

Contents – Appendix 1

1. Introduction.....	Ap.1-1
1.1 Purpose of Report.....	Ap.1-1
1.2 Background.....	Ap.1-1
1.3 Summary of the Proposed Project.....	Ap.1-3
2. Overview of Alternatives Evaluation Process.....	Ap.1-5
2.1 Alternatives Screening Methodology.....	Ap.1-5
2.2 CEQA and NEPA Requirements for Alternatives.....	Ap.1-5
3. Overview of Alternatives.....	Ap.1-13
3.1 Alternatives Analyzed in the EIR/EIS.....	Ap.1-13
3.2 Alternatives Eliminated from EIR/EIS Consideration.....	Ap.1-13
4. Alternative Descriptions and Determinations.....	Ap.1-27
4.1 Introduction.....	Ap.1-27
4.2 Devers-Harquahala Route Alternatives.....	Ap.1-27
4.3 West of Devers Alternatives.....	Ap.1-83
4.4 Other Project Alternatives.....	Ap.1-117
4.5 Non-Transmission Alternatives.....	Ap.1-128
5. References.....	Ap.1-149

Tables

Table Ap.1-1	Summary of Potential Issues or Impacts.....	Ap.1-8
Table Ap.1-2	Alternatives Fully Analyzed in EIR/EIS.....	Ap.1-14
Table Ap.1-3	Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening.....	Ap.1-23
Table Ap.1-4	Paradise Valley Proposed Development.....	Ap.1-72

Figures

Fig. Ap.1-1	Alternatives Near Palo Verde Nuclear Generating Station.....	Ap.1-29
Fig. Ap.1-1a	Palo Verde Hub Configuration Scenarios.....	Ap.1-37
Fig. Ap.1-2	North of Kofa Alternative.....	Ap.1-41
Fig. Ap.1-3	SCE North of Blythe Alternative.....	Ap.1-53
Fig. Ap.1-4	SCE South of Blythe Alternative.....	Ap.1-59
Fig. Ap.1-5	Alligator Rock Alternatives.....	Ap.1-65
Fig. Ap.1-6	Paradise Valley Alternative.....	Ap.1-73
Fig. Ap.1-7	Substation Alternatives.....	Ap.1-79
Fig. Ap.1-8	Devers-Valley No. 2 Alternative.....	Ap.1-85
Fig. Ap.1-8a	Devers-Valley No. 2 Alternative.....	Ap.1-87
Fig. Ap.1-8b	Devers-Valley No. 2 Alternative.....	Ap.1-89
Fig. Ap.1-8c	Devers-Valley No. 2 Alternative.....	Ap.1-91
Fig. Ap.1-8d	Devers-Valley No. 2 Alternative.....	Ap.1-93
Fig. Ap.1-8e	Devers-Valley No. 2 Alternative.....	Ap.1-95
Fig. Ap.1-8f	Devers-Valley No. 2 Alternative.....	Ap.1-97
Fig. Ap.1-8g	Devers-Valley No. 2 Alternative.....	Ap.1-99
Fig. Ap.1-9	Devers Substation Expansion.....	Ap.1-101
Fig. Ap.1-10	North of Existing Morongo Corridor Alternative.....	Ap.1-113
Fig. Ap.1-11	Desert Southwest Transmission Project Alternative.....	Ap.1-119
Fig. Ap.1-12	New Conventional Generation Alternative.....	Ap.1-131

Appendix 1. Alternatives Screening Report

1. Introduction

1.1 Purpose of Report

On April 11, 2005, Southern California Edison (SCE) submitted Application A.05-04-015 seeking authorization by the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity (CPCN) for the Devers–Palo Verde 500 kV No. 2 (DPV2) Transmission Line Project (Proposed Project). Because the proposed transmission line would cross approximately 110.5 miles of federal land managed by the Bureau of Land Management (BLM), the project would also require a Right-of-Way (ROW) Grant from the BLM for the portion of the project across BLM land. The Proposed Project is described in detail in Section B of the EIR/EIS. This document describes the alternatives screening analysis that has been conducted for the Proposed Project, supplementing the information presented in Sections C of the EIR/EIS.

Alternatives to the Proposed Project were suggested by SCE as part of the Proponent's Environmental Assessment (PEA), by the EIR/EIS team based on identification of potentially significant environmental impacts, in past environmental documents in the proposed corridor, and during the scoping period (October 25 to November 28, 2005, and December 7, 2005 to January 20, 2006) by public agencies and the general public. The alternatives screening analysis was completed in order to determine the range of alternatives that would be carried forward in the EIR/EIS. This report documents: (1) the range of alternatives that have been suggested and evaluated; (2) the approach and methods used by the CPUC and BLM in screening the feasibility of these alternatives according to guidelines established under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA); and (3) the results of the alternatives screening process (i.e., which alternatives are analyzed in the EIR/EIS).

The Alternatives Screening Report is incorporated as Appendix 1 to the EIR/EIS, providing the basis and rationale for whether an alternative has been carried forward to full evaluation in the EIR/EIS. For each alternative that was eliminated from further consideration, this document explains in detail the rationale for elimination. Since full consideration of the No Project Alternative is required by CEQA and NEPA, this report does not address this alternative (it is defined in Section C.6 of the EIR/EIS).

1.2 Background

1.2.1 Background and Previous Documents

The proposed route for the Devers-Harquahala portion of the Proposed Project is located generally parallel to SCE's existing Devers–Palo Verde 500 kV No. 1 (DPV1) transmission line route. Electrical systems and siting studies were conducted prior to construction of the DPV1 line. A regional siting study was conducted by SCE in 1976-1977 to identify alternative routes between Devers Substation and the Palo Verde Nuclear Generating Station (PVNGS) within a 6,000-square-mile area. Several alternative routes were evaluated in the DPV1 Draft Environmental Impact Statement (DEIS) prepared by the U.S. Department of the Interior, Bureau of Land Management (BLM) and Nuclear Regulator Commis-

sion (NRC) (BLM and NRC, July 1978). These agencies selected the preferred route for the DPV1 transmission line that was constructed in 1982 following State approvals by the CPUC and the Arizona Corporation Commission (ACC).

After construction of the DPV1 line, applications to construct the DPV2 line between Devers Substation and PVNGS were submitted by SCE in 1985. The CPCN application and PEA included the proposed route and four alternative routes that were also considered in the DPV1 studies that were completed in 1978. DPV2 was approved by the CPUC and the BLM in 1988 and 1989, but SCE decided not to construct it at that time.

The alternatives screening process for this EIR/EIS included consideration of all alternatives from the following documents (in chronological order):

Devers–Palo Verde 500 kV Transmission Line Project

- Devers–Palo Verde 500 kV Transmission Line: Environmental Report (1978)
- Palo Verde–Devers 500 kV Transmission Line: Final Environmental Statement (1979, February)
- Devers–Palo Verde 500 kV Transmission Line: Final Environmental Impact Report (1979, April)

Devers–Palo Verde 500 kV No. 2 Transmission Line Project

- Devers–Palo Verde #2 500 kV Transmission Line Project: Engineering Report (1987, January)
- Devers–Palo Verde #2 500 kV Transmission Line Project: Draft Environmental Impact Report, Volume I Project Specific Analysis (1987, March) and Volume II Engineering and Environmental Assessment of Transmission Line Planning Issues for the Southern California Transmission System (1987, March)
- Second Devers to Palo Verde 500 kV AC Transmission Line: Final Need and Alternatives Report, Volume II: Appendices (1987, April)
- Devers–Palo Verde No. 2 500 kV Transmission Line Project: Supplemental Draft Environmental Impact Statement (1987, May)
- Devers–Palo Verde No. 2 500 kV Transmission Line Project: Final Environmental Impact Report, Volume 1 and Volume 2 (1987, August)
- Devers–Palo Verde #2 500 kV Transmission Line Project: Amended Proponent's Environmental Assessment (1988, August)
- Second Devers to Palo Verde 500 kV AC Transmission Line: Second Supplemental Report on Need and Alternatives (1988, September)
- Devers–Palo Verde No. 2 500 kV Transmission Line Project: Addendum to the Final Environmental Impact Statement (1988, September)
- Devers–Palo Verde No. 2 500 kV Transmission Line Project: Final Supplemental Environmental Impact Statement (1988, October)
- Devers–Palo Verde 500 kV No. 2 Transmission Line Project: Proponent's Environmental Assessment (2005, April)

This EIR/EIS also included consideration of the alternatives addressed in two other environmental documents for transmission lines near the DPV2 corridor:

- Desert Southwest Transmission Line Project (DSWTP): Final EIS/EIR (2005, October)
- Blythe Energy Project Transmission Line Modifications (BEPTL): Petition for Post-Certification Amendment (2004, October) and CEC Final Staff Assessment (expected 2005).

1.3 Summary of the Proposed Project

The Proposed Project is described in detail in Section B of this EIR/EIS and has two major components: the new 500 kV portion between Devers Substation and the Harquahala Generating Station (referred to as “Devers-Harquahala” or D-H), and the 230 kV upgrade segment west of the SCE Devers Substation (referred to as “West of Devers” or WOD). In addition, there are system upgrades that would occur in certain locations. Each of these components is described below.

1.3.1 Devers-Harquahala

The 230-mile 500 kV portion of the Proposed Project includes the following components:

- Construction of a 500 kV transmission line between the Harquahala Generating Station Switchyard, located near the Palo Verde Nuclear Generating Station (PVNGS) west of Phoenix, Arizona and SCE's Devers Substation (Devers) located near Palm Springs, California
- Construction of the Midpoint Substation adjacent to the proposed Devers-Harquahala 500 kV transmission line located about 10 miles southwest of Blythe, California (this is an optional component of the Proposed Project that SCE may or may not construct, depending on whether a connection is needed for the Desert Southwest Transmission Project or Blythe-area generators)
- Construction of a new optical repeater facility located 3 miles west of Blythe, California, within the DPV2 ROW
- Construction of two new series capacitor banks, each adjacent to an existing DPV1 series capacitor bank: one in Arizona approximately 55 miles west of the Harquahala Switchyard and one in California located 64 miles east of Devers and 0.4 miles south of I-10
- Installation of a dead-end structure, circuit breakers, and disconnect switches at the Harquahala Switchyard
- Construction and installation of related telecommunication systems, including a new telecommunication facility on Harquahala Mountain and a new Optical Ground Wire (OPGW) on the Devers–Harquahala transmission line structures

1.3.2 West of Devers

This segment of the Proposed Project requires the upgrading of four existing 230 kV circuits. Specifically, this would include:

- Replacement of two existing 40-mile 230 kV single-circuit transmission lines with a new 40-mile double-circuit 230 kV transmission line

- Reconductoring of 40 miles of a double-circuit 230 kV transmission line between Devers Substation and San Bernardino Junction located in San Bernardino County, California (including replacement of 415 towers for all the proposed West of Devers upgrades)
- Replacement of 4.8 miles of 230 kV transmission line between San Bernardino Junction and Vista Substation, also located in San Bernardino County, California (reconductoring only)
- Replacement of 3.4 miles of 230 kV transmission line between San Bernardino Junction and San Bernardino Substation located in San Bernardino County, California (reconductoring only).

1.3.3 System Improvements

The following improvements would also be required in order to implement the Proposed Project:

- Construction of a 500 kV shunt line reactor bank and associated disconnect switches within Devers Substation
- Installation of Special Protection Scheme (SPS) relays at the Devers, Padua,¹ and Vista Substations in California, and the PVNGS, Hassayampa, and Harquahala Switchyards in Arizona.

¹ Padua Substation is a 230 kV substation owned and operated by SCE in San Bernardino County, northwest of Etiwanda.

2. Overview of Alternatives Evaluation Process

The range of alternatives in this report was identified through the CEQA/NEPA scoping process, and through supplemental studies and consultations that were conducted during the course of this analysis. The range of alternatives considered in the screening analysis encompasses:

- Alternatives identified by SCE ;
- Alternatives identified in past DPV1 and DPV2 documents;
- Alternatives identified during the public scoping process that was held in accordance with CEQA and NEPA requirements; and
- Alternatives identified by the EIR/EIS team as a result of the independent review of the Proposed Project impacts and meetings with affected agencies and interested parties.

2.1 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.

2.2 CEQA and NEPA Requirements for Alternatives

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.

2.2.1 CEQA

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 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 decisionmakers. 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 decisionmaking 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 bullets is described in more detail in the following sections.

2.2.1.1 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)). Therefore, it is not required that each alternative meet all of SCE's objectives. In its Proponent's Environmental Assessment (PEA), SCE has identified the following four objectives for the Proposed Project:

- **Increase California's Transmission Import Capability.** According to SCE, DPV2 will increase California's transmission import capability by 1,200 MW providing greater access to sources of low-cost energy currently operating in the Southwest. The Southwest region currently has over 6,000 MW of surplus generation, some of which may be imported into California. The Southwest Transmission Expansion Planning (STEP) working group independently concluded a similar magnitude of generation is available for import into California. Increased access to energy in the Southwest is forecasted to lower total energy costs and substantially benefit California consumers. SCE's economic analysis concluded that DPV2 provides \$1.1 billion of benefits to California consumers over the life of the project, and has a benefit-to-cost ratio of 1.7:1.
- **Enhance the Competitive Energy Market.** SCE states that it believes it is in California's interest to encourage investment in new generation infrastructure through the construction of needed high-voltage transmission lines. This is consistent with the *Energy Action Plan II*, which was adopted in September 2005 by the CPUC and the California Energy Commission for California (CPUC & CEC, 2005). Transmission infrastructure is necessary for a competitive market, and is vital to integrating new generation additions (CPUC, 2004). SCE states that DPV2 is expected to enhance competition amongst energy suppliers by increasing access to the California energy market, providing siting incentives for future energy suppliers, and providing additional import capability. Facilitating a competitive energy market in the Southwest may also create employment opportunities, which are beneficial to the economy and industries in Arizona and California.
- **Support the Energy Market in the Southwest.** The Western Electricity Coordinating Council (WECC) transmission system is an interstate regional system (including Northwestern Mexico and Western Canadian provinces) that links power generation resources with customer loads in a com-

plex electrical network. DPV2 will expand this network and increase the ability for California and the Southwest to pool resources for ancillary services, and provide emergency support in the event of generating unit outages or natural disasters.

- **Provide Increased Reliability, Insurance Value, and Operating Flexibility.** DPV2 would improve the reliability of the regional transmission system, providing insurance against major outages such as the loss of a major generating facility or of another high-voltage transmission line.

The CAISO conducted an independent review of DPV2 and also found the DPV2 project to be a necessary and cost-effective addition to the CAISO controlled grid.² The CAISO Board approved the DPV2 project on February 24, 2005 and directed SCE to proceed with the permitting and construction of the transmission project, preferably to be completed by the summer of 2009. However, because the project is designed to provide economic benefits and it is not primarily a reliability enhancement project, SCE did not present a specific project objective related to the date of project operation.

2.2.1.2 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.

² <http://www.caiso.com/docs/09003a6080/34/e4/09003a608034e440.pdf>.

- **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?
- **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?

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.

- **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?

2.2.1.3 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 Ap.1-1 presents a summary of the potential significant effects of the Proposed Project. This impact summary was prepared for the Notice of Preparation/Notice of Intent prior to completion of the EIR/EIS analysis, so it may not be complete in comparison to the detailed analysis that will be included in the EIR/EIS. The impacts stated below are based on a preliminary assessment of potential project impacts and were used to determine whether an alternative met the CEQA requirement to reduce or avoid potentially significant effects of the Proposed Project.

Table Ap.1-1. Summary of Potential Issues or Impacts

Environmental Issue Area	Potential Issues or Impacts
Aesthetics / Visual	<ul style="list-style-type: none"> • Visual impacts would occur to sensitive viewpoints from which the proposed transmission line or upgrades would be visible, including: residences, park and recreation areas, and travel routes and highways. • Potential visual impacts of short duration to roadway viewers located where the proposed transmission line crosses or runs parallel to roadways (some of which are designated “scenic”). • Impacts to scenic quality would occur in areas of Class A scenery and where construction and operation of DPV2 would result in strong contrast with the natural setting.

Table Ap.1-1. Summary of Potential Issues or Impacts

Environmental Issue Area	Potential Issues or Impacts
Agricultural Resources	<ul style="list-style-type: none"> • Potential impacts from the removal of cropland from production, interference with tilling and irrigation patterns, and/or potential conflict with agricultural aviators (crop dusters), and restrict agricultural vehicular access. • Possible impacts on zoning for agricultural use, Williamson Act contracts, or conversion of farmland to non-agricultural use.
Air Quality	<ul style="list-style-type: none"> • Construction dust and equipment emissions violating ambient air quality standards for the South Coast Air Quality Management District (SCAQMD) and the Mojave Desert Air Quality Management District (MDAQMD). • Impacts from heavy equipment, support vehicles, and internal combustion equipment or ground clearing or grading create fugitive dust and/or generate exhaust containing: carbon monoxide (CO), reactive organic compounds (ROC), nitrogen oxide (NOx), sulfur oxides (SOx), and particulate matter (PM10). • Potential ongoing impacts from the production of ozone due to corona discharge at the hardware/insulator assemblies. • Potential air quality benefits by reducing use of less efficient power plants in California and increasing use of more efficient power plants in Arizona.
Biological Resources	<ul style="list-style-type: none"> • Possible impacts to three types of areas designated for habitat protection: Kofa National Wildlife Refuge, three BLM Areas of Critical Environmental Concern (Chuckwalla Valley Dune Thicket, Alligator Rock, and Coachella Valley Fringe-toed Lizard), and the Coachella Valley NWR and Preserve. • In the proposed corridor for DPV2 in California and Arizona, direct and temporary impacts from construction would affect vegetation, including federally listed plant species. • Impacts from an increase in non-native weed establishment and recruitment, particularly at tower sites, crane pads, material stockpile yards, and concrete batch plant sites. • Potential direct, permanent impacts to sensitive wildlife (e.g., bighorn sheep, desert tortoise, etc.), bird, and/or mammal species during construction, operations, and maintenance procedures. • Potential direct, permanent impacts to birds nesting in cacti, shrubs, trees, or on the ground, if their nests are destroyed. • Potential ongoing impacts to bird and bat species, which may collide with conductors or static lines during flight.
Cultural Resources	<ul style="list-style-type: none"> • Construction disturbance to recorded and/or unknown cultural and historic resources • Potential cultural impacts to Edom Hill in California, which forms the northwestern end of the Indio Hills and is considered sacred to the Agua Caliente Indian Tribe. • Potential ethnographic impacts where the WOD crosses the Morongo Indian Reservation. • Potential impacts to paleontological resources during excavation of tower footings and grading of access spur roads on the transmission line corridor or upgrades WOD.
Geology and Soils	<ul style="list-style-type: none"> • Potential impacts from grading access roads, spur roads, and tower pads within the utility ROW. • Potential impacts through soil compaction along new spur roads in soft fluvent soils, which would create localized shallow depressions of the ground surface. • Potential impacts to desert pavement, which is considered a unique geologic feature, from the installment and use of spur roads and tower pads. • Potential impacts from seismic activity in the Banning Fault and the Mission Creek fault, which are known to be active, as well as the Mecca hills Fault, which is potentially active. • Possible impacts from groundshaking, landslides, mudslides, or other related ground failures from seismic activity, particularly where the proposed transmission line would cross active fault lines.
Hazards and Hazardous Materials	<ul style="list-style-type: none"> • Potential impacts from the improper storage or handling of hazardous materials and/or hazardous wastes during project construction, operations, or maintenance. • Potential impacts from the leaking or spilling of petroleum or hydraulic fluids from construction equipment or other vehicles during project construction, operation, or maintenance. • Potential impacts from the inadvertent uncovering of hazardous materials during excavation activities, causing toxic releases to the environment.

Table Ap.1-1. Summary of Potential Issues or Impacts

Environmental Issue Area	Potential Issues or Impacts
Hydrology and Water Quality	<ul style="list-style-type: none"> • Possible impacts from increased surface water runoff, erosion, siltation, and sedimentation. • Possible impacts to streams or washes from violation of water quality standards or waste discharge requirements.
Land Use	<ul style="list-style-type: none"> • Possible conflicts with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. • Impacts would occur from the removal of dwelling units or where the proposed transmission line would be located nearby to residences, mobile homes, or other sensitive receptors. • Potential impacts that may impede mining or other business operations.
Noise	<ul style="list-style-type: none"> • During construction, impacts from noise generated by equipment operation. Volume range would be 80 to 100 dBA at a range of 50 feet from the active construction site. • During operation of proposed transmission line, potential impacts from noise generated during the operation of the proposed transmission line, which would increase ambient noise levels surrounding the corridor.
Socioeconomics	<ul style="list-style-type: none"> • Potential impacts from the employment of 205 construction personnel during construction. • Potential impacts from the possible influx of construction labor, if housing is required. • Potential positive fiscal impacts in property-taxing jurisdictions, which would receive tax revenues from the proposed transmission line. • Potential for project impacts to disproportionately affect low-income or minority populations.
Public Services and Utilities	<ul style="list-style-type: none"> • Possible impacts during construction activities from increased usage of public resources, services, and utilities. • Possible impacts during construction activities from increased generation of waste and disposal needs.
Recreational Resources and Wilderness Areas	<ul style="list-style-type: none"> • Possible impacts upon established or pending conservation plans. • During construction, potential impacts to recreational land uses where the proposed transmission line would cross the Colorado River, Kofa National Wildlife Refuge in the Crystal Hill–Coyote Peak Exclusion, three BLM Areas of Critical Environmental Concern (Chuckwalla Valley Dune Thicket, Alligator Rock, and Coachella Valley Fringe-toed Lizard), a California State Park (Indio Hills Palms), and the Coachella Valley NWR and Preserve. • Impacts during construction for the 230 kV Upgrades WOD would result in a temporary disruption of recreational activities and occur in the following recreational areas: Noble Creek Regional Park, Oak Valley Golf Course, and the Pacific Crest Trail. • Potential impacts from road closures and increased traffic during construction activities, which may impede access to recreational areas.
Transportation and Traffic	<ul style="list-style-type: none"> • Potential impacts from road closures during construction activities, which may impede access to areas along the transmission line corridor, including impediment of access for fire fighting and police response. • Potential impacts from increased traffic during construction, operation and maintenance of the proposed transmission line.
Other Issues	<ul style="list-style-type: none"> • Cumulative Impacts (including other proposed transmission lines in or near the DPV2 corridor) • Growth-Inducing Effects

2.2.2 NEPA

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 decisionmakers 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 “[r]easonable 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.

2.2.2.1 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 2.2.1 above, SCE’s PEA presents the following statement regarding the purpose and need for the DPV2 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.

2.2.2.2 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 2.2.1.2, above.

2.2.3 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 assure 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.

2.2.4 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 DPV2 project and in comments on the Draft EIR/EIS. The CPUC anticipates that the final decision will represent a reasonable balancing of the communities’ interests, the need to protect environmental resources in the area, and the need for the project.

3. Overview of Alternatives

In total, the alternatives screening process has culminated in the identification and preliminary screening of 35 potential alternatives or combinations of alternatives. These alternatives range from minor routing adjustments to SCE's proposed 500 kV project route, to entirely different transmission line routes, to alternate system voltages, and system designs. Each category is presented below, but not all options described below are analyzed in detail in this EIR/EIS.

Proposed alternatives identified by the Applicant (SCE), the NEPA Lead Agency (BLM), the EIR/EIS team, and the public are listed below according to the determination made for EIR/EIS analysis (i.e., whether or not each is analyzed in the EIR/EIS or eliminated from further analysis). Section 4 presents detailed descriptions of each alternative and detailed explanations of why each was selected or eliminated.

3.1 Alternatives Analyzed in the EIR/EIS

The alternatives listed in Table Ap.1-2 have been chosen for detailed analysis in this EIR/EIS through the alternative screening process. These alternatives are described in more detail in Section 4 of this Appendix.

3.2 Alternatives Eliminated from EIR/EIS Consideration

This EIR/EIS presents two categories of alternatives eliminated from detailed EIR/EIS consideration. Certain alternatives were eliminated because they clearly did not meet project objectives or were infeasible; these alternatives are described briefly in Section 3.2.1. Other alternatives required more detailed consideration in order to determine whether they should be eliminated; these are listed in Section 3.2.2 and described in more detail in Section 4 of this Appendix.

