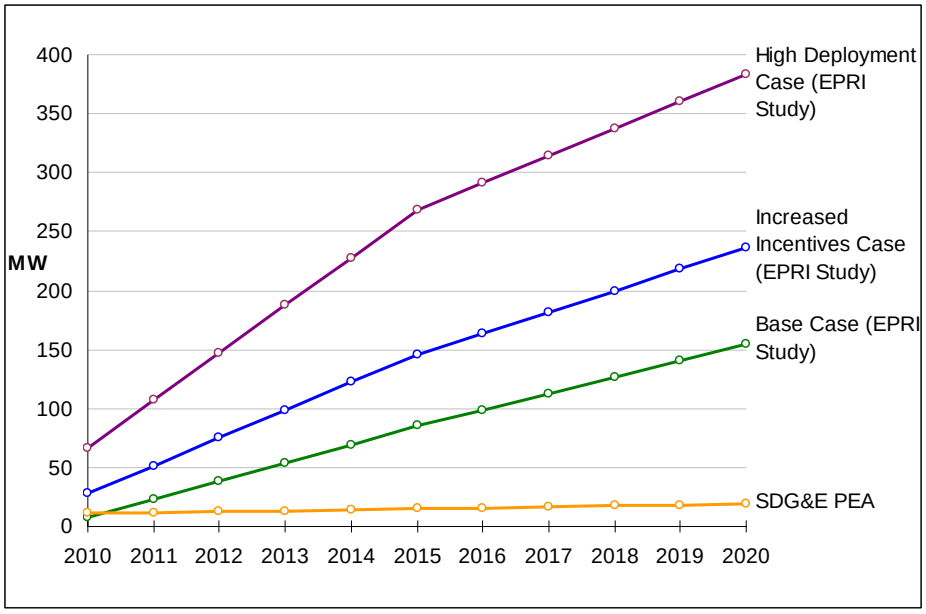
A recent study conducted by the Electric Power Research Institute (EPRI) sponsored by the Public Interest Energy Research (PIER) program at the CEC suggests that SDG&E's assessment might understate the potential contribution of DG in general and combined heat and power (CHP) systems in partic-

ular.[12] The EPRI report assessed the potential of increased application of CHP in the service areas of the three major California IOUs, including SDG&E. The report considered a number of policy options for the promotion of CHP and assessed the impact of these policies on the market penetration of CHP. Three cases of interest here were:

- **Base Case:** The base case was developed based on expected future gas and electric prices, existing incentive programs (Self-Generation Incentive Program and incentive gas rates for CHP), existing and proposed emissions requirements, and existing CHP technology cost and performance with evolutionary improvements over time.
- **Increased Incentives Case:** In the increased incentives case, the base case was modified by expanding the SGIP program to include providing incentives to projects up to 20 MW (but still only on the first 5 MW) and assuming a production tax credit of $0.01/kWh of CHP output was added.
- **High Deployment Case:** This scenario includes existing incentives, facilitation of the power export market, addition of a T&D support payment, a CO_2 reduction credit, the rapid development and deployment of advanced technology, and an overall improvement in customer acceptance of CHP investment opportunities.

Figure C-16 compares the assumptions in the PEA to three of the cases from the EPRI study. While SDG&E assumes that approximately 1 MW per year of additional DG would be deployed in its base case, the EPRI base case shows that approximately 15 MW per year of additional CHP-based DG is possible. This alternative would involve deployment of approximately 70 MW nameplate capacity DG by 2016 as projected by the EPRI base case, resulting in a total incremental addition for reliability purposes of about 35 MW.

Figure C-16. DG Penetration Projections (Nameplate Capacity)



Source: EPRI Report, Tables 7-5 through 7-33

[12] "Assessment of California Combined Heat and Power Market and Policy Options for Increased Penetration," a PIER Collaborative Report prepared by the Electric Power Research Institute (EPRI). CEC Report CEC-500-2005-173. November 2005.

Rationale for Elimination

The Non-Renewable Distributed Generation Alternative would involve deployment of DG in the form of many small projects at a pace more aggressive than what SDG&E anticipates. While feasible, the level of DG deployment under this alternative could not provide sufficient in-area generation alone to satisfy the reliability objective. Because it would be technically and legally feasible to develop approximately 35 MW of additional, reliable DG, this alternative could be part of other non-wires alternatives.

C.5.9.2 Energy Efficiency Alternative

Description

The Energy Efficiency Alternative was identified by SDG&E in PEA Section 3.3.3.1, and various scoping comments indicate a strong public support for energy efficiency and conservation as an alternative to the Proposed Project (for example, Donna Tisdale, Boulevard Sponsor Group).