3.2.1 Alternatives Eliminated After Preliminary Screening

This section describes 10 alternatives that were eliminated after a preliminary alternatives screening process. Alternatives evaluated in the detailed screening process are presented in Section 4 (Alternatives Descriptions and Determinations).

3.2.1.1 EOR 9000+ Project

Description. The EOR 9000+ project would upgrade two of the existing transmission lines from Arizona to southern Nevada and California. The project takes its name from the transmission path defined by the Arizona's location east of the Colorado River and the capability of transmission lines to deliver power from Arizona across its Nevada and California state-line borders [East of River (EOR) is also known as Path 49 as defined by WECC]. The two transmission facilities included in the EOR 9000+ project are the Perkins-Mead and Navajo-Crystal 500 kV transmission lines. At present, the path is rated at 7,550 MW. With the improvements associated with the Path 49 Upgrades (described in Section 3.2.1.5 of this report), Path 49 will have an expected rating of 8,055 MW. The EOR 9000+ project is expected to produce a further path rating increase of 1,245 MW which will result in a Path 49 rating of 9,300 MW (thus the 9000+ designation).

Table Ap.1-2. Alternatives Fully Analyzed in EIR/EIS

Alternative	Project Objectives, Purpose and Need	Feasible	Avoid/Reduce Environmental Effects
SCE Harquahala-West Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Located in designated BLM Utility Corridor. Approval of TS-5 would not affect this route.	Meets environmental criteria. 14 miles shorter than the proposed route, eliminates 2 crossings of I-10, and reduces visual, biological, and recreation impacts in the areas of Big Horn Mountains Wilderness Area and Burnt Mountain.
SCE Palo Verde Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Would serve as a back-up if SCE's contract to use Harquahala Generating Station as the termination point and acquire the Harquahala-Hassayampa 500 kV line falls through.	Meets environmental criteria. Similar environmental impacts to the Proposed Project and would reduce impacts to agricultural resources and biological impacts to the burrowing owl.
Harquahala Junction Switchyard Alternative	SCE would need to enter into an agreement with Harquahala Generating Company and Arizona Public Service (APS) in order to acquire the portion of the existing Harquahala-Hassayampa transmission line between the proposed Harquahala Junction Switchyard and Hassayampa Switchyard in order to complete DPV2. If a successful agreement can be established, this alternative would meet all objectives.	Meets legal, regulatory, and technical feasibility criteria. Arizona Corporation Commission's (ACC) approval of TS-5 Project, including an option to build the Harquahala Junction Switchyard indicates that if APS chooses not to build the switching station, that this alternative would be regulatorily feasible. If it is not built by APS then SCE could pursue construction of the switchyard by seeking a similar ACC approval.	Meets environmental criteria. Eliminates or defers the need for ~18 total miles of new 500 kV transmission line and would lessen impacts to wildlife and habitat, vegetation, noxious weeds, and agriculture in comparison to the Proposed Project.
Alligator Rock–North of Desert Center Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Eliminates impacts to the highly sensitive biological and cultural area of Alligator Rock ACEC and would be located in a less sensitive area in terms of biological and cultural resources.
Alligator Rock–Blythe Energy Transmission Line Route Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Reduces biological and cultural impacts in the Alligator Rock ACEC in comparison to the proposed route.
Alligator Rock–South of I-10 Frontage Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. If DSWTP were built prior to DPV2 then there could be space constraints.	Meets environmental criteria. Reduces biological and cultural impacts in the Alligator Rock ACEC and avoids steeper rocky terrain farther south at the base of the mountains in comparison to the proposed route.
Devers-Valley No. 2 Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Eliminates the need for the WOD upgrades and avoids impacts associated with traversing high-density residential areas and tribal lands.
Desert Southwest Transmission Line Project Alternatives	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Meets environmental criteria. Similar impacts, but would require construction of 2 additional 25-acre substations and a double-circuit or two parallel 8.8-mile 500 kV lines from Keim to Midpoint Substations. Reduces impacts to biological and cultural resources in the vicinity of Alligator Rock ACEC.

The EOR 9000+ project is sponsored by the Arizona utility Salt River Project (SRP). Similar to the Path 49 Upgrades, the principal improvements proposed in the EOR 9000+ project are to the series capacitor banks on the Perkins-Mead and Navajo-Crystal lines. Increasing the capacity of these “banks” will allow for additional electrical power to flow across these transmission lines. SRP expects to have these improvements in place and operational by June 2008.

The EOR 9000+ project serves a different purpose than the Proposed Project because SRP is presently only pursuing the improvements necessary to increase the rating of the East of River path, and EOR 9000+ will not enable the entire 1,245 MW increase to flow across the West of River path into southern California. Although SRP has conducted limited study work to determine the system improvements that could allow for additional imports into southern California, they have chosen not to pursue these improvements as a component of their project.

Because it is going forward in a parallel manner to the proposed DPV2 project but could be built more quickly, the EOR 9000+ project would bring the East of River rating to 9,300 MW without DPV2, substantially increasing the transfer capability from Arizona into Nevada and California. EOR 9000+ is expected to achieve only a 645 MW increase on the West of River path (WOR or Path 46) into California from Nevada and Arizona.

If both the DPV2 and EOR 9000+ projects ultimately develop, WECC will need to conduct additional rating studies to determine the new Path 49 rating with the combined projects in service. Preliminary sensitivity studies by WECC³ indicate that, with EOR 9000+, DPV2 may allow the East of River rating to be increased by an additional 1,200 MW from 9,300 to 10,500 MW. The preliminary studies indicate that a combination of both EOR 9000+ and DPV2 can achieve a 10,500 MW rating increase on Path 49 during most periods. However, additional modifications may need to be added to DPV2 to stabilize the region’s grid in the case of an emergency outage of the existing DPV1 and proposed Harquahala-Devers 500 kV lines. The modifications that may be needed include additional reactive support (capacitors), changes in operating procedures, and changes to Special Protection Schemes. Installing the reactive support could probably occur at Devers or other stations within the existing fence line, and other modifications would be operational and not likely to cause any environmental disturbance.

Rationale for Elimination. The EOR 9000+ project does not qualify as an alternative to the proposed DPV2 project because it would not achieve the objective of adding 1,200 MW of transmission import capability into California. Although the transfer capability of the East of River path would increase by more than 1,200 MW, the addition to the West of River path and the import capability to southern California would be limited to a 645 MW increase. For this reason, the EOR 9000+ project has been eliminated from further consideration as an alternative to the Proposed Project. However, EOR 9000+ will be considered in this EIR/EIS as a cumulative project.

3.2.1.2 Granite Construction Company

Description. Granite Construction Company (Granite) submitted a protest letter to the CPUC generally stating that the CPUC should hold hearings on the project and wondering how the Proposed Project would impact existing operations and plans for carrying out the mining and reclamation plan in accordance with Granite’s permit (Granite, 2005). The site, which is located approximately three miles north of the City of Indio on Monroe Street, has been an operational mine since 1927. Granite has

³ As in the August 10, 2005 Path 49 Rating Study for the EOR 9000+ Project. Prepared by the WECC and Western Arizona Transmission System (WATS) Peer Review Group.

operated the site since mid-1994 and has a permit to use the property for mining aggregate, concrete, and asphalt until the year 2042.

Granite's Indio mining facility in unincorporated Riverside County is situated immediately south of the foothills of Indio Hills, and is bordered to the east and west by open space. To the south of the Granite property is active agricultural land. Existing single-family residences are located north of Interstate 10 and south of the agricultural areas along Monroe Street. This area includes current construction of seven new single-family and multi-family residential developments south of the mining operation and north of Interstate 10 (Aspen, 2005). Because active agricultural land exists near the Granite site, some of the new development is likely replacing agricultural uses.

Granite Construction is situated in a MRZ-2 zone⁴ that is immediately adjacent to an MRZ-3 zone,⁵ and approximately 0.2 miles north of an MRZ-1 zone.⁶ The Devers-Harquahala transmission line corridor traverses an MRZ-2 to the north and immediately adjacent to Granite, and traverses an MRZ-3 zone to the southeast and northwest of the mining facility. Based on review of aerial photographs and site reconnaissance, the existing DPV1 transmission line runs north of an active mining area on the Granite property along the back (north side) of the Granite Building. The Proposed Project would add additional towers within the existing corridor, which has the potential to disrupt active mining areas. As a result, the CPUC considered whether an alternative reroute around or within the property would be necessary.

Rationale for Elimination. This facility is a highly active and working mine, with consistent and moderately heavy truck traffic traveling to and from the site (Aspen, 2005). Moving the proposed route of DPV2 to avoid the active mine areas would be difficult because of the topography of the area, adjacent Indian Reservation land, and several named faults near the site. The faults are all part of the San Andreas Fault Zone, with the closest one being the San Gorgonio Pass Fault, which runs north of the mining site.

In addition, as identified by SCE, SCE has a Permanent and Exclusive ROW on the property (SCE, 2005c), which allows SCE to construct and enlarge its current use of the corridor. According to SCE, the easement entitles it to:

construct, operate, use, maintain, inspect, repair, renew, replace, reconstruct, enlarge, alter, add to, improve, relocate, and/or remove, at any time and from time to time, electrical lines, consisting of one or more lines of metal towers, poles and/or structures, wires, cables, including ground wires and communication circuits, both overhead and underground, etc.

The existing DPV1 and DPV2 ROW through Granite Construction consists of Fee, Grant of Easement (the easements were mostly negotiated; however, some rights were acquired thru condemnation), and nonexclusive ROW grant from BLM for the purpose of construction, operation, maintenance, and termination of 500 kV Electrical Transmission Lines, access roads, and appurtenances. The DPV1 and DPV2 ROW rights were obtained simultaneously under the same documents (for private property). However, some easement rights may need to be upgraded. Typically the easement rights obtained thru condemnation are restricted to only what was originally needed to install and operate the transmission line, along with specific access rights, usually nothing covering future installations of any kind. SCE has

⁴ MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.

⁵ MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data.

⁶ MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

stated that it has been talking with Granite to ensure that the construction of the new transmission line and the ongoing mining operations do not interfere with one another. As a result of the land use and topography in the surrounding area and SCE's Grant of Easement, a reroute around or within the property would not be necessary and this alternative was eliminated from consideration.

3.2.1.3 New 230 kV Line West of Devers

Description. This alternative was listed in SCE's 2005 PEA (Section 2.4.2.3). It would involve construction of a new and separate 230 kV transmission line (i.e., a 5th circuit) in the existing West of Devers corridor without the replacements that are part of the Proposed Project, eliminating the need for the proposed West of Devers Upgrades. Rather than upgrading any of the existing four circuits, a new 40-mile 230 kV transmission line would be installed between the Devers Substation and San Bernardino Junction.

Rationale for Elimination. Adding a new and separate 230 kV line to the West of Devers corridor would increase the base case load carrying capacity of the 230 kV transmission system, but according to the PEA Section 2.4.2.3, it would not increase the overload capability. SCE establishes a need for the proposed West of Devers Upgrades by stating in PEA Section 2.4.2.1 that the existing 230 kV transmission lines would overload under base case conditions (all lines in service) if the Devers-Harquahala portion of DPV2 is built without the proposed West of Devers Upgrades. This means that a new and separate 230 kV line (the 5th circuit under this alternative) would not be reliable because the possibility of an outage on the new 230 kV circuit would overload the remaining four existing 230 kV circuits west of Devers and force shutdown of the Devers-Harquahala portion of DPV2 (PEA Section 2.4.2.3). Because of the possibility of this type of outage, the overload capability of this alternative would be limited to less than 1,200 MW by the existing smaller (605 ACSR) conductor on the Devers–San Bernardino #1 line that would remain. Based on the assumption that the existing four West of Devers circuits would overload during base case conditions (all lines in service) with the proposed Devers-Harquahala portion of DPV2, SCE concludes that the addition of only one new 230 kV circuit under this alternative would not satisfy the project objective of increasing the import capability by 1,200 MW.

The official position of SCE on this matter, however, is unclear because at two other locations in the PEA and in associated testimony SCE states that the need for the West of Devers Upgrades is driven by the possibility of an outage of the existing Devers-Valley 500 kV transmission line (rather than base case conditions). On PEA page 2-23, Section 2.4.1 SCE states that “Due to the increased power flows associated with the proposed DPV2 project, all four of the west of Devers 230 kV lines load beyond their loading capability during an outage of the existing Devers-Valley 500 kV transmission line” (emphasis added). This statement is supported in the testimony of Ms. Dana Cabbell submitted as part of the DPV2 application. In Ms. Cabbell's testimony where she describes the “Plan of Service” for the DPV2 project (pp. 12-13), she states that with respect to the west of Devers upgrades “The 1,200 MW proposed increase in the EOR and WOR path ratings results in the four existing 230 kV lines west of Devers to be overloaded for the contingency of the Devers-Valley 500 kV line” (emphasis added). Based on these statements, a new 230 kV line West of Devers might improve the overload capability, making it unclear whether the addition of a fifth 230 kV circuit can be eliminated based on the limited overload capability problem described in Section 2.4.2.3 of the PEA.

Despite this apparent inconsistency in SCE's position on the need for the West of Devers Upgrades, the addition of a fifth 230 kV circuit in the existing west of Devers ROW would result in increased ground disturbance and visual impacts relative to the Proposed Project, which would remove towers to consolidate and rebuild the existing 230 kV circuits. For this reason, this alternative has been eliminated from further consideration as an alternative to the Proposed Project.

3.2.1.4 Southwest Power Link 500 kV No. 2 Transmission Line

Description. This alternative was included in SCE's 2005 PEA (Section 2.2.4.1). The Southwest Power Link (SWPL) 500 kV No. 2 Alternative would be a new 500 kV transmission line generally constructed parallel to the existing SWPL No. 1. This line is located just north of the California-Mexico border, connecting the Palo Verde–North Gila–Imperial Valley–Miguel Substations.

Rationale for Elimination. Terminating a new 500 kV line at the SDG&E Miguel Substation would compound existing congestion problems on the SDG&E 230 kV system, downstream from this substation. Presently the transmission system downstream of the Miguel Substation is undergoing extensive upgrades in order to relieve the congestion associated with the present SWPL No. 1 500 kV line. Addition of a second 500 kV line would result in the need for additional transmission reinforcements within the southwestern portion of San Diego County. Thus, without additional upgrades in San Diego County, this alternative would not meet the project objectives of increasing California's transmission import capability from the Southwest and enhancing and supporting the competitive energy market in the Southwest.

In addition, due to the increased congestion on an already-congested portion of the system, upgrades in addition to the SWPL No. 2 would be necessary under this alternative. The associated system planning and permitting processes would be likely to create project delays far beyond the 2009 projected in-service date for DPV2.

Given the issues with moving additional power through the Miguel Substation, the general lack of adequate transmission on the SDG&E system to move the power to the north, and need for additional rights-of-way, the alternative was not found cost effective by SCE (PEA p. 2-10 and PEA Appendix G p. 7). In addition, the project has not been considered viable in the STEP process for similar reasons. Therefore, this alternative was also eliminated from further consideration as an alternative to the Proposed Project.

3.2.1.5 Path 49 Upgrade Project

Description. This alternative was included in SCE's 2005 PEA (Section 2.2.4.1) as a single project that would upgrade four of the existing transmission lines from Arizona to southern Nevada and California. It was to involve improving the series capacitors on the SWPL No. 1, DPV1, Navajo-Crystal, and Moenkopi-Eldorado 500 kV lines.

This was initially considered by SCE to be an alternative to the proposed DPV2 project, but because portions of the alternative were found to be highly cost-effective, the Path 49 Upgrade Project was eventually limited to pursuing upgrades to the series capacitors on the SWPL and DPV1 lines. The SWPL and DPV1 components of this alternative were independently implemented in 2004 and 2005 (SCE Response 13, 10/26/05), and SCE's portion will become operational in 2006. The Navajo-Crystal 500 kV Series Capacitor Upgrades are being pursued separately by SRP in 2005 as part of the EOR 9000+ Project (described in Section 3.2.1.1 of this report), and the Moenkopi-Eldorado component may eventually and separately be pursued by SCE. It is expected that the facility improvements associated with the Path 49 Upgrade Project will increase both the East of River and West of River path ratings by 505 MW. Agreements have been reached between the SWPL and DPV1 owners regarding cost sharing and allocation of the incremental capacity. Under the current schedule, the additional 505 MW capacity will be available by the end of September 2006.

Rationale for Elimination. The Path 49 Upgrade Project as defined in the PEA does not qualify as an alternative to the proposed DPV2 project because some of the upgrades have already been implemented. The

additional 505 MW capacity provided by the Path 49 Upgrade Project was considered by SCE and CAISO to be part of the system that exists as the baseline for measuring economic benefits derived from the addition of 1,200 MW capacity that would occur with DPV2. This results in the baseline rating for Path 49 assumed by SCE in the PEA of 8,055 MW (PEA Section 2.4.1), and it means that DPV2 would provide 1,200 MW in addition to, not as a substitute to, the 505 MW provided by the Path 49 Upgrade Project. Therefore, this alternative was eliminated from further consideration as an alternative to the Proposed Project.

3.2.1.6 New Imperial Valley–Devers 500 kV Transmission Line

Description. This alternative was included in SCE’s 2005 PEA (Section 2.2.4.1) as a new 500 kV transmission line between Imperial Valley and Devers Substations. Imported power from Mexico would likely be increased by increasing the Path 45 (Mexico to California) transfer capability as a result of this alternative. The new Imperial Valley–Devers 500 kV transmission line would follow an existing corridor of existing 161 kV and 230 kV lines through Niland, east of the Salton Sea, and Coachella.

Rationale for Elimination. SCE’s 2005 PEA (Section 2.2.4.1) states that this transmission alternative could potentially assist in meeting the basic project objectives. However, it would not, by itself, increase access to generation in the Southwest U.S. or add 1,200 MW of additional transmission import capability into California, because additional transmission projects would be needed in Arizona and/or California to bring power to Imperial Valley and ultimately to Devers. Therefore, this alternative would not meet the project objectives of increasing California’s transmission import capability from the Southwest and enhancing and supporting the competitive energy market in the Southwest. DPV2 was found to be preferred over this alternative by the STEP process. For these reasons, this alternative has been eliminated from consideration as an alternative to the Proposed Project.

3.2.1.7 Double-Circuit 500 kV Line (Devers-Harquahala)

Description. Under this alternative the existing 500 kV single-circuit towers of the DPV1 transmission line would be replaced with double-circuit towers and new conductors. The new double-circuit transmission line (DCTL) towers would be built first, adjacent to the existing DPV1 line, and then the existing line and the old towers would be removed.

Rationale for Elimination. DCTL 500 kV lines over long distances are not generally acceptable by transmission planning groups for reliability purposes, because in the event that a tower failed both DPV1 and DPV2 circuits would be lost, which would be considered a N-2 contingency (loss of two transmission circuits). Increasing the likelihood of a double-circuit outage (N-2) under this alternative would fail to satisfy the project objective for increasing reliability, insurance value against extreme events, and operational flexibility.

Construction of the new DCTL would create greater short-term construction impacts than the Proposed DPV2 line due to the construction of larger towers and the requirement to remove existing towers. While this alternative would result in the consolidation of lines in a single corridor, which could be considered beneficial from a land use perspective, the DCTL towers and their footprints would be substantially taller and larger than the existing and proposed towers. In addition, this alternative would also require removal and disposal of the existing towers, hardware, and conductors, and this additional construction and excavation could result in increased ground disturbance and impacts affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. Due to reliability concerns resulting in failure to meet project objectives and greater environmental impacts to most issue areas, this alternative has been eliminated from further consideration as an alternative to the Proposed Project.

3.2.1.8 New Devers–Mira Loma 500 kV Transmission Line

Description. This alternative was presented in SCE’s 2005 PEA (Section 2.4.2.2). It would involve construction of a new Devers–Mira Loma 500 kV transmission line in the existing 230 kV corridor West of Devers instead of the proposed upgrades. The new 500 kV line would travel west of Vista to either the existing 500 kV substation at Mira Loma or Rancho Vista. This alternative would not eliminate any of the existing circuits in the West of Devers 230 kV corridor, but it would eliminate the need for the proposed West of Devers Upgrades. Additional ROW might need to be acquired to accommodate the additional 500 kV towers. This alternative would improve the transfer capability of the West of Devers 230 kV system by adding a 500 kV line to the corridor. This would avoid possible overload of the existing 230 kV transmission lines that would occur with the proposed Devers-Harquahala segment.

Rationale for Elimination. Under this alternative, an outage of the new Devers–Mira Loma 500 kV segment would overload the remaining 230 kV circuits west of Devers and force a shutdown of the Devers-Harquahala portion of DPV2 (PEA Section 2.4.2.2). Because an outage of the Devers–Mira Loma 500 kV portion of the West of Devers corridor would overload the remaining existing circuits, this alternative would not meet the basic project objective of adding 1,200 MW of transmission import capability.

Adding a new 500 kV transmission line between Devers and Mira Loma alternative appears to be legally and regulatorily feasible. However, this alternative could require expanding the West of Devers ROW which is constrained in some areas due to adjacent development, and it would have technical feasibility limitations because it would not increase the overload capability on the West of Devers 230 kV system. The overload capability would be limited to less than 1,200 MW by the existing smaller (605 ACSR) conductor on the Devers–San Bernardino #1 line that would remain, and it would not be feasible to expand the existing ROW in the West of Devers corridor to accommodate this alternative. Therefore, this alternative has been eliminated from further consideration as an alternative to the Proposed Project.

3.2.1.9 Combination of New Imperial Valley–Devers 500 kV Line and Path 49 Upgrade Project

Description. This alternative was presented in SCE’s 2005 PEA (Section 2.2.4.1), and it would include a new 500 kV transmission line between Imperial Valley and Devers Substations along with the Path 49 Upgrade Project identified above. This alternative would increase imports from the Palo Verde area and Mexico by increasing both the Path 49 (East of River) and Path 45 (Mexico) transfer capabilities, and a new line from Imperial Valley to Devers would expand the transfer capabilities within California on Paths 45 and 46 (West of River). The new Imperial Valley–Devers 500 kV transmission line would follow a corridor of existing 161 kV and 230 kV lines through Niland, east of Salton Sea, and Coachella.

Rationale for Elimination. As stated in the PEA, the Combination of Imperial Valley–Devers Line and Path 49 Upgrade Project Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. However, portions of the Path 49 Upgrade Project as defined in the PEA were considered by SCE and CAISO to be part of the system that exists as the baseline for measuring economic benefits derived from the addition of 1,200 MW of new import capacity that would occur with DPV2. With the Path 49 Upgrade Project as a component of the baseline, the new Imperial Valley–Devers 500 kV transmission line under this alternative appears to meet all of the stated objectives of the Proposed Project.

However, SCE’s economic analysis assumes that the Path 49 Upgrade Project exists. Upgrades to SWPL No. 1 and DPV1 are already underway to provide a 505 MW increase to the Path 49 rating, resulting in the baseline rating for Path 49 assumed by SCE in the PEA of 8,055 MW (PEA Section 2.4.1). The

Navajo-Crystal 500 kV Series Capacitor Upgrades are being pursued by SRP in 2005 as part of the EOR 9000+ Project (described in Section 3.2.1.1 of this report), and if successful, they would be in service by June 2008. The remaining primary component of this alternative (i.e., the new Imperial Valley–Devers 500 kV line) has already been eliminated from analysis in this EIR/EIS after preliminary screening, as described above in Section 3.2.1.6.

3.2.1.10 Modify DPV1 Compensation

Description. This alternative is defined in SCE’s 2005 PEA (Section 2.2.4.2). Compensation on a transmission line stabilizes voltages in alternating current power lines by electrically reducing resonances and oscillations that occur in high voltage lines over long distances. Adding either series compensation or dynamic shunt compensation can reduce the impedance on a long transmission line, making the distance between the power source and the load seem, in an electrical sense, shorter. Therefore, overall compensation improves stability of the grid, increases transmission capacity, and reduces overall power losses. The existing 500 kV DPV1 presently operates at 47 percent compensation. The potential to increase the level of compensation on DPV1 above 50 percent was examined in order to assess increasing the line’s transfer capability without encountering subsynchronous resonance (SSR) problems (PEA Section 2.2.4.2).