The applicant's PEA includes the energy efficiency goals laid out by the CPUC in 2004 (D.04-09-060). Therefore, in order to provide an alternative to the Proposed Project, any savings would have to be incrementally greater than the savings already assumed. Because the savings embedded in the PEA are at or above the market potential, no incremental savings can reasonably be assumed.

Rationale for Elimination

This alternative is not technically feasible because SDG&E is required to achieve aggressive energy efficiency goals laid out by the CPUC in 2004 (D.04-09-060), with the aim of exceeding the maximum achievable potential energy savings defined at that time. Additional energy efficiency beyond that occurring in the baseline condition may be technically possible, but it is speculative to assume such a level of energy efficiency is achievable. Furthermore, even the incremental savings associated with the full technical potential from the 2006 Itron Study — an amount not practically achievable — is still less than the capacity that would be deliverable by the Proposed Project. In addition, the alternative fails to meet the objective to promote renewable energy.

C.5.9.3 Demand Response Alternative

Description

Demand response (DR) refers to any number of programs or utility rate schedules targeted at altering customers' usage patterns, usually to reduce load during hours of peak system demand in response to a financial incentive. Demand response programs differ from energy efficiency programs in that (a) they usually, but not always, use altered pricing structures to induce the customer usage change, and (b) by shifting the time of usage they do not necessarily reduce overall energy consumption.

SDG&E's current demand response programs are summarized in Appendix 1. SDG&E expects potential load reductions in 2007 from DR programs on the order of 350 MW, of which approximately 90 MW are purely "emergency" supplies and another 90 MW associated with technical assistance programs.[13,14]

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[13] Emergency programs are Demand Bidding Program–Emergency Program, Critical Peak Pricing–Emergency Program, and the Clean and Peak Generator Programs.

[14] The stated purpose of the technical assistance programs is to identify demand response opportunities (per Mark Gains, "San Diego Gas & Electric Company Proposed Enhancements to 2007-2008 Demand Response Programs," presentation at the Demand Response Expansion 2007 Workshop, September 6, 2006.), which strongly suggests the possibility of double counting if the technical assistance MWs are added to the other DR program's MWs.

SDG&E notes in the PEA that it has included in its planning the annual demand response targets established by the CPUC and that these programs meet Resource Adequacy requirements and are deducted from SDG&E's annual system load forecast (SDG&E, 2006a). For 2007, this goal is 218 MW, which is greater than the SDG&E's projections of 170 MW for 2007 (i.e., 170 MW = 350 MW projection for all programs – 90 MW for emergency supplies – 90 MW from technical assistance programs).

Additional demand response peak reductions may be available through SDG&E's Advance Metering Infrastructure (AMI) program (A.05-03-015, approved by CPUC April 12, 2007, D.07-04-043). Advanced or "smart" meters can be read remotely and can provide hourly or demand data for all customers (even for lower use, residential accounts). This provides the opportunity for rate schedules to better reflect the cost of providing power, particularly during peak demand periods through demand response programs, thus sending the right "price signals" to users. It also allows for more efficient and accurate meter reading and enhances the utility's ability to locate outages or other system disruptions.

Under SDG&E's AMI proposal, all customers' meters will be upgraded to communicating solid-state meters by 2011. AMI includes the meters, communications network, and data management systems necessary to implement wide scale demand response rates for all customers, not simply those with peak demands greater than 20 kW. However the implementation of time-based rates akin to the voluntary CPP rates currently in effect requires CPUC support and approval in order to sustain long-term demand response envisioned in the AMI application.

In the PEA, SDG&E notes the potential of "over 200 MW" of demand response capacity resulting from its AMI proposal (SDG&E, 2006a). This amount is consistent with the values proffered in SDG&E's testimony supporting its AMI proposal, which shows demand reductions on the order of 220 MW (2011) to 280 MW (2020) in the expected case.[15] SDG&E does not rely upon AMI-related demand response reductions as they are not considered in the CAISO's reliability analysis and at the time of the PEA, the program had not yet been approved (SDG&E, 2006c).

Rationale for Elimination

Additional demand response beyond that presented in the PEA is speculative at best and could not replace the capacity associated with the Proposed Project. Furthermore, the alternative fails to meet the objective of promoting renewable energy. However, DR could be used as a viable part of any feasible alternative that meets the project objectives.

C.5.9.4 All Solar Alternative

Description

The All Solar Alternative would involve development of enough rooftop solar photovoltaic projects to provide sufficient generation capacity to defer the need for the Proposed Project. The All Solar Alternative would depend on incentives similar to those established for the California Solar Initiative, but would greatly expand the CSI program to achieve a level of new solar PV capacity similar to that of the "San Diego Solar Initiative" defined in the SDSE plan (Powers, 2007).

The All Solar Alternative would provide new in-area renewable generation capacity from:

[15] Page SG-13. 2020 value calculated by linearly interpolating between the 2015 and 2020 values shown on the referenced page.

- 406 MW nameplate capacity of rooftop solar PV installations by 2010 with sufficient battery storage to serve as peaking units to achieve at least 203 MW of reliable capacity during peak hours
- 1,040 MW nameplate capacity of rooftop solar PV installations by 2016 with sufficient battery storage to serve as peaking units to achieve at least 520 MW of reliable capacity during peak hours
- 2,040 MW nameplate capacity of rooftop solar PV installations by 2020 with sufficient battery storage to serve as peaking units to achieve at least 1,020 MW of reliable capacity during peak hours.

Rationale for Elimination

The All Solar Alternative is rejected because development of 402 MW nameplate capacity of solar PV installations with sufficient battery storage by 2010 is infeasible given the short timeframe. Development of the levels of solar PV installations needed for reliability purposes by 2010 and 2016 would involve substantial costs and incentives beyond those of existing initiatives. The New In-Area Renewable Generation Alternative (Section 4.10.2), which is retained for analysis would partially implement the All Solar Alternative and a wider range of other renewable resources.

C.6 No Project/No Action Alternative

Both CEQA and NEPA require an evaluation of a No Project or No Action Alternative in order for decision-makers to compare the impacts of approving the project with the impacts of not approving the project. Section C.6.1 describes issues related to the No Project/No Action Alternative, and Section C.6.2 describes what could occur under the No Project/No Action Alternative. The environmental effects of not approving the project are evaluated in Section E.8.

CEQA Requirements. Consideration of the **No Project Alternative** is required by Section 15126.6(e) of the CEQA Guidelines, and NEPA requires the consideration of a No Action Alternative (40 C.F.R. 1502.14(c)). The analysis of the No Project/No Action Alternative must discuss the existing conditions at the time the Notice of Preparation was published (September 13, 2006), 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)]. The requirements also specify 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)].

NEPA Requirements. The **No Action Alternative** required under NEPA [40 C.F.R. 1502.14(c)] serves as a basis for comparison even if it would not satisfy the proposed action's purpose and need. The definition of the No Action Alternative depends on the nature of the project and in the case of the Proposed Project the No Action Alternative describes what would occur without the federal agency's (BLM) approval. This EIR/EIS uses the CEQA term No Project Alternative to describe the No Action Alternative required by NEPA.

C.6.1 Background

C.6.1.1 SDG&E's Resource Planning under the No Project/No Action Alternative

The Proposed Project is a key part of SDG&E's current plans to ensure that adequate electricity resources are available to its customers. Other than the Proposed Project, SDG&E does not presently propose any major transmission lines, substations, or related facilities in its effort to increase San Diego area import

capability or any new generation projects to provide power supply (PEA Section 3.3.2.1). An alternate transmission expansion project was, however, identified in SDG&E's 2004 Long Term Resource Plan (July 9, 2004, R. 04-04-003), where SDG&E recommended the Proposed Project as one of two possible transmission additions needed for grid reliability by 2010. The Long Term Resource Plan identifies the transmission component of the Lake Elsinore Advanced Pumped Storage (LEAPS) project as an alternate conceptual configuration for grid reliability. According to the 2004 Long Term Resource Plan, if disapproval of the Proposed Project halts the proposed new 500 kV interconnection with Imperial Valley, the LEAPS Project Transmission-Only Alternative (Section C.4.9.2) could satisfy SDG&E's Long Term Resource Plan for grid reliability by providing a transmission interconnection with SCE's 500 kV system. Note that the LEAPS Project is analyzed in this EIR/EIS as an alternative to the Sunrise Powerlink Project.

Power will be procured from some new in-area generation projects with or without approval of the Proposed Project. SDG&E has signed power purchase agreements for the 561 MW Otay Mesa Generating Project south of Miguel Substation, a 40 MW pumped storage project, and a 20 MW biomass facility (SDG&E Purpose and Need, Chapter II.B), and SDG&E proposes to purchase power from peaker plants at the Pala Substation, in northern San Diego County, and at the Margarita Substation in Orange County (application filed May 11, 2007).