Rationale for Elimination. SCE’s 2005 PEA (Section 2.2.4.2) states that increasing the compensation of the DPV1 above 50 percent resulted in SSR concerns for the Palo Verde nuclear generating units. This would cause prohibitive operating conditions for the Palo Verde generators. As a result, this alternative would not add 1,200 MW of transmission import capability into California, and it would not meet the basic project objectives or be technically feasible.

3.2.1.11 Alligator Rock–South of DPV2 Corridor Alternative

Description. This alternative route segment in the area of Desert Center (between Blythe and Devers) was considered as an option that would be less visible from I-10 and could potentially avoid the high-value cultural resources in the Alligator Rock area. The alternative would diverge from the Proposed Project route approximately 2.0 miles southeast of Desert Center and would travel southwest from the DPV1/DPV2 corridor and then to the west, traversing the Alligator Rock Area of Critical Environmental Concern (ACEC) about 0.75 miles south of the proposed route. After passing the southern end of Alligator Rock itself, this alternative would turn to the northwest and would rejoin the Proposed Project at the western boundary of the Alligator Rock ACEC. At approximately 5.0 miles, the Alligator Rock–South of DPV2 Corridor Alternative would be approximately 0.5 miles longer than the proposed route for the equivalent segment. This alternative would avoid the central portion of Alligator Rock ACEC (7,726-acre area of archaeological significance) and would reduce visual impacts because it would be located farther from viewers on I-10 and some viewers in the Alligator Rock area. As a result, the transmission line would be less prominent and would cause less view blockage and structure skylining.

Rationale for Elimination. It was determined that this route would create a higher potential for impacts to sensitive cultural resources as well as to the National Register of Historic Places (NRHP) Petroglyph District as the line is located south of the proposed route. New access roads could damage resources as well as making the area more easily accessible to the public, both of which would further disturb the sensitive ACEC. In addition, this route would create a second transmission corridor and would cross steeper terrain at the head of the alluvial fan/wash, which may be more vulnerable to erosion and would create new disturbance in a less disturbed area. The South of DPV2 Corridor Alternative would also increase the visibility of transmission line to wilderness users in the Chuckwalla Mountains Wilderness Area, which is adjacent to Alligator Rock ACEC on its south side.

In addition, biological habitat along this alternative segment may be of higher quality because it would be farther from I-10 and closer to the Chuckwalla Mountains Wilderness Area, especially at the base of the mountains. Like the Proposed Project, this alternative also would traverse through Designated Critical Habitat for the desert tortoise but because it would be located closer to the base of the mountains, it is likely that the tortoise populations are higher in that area since it is less disturbed and so the alternative would likely have greater significant impacts on desert tortoise than the Proposed Project. Similarly, since this alternative would be likely located in areas of less disturbed habitat, there may be a higher likelihood that special status plant and wildlife species may occur, such as loggerhead shrike and sensitive cactus species. The types of impacts would be the same as those of the Proposed Project, but the magnitude of the impacts of the alternative would be greater because the length of this alternative through less disturbed native habitat/tortoise habitat would be greater than the Proposed Project. This alternative would not reduce any impacts of the Proposed Project without creating greater impacts of its own. Therefore, it was eliminated from consideration.

3.2.2 Alternatives Eliminated After Detailed Screening

Table Ap.1-3 lists the alternatives that were evaluated through the complete screening process, which is described in Section 2 above, but were still eliminated from detailed consideration. The rationale for elimination of each of these alternatives is presented in detail in Section 4 of this Appendix.

Table Ap.1-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Feasible	Avoid/Reduce Environmental Effects	Conclusions
SCE North of Kofa NWR–South of I-10 Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Eliminates policy issues associated with construction of a new line on protected refuge land, but would be outside of an established BLM Utility Corridor, so it would require BLM approval for creation of a new utility corridor. This requirement would not make the alternative infeasible, but adds to its regulatory complexity.	Avoids impacts to biological and recreational resources within Kofa NWR, but results in similar/greater impacts to these resources outside of Kofa NWR due to more permanent ground disturbance, habitat loss, and the creation of a new corridor. Greater recreational and visual impacts through the La Posa Recreation Areas and along I-10.	Not analyzed due to greater significant impacts on resources.
SCE North of Kofa NWR–North of I-10 Alternative	Meets all project objectives.	Meets legal and technical feasibility criteria. Eliminates policy issues associated with construction of a new line on protected refuge land, but may not be regulatorily feasible to obtain the required amendment to the Lower Gila South Resource Management Plan (RMP), which currently prohibits overhead transmission lines.	Avoids impacts to biological and recreational resources within Kofa NWR, but results in similar/greater impacts to these resources outside of Kofa NWR due to more permanent ground disturbance, habitat loss, and the creation of a new corridor. Greater recreational and visual impacts through the La Posa Recreation Areas and along I-10.	Not analyzed due to greater significant impacts on resources and the challenges in obtaining regulatory approval.
North of Kofa NWR Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria. Eliminates policy inconsistencies associated with construction of a new transmission line on protected refuge land.	Avoids impacts to resources within Kofa NWR and reduces cultural resources impacts, but creates a new corridor with associated ground disturbance and habitat loss.	Not analyzed due to substantially greater impacts to bighorn sheep, currently undisturbed biological resources, and to significant visual resources through previously undisturbed land.
SCE North of Blythe Alternative	Meets all project objectives.	Meets technical feasibility criteria. Would be legally feasible only if the CRIT agrees to the lines being placed on its land. Regulatory feasibility of the route is questionable, because BLM approval of an RMP amendment would be required.	Eliminates biological, recreation, and visual impacts to Kofa NWR and reduces impacts to agricultural land, but greater impacts to biological resources and substantially greater impacts to visual and cultural resources, especially across the CRIT Reservation.	Not analyzed due to greater significant impacts on resources and potential legal and/or regulatory infeasibility.

Table Ap.1-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Feasible	Avoid/Reduce Environmental Effects	Conclusions
SCE South of Blythe Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Reduces impacts to agricultural land, but greater ground disturbance with creation of a new transmission corridor. Greater visual and biological resources impacts by Colorado River and Cibola Wildlife Refuge. Higher cultural sensitivity in the Ripley Intaglio and 2 other major intaglio groups and in the Colorado River terraces, Mule Mountain ACEC, and the Palo Verde Mesa.	Not analyzed due to much greater visual, land use, biological resources, recreation, and cultural resources impacts.
Paradise Valley Alternative	Meets all project objectives.	Meets technical feasibility criteria. The Paradise Valley Development and the movement of the utility corridor would not be regulatorily feasible if the suggested land exchange is not approved by BLM. Movement of the entire utility corridor (including DPV1) could not legally be pursued under CEQA/NEPA.	If the DPV1 line remains at its current location, the construction of the DPV2 line farther to the south creates greater construction impacts and permanent impacts, such as visual impacts in a new corridor. The Paradise Valley project area is bounded on the south by the Congressionally designated Mecca Hills and Orocopia Mountains Wilderness Areas, and on the north by the Joshua Tree National Park and contains valuable desert tortoise habitat.	Not analyzed due to greater significant impacts on resources and potential legal and/or regulatory infeasibility.
Mesa Verde Substation Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Would require longer access road construction and greater impacts to visual resources, biological resources, and land use.	Not analyzed due to longer access road construction and greater impacts to visual resources, biological resources, and land use with no overall impact reduction.
Wiley Well Substation Alternative	Meets all project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Closer to an existing paved roadway and preferred for cultural resources, but greater visibility, recreational impacts due to its proximity to Chuckwalla Valley Dune Thicket ACEC, and biological impacts to sensitive species, such as Mojave fringed-toed lizard and desert tortoise.	Not analyzed due to greater significant impacts on resources.
North of Existing Morongo Corridor Alternative	Meets all project objectives.	Legal feasibility hinges on approval by the Morongo Tribe of the removal and rebuilding of the lines within the Morongo Indian Reservation. Technical feasibility issues exist with siting the four circuits in or at the base of the San Bernardino Mountains.	Reduces visual resources and land use impacts, but far greater impacts to biological and cultural resources and greater construction time and ground disturbance.	Not analyzed due to feasibility concerns, the Morongo Tribe’s consultation statements during the scoping period, and biological and cultural resources impacts.

Table Ap.1-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Feasible	Avoid/Reduce Environmental Effects	Conclusions
Composite Conductor Alternative	Use of the outmoded existing structures would leave the WOD corridor incapable of meeting the basic project objective of adding 1,200 MW of transmission import capability. Higher costs would make the economic objectives of the Proposed Project less likely to be achieved.	Meets legal, regulatory, and technical feasibility criteria.	The visual benefit of reducing the number of tower lines in the corridor would not be achieved. Structures could require slightly more frequent maintenance than new towers.	Not analyzed due to failure to meet basic project objectives.
Convert DPV1 from AC to HVDC Transmission Line	Would not meet 2 of 4 project objectives. Outage of HVDC line would force SCE to impose SPS or RAS measures, which would conflict with Project Objectives of increased reliability, insurance value against extreme events, and flexibility in operating the grid. There would also be reduced likelihood of achieving the economic objectives.	Meets legal, regulatory, and technical feasibility criteria.	Requires permanent disruption of 20-40 acres and the introduction of a new industrial land use for each converter station, near Devers and the eastern termination point. Less flexibility for interconnections with other existing or proposed AC transmission lines in the CAISO system, which could lead to construction of additional AC facilities parallel to the HVDC line, such as DSWTP and/or BEPTL.	Not analyzed due to failure to meet basic project objectives.
Underground Alternative	Meets all project objectives. If a short segment were considered (e.g., to avoid a specific high impact area), these technologies may not be cost prohibitive to construct.	Meets legal, regulatory, and technical feasibility criteria. Reliability of underground 500 kV technologies has not been fully demonstrated.	Requires a continuous trench creating significant impacts to soils/erosion, cultural resources, biological resources as well as a longer construction time and the need for transition structures. Operational impacts would also be greater associated with maintenance, access to the lines, and longer repair times.	Not analyzed due to significant environmental impacts, the unproven reliability for long-distance underground 500 kV transmission lines, the reliability concerns associated with the steep slopes and the active fault crossing, and the high cost of these technologies.

Table Ap.1-3. Alternatives Eliminated from EIR/EIS Consideration After Detailed Screening

Alternative	Project Objectives, Purpose, and Need	Feasible	Avoid/Reduce Environmental Effects	Conclusions
New Conventional Generation	Would not meet the following project objectives of: adding transmission import capability into CA, providing access to low-cost energy, or providing additional transmission infrastructure and improving the reliability and flexibility of the region's transmission system.	Meets legal, regulatory, and technical feasibility criteria.	The long-term operational environmental impacts of power plants (i.e., air emissions, water usage) can be balanced against the impacts of long transmission lines.	Not analyzed due to failure to meet basic project objectives.
Renewable Generation Resources	Would not meet the project objectives of increasing California's transmission import capability from the Southwest and enhance and support the competitive energy market in the Southwest.	Meets legal feasibility criteria. Each would not be able to produce 1,200 MW as is required for the DPV2 Project, but several different technologies could be combined. However, the permitting and construction of the various projects within the project timeline would be unlikely and each of the projects would still require the construction of transmission lines to bring the power into the Los Angeles area.	Avoid the specific impacts associated with the construction and operation of the Proposed Project, but new transmission would still be required from the renewable generation locations, creating impacts similar to those of the Proposed Project, which is proposed to transmit power from an already <i>existing</i> generation source.	Not analyzed due to greater significant impacts on resources.
Conservation and Demand-Side Management	DSM and conservation represent a small fraction of the total capacity requirement needed to meet SCE's import and supply reliability objectives. Would not meet project objectives.	Meets legal, regulatory, and technical feasibility criteria.	Reduces energy consumption, thus would reduce the need for power generation and new transmission lines. Avoids all effects of the Proposed Project.	Not analyzed due to failure to meet basic project objectives.
Distributed Generation	Most DG facilities are very small and it does not appear to be feasible to construct and operate a distributed generation alternative in sufficient quantity to meet projected demand growth that can be served by the large-scale generation in the Palo Verde area. Would not meet project objectives.	Would not be feasible to construct and operate a distributed generation alternative in quantity sufficient to meet projected demand growth that can be served by the large-scale generation in the Palo Verde area and no single entity has proposed implementing a substantial DG program	Reduces linear construction impacts of transmission lines, because the source of energy generation would be in close proximity to the location of demand. Other environmental effects would depend on the type of generation used.	Not analyzed due to failure to meet basic project objectives.

4. Alternative Descriptions and Determinations

4.1 Introduction

The alternatives presented in this section include minor routing adjustments to SCE's proposed 500 kV project route, entirely different transmission line routes, alternative system voltages, and system designs, and non-wires alternatives such as generation and conservation. After initial screening, if a potential alternative was found to be unable to meet the basic project objectives, purpose, and need; proven infeasible, or if it did not appear to reduce or avoid potentially significant impacts of the Proposed Project without creating other significant impacts of its own, then it was eliminated from full evaluation (listed in Table Ap.1-2). The alternatives that have been determined to meet the CEQA/NEPA alternatives screening criteria have been retained for full analysis in the EIR/EIS (listed in Table Ap.1-3).

Section 4.2 addresses route alternatives in the Devers-Harquahala (500 kV) segment of the Proposed Project and Section 4.3 discusses West of Devers alternatives. Finally, Section 4.4 discusses technical and non-transmission alternatives. The No Project/Action Alternative is required to be considered in an EIR/EIS by NEPA and CEQA, so is described in Section C.6 of the EIR/EIS and is not discussed in this Appendix.

4.2 Devers-Harquahala Route Alternatives

4.2.1 SCE Harquahala-West Alternative

Alternative Description

As described in SCE's 2005 PEA, the "Harquahala-West Subalternate Route" would begin at the Harquahala Generating Station Switchyard. Rather than departing the Harquahala Switchyard to the east paralleling the existing Harquahala-Hassayampa 500 kV towers, the Harquahala-West Alternative would depart the Harquahala Generating Station Switchyard to the west and follow section lines due west for approximately 12 miles through private and State lands to the El Paso Natural Gas pipeline corridor. This portion of the route parallels Courthouse Road approximately one mile to the north along section lines to the pipeline corridor. At the pipeline corridor, the transmission line would proceed northwesterly along the pipeline corridor for approximately nine miles to the intersection with the DPV1 transmission line, immediately north of the El Paso Wendon Pump Station. The length of the Harquahala-West Alternative between the Harquahala Switchyard and the junction with the DPV1 line and the proposed route is 21 miles. This alternative is illustrated in Figure Ap.1-1.

Currently, Arizona Public Service Company (APS) is planning for the Palo Verde Hub to TS-5 500 kV transmission line that may parallel DPV1 between the PVNGS interconnection area and the Central Arizona Project (CAP) Canal. SCE originally developed the Harquahala-West Alternative because of a concern that the Palo Verde Hub to TS-5 line may be constructed in a manner that would preclude SCE from entering Harquahala Generating Station Switchyard from the east. In this case, the Harquahala-West Alternative, which would enter Harquahala Generating Station Switchyard from the west, may become SCE's preferred route. The Certificate of Environmental Compatibility for the APS PV Hub to

TS-5 Project was approved by the Arizona Corporation Commission on August 17, 2005 (Case 128). Since the siting hearing, APS has made adjustments to its ten year plan, which resulted in the ability to delay the TS-5 project's in-service date. For this reason APS has stated in a memo to the ACC on December 30, 2005 that it intends to continue to pursue its efforts to reach agreement for interconnection at Duke Energy's Arlington Plant or at a new Harquahala Junction Switchyard. APS will file a follow up report to the ACC at the time a final decision is reached or no later than December 31, 2006.

Even though the final construction plan has not been determined, SCE has stated that the approval of the APS project should not affect the DPV2 project since the two projects are independent of one another unless it reaches the joint party agreement with New Harquahala Generating Company (HGC) and APS. If a joint agreement were to occur then the Harquahala Junction Switchyard could serve as the eastern termination point for the Proposed Project. Terminating the proposed DPV2 project at the proposed Harquahala Junction Switchyard would require SCE to acquire from HGC that portion of the Harquahala-Hassayampa transmission line between the proposed Harquahala Junction Switchyard and Hassayampa Switchyard to complete DPV2 (this is currently proposed as part of SCE's project), and the existing Harquahala-Hassayampa transmission line would also need to be shared by APS to complete the TS-5 Project.

The portion of the Harquahala-West Alternative that follows the pipeline corridor would be located in a designated BLM Utility Corridor. New right-of-way would need to be acquired across private, State, and BLM land. The Harquahala-West Alternative would be constructed using tubular steel pole structures from the Harquahala Generating Station to the Centennial Wash to reduce the affected ground area across farmland. Steel lattice towers (like those used for DPV1) would be used for the portion of the route across desert land west of Centennial Wash to the intersection with DPV1 at the Wendon Pump Station.

Spur roads would be built from the existing access road along the pipeline for construction of towers, and a new access road would be required along the section lines between the Harquahala Switchyard and the pipeline road. A minimum of 160-foot-wide right-of-way would need to be acquired on BLM land, and a minimum of 200-foot-wide right-of-way would need to be acquired on State and private land. Also, construction of a new access road for a portion of the alternative would be required, causing about 5.28 acres more ground disturbance than the proposed Devers-Harquahala route.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Harquahala-West Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

Legal and Regulatory Feasibility. The Harquahala-West Alternative is legal and has no regulatory constraints. The portion of the Harquahala-West Alternative that follows the pipeline corridor would be located in a designated BLM Utility Corridor. New ROW would need to be acquired across private, State, and BLM land, but this would not create any feasibility issues. Similar to the Proposed Project, which also would cross State lands, a ROW easement would need to be obtained from Arizona State Land Department. Arizona State Lands Department owns 9.3 million acres in Arizona and has the ability to deny an alignment since its trust lands are not condemnable by local agencies (only at the federal level). Arizona State Lands approval would occur during the land acquisition process following permitting approval by the CPUC, BLM, and ACC (Beals, 2006).

Figure Ap.1-1. Alternatives Near Palo Verde Nuclear Generating Station
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Technical Feasibility. It is technically feasible to construct the Harquahala-West Alternative. Although there was initial concern that the TS-5 line may be constructed in a manner that would preclude SCE from entering Harquahala Generating Station Switchyard from the *east*, SCE has since stated that the approval and construction of the APS project would not affect the DPV2 project. In addition, the Harquahala-West Alternative was developed to alleviate that initial concern. As such, the alternative route would enter Harquahala Generating Station Switchyard from the *west* and would not be affected by the TS-5 *project*.

Environmental Advantages

Alternative Length. The Harquahala-West Alternative would be 14 miles shorter than the proposed route (a total distance of 216 miles versus 230 miles for the 500 kV segment of the Proposed Project), and would require about 48 fewer 500 kV towers than the proposed route, thereby eliminating the temporary and permanent impacts associated with construction of those additional towers.

Biological Resources. This alternative would be almost 5 miles farther south of Burnt Mountain, which contains suitable habitat for the federally listed⁷ cactus ferruginous pygmy owl.

Recreation. The alternative would avoid the Proposed Project's visual and recreational impacts to the Big Horn Mountains Wilderness Area (WA) north of I-10.

Agricultural Resources. The Harquahala-West Alternative would also avoid approximately 1 mile of impacts to agricultural resources along Thomas Road resulting from the Proposed Project.

Visual Resources and Transportation. The alternative would eliminate visual and transportation impacts associated with Proposed Project's two crossings of I-10.

Environmental Disadvantages

Ground Disturbance. Although this alternative would be 14 miles shorter than the Proposed Project, construction of a new access road for a portion of the alternative route would be required, whereas the Proposed Project would use existing access roads along the DPV1 corridor. As a result, the alternative would cause about 5.28 acres more ground disturbance than the proposed Devers-Harquahala route. This increased ground disturbance could increase impacts in air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

Biological Resources. The agricultural lands that would be crossed by this alternative could also be habitat for biological resources, such as the burrowing owl. The federally protected cactus ferruginous pygmy owls also historically known to occur in the area east of Harquahala Substation to PVNGS and its habitat could be disturbed by this alternative.

Wilderness and Recreation. The alternative would pass near the border of the Eagletail Mountains WA, but it is unlikely that it would cross into the WA boundary.

⁷ The Federal Endangered Species Act of 1973, as amended, requires all federal agencies to consider "listed" species in their planning efforts and to take positive actions to further the conservation of these species.

Land Use. New ROW would need to be acquired across private, State, and BLM land. This new ROW may set precedent for future development of utilities in this corridor (future land use impacts).

Agricultural Resources. The Harquahala-West Alternative would cross approximately three miles of agricultural land that would not be affected by the Proposed Project. It is anticipated that construction activities would temporarily interfere with agricultural operations on these lands, which could reduce production.

Visual Resources. Because this alternative route would not be within an existing transmission corridor, new visual impacts to residential viewers would occur, especially to approximately 12 residences off of West Courthouse Road (becomes Centennial Road), which is south of the DPV2 alignment. There would also be new visual impacts to recreationists accessing the east side of the Eagletail Mountains Wilderness Area (WA) and the Courthouse Rock area, given the absence of similar infrastructure features in the vicinity of the Eagletail Mountains.

Soil Contamination. Even though the alternative would be shorter than the proposed route segment that it would replace, it would have a greater likelihood that excavation could encounter soils contaminated with pesticides and herbicides that could be present in the three miles of agricultural lands.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative would meet project objectives and would be feasible. Although this alternative would increase visual and recreation impacts in the Eagletail Mountains WA and would cross 3 miles of agricultural lands, it would avoid passing adjacent to the Big Horn Mountains Wilderness Area and two crossings of I-10. It would also avoid one mile of impacts to agricultural resources along Thomas Road. Most importantly the route would be 14 miles shorter than the proposed route, thereby eliminating the temporary and permanent impacts associated with construction of a 500 kV transmission line and towers. Overall, this alternative has the potential to reduce environmental impacts of the Proposed Project, so the Harquahala-West Alternative was retained for full analysis in this EIR/EIS.

4.2.2 SCE Palo Verde Alternative

Alternative Description

The proposed DPV2 route for the Devers-Harquahala 500 kV transmission line is generally parallel to SCE's existing 500 kV DPV1 transmission line. However, the DPV2 route differs from DPV1 in that the Proposed Project would not terminate at the Palo Verde Nuclear Generating Station (PVNGS). DPV2 as currently proposed involves building a new 500 kV transmission line from Devers to the Harquahala Generating Station Switchyard, and then acquiring the existing Harquahala-Hassayampa 500 kV transmission line. Under the Palo Verde Alternative, the DPV2 line would terminate at the PVNGS Switchyard.

As presented in the 2005 PEA, the Palo Verde Alternative would require construction of a new 500 kV transmission line parallel to the DPV1 transmission line for an additional approximately 14.7 miles to the PVNGS Switchyard. This alternative would avoid the need to construct the proposed 5-mile segment from the Harquahala Generating Station Switchyard to the Harquahala Junction. A diagram of the proposed and alternative route construction configurations is shown on Figure Ap.1-1a. Rather than leave the existing DPV1 transmission corridor and follow the existing Harquahala-Hassayampa 500 kV transmission line west to the Harquahala Switchyard, this alternative route would cross from the western

side of the DPV1 transmission line to the east, and continue south, parallel to the existing DPV1 and Harquahala-Hassayampa 500 kV lines. The alternative would cross predominantly BLM land to the southeast past Saddle Mountain, and would follow the DPV1 transmission line to the PVNGS Switchyard.

The Certificate of Environmental Compatibility for the Arizona Public Service (APS) PV Hub to TS-5 Project was approved by the Arizona Corporation Commission on August 17, 2005 (Case 128). The final construction plan has not been determined, although the approval provides for the northern portion of the route, located north of the site of the proposed Harquahala Junction Switchyard and crossing I-10, to be constructed within a 1,000-foot-wide corridor east of the existing DPV1 centerline (the proposed DPV2 line will be constructed within the existing BLM right-of-way on the west side of the existing DPV1 line). The approval of the APS project does not affect the DPV2 project. If the Palo Verde Alternative were constructed before the southern portion of the PV Hub to TS-5 Project was constructed, it would take the “first position” east of the existing DPV1 line, or vice versa. In either case, both lines would be constructed within a 1,000-foot-wide corridor located east of the existing DPV1 line if that portion of the DPV2 line were to be needed.

For the Palo Verde Alternative, SCE would lease bandwidth from APS and Salt River Project (SRP) between Black Peak Communication Site and PVNGS to support the primary protection circuits.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Palo Verde Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

The ACC decision on the TS-5 project provides APS the flexibility to select from several project routing and scope alternatives for the TS-5 project. APS was granted the ability to interconnect at one or more of the following locations: (1) the Duke Arlington Power Plant; (2) a new Harquahala Junction Switchyard; or (3) the Palo Verde Switchyard. It was the preference of both APS and the ACC staff for APS to interconnect at either the Duke Arlington Plant or a new Harquahala Junction Switchyard. Therefore, subject to a joint project arrangement among SCE, APS and Harquahala Generation Company (HGC), the parties would share the existing Harquahala-Hassayampa transmission line and potentially the Harquahala Junction Switchyard (see Section 4.2.3), if constructed. Discussions among SCE, APS and HGC regarding the potential joint project arrangement are ongoing but have not yet resulted in an agreement. APS has stated that it will file a report to the ACC at the time a final decision is reached or no later than December 31, 2006. These negotiations do not affect the regulatory feasibility of this alternative since SCE could still enter into an agreement for use of the existing Harquahala-Hassayampa transmission line and/or build the Harquahala Junction Switchyard regardless of whether the TS-5 project moves forward.

Similar to the Proposed Project, which also would cross State lands, a ROW easement would need to be obtained from Arizona State Land Department. Arizona State Lands Department owns 9.3 million acres in Arizona and has the ability to deny an alignment since its trust lands are not condemnable by local agencies (only at the federal level). Arizona State Lands approval would occur during the land acquisition process following permitting approval by the CPUC, BLM, and ACC (Beals, 2006). Therefore, this alternative would be regulatorily, technically, and legally feasible.

Environmental Advantages

Biological Resources. Because one mile of agricultural land would be avoided with this alternative, potential impacts to burrowing owls located in the agricultural lands would be reduced.

Agricultural Resources. The Palo Verde Alternative would avoid approximately one mile of agricultural land that would be crossed by the Proposed Project where construction and operation could interfere with agricultural operations.

Environmental Disadvantages

Alternative Length and Ground Disturbance. This route would be approximately 9.7 miles longer than the proposed route, which will affect the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

Biological Resources. This alternative would increase the acreage of temporary and permanent disturbance, therefore increasing the chance that special status species would be affected. Also, this increase in disturbance area could increase the chance of noxious weed introduction and also remove more native desert vegetation.

This route would also increase the chance of affecting more suitable cactus ferruginous pygmy owl habitat than starting the line at the Harquahala Switchyard. The pygmy owl was listed as Federally Endangered in 1997 and occurs in a variety of desert habitats at the eastern end of the project area and its western population includes lowland, central Arizona. The route would also cross through Category 2 desert tortoise habitat,⁸ which could be impacted and would need to be replaced through mitigation at a 1:1 ratio.

Visual Resources. There would be the potential for adverse visual impacts on views of Saddle Mountain from westbound Salome Highway. If placement of towers is not in line with existing towers, adverse impacts could also be severe. There would also be adverse visual impacts to approximately eight residences on along the east-west portion of DPV2 route in the vicinity of Elliot Avenue and west of PVNGS.

Roadway Crossings. The transportation impacts of this alternative would be slightly greater than the Proposed Project's termination at Harquahala Generating Station, because it would require approximately four additional local roadway crossings.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative would meet project objectives and would be feasible. Although this alternative would be 9.7 miles longer than the Proposed Project and would create visual impacts on residential views and views of Saddle Mountain, the Palo Verde Alternative would have largely similar environmental impacts to the Proposed Project and it would reduce impacts to agricultural resources and biological impacts to the burrowing owl.

⁸ The BLM has developed three categories for its land to identify comparative value of desert tortoise habitat. Category 1 is considered the highest quality tortoise habitat, and Category 2 is the next highest. Category 3 areas may contain high quality tortoise habitat and high density of tortoises, but because of resource conflicts the Bureau has assigned the area Category 3.

In addition, this route would serve as a back-up if SCE's contract to use Harquahala Generating Station as the termination point and acquire the existing Harquahala-Hassayampa 500 kV transmission line falls through and SCE has to build a new line to the PVNGS Switchyard. Environmental impacts would be largely similar or reduced overall and depending on the outcome of contract negotiations, this alternative may be the only feasible option for SCE. Therefore, the Palo Verde Alternative has been retained for full evaluation in this EIR/EIS.

4.2.3 Harquahala Junction Switchyard Alternative

Alternative Description

This alternative would require construction of a new switching station east of the Harquahala Generating Station, at the point where the existing Harquahala-Hassayampa and DPV1 transmission lines diverge (a location called "Harquahala Junction"). This alternative would avoid the need to construct the 5-mile segment of the Proposed Project from Harquahala Junction to the Harquahala Generating Station Switchyard. Under this alternative, the Harquahala Junction Switchyard would be built on a site of between 6 and 40 acres in the southwest quarter of Section 25, Township 2 North, Range 8 West, near the intersection of 451st Avenue and the Thomas Road alignment in unincorporated Maricopa County, Arizona. The land is undisturbed desert open space and this alternative is illustrated in Figure Ap.1-1. Detailed figures of the different scenarios are depicted on Figure Ap.1-1a.

The Harquahala Junction Switchyard Alternative was developed by the EIR/EIS team because construction of such a switchyard by Arizona Public Service (APS) has already been approved as part of the Certificate of Environmental Compatibility for the APS PV Hub to TS-5 Project. The final construction plan for APS has not been determined, but the approval provides APS with the option to construct a Harquahala Junction Switchyard. If the Harquahala Junction Switchyard is built as part of that project, the first phase of the southern portion of the PV Hub to TS-5 Project would terminate there, and construction of 14.7 miles of the TS-5 Project 500 kV line along the existing DPV1 alignment between Harquahala Junction and the Palo Verde Nuclear Generation Station or Duke Arlington Power Plant could be deferred.

Since the siting hearing, APS has made adjustments to its ten year plan, which has resulted in the ability to delay the TS-5 project's in-service date. For this reason APS has stated in a memo to the ACC on December 30, 2005 that it intends to continue to pursue its efforts to reach agreement for interconnection at the Duke Arlington Plant or at a new Harquahala Junction Switchyard. APS will file a follow up report to the ACC at the time a final decision is reached or no later than December 31, 2006.

If the Harquahala Junction Switchyard were constructed, it would serve as the eastern termination point for the Proposed Project. Terminating the proposed DPV2 project at the proposed Harquahala Junction Switchyard would require SCE to acquire from New Harquahala Generating Company (HGC) that portion of the Harquahala-Hassayampa transmission line between the proposed Harquahala Junction Switchyard and Hassayampa Switchyard to complete DPV2 (this is currently proposed as part of SCE's project), and the existing Harquahala-Hassayampa transmission line would also need to be shared by APS to complete the TS-5 Project.

The current option agreement between SCE and HGC requires that, unless mutually amended by SCE and HGC, SCE purchase all of the Harquahala-Hassayampa transmission facilities, including the Harquahala Generating Station Switchyard, if SCE exercises its right under the option. SCE, HGC, and

APS are currently discussing a joint project arrangement in which the parties would share the existing transmission line from Harquahala Junction to Hassayampa to defer or eliminate the need for APS to construct an additional line into the Palo Verde Hub. Those discussions are subject to a Non-Disclosure Agreement among the parties.

In the event the parties reach an agreement and the Harquahala Junction Switchyard Alternative is pursued, the three parties would share the existing Harquahala Junction–Hassayampa transmission line and possibly share the Harquahala Junction Switchyard. This would provide SCE with access to the Hassayampa area, which would obviate the need for the SCE Palo Verde Alternative. The Harquahala Junction Switchyard might also need to be shared by SCE, APS, and HGC.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

Under this alternative, SCE would need to enter into an agreement with HGC and APS in order to acquire the portion of the existing Harquahala–Hassayampa transmission line between the proposed Harquahala Junction Switchyard and Hassayampa Switchyard in order to complete DPV2 and achieve the DPV2 project objectives. If a successful agreement can be established, the Harquahala Junction Switchyard Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

The Harquahala Junction Switchyard Alternative would be both technically and legally feasible. The ACC’s approval of the PV Hub to TS-5 Project, including an option for APS to build the Harquahala Junction Switchyard indicates that if APS chooses not to build the switching station, that this alternative would be feasible from a regulatory perspective. If APS decides not to build the Harquahala Junction Switchyard as a part of that project, SCE could pursue construction of the switchyard by seeking a similar approval by the ACC. Otherwise, if APS builds the switchyard itself then this alternative could not feasibly be built by SCE.

Environmental Advantages

Ground Disturbance. This alternative would eliminate 5 miles of temporary and permanent impacts associated with the construction of a 500 kV transmission line between the Harquahala Generating Station and Harquahala Junction. This would eliminate impacts to agricultural land and habitat resulting from the construction of this proposed line segment and a new permanent access road for the transmission line, approximately 8.5 acres. This alternative could also defer or eliminate the need for APS to build roughly 14.7 miles of new 500 kV line for the TS-5 Project along the existing DPV1 alignment between Harquahala Junction and the PVNGS or Arlington Power Plant. The Harquahala Junction Switchyard Alternative would occupy a minimum of 6 acres and up to 40 acres. Eliminating or deferring the need for almost 20 total miles of new 500 kV transmission line segments would reduce the impacts of short-term construction and ground disturbance as well as impacts to permanent habitat and vegetation removal and the conversion of farmland.

Figure Ap.1-1a. Palo Verde Hub Configuration Scenarios
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Biological Resources. This alternative would eliminate impacts to the agricultural lands that would be crossed between Harquahala Junction and Harquahala Substation with the proposed route. These agricultural lands could also be habitat for biological resources, such as the burrowing owl. Impacts to the federally protected cactus ferruginous pygmy owls and/or its habitat, which is also historically known to occur in the area east of Harquahala Substation to PVNGS, would be reduced due to the elimination or deferral of almost 20 miles of new 500 kV transmission lines.

Environmental Disadvantages

Ground Disturbance. While eliminating the need for 5 miles of new transmission lines, construction of this station would require grading and construction on up to 40 acres of undisturbed desert land. Impacts from dust and noise would occur, and impacts to cultural and biological resources would result. These impacts would have to be balanced against similar impacts that would be avoided from construction of new transmission lines.

Visual Resources. The construction of a new switching station in this location would add a level of additional visual complexity to the landscape with the facility. Although the location is already occupied by two merging corridors of 500 kV transmission lines, the addition of the switching station would increase the obstruction of views of Saddle Mountain and the surrounding landscape.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative would meet project objectives and would be feasible. This alternative would eliminate or defer the need for almost 20 total miles of new 500 kV transmission line segments, but it would create impacts from switchyard construction. Overall, the Harquahala Junction Switchyard Alternative would lessen impacts to wildlife and habitat, vegetation, noxious weeds, and agriculture in comparison to the Proposed Project. Other impacts would be similar or marginally less than the Proposed Project, with the exception of visual impacts which could be marginally greater under the alternative. Consequently, this alternative has been retained for further analysis.

4.2.4 SCE North of Kofa NWR–South of I-10 Alternative

This alternative is one of several that were considered as methods of avoiding impacts to the Kofa National Wildlife Refuge (NWR). Three other alternatives are evaluated that would avoid the Kofa NWR; they are addressed in Appendix 1 Sections 4.2.5, 4.2.6, and 4.2.7.

Alternative Description

This alternative route in Arizona was evaluated in the BLM's EIS (1978) for the DPV1 transmission line. The route was also selected for further evaluation for the 1985 DPV2 project by both SCE and BLM at the time of the previous studies in response to potential concerns regarding impacts to the Kofa NWR and protection of the desert bighorn sheep. SCE also included a similar alternative in the 2005 PEA as Subalternate 1 (North of Kofa NWR, South of I-10 Subalternate Route).

The North of Kofa NWR–South of I-10 Alternative would diverge from the proposed DPV2 route approximately 42.5 miles from its origin at Harquahala Switchyard. The route would head northwest approximately 1.5 miles before turning west-northwest towards I-10, and crossing north of Kofa NWR and the New Water Mountains. Approximately 16 miles from where the route diverged, it would parallel I-10 for 7 miles before turning west away from the interstate for another 4 miles. The route would

jog to the northwest for 1.5 miles, then west where it would again parallel I-10 for 1 mile, then would jog back to the southwest. As defined by SCE, the route would head southwest for approximately 14.5 miles, crossing through La Posa Recreation Site and Long-Term Visitor Area, eventually rejoining the proposed DPV2 route 0.5 miles north of Yuma Proving Ground and 8 miles west of Kofa NWR.

The North of Kofa NWR–South of I-10 Alternative would be 3.4 miles longer than the proposed route and would cross 0.75 miles of private land, 3 miles of Arizona State land, and 78.7 miles of BLM land (SCE, 2005a, Table 3-3). This alternative is illustrated in Figure Ap.1-2.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The North of Kofa–South of I-10 Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project. However, it would likely take more time to complete permitting requirements, so it would not likely be completed by the end of 2009.

Feasibility

Technical and Legal Feasibility. The North of Kofa NWR–South of I-10 Alternative would be technically and legally feasible,

Regulatory Feasibility. Because the alternative would be on BLM lands outside of an established BLM utility corridor, its approval would require BLM approval for creation of a new utility corridor. Because the Resource Management Plan does not specifically prohibit transmission lines in this area, a new ROW grant would be required, but a Plan amendment would not be necessary. This requirement would not make the alternative infeasible, but adds to the regulatory complexity of the alternative. This alternative would be technically, legally, and regulatorily feasible.

Environmental Advantages

Biological Resources. National Wildlife Refuge System Administration Act of 1966 and Wilderness Act of September 3, 1964 (16 U.S.C. 1121) state the importance of fulfilling the mission of the refuge and the Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Inter-agency Management Plan and Environmental Assessment (1996) states that the primary function of the refuge is wildlife management, with all other uses (e.g., recreation) being secondary (USFWS, 1996). The alternative route would fulfill this purpose and would eliminate new impacts to biological resources within the Kofa NWR and adjacent wilderness area from the creation of a second set of towers and associated spur roads. Construction of the transmission line through the Kofa NWR could affect bighorn sheep and remove additional vegetation from an already disturbed area. Both the additional disturbance and additional maintenance activities would affect bighorn sheep and other special status species, such as the Sonoran Desert tortoise (BLM sensitive and State Wildlife of Special Concern in Arizona [WSCA]) and loggerhead shrikes, a BLM sensitive status bird.

Figure Ap.1-2. North of Kofa Alternative
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Recreation. National Wildlife Refuge System Administration Act of 1966 (Title 16, Chapter 5a, Subchapter III, Section 668dd) Subsections (a)(3)(A) and (C) state that “each refuge shall be managed to fulfill the mission of the System, as well as the specific purposes for which that refuge was established;” and “compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive priority consideration in refuge planning and management.” Therefore, avoidance of Kofa NWR and protection of recreational resources would be a priority (second only to wildlife management) under the Act. Use of this alternative route would eliminate impacts to recreational resources within the Kofa NWR and adjacent wilderness area. It would also avoid construction activities that would disrupt recreation in these areas as well as a second utility corridor through these areas, which would reduce their recreational value on this protected wilderness land.

Land Use. In addition to the National Wildlife Refuge System Administration Act of 1966, portions of the Kofa NWR that have been designated as Kofa Wilderness would be subject to the Wilderness Act of September 3, 1964 (16 U.S.C. 1-1-21), which describes the uses that would be specifically prohibited within a wilderness area. Section 4(c) states

There shall be no commercial enterprise and no permanent road within any wilderness area designated by this chapter and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this chapter (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

In addition, the Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Inter-agency Management Plan and Environmental Assessment (1996) states that the primary function of the refuge is wildlife management, with all other uses (e.g., recreation) being secondary (USFWS, 1996). The Management Plan refers to a number of USFWS Wilderness Objectives (Manual 6 RM 8.2 and 8.3) including the following which influence the management of the Kofa NWR: (1) Manages so as to maintain the wilderness resource for future benefit and enjoyment; (2) Preserve the wilderness character of the biological and physical features of the area; (3) Provide opportunities for research, solitude, and primitive recreational uses; (4) Retain the same level of pre-wilderness designation condition of the area; and (5) Ensure that the works of man remain substantially unnoticeable. Therefore, use of an alternative that would entirely avoid Kofa NWR would be consistent with these policies and objectives and would eliminate the impacts and policy inconsistencies associated with the construction and installation of the Proposed Project through the protected wilderness area.

Visual Resources. The North of Kofa–South of I-10 Alternative would eliminate visual impacts that would result from adding a second set of towers adjacent to the existing corridor through the Kofa NWR, which would be inconsistent with policies discussed under Recreation and Land Use above.

Environmental Disadvantages

Additional Length and Ground Disturbance. This route would be approximately 3.4 miles longer than the proposed route, which will affect the length and intensity of short-term construction impacts and ground disturbance, increasing impacts in air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation.

In addition, the Proposed Project would be able to utilize existing access roads for access to new transmission towers (though new spur roads would be required). According to SCE, the North of Kofa NWR–South of I-10 Alternative, however, would require an additional 48.3 miles of access and spur roads which would result in permanent ground disturbance and corresponding loss of habitat.

New Transmission Corridor. This alternative would establish a new transmission line corridor . In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors.

Biological Resources – Wildlife. Although the alternative would avoid crossing the Kofa NWR, it could have greater adverse impacts than the Proposed Project as the route would create a new disturbed corridor through undisturbed BLM Category 2 Desert Tortoise habitat, which could increase impacts and mitigation for tortoises rather than building adjacent to an existing line. The Proposed Project in Kofa NWR, while on valuable desert tortoise habitat, does not have a comparative habitat designation since it would not be on BLM-administered land. In addition, there would be a greater potential to impact big-horn sheep with a new corridor along this alternative route.

Recreation. The North of Kofa NWR–South of I-10 Alternative would cross through the heavily used La Posa Recreation Site and Long-Term Visitor Area and adjacent to the La Posa Designated Camping Area. Mineral and gem shows and swap meets during the winter draw tens of thousands of visitors to these recreation areas every year. Construction activities would disrupt recreation in these areas and a new utility corridor through these areas would reduce their recreational value.

Visual Resources. As the transmission line would diverge from the existing DPV1 ROW, it would create new visual impacts with the creation of a new utility corridor. The route would reduce scenic views of the Plomosa Mountains and New Waters Mountains from I-10. Additionally, where the route would cross Highway 95 and the La Posa Plains, the alternative would impact views from residences and recreationists using the La Posa Recreation Site and Long-Term Visitor Area.

Alternative Conclusion

ELIMINATED. This alternative would meet project objectives and would be feasible. Although the alternative would reduce impacts to biological and recreational resources within Kofa NWR, it would result in similar or greater impacts to these resources outside of Kofa NWR. The alternative would traverse similar habitat for biological resources as the Proposed Project, but would result in substantially more permanent ground disturbance and habitat lost. The alternative's route through the La Posa Recreation Areas would impact a greater number of recreation users than the Proposed Project's route through Kofa NWR. Views from I-10 and residences and recreation areas along Highway 95 and along the La Posa Plains would be impacted by the new transmission corridor created by the alternative and would reduce the scenic quality of these views. As a result of greater impacts to recreation, visual, and biological resources, this alternative was eliminated from further consideration in this EIR/EIS.

4.2.5 SCE North of Kofa NWR–North of I-10 Alternative

Alternative Description

This alternative was included in SCE's 2005 PEA as Subalternate 4 (North of Kofa, North of I-10 Subalternate), which was considered and eliminated in SCE's PEA. This alternative is similar to the North of Kofa

NWR–South of I-10 Alternative (see Section 4.2.5), except it would cross I-10 twice and Arizona U.S. Highway 60 once to follow the Celeron/All American Pipeline corridor north of I-10. Approval of this alternative would require an amendment to the BLM's Lower Gila South RMP. This alternative is illustrated in Figure Ap.1-2.

This alternative would begin by following the same route from the east as described above for the North of Kofa NWR–South of I-10 Alternative, but would turn north to cross I-10 after the route parallels I-10 for approximately 7 miles. Once on the north side of I-10, the alternative would turn west-northwest to parallel the interstate for approximately 2.5 miles. The line would turn northwest for 1 mile to cross Highway 60, skirting the Plomosa Mountains north of Highway 60 and I-10, then would turn back southwest for 2 miles back to I-10. The route would turn westerly to parallel the interstate again for another 6 miles. From here, the alternative would turn and head south-southwest for 5 miles, crossing to the south side of I-10, through 2 miles of BLM La Posa Designated Camping Area and another 2 miles of BLM La Posa Long-Term Visitor Area. At this point, the route would turn southwest and follow the North of Kofa NWR–South of I-10 Alternative back to the Proposed Project route, crossing through another 4 miles of La Posa Long-Term Visitor Area and La Posa Designated Camping Area.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The North of Kofa NWR–North of I-10 Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project. However, it would likely take more time to complete permitting requirements, so it would not likely be completed by the end of 2009.

Feasibility

Technical and Legal Feasibility. The North of Kofa NWR–North of I-10 Alternative would be technically and legally feasible to construct.

Regulatory Feasibility. Approval of this alternative would require an amendment to the Lower Gila South RMP. The Lower Gila South RMP prohibits overhead lines north of I-10 between townships 16W and 18W (BLM, 1985). This restriction on overhead lines establishes an 18-mile wide strip running north of I-10 to the northern boundary of the RMP, approximately 17 miles north of I-10. The Lower Gila South RMP prohibits overhead lines in this area due to sensitive lambing grounds for bighorn sheep and sensitive visual resources. The requirement for a plan amendment may not make the alternative infeasible, but it would add a series of regulatory requirements: (a) NEPA clearance of the plan amendment would be required; (b) public noticing would be required by filing in the Federal Register; (c) an extension of the Draft EIR/EIS public review period from 60 to 90 days; and (d) a 60-day Governor's Consistency Review following the publishing of the Final EIR/EIS. The Final EIR/EIS would also have to identify in its title that the EIR/EIS also evaluates a proposed Plan Amendment. It is not known at this time whether BLM would approve the required plan amendment; therefore, regulatory feasibility is not certain.

While this alternative would be technically and legally feasible, its regulatory feasibility is in doubt.

Environmental Advantages

Biological Resources, Recreation, Land Use and Visual Resources. Please see discussion under these subsections of Section 4.2.4 above.

Environmental Disadvantages

Additional Length and Ground Disturbance. This route would be approximately 5.1 miles longer than the proposed route, which would affect the length and intensity of short-term construction impacts and ground disturbance, including impacts in air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation. Therefore the alternative would also have greater permanent ground disturbance and corresponding loss of habitat.

New Transmission Corridor. This alternative would establish a new transmission line corridor and would require considerable upgrading and construction of new roads, as opposed to the Proposed Project, which would use existing access for construction and maintenance along the DPV1 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors. In addition, constructing the project within a corridor separate from a designated utility corridor (e.g., the DPV1 corridor) would create land use consistency issues because the route would be inconsistent with the BLM RMPs. As discussed above under Feasibility, plan amendments would be necessary in order for the BLM to grant approval of this alternative ROW due to its location through townships 16W to 18W north of I-10.

Biological Resources – Wildlife. Although the alternative would avoid crossing the Kofa NWR, it would have a greater adverse impact to bighorn sheep than the Proposed Project. The alternative's route between townships 16W and 18W would result in impacts to bighorn sheep lambing grounds identified in the BLM's Lower Gila South RMP, an area deemed unsuitable for overhead transmission lines. Additionally, the route would pass through BLM Category 2 Desert Tortoise habitat, which could increase impacts and mitigation for tortoises.