SDG&E's proposed means of procuring new renewable resources outside of its service territory has been linked to approval of the Proposed Project. SDG&E believes expansion of the 500 kV system's interconnection with Imperial Valley is needed for it to meet the State's RPS goals. SDG&E has signed contracts with renewable developers that are proposing to construct 300 to 900 MW of solar power and 20 MW of geothermal power in the Imperial Valley and SDG&E expects the availability of geothermal resources in the Salton Sea area to expand greatly (SDG&E, 2006c). Additionally, SDG&E has contracted for over 200 MW of wind power in the Tehachapi area. The power purchase agreements for renewable resources in the Imperial Valley have been made contingent upon SDG&E successfully being able to license and construct a new 500 kV line from the Imperial Valley area to San Diego by 2010 (CPUC, 2005). Disapproval of the Proposed Project would lead SDG&E to renegotiate the Imperial Valley renewable power purchase agreements or pursue other means of complying with the RPS goals.

The CPUC approved the 2004 Long Term Resource Plan, the 2005 Renewable Portfolio Standard (RPS) Procurement Plan, and renewable resource procurement contracts that either include the Proposed Project or are linked to approval of the Proposed Project. Implementing the No Project/No Action Alternative would require SDG&E to revisit these past resource planning efforts. The outcome of any revised and reconsidered resource planning would be uncertain.

C.6.1.2 Resource Adequacy under the No Project/No Action Alternative

The CPUC forum for electric resource procurement periodically solicits long-term procurement plans from investor-owned utilities (IOUs; most recently in proceeding R. 06-02-013). During 2007, the CPUC is reviewing SDG&E's plan to purchase energy. In its 2007-2016 Long Term Procurement Plan (filed December 11, 2006 under R. 06-02-013), SDG&E characterizes the availability of proposed transmission such as the Sunrise Powerlink a "substantial uncertainty" in the planning effort.

The CPUC also participates in short-term energy procurement. For example, the CPUC recently ordered the three major IOUs to procure 3,700 MW of new generation to come on line beginning in 2009 (D. 06-07-029 on July 20, 2006, R. 06-02-013). Although only PG&E and SCE were ordered to issue RFOs for this new generation, the CPUC could conceivably in the future order such procurements for SDG&E. If necessary to ensure resource adequacy, the CPUC could use the procurement proceeding to direct SDG&E to procure additional new generation with or without the Proposed Project.

C.6.2 No Project/No Action Alternative Scenario

Under the No Project/No Action Alternative, construction and operation of SRPL would not occur. The baseline environmental conditions for the No Project/No Action Alternative are the same as for the Proposed Project. The baseline conditions would continue to occur into the future, undisturbed, in the absence of project-related construction activities.

The objectives of the Proposed Project would remain unfulfilled under the No Project/No Action Alternative. This means that additional action by SDG&E or the CPUC may be needed to ensure that SDG&E's transmission system satisfies grid reliability criteria or provide transmission facilities to achieve an import capability of 4,200 MW (all lines in service) and 3,500 MW (non-simultaneous). Accelerated development of new low-cost, in-area generation or other new transmission projects could be pursued.

The identification of a definite No Project Alternative development scenario is not possible, because specific certain consequences cannot be identified without undue speculation. However, absence of the Proposed Project may lead SDG&E or other developers to pursue other predictable actions to achieve the objectives of the Proposed Project or similar competitive objectives. The events or actions that are reasonably expected to occur in the foreseeable future under the No Project/No Action Alternative include the following:

- The existing transmission grid and power generating facilities would continue to operate until other major generation or transmission projects could be developed.
- Continued growth in electricity consumption and peak demand within the SDG&E service territory is expected. To serve this growth, additional electricity would need to be generated within San Diego County or imported by existing or modified facilities.
- Certain demand-side or supply-side actions would be expected to occur beyond the levels currently planned by SDG&E. ***Demand-side actions*** include ongoing energy conservation (energy efficiency) or load management (demand response); see Section C.6.2.1. ***Supply-side actions*** include development of new generation, including conventional, renewable, and distributed generation, or other major transmission projects; see Sections C.6.2.2 and C.6.2.3.

Identifying other major transmission facilities or new generation that would be triggered by the No Project/No Action Alternative requires some speculation because successful development of other projects depends on a number of uncontrollable factors (e.g., energy costs, competitive third-party proposals and agreements, and market power). Potential new generation projects and other major transmission projects that have been or could predictably be proposed by others are identified in Sections C.6.2.2 and C.6.2.3, and their impacts are identified in Section E.8. These potential projects and their effects are described, as required by CEQA and NEPA, for the consideration of decisionmakers evaluating the proposed SRPL.

The full menu of potential projects/components that could occur in the absence of the Proposed Project is shown Table C-4. Not all of these projects would be required to replace the Proposed Project, but because it is not possible to foresee which are more likely, this EIR/EIS evaluates the impacts of the full range of options. The sections following the table describe each component of this potential No Project Alternative scenario, but some of the components are also described in more detail in other sections of this EIR/EIS, as stated in the last column of the table.

Table C-4. Summary of the No Project/No Action Alternative

Projects	Sponsors	Status	Described in EIR/EIS
Demand-Side Actions – Section C.6.2.1			
Increased solar photovoltaic and distributed generation (DG) deployment	Various	Ongoing	As described in New In-Area Renewable Generation Alternative (Section C.4.10.1)
Supply-Side Actions, Generation – Section C.6.2.2			
New conventional generation	LS Power, ENPEX, NRG, SDG&E, others	Under CEC and CAISO review	As described in the New In-Area All-Source Generation Alternative(Section C.4.10.2): • One new combined cycle power plant • Four new peaker power plants
New renewable generation	None known	Conceptual	As described in the New In-Area Renewable Generation Alternative(Section C.4.10.1): • Wind generation in the Crestwood area • Solar thermal generation in the Borrego Springs area • Biomass/biogas projects in San Diego and Fallbrook
Supply-Side Actions, Transmission – Section C.6.2.3			
~~LEAPS Project~~ Talega-Escondido/Valley Serrano 500 kV Transmission Interconnect	Nevada Hydro Company and Elsinore Valley Municipal Water District	Under CPUC, CAISO and FERC review	LEAPS Project Transmission-Only Alternative (Section C.4.9.2)
Path 44 Upgrades	None known	Conceptual	No Project/No Action only
Mexico Light	None known	Conceptual	No Project/No Action only

C.6.2.1 Demand-Side Actions

Demand-side management (e.g., conservation) and small-scale, localized generation (i.e., distributed generation or DG) could play an increased role in the SDG&E service territory under the No Project/ No Action Alternative. Normally, demand-side management is fully pursued where technically and economically feasible. Under the No Project/No Action Alternative, the costs of developing the Proposed Project could be diverted to subsidize or improve the economic feasibility of some current demand-side projects. This means that under the No Project/No Action Alternative, a greater level of demand-side control could become economically feasible.

Energy Efficiency

SDG&E aims to satisfy the energy efficiency goals set forth by the CPUC. This means that the following electricity savings goals of approximately 369 MW by 2010 and 595 MW by 2015 (PEA Section 3.3.3.1) are included in the baseline peak electricity forecasts with or without the Proposed Project. The savings goals established by the CPUC are presently somewhat higher than the maximum achievable savings potential expected to be feasible in the SDG&E service territory (CPUC D. 04-09-060). As such, no notable increase in these savings is foreseeable under the No Project/No Action Alternative, and more aggressive implementation of energy efficiency programs is not expected to provide savings above these levels.

Demand-Side Management and Conservation

SDG&E sponsors Demand Response Programs (DRPs) as a form of demand-side management (DSM) to reduce customer energy consumption and overall electricity use or shift energy use to off-peak periods. This effort depends on triggering changes in customer energy use depending on grid or price conditions. To track customer energy use as a function of time of day, SDG&E is initiating an Advanced Metering Infrastructure (AMI) effort (A.05-03-015, approved by CPUC April 12, 2007, D.07-04-043). DSM programs and peak-shifting do not normally involve any noteworthy construction activities.

Reducing demand is part of SDG&E's operations with or without the Proposed Project. SDG&E expects to achieve a demand reduction of about 200 MW in the San Diego area with its AMI initiative. Under the No Project/No Action Alternative, a higher cost of energy may likely lead to increased conservation. Increased demand reductions could be achieved with more aggressive implementation of SDG&E's Day-Ahead, Day-of, and Dispatchable programs. The ultimate magnitude of peak savings provided by more aggressive implementation of these programs is speculative, but is not expected to exceed the present forecast reduction of about 200 MW.

Distributed Generation and the California Solar Initiative

Distributed generation (DG) is the widespread generation of electricity from facilities that are smaller than 50 MW in net generating capacity. Most DG facilities are very small (most under 2 MW) and are not controllable for dispatch. For example, a photovoltaic solar system could provide power coincident with peak demand periods for a single hotel building, but a DG system optimized to recover waste heat may only generate a fraction of its capacity during peak demand periods. Small business and retail customers of electricity normally install these systems to offset the power drawn from the utility. SDG&E reports a nameplate capacity of 105 MW of DG installed by customers within its service territory as of 2006 (PEA Section 3.3.3.4). The CPUC provides incentives for new distributed generation State-wide, for customers who wish to install new "clean" onsite DG up to 1 MW, through the Self-Generation Incentive Program and the California Solar Initiative, which is to provide rebates for wide distribution of rooftop solar power systems.