Recreation. The North of Kofa NWR–North of I-10 Alternative would cross through the La Posa Designated Camping Area in two locations as well as crossing the La Posa Recreation Site and Long-Term Visitor Area. This alternative would cross 3.5 more miles of recreation area than the North of Kofa NWR–South of I-10 Alternative, with construction potentially disrupting recreation associated with the winter mineral and gem shows and swap meets and reducing the overall recreational value of these areas.

Visual Resources. As the transmission line would diverge from the existing DPV1 ROW, the alternative would create new visual impacts with the creation of a new utility corridor and would impact views both to the north and south of I-10 in different areas, at the two I-10 crossings east and west of the Plomosa Mountains, and the crossing of Highway 60 southwest of Brenda. Similar to the North of Kofa NWR–South of I-10 Alternative, the route would reduce scenic views of the Plomosa Mountains and New Waters Mountains from I-10. Additionally, where the route would cross Highway 95 and the La Posa Plains, the alternative would impact views from residences and recreationists using the La Posa Recreation Site and Long-Term Visitor Area.

Alternative Conclusion

ELIMINATED. This alternative would meet project objectives, but it may not be feasible to obtain the required amendment to the Lower Gila South RMP, which currently prohibits overhead transmission lines. While the alternative would reduce impacts to biological and recreational resources within Kofa NWR, it would likely result in greater impacts to these resources outside of Kofa NWR. The route would traverse similar habitat for biological resources as the Proposed Project but those resources would not be within a designated wildlife refuge. It would result in substantially more permanent ground disturbance and a large amount of habitat lost, so it would result in significant impacts to sensitive bighorn sheep or desert tortoise populations. The alternative route through the La Posa Recreation Areas would impact a greater number of recreation users than the Proposed Project's route through Kofa NWR, and would impact more users than the North of Kofa NWR–South of I-10 alternative. Views from I-10 and residences and recreation areas along Highway 95 and along the La Posa Plains would be impacted by the new transmission corridor created by the alternative and would reduce the scenic quality of these views. As a result of greater impacts to recreation, visual, and biological resources, and the challenges in obtaining regulatory approval, the North of Kofa NWR–North of I-10 Alternative was eliminated from further consideration in this EIR/EIS.

4.2.6 North of Kofa NWR Alternative

Alternative Description

Several potential alternatives north of Kofa NWR have been analyzed in various documents, beginning in BLM's EIS (1978) for the DPV1 transmission line and most recently in SCE's 2005 PEA as Subalternate 1 (SCE's North of Kofa NWR–South of I-10 Subalternate Route; see Section 4.2.2 above) and Subalternate 4 (SCE's North of Kofa–North of I-10 Subalternate Route; see Section 4.2.3 above). Consideration of these alternatives occurred in response to potential concerns regarding impacts to the KOFA NWR and protection of the desert bighorn sheep. In order to reduce the impacts of the SCE-identified subalternate routes and still avoid the Kofa NWR, the EIR/EIS team developed an alternative that would be shorter and further south than the SCE alternatives. This 37-mile alternative would diverge from the proposed route at the series capacitor just east of the Kofa NWR. It would replace a proposed route segment that is approximately 27 miles long. The alternative route would turn to the north and would parallel the boundary of Kofa NWR for 2.5 miles to its northeast corner. At that point the route would turn to the west and would continue to parallel Kofa NWR boundary for 4.5 miles to the eastern boundary of the New Water Mountains WA where the route would turn to the northwest for approximately 7.0 miles until the route is north of the New Water Mountains and approximately 1.8 miles south of I-10. The route would then turn to the southwest for 2 miles through a mountain pass back to the northern boundary of the New Water Mountains WA. Near the boundary the alternative would turn to the northwest for 3.5 miles and then west for 2.4 miles. At this point the route would turn to the northwest again to travel north around the an area being considered by BLM as the future Dripping Springs ACEC for 5.9 miles until the route is approximately 1.25 miles south of I-10 and then south-southwest for 9.7 miles. It would rejoin the Proposed Project approximately 1.25 miles west of the boundary of Kofa NWR and south of Quartzsite. This alternative is illustrated in Figure Ap.1-2.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The North of Kofa Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project. However, it would likely take more time to complete permitting requirements, so it would not likely be completed by the end of 2009.

Feasibility

Technical and Legal Feasibility. Construction of a transmission along this route would be technically and legally feasible.

Regulatory Feasibility. While the route would be outside of the BLM utility corridor (within one mile of I-10), BLM states that no plan amendment would be required since construction of a transmission line is not prohibited by the Lower Gila South Resource Management Plan in this area.

Thus, overall this alternative would be technically, legally, and regulatorily feasible.

Environmental Advantages

Biological Resources, Recreation, Land Use and Visual Resources. This alternative would avoid additional construction within the Kofa NWR, similar to the routes described in Sections 4.2.4 and 4.2.5 above. Please see discussion of Environmental Advantages under the subsections for biological resources, recreation, land use, and visual resources in Section 4.2.4 above.

Cultural Resources. Based on information provided with SCE's PEA, more than 30 archaeological sites have been recorded within the corridor of the proposed DPV2 route as it crosses the Kofa NWR. Five of these sites (AZ S:8:48, AZ S:8:51, AZ S:8:52, AZ S:5:2, and AZ S:5:30) are considered to be eligible for inclusion in the National Register (Dobschuetz et al., 2004). A records search and survey of a 300-foot wide corridor performed by the EIR/EIS team along the entire North of Kofa Alternative route between December 13-19, 2005 found only four sites (one of which is a mine shaft that is probably modern) that would require evaluation to determine if they are eligible for the National Register (see the complete list under Environmental Disadvantages below). Therefore, overall the North of Kofa Alternative would be located in a less culturally sensitive area than the Proposed Project route through the Kofa NWR.

Environmental Disadvantages

Additional Length and Ground Disturbance. This route would be approximately 10 miles longer than the proposed route, which will affect the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation.

In addition, the Proposed Project would be able to utilize existing access for access to new transmission towers. The North of Kofa NWR Alternative, however, would require additional access and spur roads which would result in permanent ground disturbance and corresponding loss of habitat.

New Transmission Corridor. This alternative would establish a new transmission line corridor and would require considerable upgrading and construction of new roads, as opposed to the Proposed Project, which would use existing access for construction and maintenance along the DPV1 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors. In addition, constructing the project within a corridor separate from a designated utility corridor (e.g., the DPV1 corridor) would create land use consistency issues because the route would be inconsistent with the BLM RMPs.

Biological Resources. The EIR/EIS team completed a biological survey of the entire length of the North of Kofa Alternative on December 5-7, 2005. The following biological factors were considered and evaluated during the survey, including:

- Suitable habitat or presence of nine federally listed species protected under the Endangered Species Act (i.e., threatened, endangered, or candidate for La Paz County)
- Suitable habitat or presence of State listed wildlife species (i.e., Wildlife of Special Concern in Arizona [WSCA])
- Plants protected under the Arizona Department of Agriculture's (ADA) Arizona Native Plant Law
- Suitable habitat or presence of sensitive status species listed by the BLM that occur in the Yuma field office area
- Birds protected under the Migratory Bird Treaty Act
- ADA and BLM listed noxious weed species.

The results of the survey in regards to the above-mentioned biological regulations and concerns included the following resources:

- Suitable habitat for the Sonoran Desert tortoise (BLM sensitive and State WSCA) was identified along almost the entire route.
- Suitable habitat and suitable migratory habitat for the desert bighorn sheep was identified along the route within the Plomosa Mountains, and adjacent to the route north of the New Water Mountains and New Water Mountains Wilderness Area.
- Loggerhead shrikes, a BLM sensitive status bird, were observed near the southwest and southeast ends of the route.
- No special status bat species were observed; however, a few mineshafts were observed near the central portion of the route on BLM and private land.
- Several species of plants protected under the ADA Arizona Native Plant Law were observed along the route. Protection categories did not include any Highly Safeguarded plants.

Overall, this alternative would require disturbance of a 37-mile corridor that is relatively undisturbed at this time. A new access road would need to be constructed, following portions of existing unpaved or 4-wheel drive roads. In addition, disturbance would occur in areas with no existing access roads, such as mountain foothills. Bighorn sheep inhabit the mountainous areas of western Arizona and migrate through

the foothills when moving from one area to another. When comparing this alternative route to the proposed route through the Kofa NWR, the same types of biological resources would be affected; however, the degree of effect would increase significantly when assessing impacts to the bighorn sheep due to the creation of a new corridor through undisturbed wilderness. The North of Kofa Alternative would pass through Game Management Unit (GMU) 44B South, which includes the Plomosa and New Water Mountains and has had a downward trend from 2002 to 2003. The alternative route would affect an area not currently crossed by a utility corridor, and would require disturbance of much more land than the proposed route.

Cultural Resources. The following four archaeological sites were identified and recorded during the records search on December 12, 2005 and survey performed by the EIR/EIS team on December 13-19 2005, including:

1. A historical-period can scatter with a filled-in mine shaft, located where Plomosa Wash crosses the project area. Some modern debris is present along with a trailer and modern wells that appear to still at times be in use;
2. A historical-period site approximately 0.5 miles north of Site #1, where Scaddan Wash intersects the project area. It consists of three terrace rock features and a light can scatter; where top terrace feature meets desert pavement, there is a rock foundation of uncertain function approximately 4 feet on a side;
3. Two rock rings, likely Native American in origin, south of the pot break (discussed under Site #5 below); and
4. A group of five mine shafts that are likely modern, although a historical-period tobacco tin was present nearby; the shafts are located south of the historical-period site at Plomosa Wash (Site #1).

Two other possible sites were recorded, that could either be designated sites or isolated occurrences; in either case, recording has exhausted their research potential. These possible sites include :

5. A prehistoric pot break consisting of approximately 100 sherds; and
6. A chipping station, with approximately 25 artifacts (secondary and tertiary flakes) of green quartzite, all from same cobble, in an area approximately 5 meters in diameter.

These two possible sites are most likely isolated occurrences and as such they would not be considered significant and no further investigations are necessary. Approximately 20 other isolated occurrences were recorded, primarily cairns or mining test pits, as well as a few cans, flakes, and one core. As these do not qualify as sites, they cannot be considered significant and no further investigations are necessary.

Visual Resources. As the transmission line would diverge from the existing DPV1 ROW, the alternative would have potentially significant visual impacts resulting from the creation of a new utility corridor. The route would affect scenic views of the Plomosa Mountains and New Waters Mountains from I-10, as well as the potential future Dripping Springs ACEC.

Alternative Conclusion

ELIMINATED. This alternative would be feasible and would meet project objectives. The North of Kofa Alternative would avoid impacts to resources within Kofa NWR, would be less sensitive for cultural resources, and would eliminate policy inconsistencies associated with construction of a new trans-

mission line on protected refuge land. However, the alternative would create a new corridor with associated ground disturbance (there are few usable access roads and the route would be 10 miles longer than the portion of the Proposed Project it would replace). As a result, it would result in substantially greater impacts to bighorn sheep and currently undisturbed biological resources, and would create potentially significant visual impacts through previously undisturbed land. Therefore, this alternative has been eliminated from detailed analysis.

4.2.7 SCE North of Blythe Alternative

Alternative Description

This alternative was included in SCE's 2005 PEA as Subalternate 2 (North of Blythe through Colorado Indian Reservation), which was considered and eliminated in PEA Section 3.1.2.1. The alternative is also a portion of Subalternate Route "P," which was evaluated in the DPV1 DEIS, in response to concerns regarding agricultural impacts in the Palo Verde Valley (Blythe area) for the proposed route. The North of Blythe Alternative would cross agricultural land and would pass through a portion of the Colorado River Indian Tribe (CRIT) Reservation. It would be 3.3 miles longer than the proposed route. According to SCE, this route would result in approximately 126 acres of more permanent ground disturbance than the proposed route. This alternative is illustrated in Figure Ap.1-3.

Based on information provided on Subalternate 2 in SCE 1988 Amended PEA, the North of Blythe Alternative would depart the proposed DPV2 route approximately 1.5 miles west of Eagletail Mountains and 3 miles south of Salome Emergency Airfield. The route would then traverse in a northwesterly direction and approximately 9 miles from the point of departure from DPV2 would be the location of the series compensation facilities for this route. The route would then meet I-10 8 miles from the compensation facilities and would then parallel I-10. The route would continue in a northwesterly direction below Bear Hills, would cross I-10 and would pass along the southwesterly side of Bear Hills heading towards U.S. 60. The route would cross Arizona U.S. 60 approximately 4 miles northwest of the I-10 crossing. The route would continue in a northwesterly direction through the Plomosa Mountains and would then head westerly at the western edge of the Plomosa Mountains approximately 5 miles north of I-10. The route would cross Arizona State Highway 95 at a point 5 miles north of Quartzsite. It would then traverse through the Dome Rock Mountains and would pass through the CRIT Reservation heading towards the Colorado River.

After crossing the river the route would traverse approximately one mile of farmland and would then cross the main canal and California Highway 95 prior to heading in a southwesterly direction along the southern edge of the Big Maria Mountains. After traversing west to a point 4 miles north of Blythe Airport, the route would turn in a southwesterly direction for approximately 7 miles, where it would cross I-10 and rejoin the proposed route one mile south of I-10.

Potential Alternative Variation. Because this alternative, as designed by SCE and illustrated in Figure Ap.1-3, would rejoin the Proposed Project west of Blythe, use of the Midpoint Substation designated by SCE would not be possible. The North of Blythe Alternative could be used with either the Mesa Verde or Wiley Well Alternative Substation sites, but as noted in Section 4.2.11 below these two alternatives (suggested by SCE) have been eliminated from consideration in this EIR/EIS due to their greater impacts than the Midpoint Substation. Therefore, in order to ensure that this alternative was feasible, a substation location would have to be identified.

As suggested by the City of Blythe during scoping, this alternative could also be designed to pass adjacent to the existing power plant (BEP I) and approved (but not constructed) power plant (BEP II), within the City of Blythe. With this route modification, the alternative would follow the 6.7-mile corridor mostly adjacent to an existing Imperial Irrigation District (IID) 161 kV transmission line from Buck Boulevard Substation to Midpoint Substation where it would join the existing DPV1 and proposed DPV2 corridor. The 6.7-mile route has also been proposed for the Blythe Energy Project 230 kV Transmission Line Modifications (CEC, 2005a).

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The North of Blythe Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

Legal Feasibility. According to SCE, the CRIT Tribal Council denied SCE a right-of-way for the DPV1 line in 1977, indicating that it would adversely impact the tribe. At the time of SCE's 1988 amended PEA, SCE stated that the CRIT indicated that a right-of-way would not be approved for the proposed DPV2 project.

Regulatory Feasibility. The Lower Gila RMP describes the following restrictions on overhead lines:

The Interstate 10 corridor, because of resource concerns, will have a restriction regarding overhead lines. Due to the close proximity of important bighorn sheep waters and lambing grounds north of the Interstate and because of terrain features north of the Interstate, overhead transmission lines will not be allowed north of I-10 between townships 16W and 18W (BLM, 1985).

This restriction on overhead power lines north of I-10 between townships 16W and 18W establishes an approximately 18-mile wide strip running north of I-10 (essentially to the northern boundary of the RMP approximately 17 miles north of I-10) through which overhead power lines cannot be built. The requirement for a plan amendment may not make the alternative infeasible, but it would add a series of regulatory requirements: (a) NEPA clearance of the plan amendment would be required; (b) public noticing would be required by filing in the Federal Register; (c) an extension of the Draft EIR/EIS public review period from 60 to 90 days; and (d) a 60-day Governor's Consistency Review following the publishing of the Final EIR/EIS. The Final EIR/EIS would also have to identify in its title that the EIR/EIS also evaluates a proposed Plan Amendment. It is not known at this time whether BLM would approve the required plan amendment; therefore, regulatory feasibility is not certain.

Overall this alternative would be technically feasible, but its legal feasibility would depend upon required approval of the CRIT. Regulatory feasibility is in question due to the required amendment of the BLM Resource Management Plan.

Environmental Advantages

Biological Resources, Recreation, Land Use and Visual Resources. The North of Blythe Alternative would also avoid Kofa NWR. Please see discussion under these subsections of Section 4.2.4 above.

Figure Ap.1-3. SCE North of Blythe Alternative
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Population and Land Use. The Proposed Project would go through an area of generally higher population densities (an average of 35.34 people per square mile) compared to the North of Blythe Alternative for this segment, which would have only 9.9 people per square mile.

Agricultural Resources, Erosion, and Soil Contamination. This alternative would reduce agricultural impacts in the Palo Verde Valley, including reducing the compaction and erosion of agricultural lands and reducing potential construction disturbance of residual pesticides and herbicides in the agricultural land.

Environmental Disadvantages

Alternative Length and Ground Disturbance. The North of Blythe Alternative would be 3.3 miles longer than the proposed route, which would increase the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation. Overall, SCE states that 138 acres of permanent ground disturbance would occur with this alternative from where it would leave the DPV1 route to where it would rejoin the DPV1 ROW, compared to 11.7 acres for the equivalent portion of the proposed route (SCE, 2005a).

New Transmission Corridor. This alternative would establish a new transmission line corridor and would require considerable upgrading and construction of new roads, as opposed to the Proposed Project, which would use existing access for construction and maintenance along the DPV1/DPV2 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors. In addition, constructing the project within a corridor separate from a designated utility corridor (e.g., the DPV1 corridor) would create land use consistency issues because the route would be inconsistent with the BLM RMPs. An amendment to the RMP would be required in order for the BLM to grant approval of this alternative ROW (see discussion under Feasibility above). Finally, this new ROW may set precedent for future development of utilities in this corridor (future land use impacts).

Biological Resources. This alternative would pass through Arizona Game and Fish Department (AGFD) Game Management Units 44B (includes Plomosa Mountains) and 43A (includes Dome Rock Mountains), found to be bighorn sheep habitat with good and increasing populations since the mid-1990s, which was last surveyed for population in 2003. This alternative would create potentially significant impacts to high-quality bighorn sheep habitat, including a major movement corridor between Ibex Peak/Haystack Peak and Lazarus Tanks mountain block and nearby lambing areas in the north Plomosa Mountains. Because the North Plomosa lambing area is active, this alternative poses greater impacts to bighorn sheep than the Proposed Project, even though the proposed route passes through the Kofa NWR (Henry, 2005).

This alternative would increase disturbance and removal of vegetation by 126 acres. This could significantly increase the chance that special status species would be affected by the increase in disturbed area. Also, this increase in disturbed area could increase the chance of noxious weed introduction and also remove more native desert vegetation. The alternative would have greater impacts to vegetation in desert washes, especially between the McCoy and Big Maria Mountains and many smaller washes that braid through the bajadas adjacent to the mountains.

The North of Blythe Alternative has the potential for significant impacts on the desert tortoise. This route would be in BLM Category 2 and 3 Desert Tortoise habitats, as would the Proposed Project. This species likely occurs in the areas north of I-10, particularly near the base of the McCoy and Big Maria Mountains. The impacts to desert tortoise may be greater with this alternative than the Proposed Project because the route would traverse more native habitat than the Proposed Project. Without focused survey information, however, a definitive conclusion on the actual impacts to tortoises cannot be made.

Without focused surveys for burrowing owl, other special status plant and wildlife species, and listed plants, it is difficult to determine the impacts of this alternative on these species. This alternative appears to cross a larger acreage of native habitat than does the proposed route, however, so there may be a greater likelihood that there will be impacts to these species than with the Proposed Project.

Agricultural Resources. This alternative would cross agricultural land on the CRIT Reservation and would create potentially significant impacts to Prime Farmland in Parker Valley. The North of Blythe Alternative would cross approximately 1.25 miles of agricultural land north of the City of Blythe, a portion of which is categorized as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland). The North of Blythe Alternative would also run adjacent to and cross lands currently under Williamson Act contract. The route would run parallel to Williamson Act Prime contract lands in Section 33, Township 05 South, Range 23 East and would cross a small portion of a Williamson Act Prime contract in Section 19, Township 05 South, Range 24 East. Conversion of Farmland and Williamson Act contract lands due to the construction of transmission towers would be considered significant and potentially unmitigable impacts. This would be less, however, than the Proposed Project, which would cross 9.8 miles of agricultural lands, much of which would be categorized as Farmland and Williamson Act contract lands, and impacts to which would also be considered significant and potentially unmitigable. The North of Blythe Alternative would traverse only a quarter of the amount of Williamson Act contract lands compared to that crossed by the Proposed Project. While the types of impacts caused by the North of Blythe Alternative would be the same as those caused by the Proposed Project, the extent of impacts would be less than a quarter of the Proposed Project's impacts over the same portion of the route.

Visual Resources. The presence of the new line could create significant impacts in a new corridor in the northern portion of the Plomosa and Dome Rock mountains, in the Colorado River riparian area, and through agricultural land in the Palo Verde Valley. Impact to scenic values for views from I-10 with strong contrasts south of Bear Hill and west of Blythe Airport; State Route (SR) 95 in the La Posa Plains; U.S. 60 west of Brenda, Poston Road, and Midland Road; and U.S. 95 north of Blythe. Significant impact to residential views near Brenda and along the Colorado River (2005 PEA references 1988 PEA, p. 10-78-10-84).

This alternative would create new significant visual impacts as the transmission line converges on, parallels, and then crosses to the north side of I-10 and then crosses U.S. 60 southwest of Brenda. It would also result in substantial visual impacts to residents on the west side of Brenda. This alternative would also cause visual impacts (a) to the La Posa Designated Camping Area at the Plomosa Campground (viewing south), (b) on views from Arizona 95 at the crossing, and (c) to back-country recreationists accessing the Boyer Gap area. Further west, the North of Blythe Alternative would also cause significant visual impacts at the crossings of the Colorado River and U.S. 95. Visual impacts may also occur on views from the Midland Long-term Visitor Area north of Blythe. Significant visual impacts would occur as the North of Blythe Alternative route crosses the southern end of the McCoy Mountains and then I-10, approximately four miles west of Mesa Verde.

While the North of Blythe Alternative would avoid the visual impacts on Kofa NWR and the adverse visual impacts on the La Paz Arroyo–Copper Bottom Pass area, this alternative would result in significant visual impacts at the crossings of U.S. 95 and the Colorado River that would be greater than the Proposed Project given the lack of similar infrastructure features in the vicinity of the northern crossings.

Cultural Resources. There would be greater impacts to cultural resources with this alternative, especially across the CRIT reservation. Consultation with tribal officials would be necessary and tribal approval of the route would be required.

The Proposed Project segment that would be replaced by this alternative includes 6 potentially NRHP-eligible archaeological sites: 2 prehistoric trails; 2 prehistoric temporary camps; 1 prehistoric cobble quarry with ceramic sherds; and 1 prehistoric and historic trail. The North of Blythe Alternative crosses substantially more cultural resources along its alignment. At McCoy Wash, the line proceeds east along the northern edge of Palo Verde Mesa, and parallels an existing transmission line along the southern flanks of the Big Maria Mountains where it crosses the Palo Verde Valley to the Colorado River and the Colorado River Indian Tribes (CRIT) Reservation. Beyond the political implications of crossing tribal lands, there would be very significant impacts to archaeological sites and sites of religious value to the CRIT. Most of the route parallels or coincides with previous corridor surveys, so that sites types and densities can be estimated fairly accurately. From the west to the east, until reaching the Big Maria Mountains, the route has low archaeological sensitivity (small discrete sherd or lithic scatters on sheet wash alluvial surfaces or between sand dunes). Towards the Colorado River and the Mule Mountains though, the corridor reaches the well-known Colorado River Geoglyphs. This is an area of extensive and complex ceremonial ground figures, trails, cleared circles, cairns, chipping stations, and habitation sites. Four of the geoglyph sites occur directly within this alternative, including a large spectacular and unique anthropomorphic geoglyph interpreted to be a dancing shaman holding a snake or lightning rod. This geoglyph and its associated chipping stations, cleared circles, sherd scatters, cairns, and other remains, along with many other geoglyphs along the river have been approved for NRHP as a Thematic District. Given the sacred nature of the sites along the northern alternative and the need to cross the CRIT Reservation, this alternative has much higher cultural resources sensitivity than the preferred route.

Socioeconomics and Public Utilities. The North of Blythe Alternative route would be approximately 3.3 miles longer than the Proposed Project. The additional distance would require additional water for dust suppression activities, but this additional requirement would not create significant impacts. The North of Blythe Alternative would be located away from the El Paso Natural Gas pipeline that traverses Kofa NWR, but would follow a portion of the Celeron/All American Pipeline. Although there is always potential for a collocation accident to disrupt utilities, it is unlikely that construction of either route would disrupt the adjacent pipeline.

Roadway Crossings. The transportation impacts of this potential alternative would be greater than the proposed route segment because it would require 2 additional crossings of Interstate 10 (I-10), one additional crossing of Arizona State Highway 60 (SR-60), and one crossing of California State Highway 95 (SR-95).

Alternative Conclusion

ELIMINATED. This alternative would meet project objectives but would be legally feasible only if the CRIT would agree to the lines being placed on their land. The regulatory feasibility of the route is questionable, because BLM approval of an amendment to the Resource Management Plan would be required.

Although this alternative would eliminate biological, recreation, and visual impacts to Kofa NWR and would reduce the amount of agricultural land impacted by the Proposed Project, the alternative would result in greater impacts to biological resources and substantially greater impacts to visual and cultural resources. Overall, the North of Blythe Alternative would have more visual impacts than the Proposed Project segment that it would replace, because of the greater impacts on views from I-10, U.S. 60, dispersed recreation areas north of I-10 in Arizona, the Colorado River, and U.S. 95, as well as views of the McCoy Mountains west of Blythe. Given the sacred nature of the sites along the northern alternative and the need to cross the CRIT Reservation, this alternative has much higher cultural resources sensitivity than the Proposed Project. As a result of greater impacts to visual, cultural, and biological resources, this alternative was eliminated from further consideration in this EIR/EIS.

4.2.8 SCE South of Blythe Alternative

Alternative Description

The South of Blythe Alternative would begin 2 miles south of the city of Blythe and would cross the Palo Verde Valley in California, about 10 miles south of the DPV1 route, crossing through a portion of Imperial County (see Figure Ap.1-4). This alternative was included in SCE's 2005 PEA as Subalternate 3 (South of Palo Verde Valley through Imperial County Subalternate). It was not evaluated in for the DPV1 line, but was considered as an alternative for the 1985 DPV2 project (1985 PEA) in response to concerns regarding agricultural impacts in the Blythe area.

The alternative route would depart from the proposed DPV2 route 0.5 miles east of the Colorado River and would head southwest for approximately 14 miles. In this segment the route would parallel the Colorado River. Located approximately 5 miles southwest of the Proposed Project, this alternative would cross within 0.25 miles of the northwest corner of Yuma Proving Ground. One mile north of the Cibola National Wildlife Refuge, the route would turn west, cross the Colorado River into Imperial County, California (about 10 to 12 miles south of the existing DPV1 crossing), and would traverse farmland in the southern Palo Verde Valley. The route would continue west 1.5 miles from the Colorado River and would then turn in a northwesterly direction for approximately 15 miles towards the proposed route, crossing into Riverside County and then through the Mule Mountains. This alternative would rejoin the Proposed Project approximately 1.5 miles south of I-10 and 15 miles west of Blythe (note that this alternative would rejoin the DPV1 route west of the location of the Midpoint and Mesa Verde Substation sites [see Section 4.2.10 below]).

The South of Blythe Alternative would be 11.5 miles longer than the proposed route. The alternative would cross 4 miles of farmland, which would be less than the 10 miles of farmland on the proposed route.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The South of Blythe Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Figure Ap.1-4. SCE South of Blythe Alternative
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Feasibility

Legal and Technical Feasibility. The South of Blythe Alternative would be technically and legally feasible.

Regulatory Feasibility. Amendments to applicable BLM management plans would not be required because the route would not go through a planning area that prohibits transmission lines, even though the South of Blythe Alternative route would be outside of an established BLM utility corridor. Applicable plans are the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan (Arizona) and in California the Northern and Eastern Colorado (NECO) and the California Desert Conservation Area (CDCA) Plans. Therefore, BLM has the authority to permit South of Blythe Alternative route with NEPA clearance, for which this EIR/EIS would be sufficient. Overall this alternative would be technically, legally, and regulatorily feasible.

Because of the location at which this alternative would rejoin the Proposed Project (approximately 1.5 miles south of I-10 and 15 miles west of Blythe), the South of Blythe Alternative could only be used with the Wiley Well Alternative Substation site. This alternative substation site has been eliminated from consideration as described in Section 4.2.10.2 below. Therefore, identification of an appropriate substation for connection to the DSWTP would be required if this alternative were carried forward for analysis. Because the South of Blythe Alternative has been eliminated due to environmental reasons (see below), further investigation into an alternative substation site was not pursued.

Environmental Advantages

Biological Resources. By affecting 6 miles less agricultural land than would the proposed route, there would also be less of a likelihood of disturbing burrowing owls and their habitat. However, note that more significant biological disadvantages are discussed below.

Population and Land Use. The Proposed Project would go through an area of higher population densities (an avg. of 35.34 people per square mile) compared to the South of Blythe Alternative for this segment, which would have only 0.46 people per square mile.

Agricultural Resources, Erosion, and Soil Contamination. The alternative route would cross the Palo Verde Valley south of Blythe area thereby impacting four miles of farmland, which would be six miles less than the ten miles of farmland along the proposed route. Reducing agricultural impacts in the Palo Verde Valley would also reduce the compaction and erosion of agricultural lands and the potential disturbance of soils containing residual pesticides and herbicides in the agricultural land.

Environmental Disadvantages

Alternative Length and Ground Disturbance. The South of Blythe Alternative would be 11.5 miles longer than proposed route, which would increase the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation. The route would also cross several sizeable desert washes in the area of the Mule Mountains between the agricultural areas south of the Palo Verde Valley and the western junction with the Proposed Project. In addition there are many smaller washes that braid through the bajadas adjacent to the mountains, which could be disrupted by construction.

New Transmission Corridor. This alternative would establish a new transmission line corridor and would require considerable upgrading and construction of new roads, as opposed to the Proposed Project, which would use existing access for construction and maintenance along the DPV1/DPV2 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors. In addition, constructing the project within a corridor separate from a designated utility corridor (e.g., the DPV1 corridor) would create land use consistency issues because the route would be inconsistent with the BLM RMPs. Amendment would be needed in order for the BLM to grant approval of this alternative ROW (see discussion under Feasibility above).

Biological Resources. Near the Colorado River crossing, this route would also be only 1.5 miles from the Cibola Wildlife Refuge where there is an abundance of waterfowl, proposed critical habitat for the southwestern willow flycatcher (SWWFL), and suitable habitat for the Yuma clapper rail (YCR). This route would parallel the Colorado River for approximately 16 miles, which could lead to more impacts to the abundant waterfowl or federally listed species (YCR and SWWFL). More bird collisions with the conductors at the river crossing would be likely to occur due to this route's proximity to the Colorado River (i.e., waterfowl habitat).

Although focused surveys have not been completed for this alternative, there would also be potentially greater desert tortoise impacts, because the alternative may traverse a greater amount of native habitats. The desert tortoise likely would occur in the native habitat areas (probably in low numbers) located west of the agricultural areas of Blythe to the western junction with the route of the Proposed Project. Without focused surveys for burrowing owl, other special status plant and wildlife species, and listed plants, it is difficult to determine what the impacts of this alternative will be on these species. But, this alternative appears to cross a larger acreage of native habitat than does the proposed route, so there may be more likelihood that there will be impacts to these species than with the Proposed Project.

Recreation. The South of Blythe Alternative would be located south of the proposed route, and would create a new transmission line corridor across the southwestern edge of the Mule Mountains ACEC, which is a sensitive natural area that would be avoided by the Proposed Project. The route would also be parallel to the Colorado River along a great length of the river, where recreational use of the river is common (see discussion under Visual Resources, below).

In addition, hikers, ORV, and recreational users along the Bradshaw Trail (located in southeastern Riverside County and Imperial County near the Mule Mountains) would be potentially impacted by this alternative. The Bradshaw Trail, Riverside County's first road, was blazed by William Bradshaw in the gold rush of 1862 as an overland stage route beginning at San Bernardino and ending at La Paz, Arizona (now Ehrenberg, Arizona). Today, the east-west trail is a 65-mile graded road that traverses mostly BLM land parallel to I-10 to the south and begins approximately three miles north of the community of North Shore near the Salton Sea State Recreation Area (near Dos Palmas, California). The eastern end of the trail is two miles southwest of the community of Ripley near the Colorado River. The trail crosses about 18 miles southwest of Blythe, California.

Visual Resources. As the transmission line diverges south from the Proposed Project route at the Colorado River, this alternative would create new significant visual impacts. Views from the East Levee Road, which is parallel to the route and adjacent to the Colorado River, would be adversely affected, as would some views from the Colorado River (depending on tower placement). Adverse visual impacts would also occur at the BLM Oxbow Recreation Site and Imperial County Palo Verde Park (all near the Colorado River crossing). This alternative may also cause additional visual impacts on residences near the Colorado River crossing and on views from the Colorado River at the crossing.

Cultural Resources. While the area in and around the South of Blythe Alternative has not been subjected to detailed archaeological surveys, the area's sensitivity for cultural resources can be projected from adjacent areas. The southern Palo Verde Valley agricultural lands have little potential for significant resources because of alluviation of sites and extensive agricultural disturbance. However, the alignment would cross about 12 miles of heavily dissected terraces parallel to the Colorado River floodplain. Surveys on the California side, in similar flat mesa settings, have revealed many sites ranging in age from 8,000 years to the late prehistoric period. Site types include cleared circles, rock rings and alignments, chipping stations, quarries, ceremonial geoglyphs, and trails with associated pot drops and artifact scatters. Similar types of sites, in high density, would be predicted for the Arizona side, including crossing through the Ripley Intaglio⁹ and two other major intaglio groups.

Alternative Conclusion

ELIMINATED. This alternative would meet project objectives and would be feasible, although a different substation location for the connection to the DPV corridor would have to be defined. Even though impacts to agricultural land would be reduced, the overall impact resulting from ground disturbance would be greater and the route would establish a new transmission corridor. The route would traverse much more sensitive biological habitat near the Colorado River and Cibola Wildlife Refuge. The South of Blythe Alternative would cause greater visual impacts on views from (a) the Colorado River and East Levee road, (b) the BLM Oxbow Recreation Site, and (c) Imperial County Palo Verde Park. The South of Blythe Alternative also has a much higher cultural sensitivity than the proposed route especially to geoglyphs, circles, and alignments of special value to the Native Americans in the Ripley Intaglio and two other major intaglio groups and in the Colorado River terraces (on Arizona side of the river), Mule Mountain ACEC, and the Palo Verde Mesa. As a result of much greater visual, land use, biological resources, recreation, and cultural resources impacts than the Proposed Project, this alternative was eliminated from further consideration in this EIR/EIS.

4.2.9 Alligator Rock Alternatives

There are three potential reroutes around the Alligator Rock area that may reduce impacts to cultural resources; they are described in the following sections. A fourth route is addressed in Section 3.2.1.11 and was eliminated after preliminary screening. The Alligator Rock alternatives are illustrated in Figure Ap.1-5.

4.2.9.1 Alligator Rock–North of Desert Center Alternative

Alternative Description

Approximately 5 miles east of Desert Center (between MPs 149 and 150), the Alligator Rock–North of Desert Center Alternative route would diverge from the Proposed Project route and would head northwest for approximately 1.5 miles before crossing I-10 to the north and continuing for 1.1 miles to an unnamed east-west dirt road along the section line. The route would then turn to the west and would parallel the roadway for approximately 1.4 miles before turning again to the northwest for 0.6 miles. The route would then turn west along another east-west section line, staying just within BLM land (north of private land at Desert Center) for another 0.6 miles before heading southwest for 1.5 miles to Ragsdale Road. The route would parallel Ragsdale Road and I-10 to the north for 3.6 miles before crossing back to the south of Rags-

⁹ An intaglio is a large ground drawing created by removing the pebbles that make up desert pavement. These rock alignments, which are sacred to many Native Americans, are usually in the outline of animals or human-like figures and are mostly found on mesas along the Colorado River.

dale Road and I-10 to rejoining the proposed route 1.5 miles later. The 11.8-mile route would be entirely on BLM land. The Proposed Project for this segment would be 10.6 miles long.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Alligator Rock–North of Desert Center Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

This alternative is regulatorily, technically, and legally feasible.

Regulatory Feasibility. This alternative would be located mostly on BLM land but would not require amendments to Resource Management Plans. The route would be covered in the Northern and Eastern Colorado Desert Plan (NECO). Within the NECO Plan, the area north of Desert Center (between Desert Center and Lake Tamarisk) and east of Eagle Mountain Road is also within a Desert Wildlife Management Area (DWMA) protecting the desert tortoise. However, both the NECO Plan and DWMA allow for the construction of a transmission line. The difference would be that portion of the route east of Eagle Mountain Road that is included in the DWMA would require much greater mitigation than the portion of the route west of Eagle Mountain Road. No plan amendment would be needed.

Technical and Legal Feasibility. The Alligator Rock–North of Desert Center Alternative could be constructed and has no legal obstacles.

Environmental Advantages

Biological Resources. Based on reconnaissance surveys performed by EIR/EIS preparers in November 2005, this alternative route would cross through more disturbed areas and sparser Sonoran Desert creosote scrub than the Proposed Project or other alternative routes. The presence of more human impacts is evident in the areas around Desert Center and in the habitat located adjacent to this area. Because there is not existing detailed biological information for this alternative, the density or distribution of desert tortoise or sensitive or listed species of plants and wildlife along this route cannot be determined fully at this time. A detailed biological survey would have to be completed in conjunction with desert tortoise zone-of-influence surveys to determine the baseline biological conditions and the potential impacts of this alternative on the wildlife resources. A sensitive plant survey should be conducted in early spring to determine if any sensitive or listed plant species occur along this route. However, in general, this alternative appears to be preferred over the Proposed Project because the habitat is somewhat more degraded and because of the higher level of human disturbance. The density/distribution of desert tortoise along this route is likely to be less than the other Alligator Rock Alternatives and the Proposed Project.

Cultural Resources. This alternative would avoid a central portion of Alligator Rock ACEC, the 7,726-acre area of archaeological significance that would be affected by the Proposed Project. A survey of this route was completed by the EIR/EIS team, and a total of 16 sites (isolated artifacts are not eligible for the NRHP) were identified along this alternative route. Unlike the high value sites along the Proposed Project through the ACEC, most of these sites are so small that they could easily be avoided during construction. The proposed route would be more sensitive, with two National Register Districts and several other potentially NRHP-eligible sites.

Figure Ap.1-5. Alligator Rock Alternatives
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Environmental Disadvantages

Alternative Length and Ground Disturbance. The Alligator Rock–North of Desert Center Alternative would be 1.2 miles longer than proposed route, which would increase the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

New Transmission Corridor. This alternative would establish a new transmission line corridor and would require considerable upgrading and construction of new roads, as opposed to the Proposed Project, which would use existing access for construction and maintenance along the DPV1/DPV2 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors.

Biological Resources. The area of this alternative route north of Desert Center (between Desert Center and Lake Tamarisk) and east of Eagle Mountain Road is also within a DWMA, which covers valuable desert tortoise habitat and would require much greater mitigation.

Cultural Resources. The Alligator Rock–North of Desert Center Alternative would create potential impacts at the following three sites: AE-DPV2-8H (Desert Center Town Dump), AE-DPV2-10H (possible Desert Training Center encampment), and P33-13648 (a series of rock cairns and lithic scatters, which is also crossed by the proposed route). Further analysis would be required to assess NRHP-eligibility of these three sites. Even if they are eligible, tower placement and standard avoidance practices during construction could result in site avoidance.

Construction of this alternative would create access to area that does not currently exist. The creation of maintained roads would permit uncontrolled access to recreational vehicles, which could damage or destroy cultural resources. Therefore, although the North of Desert Center Alternative would have a lower sensitivity for cultural resources values, the new route would not preclude ongoing impacts to resources along the existing DPV1 corridor and the route would add, incrementally, to existing, ongoing impacts from the construction of roads and increased access and recreational impacts, which could impact cultural resources.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative is feasible and would meet project objectives. Although the Alligator Rock–North of Desert Center Alternative would be 1.2 miles longer than the Proposed Project and would create land use and visual impacts associated with a new corridor, it would avoid impacts to the highly sensitive biological and cultural area of Alligator Rock ACEC and would be located in a less sensitive area in terms of biological and cultural resources. This alternative has been retained for full evaluation in this EIR/EIS.

4.2.9.2 Alligator Rock–Blythe Energy Transmission Route Alternative

Alternative Description

This route would diverge from the Proposed Project route and avoid much of the Alligator Rock ACEC by following its northern edge near I-10. This alternative would follow the proposed Blythe Energy Project

Transmission Line Project (BEPTL) by diverging from DPV1 to the north bringing this new alignment close to Aztec Avenue, an existing El Paso natural gas pipeline/access road, which would be used for construction access. Because the proposed new alignment would be close to the pipeline access road, each of the spur roads to the tower sites would be from this existing access road.

The alternative would diverge approximately 3.5 miles east of Desert Center at the point where the DPV1/DPV2 line turns west-southeast (MP 151). The route would continue northwest towards I-10 paralleling Aztec Avenue for approximately 2.25 miles before turning west and paralleling the southern side of I-10 as well as Aztec Avenue for 1.0 mile. At this point the route would turn back toward the Proposed Project to the southwest and would parallel an access road along the eastern side of Alligator Rock for approximately 1.35 miles to where it would rejoin the proposed DPV2 project at MP 155. The alternative route would be approximately 4.6 miles long and the Proposed Project would be approximately 3.95 miles long in the same segment.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Alligator Rock–Blythe Energy Transmission Route Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

This alternative is regulatorily, technically, and legally feasible.

Regulatory Feasibility. This alternative would be located mostly on BLM land covered under the Northern & Eastern Colorado Desert Plan (NECO). The NECO Plan allows for the construction of transmission line and so it would not require amendments to BLM Resource Management Plans.

Technical and Legal Feasibility. The Alligator Rock–Blythe Energy Transmission Route Alternative could be constructed and has no legal obstacles.

Environmental Advantages

Biological Resources. This alternative would likely have less impact on tortoise than the Proposed Project. Like the Proposed Project, this alternative also traverses through a portion of Designated Critical Habitat and through a portion of the Alligator Rock ACEC, but because it is located closer to the freeway, it is likely that the tortoise populations are greatly reduced near the freeway. This alternative is located closer to I-10, in habitat that is more disturbed than the areas located in the route of the Proposed Project.

Since this alternative traverses more disturbed habitat, there may be a reduced likelihood that special status plant and wildlife species occur. The 2005 biological surveys that were conducted along the route of the Proposed Project did find loggerhead shrike and a sensitive cactus species, so these species are known to occur in the area. Whether or not they occur in the more disturbed areas closest to the freeway would have to be determined. They likely occur near the route as it heads southwest toward the Proposed Project.

This alternative would not create new significant impacts; rather the types of impacts would be somewhat the same as the Proposed Project. But, the magnitude of the impacts would likely be somewhat less with

this alternative because the tortoise density is likely lower in the areas closer to the freeway where the habitat may be more disturbed.

Cultural Resources. This alternative would avoid a central portion of Alligator Rock ACEC (7,726-acre area of archaeological significance). This route would avoid the North Chuckwalla Mountains Petroglyph (“rock art”) NRHP District, which is within the Alligator Rock ACEC, and North Chuckwalla Mountain Quarry District. As well, it would avoid impacts to two very significant prehistoric trails and three prehistoric rock ring sites. It is likely that there are other trail segments in this corridor, as well as lithic scatters, possibly rock rings, and likely remains from Patton’s Desert Training Center activities. Like the Proposed Project, there are existing access roads and utility corridors. Most of the significant features within the archaeological sites in the ACEC could probably be avoided during construction, through careful routing of stub roads and tower placement. Nonetheless, there would be ongoing impacts to these sites because of increased accessibility enabled by SCE access roads.

Environmental Disadvantages

New Transmission Corridor. If the BEPTL is constructed within the next year, it could create a new transmission corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors.

Alternative Length and Ground Disturbance. The Alligator Rock–Blythe Energy Transmission Route Alternative would be 0.65 miles longer than proposed route, which would slightly increase the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

Visual Resources. The Blythe Energy Transmission Line route would cause greater visual impacts on views from I-10 because of its closer proximity to the freeway. Significant visual impacts would result from increased structural prominence and visual contrast, increased view blockage of landscape features, and structure skylining. In addition, the line would follow adjacent to the actual Alligator Rock, which would introduce an industrial element along this prominent feature.

Alternative Conclusion

RETAINED FOR ANALYSIS. The alternative would be feasible and would meet project objectives. Although the alternative would have greater visual impacts, the Blythe Energy Transmission Line route would be preferred to the Proposed Project for cultural and biological resources. Therefore, it has been retained for full consideration in this EIR/EIS.

4.2.9.3 Alligator Rock–South of I-10 Frontage Alternative

Alternative Description

This alternative route is the same as the route proposed for the Desert Southwest Transmission Project (see Section 4.4.1). The South of I-10 Frontage Alternative would diverge from the Proposed Project approximately 3.5 miles east of Desert Center and would follow the Alligator Rock–Blythe Energy Transmission Route Alternative route for 3.25 miles to the point at which the BEPTL Alternative turns southwest, just east of Alligator Rock. After passing between the northern end of Alligator Rock and the I-10

itself, this alternative would continue in a westerly direction, immediately south of I-10 and Aztec Avenue for 6.5 miles. It would rejoin the Proposed Project route between MP 160 and 161. The Alligator Rock–South of I-10 Frontage Alternative would be 9.77 miles long and the proposed route would be 9.2 miles long in the equivalent segment.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Alligator Rock–South of I-10 Frontage Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

This alternative would be technically, legally, and regulatorily feasible. Analysis performed for the Desert Southwest Transmission Project (DSWTP) Final EIS has stated that there would be adequate space in the ROW for the construction of a 500 kV line adjacent to the El Paso natural gas pipeline between Alligator Rock and I-10 (BLM & IID, 2005). However, if DSWTP were built prior to DPV2, then there could be space constraints; it is unlikely that there is adequate space for two 500 kV lines to be installed in addition to the existing natural gas pipeline in the narrow area between the north end of Alligator Rock and I-10.

Environmental Advantages

Biological Resources. The habitat along the south side of Interstate 10 is more disturbed than the habitat that lies further south (within the ACEC) because of traffic mortality and flood control devices installed and maintained by Caltrans. The amount of human disturbance is generally highest near the freeway and lessens as one proceeds south toward the hills. The Greystone/Alice Karl and Associates report (2005) also showed that there was less tortoise sign present along this alternative route than the Proposed Project, and approximately the same amount as the Blythe Energy Project route. Since this alternative is closer to I-10, it would most likely be located in an area with less potential for desert tortoise impacts.

Cultural Resources. This alternative would avoid a central portion of Alligator Rock ACEC (7,726-acre area of archaeological significance). A total of 15 sites have been identified within this alternative route corridor; however, most are NRHP-ineligible, or are so small that avoidance is easily feasible. Project impacts could possibly occur at the following five sites: P33-13648 (the series of rock cairns and lithic scatters, discussed above); CA-RIV-1815 (rock rings with lithic scatters); CA-RIV-1816 (rock ring with lithic scatter); CA-RIV-1173 (Desert Steve’s memorial); and CA-RIV-1383 (the North Chuckwalla National Register Petroglyph District). Tower placement could result in avoidance to impacts at the first four sites. While some impacts within the National Register District may be unavoidable, the Proposed Project would also pass through this area with more severe effects. Therefore, the Proposed Project segment is more sensitive, with two National Register Districts and several other potentially NRHP-eligible sites, whereas the South of I-10 Alternative crosses one National Register District and a few other potentially NRHP-eligible sites.

Environmental Disadvantages

Alternative Length and Ground Disturbance. The Alligator Rock–South of I-10 Frontage Alternative would be 0.45 miles longer than proposed route along a new transmission corridor, which would increase the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

New Transmission Corridor. This alternative would create a new transmission corridor outside of the existing DPV1 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors.