The likely DG technologies would include microturbines, internal combustion engines, combined heat and power (CHP) applications, fuel cells, photovoltaics, and other solar energy systems, wind, landfill gas, digester gas and geothermal power generation technologies. Local jurisdictions such as cities, counties, and air districts, would need to conduct environmental reviews and issue required approvals or permits for these facilities.

SDG&E reports an annual average of five DG installations presently. Under the No Project/No Action Alternative, a higher cost of energy delivered to the SDG&E service territory may provide increased incentive for development of DG units by industrial, commercial, institutional, or residential energy consumers. The New In-Area Renewable Generation Alternative (Section C.4.10.1) and New In-Area All-Source Generation Alternative (Section C.4.10.2) describes the levels of rooftop solar photovoltaic and distributed generation deployment, respectively, that could occur under the No Project/No Action Alternative.

C.6.2.2 Supply-Side Actions – Generation

New electricity supplies could be provided by development of generation, such as conventional, renewable, and distributed generation. Under the No Project/No Action Alternative, SDG&E does not propose to upgrade any existing generation facilities (PEA Section 3.3.2.1); however, the No Project/No Action Alternative could lead SDG&E to accelerate procurement of new or expanded generation resources.

Construction and operation of new generation projects would be subject to separate permitting processes for each new facility. Some projects that have been or could predictably be proposed by others are presently in the permitting process (e.g., the Carlsbad Energy Center Project as proposed by NRG Energy, Inc.). Because the Proposed Project has been a subject of the planning and permitting processes for many years, any new generation or transmission projects in the No Project/No Action Alternative would need to be well-defined today and already engaged in permitting efforts to have an in-service date similar to that of the Proposed Project. New generation and transmission projects presently engaged in permitting are identified under the Full Project Route and System Alternatives (Section C.4.9) and Non-Wires Alternatives (Section C.4.10).

New Conventional Generation

Development of new generation and re-powering existing in-area generation facilities is foreseeable under the No Project/No Action Alternative. With or without the Proposed Project, new generation facilities could be developed depending on the availability of economic power purchase agreements from SDG&E and decisions made by individual project sponsors. Regardless of sponsor, planning, permitting, and construction of new generation facilities requires much advance preparation and only well-defined projects would be expected to meet an in-service date comparable to the Proposed Project.

The capacity and power from large fossil-fueled base-load power plants or smaller peaking facilities could be procured under the No Project/No Action Alternative. Under the No Project/No Action Alternative, SDG&E could initiate competitive bidding process for power procurement that could ultimately provide financial incentive to accelerate development of the power plants in the New In-Area All-Source Generation Alternative (Section C.4.10.2) or similar power plants.

There are three possible combined cycle power plants in the San Diego area: Encina/Carlsbad, San Diego Community Power/ENPEX, and South Bay Replacement Project. However, as previously noted, the identification of a definite No Project Alternative development scenario is not possible, because specific certain consequences cannot be identified without undue speculation. For purposes of the No Project Alternative analysis, it is assumed that **one** of the following three plants would be required in the absence of Sunrise.

- **Encina/Carlsbad.** An AFC was submitted to the CEC in September 2007, Carlsbad Energy Center LLC proposes to construct a new combined cycle plant and retire the existing **Encina Power Station** facility in Carlsbad. The approximately 23-acre Carlsbad Project site is located on the Pacific coast in the city of Carlsbad (San Diego County) in an area zoned Public Utility, which specifically allows electrical generation and transmission facilities
- **San Diego Community Power/ENPEX**. This project has not been proposed to the CEC but it was authorized for location on MCAS Miramar in a Department of Defense funding authorization. South Bay Replacement Project.
- **South Bay Replacement Project**. An Application for Certification (AFC) to demolish the existing South Bay Power Plant (built in the 1960's) and build a new plant (South Bay Replacement Project) on a nearby site in the City of Chula Vista was submitted to the California Energy Commission (CEC) in June 2006. However, due to city and Port of San Diego concerns about plant siting and changes to a previous agreement to allow the plant to be rebuilt on a coastal site, the AFC was withdrawn in October 2007. The Applicant, LS Power South Bay, LLC, may pursue development of a new power plant at another site in the San Diego area, but no new AFC has been submitted. Although the South Bay Replacement Project has been withdrawn by its sponsor from CEC consideration, the replacement plant may yet be a viable project, and it is included in the New In-Area

All-Source Generation Alternative.[16] It is also considered to be a candidate site for a new power plant in the No Project Alternative.