Visual Resources. Visual impacts would be greater due than those of the Proposed Project to the creation of a new transmission corridor parallel to and near the I-10.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative would be feasible (if not constructed in addition to DPV2) and meets project objectives. Although this alternative would be slightly longer than the Proposed Project and would be close to I-10, biological and cultural impacts in the Alligator Rock ACEC would be reduced and it would avoid steeper rocky terrain farther south at the base of the mountains. Therefore, Alligator Rock–South of I-10 Frontage Alternative was retained for full evaluation in this EIR/EIS.

4.2.10 Paradise Valley Alternative

Alternative Description

GLC Enterprises, LLC (Glorious Land Company or “GLC”) submitted a protest letter on May 13, 2005 and a scoping letter on November 14, 2005 regarding SCE’s application to the CPUC to construct the Devers–Palo Verde No. 2 Project. The letters contend that if the new 500 kV transmission line is constructed as proposed that it would have significant impacts on GLC’s proposal to develop 6,400 acres of property where they plan to develop a new mixed-use community. GLC owns 16 separate parcels in the Shavers Valley area of Riverside County that it proposes to develop for residential and recreational use.¹⁰ GLC has also requested a land exchange with BLM to make the project area more rectangular in shape (Sams, 2004) and to allow for water pipeline access. The protest suggests that the transmission line should be constructed immediately to the south and west of the current proposed alignment and the proposed area of development to avoid impacting GLC’s project (see Figure Ap.1-6).

The scoping letter suggests that both the DSWTP and DPV2 be located in the same new power corridor. However, DSWTP is entirely separate and independent of the Proposed Project; an EIR/EIS for that project has been completed so issues related to it are not addressed here.

¹⁰ The property owned by GLC includes the following Assessor’s Parcel Numbers: 71306001, 2, 3, and 4; 713072001; 713050002; 713032001; 713031004, 5, and 6; 713040002, 3, 4, 5, 6, and 7.

This summary presents information on the proposed Paradise Valley New Mixed-Use Community to assess whether an alternative should be carried through for full evaluation in this EIR/EIS. The information summarized below is based on a web search and discussion with County of Riverside and BLM staff.

Environmental Setting. GLC proposes to develop an area of the Shavers Valley in Riverside County with a new mixed-use community. The proposed new community would be located in Shavers Valley, approximately 13 miles east of the City of Indio in unincorporated Riverside County. The project area is approximately bordered to the west by the Cactus City rest area, to the north by Joshua Tree National Park, and to the south by the Mecca Hills Wilderness Area. The eastern border of the plan area is approximately five miles west of Cottonwood Springs Road/Box Canyon Road (GLC, 2005).

The Proposed Project is currently characterized as a vast open space area, bordered by wilderness and traversed only by the existing DPV1 utility corridor and Interstate 10. The new community would be located approximately one mile west of Powerline Road. The Proposed Paradise Valley community would also be traversed by a large wash that would extend from the northwestern portion of the valley southeast towards Box Canyon Road.

The project area can be characterized predominantly by pristine open space and is subject to flooding because of its close proximity to a major wash. Riparian vegetation was observed within the wash area during staff field reconnaissance on September 20, 2005. In addition, given its current natural landscape, the area is most likely host to a variety of plant and wildlife species. The October 2004 news article specifically identified the desert tortoise and peninsular bighorn sheep as key wildlife resources.

The Proposed Project’s location, the pristine nature of the site, and the presence of sensitive plant and animals has caused concern with this proposed development. A coalition has been formed to protect the Joshua Tree National Park, wildlife, and the Mecca Hills Wilderness. The coalition includes the Sierra Club, Center for Biological Diversity, National Parks Conservation Association, Defenders of Wildlife, Citizens for the Chuckwalla Valley, and the California Wilderness Coalition.

Project Description. GLC would develop 8,950 homes in a mixed use development on 6,400 acres of property. The preliminary proposed development project is depicted in Table Ap.1-4.

Status of Specific Plan Application. GLC filed a Specific Plan application with the County of Riverside on January 6, 2004 and a meeting was held to discuss the proposed Specific Plan on February 23, 2004. According to the County of Riverside (Harrod, 2005), there has not been a physical development plan submitted for the new community as of October 12, 2005. Although additional information has not been submitted to the County of Riverside, there is evidence that GLC has begun to investigate the site in preparation for completing the plan. An October 2004 news article on the project states that the project has a water supply in the works and initial environmental and land use permitting well underway (Sams, 2004). In addition, the Applicant has completed at least partial archaeological studies on the site according to CRM Tech’s website that summarizes the results of their archaeological studies conducted onsite (CRM Tech, 2005).

Table Ap.1-4. Paradise Valley Proposed Development

Preliminary Plan	Size
Residential community	2,323 acres
Golf course	800 acres
Shopping center	220 acres
Business center along I-10	4 miles long
Parks, community center, concert hall	111 acres
International resort	89 acres
Schools and college	70 acres
Christian retreat with views of Salton Sea	48 acres
Medical center	18 acres

Source: Sams, 2004.

Figure Ap.1-6. Paradise Valley Alternative
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The County of Riverside General Plan addresses the potential for development of the Shavers Valley with a new community, but does not specify a specific project. The General Plan acknowledges that proposals for new communities were presented to the Board of Supervisors and Planning Commission. The text states that the proposals warrant further study and should be considered without the five-year limitation on Foundation Component Amendments as defined in the General Plan. This basically means that a property owner can change the land use designation of its property without the time restriction usually required for significant land use changes (i.e., from Rural Foundation Component to Community Development Foundation Component).¹¹

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Paradise Valley Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

SCE's Grant of Easement. SCE has a Permanent and Exclusive ROW on the property (SCE, 2005c), which allows SCE to construct and enlarge its current use of the corridor. According to SCE, the easement entitles it to:

construct, operate, use, maintain, inspect, repair, renew, replace, reconstruct, enlarge, alter, add to improve, relocate, and/or remove, at any time and from time to time, electrical lines, consisting of one or more lines of metal towers, poles and/or structures, wires, cables, including ground wires and communication circuits, both overhead and underground, etc.

The existing DPV1 and DPV2 right of way corridor through the Chiriaco Summit (Paradise Valley Development) area consists of Fee, Grant of Easement (the easements were mostly negotiated; however, some rights were acquired thru condemnation), and nonexclusive right of way grant from BLM for the purpose of construction, operation, maintenance, and termination of 500 kV Electrical Transmission Lines, access roads, and appurtenances. The DPV1 and DPV2 ROW rights were obtained simultaneously under the same documents (for private property). However, some easement rights may need to be upgraded. Typically the easement rights obtained thru condemnation are restricted to only what was originally needed to install and operate the transmission line, along with specific access rights, usually nothing covering future installations of any kind (SCE Data Response #2, dated October 5, 2005). As a result of the land use and open space in the surrounding area and SCE's Grant of Easement, a reroute around or within the property would not be necessary and this alternative was eliminated from consideration.

Regulatory Feasibility – BLM Land Exchange. Constructing the Proposed Project within a corridor separate from the designated utility corridor (e.g., the DPV1 corridor) would create a land use inconsistency because the route would be inconsistent with the BLM RMP. A plan amendment would be needed in order for the BLM to grant approval of this alternative ROW.

¹¹ The Foundation Components in the County of Riverside General Plan refers to a grouping of land use designations. Within each grouping there are different land use designations, but all within the same category of uses.

GLC has approached BLM with a proposed land exchange in which BLM would acquire approximately 1,100 acres of public lands located within their project in exchange for four parcels of private lands east of the project. The selected public lands are within sections 4 and 12, Township 6 South, Range 10 East, which are adjacent to land held by the GLC.

BLM has informed GLC that these selected public land parcels are within the Chuckwalla Desert Wildlife Management Area, designated for recovery of the federally threatened desert tortoise under the 2002 Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), and are managed as critical desert tortoise habitat. In addition, these lands are within a utility corridor, designated by the California Desert Conservation Area Plan of 1980, as amended (1999). These utility corridors are managed for existing and future utility development. The BLM has determined that these two issues greatly decrease the probability of completing the proposed land exchange. Given these initial issues, the BLM has not developed a land exchange feasibility report on this proposal, the first step in a lengthy process to analyze a proposed land exchange.

Legal Feasibility. A map (referred to in the letter as Exhibit D) attached to the scoping letter suggested moving both the DPV1 and DPV2 500 kV lines along a southern alignment. This proposal is inconsistent with CEQA and applicable constitutional standards. The reasoning concerning the legal infeasibility of this option is as follows.

The objectives of the Proposed Project could be fully met without any change to the existing DPV1 500 kV line. None of the impacts of the Proposed Project results from the existence, location or operation of the existing 500 kV line, which is properly part of the environmental baseline. *See*, CEQA Guidelines Section 15125(a) (“the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published . . . will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.”). The impacts of the Proposed Project do not include the effects of activities already occurring or facilities already in existence, such as the DPV1 line. *See Riverwatch v. County of San Diego*, 76 Cal. App. 4th 1428, 1451-1453 (1999) (even prior illegal activities were part of the environmental baseline); *accord, Fat v. County of Sacramento*, 97 Cal. App. 4th 1270 (2002). Accordingly, moving the DPV1 500 kV line in a new alignment in conjunction with DPV2 under the Paradise Valley Alternative is not permissible under CEQA.

In explaining the “rule of reason” by which alternatives are selected for evaluation, CEQA Guidelines Section 15126.6(f) states, “The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.” The “project,” as defined by options that can meet project objectives, includes only the installation of a new 500 kV DPV2 line. The effects of the project are limited to the impacts associated with the installation of this 500 kV line. Appropriate alternatives must be limited to those that could avoid or lessen the effects of the 500 kV transmission line. CEQA does not permit the lead agency to try to “fix” or improve the existing environmental setting unrelated to the project — here, the DPV1 500 kV line — using a proposed change to the environment as a hook.

As a related point, CEQA specifies that in order for a mitigation measure (and by inference, an alternative) to be feasible, it must meet relevant constitutional standards. *See* CEQA Guidelines Section 15124.4(a)(4). Such standards include a requirement that there be an essential connection or relationship between an alternative and a legitimate lead agency interest dealing with the Proposed Project (*Nollan v. California Coastal Commission*, 483 U.S. 825 (1987)), and that the alternative be “roughly proportional” in nature and scope to the impacts of the Proposed Project (*Dolan v. City of Tigard*, 512 U.S. 374 (1994)). Again, since the impacts of the Proposed Project stem solely from construction of a new DPV2 500 kV line, and not from the existing DPV1 500 kV line, relocation of the existing DPV1 500 kV line to a wholly new alignment or removal of the 500 kV line cannot reasonably be considered in the CEQA document.

Although requiring SCE to move the existing DPV1 line would not be allowable under CEQA, SCE could voluntarily propose a change in the placement of DPV1 along with the proposed DPV2 lines. However, in order to do this, SCE would need to obtain similar permits to that of the Proposed Project. This change has not been requested by SCE and so it is not considered and/or analyzed in this EIR/EIS.

Environmental Advantages

If the Paradise Valley development is built then this alternative would avoid land use impacts associated with a major transmission line being located in the middle of the planned residential area.

Environmental Disadvantages

Ground Disturbance in Undisturbed Open Space. The Paradise Valley Alternative would create a new transmission corridor through undisturbed open space, which would increase the intensity of short-term construction impacts and ground disturbance due to the construction of new access and spur roads. This construction would create increased impacts in air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and to impact vegetation and wildlife is also increased with greater ground disturbance, especially through previously undisturbed areas.

New Transmission Corridor. This alternative would establish a new transmission line corridor for DPV2 and would require considerable upgrading and construction of new roads, as opposed to the Proposed Project, which would use existing access for construction and maintenance along the DPV1/DPV2 corridor. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors.

Biological Resources. The Paradise Valley project area is bounded on the south by the Congressionally designated Mecca Hills and Orocopia Mountains Wilderness Areas, and on the north by the Joshua Tree National Park. It contains high value desert tortoise habitat. Riparian vegetation was observed within the wash area and would be impacted by the creation of a new separate corridor through undisturbed open space. Thus, given its current natural landscape, the area is most likely host to a variety of plant and wildlife species that could be impacted by a new corridor as well.

Visual Resources. Although the alternative route would be farther south of I-10, this alternative route would create a new, second corridor through a vast open space area, bordered by wilderness.

Hydrology. The alternative would traverse a greater portion of a large wash that would extend from the northwestern portion of the plan area southeast towards Box Canyon Road and thus would be in an area subject to flooding.

Alternative Conclusion

ELIMINATED. This alternative would meet project objectives, but the Paradise Valley Development and the movement of the utility corridor would not be feasible if the suggested land exchange were not approved by BLM. If the DPV1 line remains in its current location, the construction of the DPV2 line farther to the south would create greater construction impacts and permanent impacts, such as visual impacts in a new corridor. In visual resources, while the alternative route would be farther from I-10, it would also create a new and separate corridor. The Paradise Valley project area is bounded on the south by the Congressionally designated Mecca Hills and Orocopia Mountains Wilderness Areas, and on the north

by the Joshua Tree National Park. Movement of the entire utility corridor (including DPV1) could not legally be pursued under CEQA/NEPA. Therefore, this alternative has been eliminated from detailed consideration in this EIR/EIS.

4.2.11 Substation Alternatives

SCE's PEA states that the Midpoint Substation may be required as a component of the DPV2 project if the DSWTP is completed. This is considered as an optional project component that may or may not be constructed in conjunction with the rest of the project. The PEA includes the evaluation of two alternative sites for the substation that would be located south and west of Blythe, California.

The proponents of the California DSWTP are proposing to construct a 500 kV transmission line from Blythe to Devers adjacent to the proposed Devers-Harquahala 500 kV transmission line. Under a joint project proposal, only one instead of two 500 kV transmission lines would be constructed since the parties would share a single 500 kV transmission line. The joint project would include the construction of a 500 kV substation. Initially, the Midpoint Substation would be equipped only with switching facilities to provide interconnections for the DPV1, Devers-Harquahala, and DSWTP 500 kV lines. In the future, 500/230/161/66 kV substation equipment would be installed. The Midpoint Substation would be completed in March 2009.

SCE's preferred location for the Midpoint Substation, as shown in Figure Ap.1-7, is about 10 miles southwest of Blythe, California, adjacent to SCE's DPV1 ROW. The preferred site is located on BLM land immediately west of IID's Blythe-Niland 161 kV transmission line and Western's Blythe-Knob 161 kV transmission line. An alternative substation would have the same components as those described below.

The Midpoint Substation or an alternative would be constructed within a rectangular area approximately 1,000 feet by 1,900 feet, or 44 acres. With the Proposed Project, the terminating transmission tower or turning pole would be the tallest structure at the substation, ranging between 150 and 180 feet. The tallest component in the switchrack, the dead-end, would be approximately 133 feet. The substation would be constructed within a rectangular area approximately 1,000 feet by 1,900 feet (approximately 44 acres).

The switching facilities would be constructed within the substation property. The 500 kV switching station would include buses, circuit breakers, and disconnect switches. The switchyard would be equipped with 108-foot-high dead-end structures. Outdoor night lighting would be designed to illuminate the switchrack when manually switched on.

A new telecommunications facility would be installed onsite to provide microwave and fiber optic communications for protective relaying and SPS requirements. Three new microwave paths and two fiber optic systems would be installed at the Midpoint Substation. The proposed fiber optic systems are Midpoint-Buck Boulevard Substation and Midpoint-Devers-Harquahala.

A 45-foot by 70-foot mechanical-electrical room would be installed onsite to house all controls and protective equipment and a telecommunications room. A microwave tower would also be installed at the substation site.

Construction of the Midpoint Substation will require a temporary laydown area of approximately 5 acres. The laydown area would be located at or near the existing roadway at the preferred or either of the alternative sites.

Figure Ap.1-7. Substation Alternatives
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4.2.11.1 Mesa Verde Substation Alternative

Alternative Description

This alternative site is located approximately 4.5 miles northwest of the Midpoint Substation site, also north of and adjacent to the DPV1 right-of-way on private land in the northwest quarter of Section 8, Township 3 North, Range 21 East, about 1.5 miles south of I-10. It is located northeast of DPV1/DPV2 ROW at the point where the corridor turns from northwest-southeast to east-west. This substation alternative would require a 5-mile access road (as opposed to 3 miles with the proposed Midpoint Substation location). This alternative is illustrated in Figure Ap.1-7.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Mesa Verde Substation Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

Regulatory Feasibility. This alternative would be located on BLM land but would not require amendments to Resource Management Plans.

Technical and Legal Feasibility. The Mesa Verde Substation Alternative could be constructed and has no legal obstacles.

This alternative is regulatorily, technically, and legally feasible.

Environmental Advantages

Cultural Resources. The Mesa Verde Substation Alternative is in a less sensitive area for cultural resources than the proposed Midpoint Substation site.

Environmental Disadvantages

Alternative Length and Ground Disturbance. This alternative would require 5.5 miles of access road construction to reach and construct the substation from Wiley Well Road, which will affect the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

Biological Resources. Similar to the Proposed Midpoint Substation site, the Mesa Verde Substation site would be located in habitat for Mojave fringe-toed lizard.

Land Use. Use of the Mesa Verde Substation Site Alternative would also create new land use impacts in an open space area by precluding use of private land for other purposes. The Midpoint Substation would be on BLM land.

Visual Resources. There would also be greater visibility from I-10 and the Mesa Verde area (approximately 1 mile south of I-10).

Alternative Conclusion

ELIMINATED. The Mesa Verde Substation Alternative substation site would meet project objectives and would be feasible. This alternative would require 5.5 miles of heavy-duty access road construction to reach the substation from the Midpoint Substation area or if access is from Wiley Well Road creating much greater ground disturbance and related impacts. It would be located in habitat for the Mojave fringe-toed lizard. This alternative substation location would also have greater visibility from I-10 and the Mesa Verde area (approximately one mile south of I-10). Therefore, this alternative was eliminated from full consideration because it would not reduce impacts of the proposed Midpoint Substation, it would require longer access road improvements, and it would create greater impacts to visual resources, biological resources, and land use.

4.2.11.2 Wiley Well Substation Alternative

Alternative Description

The Wiley Well Substation Alternative would replace the proposed Midpoint Substation, allowing an interconnection of the DSWTP with DPV1 and DPV2 in a location further west. The new 230 kV transmission line from Buck Boulevard would continue along the DPV corridor to the new substation where it would connect to the DPV1 transmission line. This site is approximately 9 miles northwest of the proposed Midpoint Substation and 5 miles due west of the Mesa Verde site, also north of and adjacent to the DPV1 right-of-way, about 17 miles west of Blythe. The site would be constructed in Section 5, Township 3 North, Range 20 East, about 0.5 miles east of Wiley Well Road on BLM land within the BLM Designated Utility Corridor K. This alternative is illustrated in Figure Ap.1-7.

The Wiley Well Substation Alternative would be accessed via Wiley Well Road, an existing paved two-lane roadway with an exit off of I-10. The substation would be located approximately 0.8 miles south of I-10, just east of Wiley Well Road and immediately adjacent to the north of the DPV corridor. This substation alternative would require only a 100-foot access road (as opposed to 3 miles required for the proposed Midpoint Substation).

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Wiley Well Substation Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

Regulatory Feasibility. This alternative would be located on BLM land but would not require amendments to Resource Management Plans.

Technical and Legal Feasibility. The Wiley Well Substation Alternative could be constructed and has no legal obstacles.

This alternative is regulatorily, technically, and legally feasible.

Environmental Advantages

Ground Disturbance. This alternative is being considered because it would eliminate the need for long improved access roads that would be required to transport substation and construction equipment to the site of the proposed Midpoint Substation. The Wiley Well Substation Alternative would be accessible via an existing paved roadway with an I-10 exit (Wiley Well Road), which would lessen the length and intensity of short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also decreased with less ground disturbance.

Cultural Resources. No significant cultural resources have been identified at the Wiley Well Substation Site Alternative and thus the site would also be located in the least sensitive area for cultural resources.

Environmental Disadvantages

Biological Resources. This alternative substation site would be located in habitat of Mojave fringed-toed lizard (special status species) and within critical habitat for desert tortoise, whereas the proposed Midpoint Substation would not.

Recreation. There would also be greater recreation impacts at the Wiley Well Alternative than at the Midpoint Substation because the site would be adjacent to Chuckwalla Valley Dune Thicket ACEC.

Visual Resources. The closer proximity of this site to I-10 (approximately 0.8 miles south of I-10) and Wiley Well Road would create much greater visual impacts than those at the proposed Midpoint Substation site.

Alternative Conclusion

ELIMINATED. The Wiley Well Substation Alternative would meet project objectives and would be feasible. This alternative substation site would also be located closer to an existing paved roadway along Wiley Well Road and would be preferred for cultural resources. However, the site would have much greater visibility from Wiley Well Road and I-10, greater recreational impacts due to its proximity to Chuckwalla Valley Dune Thicket ACEC, and greater biological impacts to sensitive habitat and wildlife species, such as Mojave fringed-toed lizard and desert tortoise. Therefore, because this alternative would create greater impacts than the Midpoint Substation site, it was eliminated from further analysis in this EIR/EIS.

4.3 West of Devers Alternatives

The installation of the new 500 kV transmission line into Devers Substation would also require the upgrading of 50 miles of transmission lines that serve the more developed portions of southern California west of the Devers Substation. The proposed improvements would be constructed within SCE's existing utility right-of-way that now contains four 230 kV circuits on three sets of structures. Forty miles of 230 kV transmission line from Devers Substation to San Bernardino Junction at the western end of San Timoteo Canyon (through the Cities of Palm Springs, Banning, Beaumont, and Calimesa) would be reconfigured and two separate 230 kV corridors, from San Bernardino Junction to SCE's

Mountain View Substation and from San Bernardino Junction to SCE's Vista Substation would be reconducted (in the Cities of Redlands, Loma Linda, Colton, and Grand Terrace). A description of the proposed 230 kV upgrades is provided in Section B.2.3.

The proposed upgrade would consolidate the existing lines on new double-circuit structures within the existing utility corridor. Rearrangement of the existing lines within the existing right-of-way would provide additional space for other transmission lines within the right-of-way, if any were needed in the future. The existing easements comprising portions of the corridor will require some upgrades to accommodate the proposed transmission line structures. The following sections describe potential alternatives to all or segments of the West of Devers portion of the Proposed Project.

4.3.1 Devers-Valley No. 2 Alternative

Alternative Description

The Devers-Valley No. 2 Alternative (D-V Alternative) would be a new 41.6-mile 500 kV line following the existing SCE Devers-Valley No. 1 500 kV transmission line corridor (see Figure Ap.1-8, as well as Figures Ap.1-8a through Ap.1-8g for more detailed figures). The alternative route was not included in SCE's 2005 PEA, nor was it evaluated in studies conducted initially for the DPV1 line or the 1985 DPV2 project. The Devers-Valley route was evaluated in the following environmental documents, subsequently approved by the CPUC and the Forest Service (San Bernardino National Forest), and was completed in 1986:

- Devers-Valley 500 kV, Serrano Valley 500 kV, and Serrano–Villa Park 220 kV Transmission Line Project Draft EIS/EIR, August 1981 (USDA Forest Service and CPUC)
- Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project EIS/EIR, Supplement to Draft EIS/EIR, November 1983 (including Volume 2, Incorporation of Serrano–Mira Loma Segment)
- Devers-Valley 500 kV, Serrano-Valley 500 kV and Serrano–Villa Park 220 kV Transmission Line Project Final EIS/EIR, August 1984 (USDA Forest Service and CPUC).

The route would traverse a small portion of the San Bernardino National Forest (SBNF) and the Santa Rosa and San Jacinto Mountains National Monument (National Monument). It would cross the Pacific Crest National Scenic Trail (PCT). In addition to a Special Use Easement, SBNF would determine if this alternative would require amendments to the SBNF Land Management Plan, the National Monument Proposed Management Plan, and an existing MOU between BLM, Forest Service, and the Pacific Crest Trail Association (PCTA). While a portion of the corridor is within a designated wilderness area, the SCE transmission corridor was specifically excluded from wilderness by Congress (see additional detail below).