New Renewable Generation

SDG&E's obligation to meet RPS goals could also lead to accelerated procurement of in-area renewable development under the No Project/No Action Alternative, because the Sunrise Powerlink would not be available to import renewable power from the Imperial Valley. The wind development and other components of the New In-Area Renewable Generation Alternative (Section C.4.10.1) could be developed under the No Project/No Action Alternative. The wind component assumes construction of a new 230 kV transmission line and a new 230/500 kV substation, allowing wind power to be transmitted via the existing SWPL transmission line. In addition, the biomass/biogas and solar thermal components of the All-Source Alternative are considered to be more likely without Sunrise, so they are also considered as part of the No Project Alternative.

Summary of Conventional & Renewable Generation Components

The following specific new conventional and renewable generation facilities are assumed to be constructed if the SRPL Project is not approved:

- Construction and operation of **one new combined cycle gas-fired power plant**. As described for the New In-Area All-Source Generation Alternative in Sections C.6.2 and E.6, this plant could be either at the South Bay location in Chula Vista, on MCAS Miramar (where the San Diego Community Power or ENPEX Project would be located), or in Carlsbad where the Encina Power Station is proposed for replacement by the Carlsbad Energy Center.
- Construction and operation of **four new gas-fired peaking power plants**. As defined for the New In-Area All-Source Generation Alternative in Section E.6, these generators are assumed to be located at existing SDG&E substations (Pala, Margarita, Borrego, and Miramar).
- **Wind**: In the absence of the SRPL Project, the existing SWPL could accommodate approximately 300 MW of wind generation, as described for the New In-Area Renewable Generation Alternative in Section E.5. This would require construction of a new transmission line segment and a new substation adjacent to the SWPL.
- A new **solar thermal** generation facility as described for the New In-Area Renewable Generation Alternative in Section E.5 could be constructed in the Borrego Springs area, adjacent to the Borrego Substation. The development of this facility would require transmission upgrades from the Borrego Substation to at least the Warner Substation.
- New **biomass and biogas facilities** in San Diego and Fallbrook, as described for the New In-Area Renewable Generation Alternative in Section E.5.

C.6.2.3 Supply-Side Actions – New Transmission

Development of other major transmission projects in the region is foreseeable under the No Project/No Action Alternative. These projects would help to ensure that San Diego meets the CAISO reliability criteria in the absence of the Proposed Project. Specifically, the following three transmission projects are included in the No Project Alternative:

[16] Note that the construction of a new power plant at the South Bay Replacement Project site is considered in Section E.6 as a component of the Non-Wires All Source Generation Alternative, because at the time the EIR/EIS analysis was done, this new project was still under consideration.

- The **transmission system components of the LEAPS Project** as described in the LEAPS Transmission-Only Alternative in Section E.7.1 (also called the Talega-Escondido/Valley-Serrano or TE/VS project) proposed by the Lake Elsinore Municipal Water District and the Nevada Hydro Company (see Section C.4.9.2) would help to implement a portion of the SDG&E Long Term Resource Plan for grid reliability by providing a transmission interconnection with SCE's 500 kV system.
- The **Path 44 Upgrade** would involve upgrading existing transmission corridors in SCE territory to increase the import rating of a set of transmission lines called Path 44 (also known as the South of SONGS path) into SDG&E territory by approximately 300 MW. UCAN is working with CAISO to study such options for upgrades within Orange County that could benefit SDG&E. The South of SONGS transmission path currently serves as the only major path for San Diego to import electricity during an outage of SWPL. The existing rating on this path is 2,850 MW (with SWPL in service) and 2,500 MW (G-1/N-1). CAISO and SDG&E found that in order to increase the South of SONGS path rating, upgrades to SCE's Barre-Ellis 230 kV line would be needed (CAISO, CSRTP-2006, July 28, 2006; and SDG&E, Supplemental Testimony, January 26, 2007), but the specific upgrades needed within SCE territory have not been identified. Figure C-15 illustrates the location of this alternative.

  Path rating studies would need to be conducted by CAISO with SCE and SDG&E with WECC oversight in order to fully determine the scope of the Path 44 Upgrade Alternative. As such, the expected components cannot be identified in detail, but modifications would be needed on SCE's existing Barre-Ellis and Del Amo–Ellis lines, primarily in Orange County. The components of this alternative would likely occur within existing transmission line ROWs owned by SDG&E or SCE and within existing substation properties: the existing Barre Substation in the City of Stanton, the Del Amo Substation in southern Los Angeles County, and the Ellis Substation in Huntington Beach.

  This alternative would likely include:

  (1) Loop SCE's existing SONGS-Viejo-Chino 230 kV line into SDG&E's Talega Substation, creating a new SONGS-Talega and Talega-Viejo line. This would transfer one of SCE's four existing North of SONGS paths to South of SONGS, and allow import of power from SCE to SDG&E's Talega over a line from SCE's Chino Substation instead of through its Ellis Substation. It would require transferring ownership of the 230 kV line from SCE to SDG&E. This would involve construction of possibly several additional towers between the existing SONGS-Viejo 230 kV line and the Talega Substation. The additional towers would carry the existing SONGS-Viejo 230 kV line into and out of SDG&E's Talega Substation 2,000 feet east of SCE's existing transmission line. Existing 138 kV and 230 kV towers span the distance from SCE's existing 200-foot-wide ROW to the substation, but SDG&E would probably need to expand the ROW between SCE's corridor and the Talega Substation. The expanded ROW and towers would occur within Marine Corps Base Camp Pendleton.

  (2) Reconductor SCE's existing 13-mile Barre-Ellis 230 kV line to improve its thermal performance, using either high-temperature low-sag (HTLS) conductors on existing towers, and/or with conventional (heavier) conductors requiring some new "interset-towers." The new "interset-towers" that would increase the physical weight bearing capability of the tower-line within the existing Barre-Ellis ROW, but the number of additional towers needed is not known.[17] SCE would need to conduct engineering studies to determine if HTLS or composite conductors would provide ratings increases greater than upgrading to higher-capacity ACSR conductor.

[17] SCE February 15, 2007 Response to CPUC Data Request SCE-2 and SCE Exhibit SCE-5 for the SONGS Steam Generator Replacement Project, A.04-02-026, p. 25, February 2004.

(3) Modify SCE's existing Del Amo–Ellis 230 kV line and adjacent 66 kV subtransmission lines that share the Barre-Ellis corridor to provide clearance and accommodate the reconductoring on the Barre-Ellis 230 kV line. This work would be confined to the existing Barre-Ellis ROW.

- As described by the CAISO in the August 2006 CSRTP report, the **Mexico Light** 230 kV upgrade would be a short new 230 kV transmission line in Mexico between circuits that are normally disconnected, to provide an optional transmission path for export-designated generators through the Comisión Federal de Electricidad (CFE) grid rather than through the existing SWPL (Imperial Valley–Miguel 500 kV line). The natural gas-fired generators in La Rosita, Mexico (3.8 miles south of the U.S./Mexico border) currently export power into the U.S. over two double-circuit 230 kV transmission lines to the Imperial Valley Substation, about 6 miles north of the border. Figure C-15 illustrates the location and components of this alternative.

  This alternative would include the following:

  (1) Add approximately 4,000 feet of new 230 kV transmission line, normally opened[18] to connect Mexican generators [either the Sempra-owned Termoeléctrica de Mexicali (TDM) and/or the Intergen-owned La Rosita Power Complex] to the CFE grid. Currently, there is a 230 kV connection between the La Rosita 1 to La Rosita 2 generating plants. The circuit breaker on the 230 kV line is currently opened, separating La Rosita 1 from La Rosita 2.

  (2) Reconductor 2.3 miles of the two existing 230 kV lines connecting La Rosita generators to CFE's La Rosita 230 kV Substation to increase the thermal capacity.

  (3) Close the circuit breaker to connect the short 230 kV line to the CFE system in the event of an outage on the SWPL (Imperial Valley – Miguel 500 kV line) with a special protection system (SPS) cross-tripping the Imperial Valley – La Rosita 230 kV line. In this instance, the TDM and/or Intergen exporting generation would become connected to the CFE system and deliver power to SDG&E via CFE transmission network through the existing La Rosita–Tijuana 230 kV lines to the Miguel Substation. Presently, an outage on the SWPL causes the exporting generation in Mexico to be "tripped off-line" or shut down to avoid overloading the Imperial Valley Substation.

  The August 2006 CSRTP report showed that this configuration could increase the Non-Simultaneous Import Limit (NSIL or G-1/N-1 import capability) for SDG&E by about 300 MW, and SDG&E identified conditions where this alternative could allow an increase of NSIL by about 165 MW (SDG&E, Supplemental Testimony, January 26, 2007). This would increase SDG&E's existing G-1/N-1 import capability from 2,500 MW to 2,665 MW. There would be no change to the existing 2,850 MW maximum import capability into San Diego with all lines in service (N-0).

Other transmission projects that could occur in the region are the Green Path Coordinated Projects (Section C.5.8.~~23~~25, and Appendix 1, Section 4.9.27) and local transmission upgrades. However, these projects are not considered to be more likely to occur in the absence of the SRPL Project, so they are not considered in the No Project Alternative scenario.

[18] A circuit breaker when "open" does not allow power to flow, so it would need to be closed to transmit electricity.

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