As shown in Figure Ap.1-9, construction of this alternative would require the expansion of the Devers Substation to the northeast, into an area already owned by SCE and currently disturbed, but not graveled. SCE estimates that approximately 24 acres would be required at Devers Substation to accommodate the new 500 kV interconnection and related equipment. Approximately 12 acres would be required to accommodate the extension of the new 500 kV interconnection and approximately 12 acres would be needed for the relocation of the heliport. Air Operations personnel is currently in the process of evaluating the relocation of the heliport and details of the relocation will be available after this study is complete.

Figure Ap.1-8. Devers-Valley No. 2 Alternative
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Figure Ap.1-8a. Devers-Valley No. 2 Alternative
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Figure Ap.1-8b. Devers-Valley No. 2 Alternative

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Figure Ap.1-8c. Devers-Valley No. 2 Alternative
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Figure Ap.1-8d. Devers-Valley No. 2 Alternative

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Figure Ap.1-8e. Devers-Valley No. 2 Alternative

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Figure Ap.1-8f. Devers-Valley No. 2 Alternative

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Figure Ap.1-8g. Devers-Valley No. 2 Alternative

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Figure Ap.1-9. Devers Substation Expansion

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No additional land would be required at Valley Substation under this alternative since a previous project will relocate the fence to the edge of the property.

Route Description

Devers Substation to Highway 111. The alternative would depart the Devers Substation and head west along the Devers-Valley (D-V) No. 1 500 kV transmission line corridor, with each new alternative tower being located about 130 feet south of the existing D-V towers, where feasible. In relatively flat areas, SCE states that it will attempt to locate the new Devers-Valley towers adjacent to existing structures. However, this not always feasible due to topography, line crossings, varying span lengths due to angle points, and increased tower heights due to higher line ratings. In hilly or mountainous terrain, tower locations are generally dictated by terrain features and tower-for-tower spotting is not feasible.

For the first 2.7 miles out of the Devers Substation, the existing D-V line, the D-V No. 2 Alternative, and the WOD components of DPV2 would share the same corridor. The alternative would cross Highway 62 within the D-V and the WOD corridor and would traverse an area predominated by the wind farms in the San Gorgonio Pass. The D-V ROW in this area ranges between 200 feet (where BLM lands are traversed) and 330 feet (SCE fee lands/easements) so there is adequate space for a new line. After crossing Highway 62, the route would parallel 16th Avenue and the community of Painted Hills to the south for one mile before crossing Garnet Creek and paralleling Painted Hills Road, a dirt road over a hill to Whitewater. Upon reaching the community of Whitewater (approximately 0.2 miles west of Marion Road), the alternative would turn southwest and cross Interstate 10. The alternative route would continue southwest along the D-V corridor, passing through undeveloped areas within the jurisdiction of the City of Palm Springs for approximately 1.4 miles. The route would cross the Union Pacific Railroad and Highway 111.

National Monument and National Forest Lands. At the Highway 111 crossing, the corridor enters the Santa Rosa and San Jacinto Mountains National Monument. The route would traverse 1.3 miles (six towers) on the valley floor, then travel southwest up the San Jacinto Mountains and through the rugged terrain of the National Monument. There is a University of California community south of Tower DV-32¹² off Snow Creek Road at the base of the mountains that studies bighorn sheep, among other species, located in the steep hills. It would cross Snow Creek (the ROW is adjacent to Snow Creek Road on the flat portion of the Monument lands) and the Pacific Crest Trail, and would enter the San Jacinto Wilderness¹³ at Tower DV-32 that is located within the SBNF (although the transmission corridor itself has been removed from the wilderness). After approximately 0.5 miles within the San Jacinto Wilderness, the alternative would turn west-northwest and would travel an estimated 0.8 miles to exit the National Monument and an additional 0.4 miles to exit the SBNF and Wilderness area at Tower DV-49.

Cabazon Area. After dropping down from the mountains and leaving National Forest/National Monument lands, the route would continue northwest for 0.9 miles, passing through the unincorporated residential area known as Cabazon Estates, which includes approximately 59 existing homes north of Ida Avenue, south of Esperanza Avenue, and east of Peach Street, as well as many lots with homes under construction, and additional lots that are likely to be developed. The line would be located on the south of

¹² Tower numbers referenced under the D-V No. 2 Alternative have been assigned by the CPUC to facilitate analysis of this alternative and they are not officially-designated tower numbers by SCE.

¹³ While the corridor is within the overall designated wilderness area, this corridor was removed from wilderness by Congress because of the existence of the transmission corridor. This is discussed in more detail later in this section.

Ella Street, a two-lane dirt road approximately 400 feet north of Riza Street, which is newly paved. Homes and vacant lots are located on the north side of Ella Street and the south side of Riza Street, but SCE owns the ROW between the two streets. The alternative route would then turn west and would cross Esperanza Avenue and the Colorado River Aqueduct.

The D-V Alternative would parallel Esperanza Avenue to the south and would proceed into the San Geronio River at the western end of Esperanza Avenue, traveling approximately 1.7 miles. Along Esperanza Avenue and just west of Tower DV-58 (in T3S R2E, Section 20), there would be two options (occurring in a short, 1,300-foot segment):

- Option 1 would be to continue parallel to the existing D-V No. 1 transmission line, with the new D-V No. 2 tower installed approximately 130 feet south of the existing Tower DV-59.
- Option 2 would require that the existing D-V tower (Tower DV-59, located at the southern end of Orange Street) and the alternative tower would move approximately 500 feet to the north.¹⁴ In order to implement this option, SCE would likely have to purchase the properties north of the northwest quarter of the northeast quarter of Section 20.

Areas South of Banning and Beaumont. Traveling west an additional two miles, the route would turn northwest and would pass between two parcels owned by the Morongo Indian Tribe. For approximately 1.1 miles, the alternative would traverse the City of Banning, north of and parallel to Porter Street within Smith Creek. At Hathaway Street, the route would turn west-southwest and cross Highway 243 (Idyllwild Highway), which is a designated California Scenic Highway. Continuing west-southwest for another 0.7 miles through the City of Banning, the route would turn west and would traverse one mile of open space and scattered rural residential land, approximately 230 feet south of the parcel's northern boundary.

Potrero ACEC to Gilman Springs Road. The route would continue west for one mile adjacent to and traversing Smith Creek, at which point it would traverse the northern boundary of the Potrero ACEC. The D-V Alternative would be within the ACEC for approximately 1.7 miles. The Potrero ACEC is a 1,030-acre area under the jurisdiction of the BLM. At least five species of wildlife that are listed as threatened or endangered may occur within the Potrero ACEC, including the least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), coastal California gnatcatcher (*Polioptila californica californica*), Stephens' kangaroo rat (*Dipodomys stephensi*), and arroyo toad (*Bufo californicus*).

The alternative would cross Highland Springs Avenue (which is the boundary between the Cities of Banning and Beaumont) going west, and would pass through large housing developments that are currently under construction (Four Seasons) and south (Potrero Creek Estates) of the ROW in the City of Beaumont. There are approximately 26 single-family residences located between MP 21 and MP 24 within 200 feet of the ROW along Death Valley Road/Coyote Trail, Highland Home Road, and Sun Lakes Country Club and

¹⁴ When the D-V No. 1 line was constructed in 1986, this parcel was not owned by the Morongo Indian Tribe. According to SCE, the tribe acquired the parcel in an exchange handled by the BLM in the year 2000, based on Senate Bill S.1840 (Bureau of Indian Affairs Document PL 106-568) which transferred a 40-acre parcel of land (the NW ¼ of NE ¼ of Section 20) into trust held by the United States Department of Interior, Bureau of Indian Affairs. This original easement for the D-V No. 1 line through this parcel was granted by BLM. The BLM grant was for a 200-foot wide perpetual right-of-way for the construction, operation, and maintenance of the Devers-Valley No. 1 500 kV line. Under Option 1, SCE would be required to conduct negotiations with the Morongo Tribe to acquire additional rights for construction of the D-V Alternative through this parcel.

Golf Course. The route would turn west-southwest, traveling across open space and crossing Highway 79 (Lamb Canyon Road). Approximately 0.7 miles west-southwest of Highway 79, the route would turn west and may traverse the northwest corner of the Lamb Canyon Agricultural Preserve.¹⁵ The County of Riverside Sanitary Landfill is also located east of the alternative route along the western boundary of the agricultural preserve. Traveling west for approximately 2.6 miles, the route would cross Laborde Canyon and the adjacent open space areas. While the Lockheed Martin Corporation currently owns 2,640 acres in Laborde Canyon that is traversed by the ROW, the California Department of Parks and Recreation and Riverside County are considering the purchase of this land for the establishment of a Riverside County State Vehicular Recreation Area and for habitat conservation, respectively.

Gilman Springs Road to Valley Substation. The D-V Alternative would exit Laborde Canyon as it would cross Gilman Springs Road, and would continue west for another 2.5 miles across agricultural land. The route would also traverse the San Jacinto River. Continuing west across the Ramona Expressway and Princess Ann Road, the route would travel outside of the northwest boundary of the City of San Jacinto and would cross the Colorado River Aqueduct.

The alternative would continue west across the Lakeview Mountains for approximately four miles, crossing Chastity Road, Mt. Rudolf Road, Puslar View Road, Contour Avenue, Juniper Flats Road, and Valley Road. Access roads already exist in this area. Along this portion of the route, the Devers-Valley No. 2 Alternative would traverse the northwest community of Juniper Flats, during which it would be adjacent to approximately eight scattered residences along Contour Avenue, Juniper Flats Road, and Valley Road. The route would turn west-southwest prior to crossing Polley Street, and would continue one mile across the Lakeview Mountains. Upon crossing Passage Road, the route would turn south-southwest for 0.6 miles. The route would then turn southwest, and would continue approximately 0.8 miles at which point it would cross Briggs Road and would exit the Lakeview Mountains.

Approaching the unincorporated community of Romoland, the route would travel another 1.8 miles past scattered residences located adjacent to the ROW along Briggs Road, Malone Lane, Mountain Avenue, and Mapes Road. The alternative would cross Menifee Road and would turn south, traveling for approximately 0.8 miles until it would terminate at Valley Substation. Between Menifee Road and Valley Substation, the ROW would traverse agricultural land that is bordered by residences to the east and west, and would cross Highway 74 immediately north of Valley Substation. The route would be within 200 feet of approximately 25 residences in the Romoland area. The Inland Empire Energy Center is located west of and adjacent to Valley Substation. The final 10 towers would be of “Tetra Tower” design to visually match the existing Devers-Valley No. 1 500 kV transmission line towers.

Construction Methods

Construction activities would be similar to those of the proposed Devers-Harquahala 500 kV segment, as described in Section B.3.7 (Construction Activities) of the Project Description in this EIR/EIS. In populated areas, SCE would post notices on the ROW or at other sites where the public would be affected by construction activities. Construction of the route would be performed by contract personnel with SCE responsible for project administration and inspection. At some stages of the project, multiple locations would be under construction simultaneously, which may involve independent construction teams.

¹⁵ The existing Devers-Valley No. 1 transmission line towers are not located within the Lamb Canyon Agricultural Preserve. However, the ROW easement crosses into the agricultural preserve.

If the alternative route is approved, a detailed survey would be conducted and detailed engineering designs started. Once approximate tower locations have been determined, exact positions would be field surveyed. Construction yards would be established for use as reporting locations for workers, and for vehicle and equipment parking and material storage. The yards would have offices for supervisory and clerical personnel. Normal maintenance of construction equipment would be conducted at these yards. Each yard would be 3 to 10 acres in extent, depending on land availability and intended use.

During construction, existing concrete supply facilities would be used where feasible. If concrete supply facilities do not exist in certain areas, temporary concrete batch plants would be set up. Equipment would typically include a central mixer unit; silos for concrete additives, fly ash, and cement; a water tank; portable pumps; a pneumatic injector; and a loader for handling concrete additives not in the silos. Dust emissions would be controlled by watering the area and by sealing the silos and transferring the fine particulates pneumatically between the silos and the mixers.

Concrete would normally be hauled to tower sites in standard concrete trucks. At any given lattice steel tower site, two or more concrete trucks would be working to support the installation of the needed four footings. A second footing installation operation could be under way elsewhere at the same time, thus doubling the quantity of trucks working. One footing on a 500 kV lattice steel tower would typically require from 3 to 15 cubic yards of concrete, depending upon the type of tower and the soil conditions. Some towers may require substantially more concrete per footing due to atypical loading conditions or unusual soil conditions.

Prior to auguring for foundations, SCE would contact Underground Service Alert to identify any underground utilities in the construction zone.

At the structure fabrication plant, structural members would be bundled by towers sections and then shipped by rail or truck to the construction yards. The steel bundles would then be trucked from construction yards to the individual tower sites.

Assembly and erection of the structures required would consist of three main activities:

- Assembly of the tower sections;
- Erection of the tower sections;
- Final cleanup.

Tower sections would be lifted into place with a crane and erected on their foundations. Installation of insulators and travelers and final checkout and cleanup would then conclude structure assembly and erection.

Prior to stringing activities temporary protective netting systems or wood pole guard structures would be erected at crossings for roads, streets, railroads, highways, or other transmission, distribution, or communication facilities, as required. On roads where traffic is light, guard structures may not be necessary; however, the use of barriers, flagmen, and/or temporary stopping of traffic would be required.

The stringing of conductor and overhead groundwire on new transmission lines typically commences once a number of structures had been erected and inspected. Stringing equipment locations would be temporarily setup between towers. These would be areas up to 150-foot by 300-foot in size adjacent to the access roads and spaced approximately every 5,000 to 15,000 feet along the line. For new transmission lines, helicopters would pull small and lightweight pilot lines through the stringing travelers. These lightweight lines would be used to subsequently pull larger steel cable. The conductor or groundwire would then be pulled from the established setup points by wire stringing equipment.

The mountainous portion of the route through the San Bernardino National Forest and the Santa Rosa and San Jacinto Mountains National Monument (Towers DV-33 through DV-48) would have to be constructed using helicopters to carry tower segments and to string conductors. In addition, all materials, tools, equipment, supplies, and personnel would have to be flown into the roadless area via helicopter. This would include surveying equipment, compressors, jack hammers, concrete, rebar, tower steel, insulator/hardware assemblies, water, sanitation facilities, etc.

Helicopters may be used to deliver personnel, tools, equipment, and materials to the structure sites for the installation of foundations, towers, and conductor in selected areas. Construction by helicopter could bring loaded helicopters near populated areas that would need to be protected against the dangers of helicopter use. The Federal Aviation Administration (FAA) would require roads and homes to be evacuated if a loaded helicopter would pass over.

When helicopters are used to facilitate construction, staging sites would be established at strategic locations along the line route. Each staging site could be in use for several months. Individual tower sections that are assembled at staging sites would be transported to the tower locations by helicopter. The work would break down into the following three efforts: (1) foundation excavation; (2) placing concrete; and (3) placing towers.

For installation by helicopter, the tools and equipment required for foundation excavation would be flown to each tower site. Excavation methods may include jack hammering, blasting, and manual digging. Concrete for tower footings would be flown to the tower sites in aerial buckets, each having a capacity of approximately one-half cubic yard.

The placement of each tower would require several “lifts” or trips due to the limited lifting capabilities of the helicopter. The first lift would transport the lower portion of the tower and subsequent lifts would transport the upper portions of the tower. After each structure is set on the foundation, crews would tighten all bolts, attach insulators to the crossarms, and prepare the towers for the conductor stringing operation.

Helicopter landing pads would be required in the roadless areas where line construction would be performed exclusively by helicopter. Each pad would consist of a 60-foot diameter area “brushed” to within 1 foot of the ground. In areas where the terrain is too rough or too steep for brushed pads, artificial landing pads would be constructed using wood poles topped with a 20-foot by 20-foot platform constructed of wood planks and timbers.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The D-V Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

The D-V No. 2 Alternative would be constructed almost exclusively within an existing 330-foot transmission corridor where an existing 500 kV line has been constructed, and as such would be technically feasible. However, special use authorization and amendments to the following plans would be necessary for approval of this new transmission line:

- **Special Use Authorization.** The D-V Alternative would require a Special Use authorization from the USDA Forest Service for the portion of the alternative located on National Forest System lands. In order to consider issuance of the authorization (easement) to allow construction of the transmission line, the Forest Service must comply with NEPA, the requirements of which would be met through the preparation of this EIR/EIS. After the completion of the Final EIR/EIS, the Forest Service would issue a Record of Decision (ROD) that documents the Forest Service decision on whether to approve authorizing a Special Use Easement as proposed, approve an alternative to the proposed action, or deny SCE’s application and the rationale for that decision. If appropriate, the ROD would also address whether Forest Plan amendments would be necessary before a Special Use Easement can be issued to SCE for this alternative. This ROD is subject to administrative review and may be appealed under 36 CFR 215. To implement the D-V Alternative, the Regional Director of Natural Resource Management of the Forest Service would authorize a 50-year term Special Use Easement for the construction, maintenance, and use of the 500 kV transmission line along with ancillary improvements on National Forest System lands.
- **San Bernardino National Forest Land Management Plan.** The alternative route would be located in an existing corridor that traverses the SBNF portion of the San Jacinto Wilderness designated as having “Very High Scenic Integrity.”¹⁶ As the alternative would need to comply with the Scenic Integrity Objectives (SIO) of the SBNF, an amendment to the USFS’s SBNF Land Management Plan would be necessary.¹⁷ The USDA Forest Service would need to determine whether the D-V Alternative would be consistent with management direction in the governing Forest Plan. For example, conflicts with the defined scenic integrity objectives that apply to the D-V Alternative route would require a Forest Plan amendment. It is likely that installation of a fully aboveground facility such as the alternative transmission line and associated facilities would not be consistent with Forest Plan direction for desired landscape characters or scenic integrity objectives. If an amendment is required by the Forest Service, the Forest Service would determine the changes that would be necessary to the desired landscape character of the Santa Rosa and San Jacinto Mountains National Monument geographical unit of the San Bernardino National Forest, as established in the Forest Plan.
- **Santa Rosa and San Jacinto Mountains National Monument Proposed Management Plan and Final EIS.** The alternative route would traverse non-Wilderness BLM lands within the National Monument that are designated as Visual Resource Management (VRM) Class 2.¹⁸ The Santa Rosa and San Jacinto Mountains National Monument is maintained as a natural appearing and naturally evolving landscape that functions as a rugged backdrop for recreational and biological resources. The valued landscape attributes to be preserved include the high-country conifer forests, live oak in

¹⁶ Very High Scenic Integrity: Generally provides for ecological changes only. This refers to landscapes where the valued (desired) landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level. The landscape is unaltered. This is synonymous with the Preservation Visual Quality Objective under the original Visual Management System (Source: Land Management Plan Part 3, Design Criteria for the Southern California National Forests, Appendix L – Glossary, September 2005).

¹⁷ Appendix A (Special Designation Overlays) of the SBNF Land Management Plan includes the following SIO requirements for special-use authorizations: “Cell and communication sites, as well as other utilities should conform to SIOs by siting color and shape of structures without complete dependence on vegetation; site installations should also be sufficiently hardened to survive wildland fire burn-over and continue operations without removal of surrounding vegetation or structural protection.”

¹⁸ VRM Class 2: Changes in any of the basic elements caused by management activity should not be evident in the characteristic landscape. Contrasts are visible, but must not attract attention (Source: National Monument Proposed Management Plan, Chapter 3, Section 3.I [Scenic Resources], October 2003).

deep canyons, a diverse cactus scrub community, pinyon juniper woodlands, and the fan palm oasis. Desert chaparral communities, pinyon juniper woodlands and timber stands are at pre-fire suppression era conditions. Habitat conditions for threatened, endangered, proposed, candidate and sensitive species are improving over time (USDA Forest Service, 2005). As the alternative would need to comply with the VRM classification for this area of the National Monument, an amendment to the BLM's National Monument Proposed Management Plan would be necessary.¹⁹ The scenic integrity objective associated with the Santa Rosa and San Jacinto Mountains National Monument is designated "Very High," and may have to be changed, based on USDA Forest Service analysis, as a result of the D-V Alternative.

- **Memorandum of Understanding (MOU) between BLM, Forest Service, and the Pacific Crest Trail Association (PCTA).** The alternative route would cross a 500-foot management corridor that has been established around the PCT within the National Monument; any action that would affect the federal lands within this corridor would require a revision of the MOU.²⁰

The requirements for plan amendments would not make this alternative infeasible. For each plan amendment, the BLM and/or USFS would require NEPA clearance, which would occur concurrently with the publication of the Draft and Final EIR/EIS. The Final EIR/EIS would also identify in its title that the EIR/EIS evaluates the proposed plan amendments. The amendment process would be necessary only if the route that would need the amendment (e.g., the D-V No. 2 Alternative) is identified by the BLM as the Preferred Alternative.

Although the alternative route would traverse the San Jacinto Wilderness, it would be located in an existing utility corridor and would not conflict with the land use designations set forth in the California Wilderness Act of 1984 (98 Stat. 1619). In April 1985, the Regional Forester for the Pacific Southwest Region of the USFS granted an easement to SCE for the construction and operation of the Devers-Valley transmission line, and pursuant to Public Law 98-425, this corridor ceased to be a part of the San Jacinto Wil-

¹⁹ Chapter 3, Section 3.P (Special Uses), of the National Monument Proposed Management Plan lists the following requirements for utilities and ROWs: "Applications for new ROWs within the National Monument for the purposes of utility development and communication site development are addressed on a case-by-case basis. Impacts to the resources that the National Monument was established to protect are analyzed according to NEPA upon receipt of an application for a ROW. Impacts to visual resources are included in such analysis, with BLM's VRM Class Objectives and Forest Service's Scenery Management System levels providing guidance. Introduced changes to visual elements of the characteristic landscape of the National Monument are avoided when alternative areas exist."

Chapter 4, Section 4.B.12 (Impacts to Utility and Public Services), also states: "Both BLM and Forest Service address the need for utilities on a case-by-case basis with analysis of impacts to the environment occurring through the NEPA process. Future utility ROWs must be compatible with Objectives and VRM Class Objectives as identified in the CDCA Plan Amendment, and in the Standards and Guidelines as identified through the SBNF LRMP (1989, as amended) and the Forest Plan Revision (in progress)."

²⁰ Chapter 2, Section 2.B.3 (Management of Recreational Resources) of the National Monument Proposed Management Plan states: "The PCT would be managed according to the existing comprehensive management plan (USDA 1982), and a 500-foot-wide management corridor around the PCT would be established. Management activities affecting Federal lands within the corridor, including actions relating to forest health, water quality, wildlife habitat, trail maintenance, and trail construction or reconstruction, would be analyzed for effects on the PCT, and BLM and Forest Service would coordinate with the PCTA and other stakeholders to ensure recreational values are considered. The MOU between BLM, Forest Service, and the PCTA would be revised as appropriate to reflect this action. The coordination requirement would not be implemented until the MOU has been revised."

derness.²¹ The D-V No. 2 Alternative route would be constructed within SCE's existing Devers-Valley corridor, and as such, would not be located in a designated Wilderness area.

Overall, this alternative would be legally and regulatorily feasible. However, it must be noted that construction could be delayed due to the requirement for extensive permitting and coordination with relevant federal land management agencies. Construction of the alternative, while challenging and requiring helicopter construction due to the steep terrain, would be technically feasible.

Environmental Advantages

Land Use. This alternative would cross substantially less land with adjacent residential land uses (avoiding the residential areas in Banning, Beaumont, Calimesa, and San Timoteo Canyon). In addition, no schools are located within 200 feet of the alternative ROW (there are 6 schools affected by the proposed WOD upgrades).

Cultural Resources. The D-V No. 2 Alternative would avoid crossing the more highly developed area of the Morongo Reservation north of I-10, reducing impacts to tribal values and associated cultural resources.

Noise. This alternative would affect few nearby residences and effects on all of the noise sensitive receptors along the West of Devers corridor would be avoided under the D-V No. 2 Alternative.

Air Quality. Due to the reduced amount of construction, and particularly the elimination of the demolition of existing structures that would occur with the West of Devers upgrades, the D-V No. 2 alternative would cause a significant reduction in the South Coast Air Basin (SCAB) emissions, and to a lesser extent the Salton Sea Air Basin (SSAB) emissions. This alternative would reduce emissions to the point where the South Coast Air Quality Management District (SCAQMD) regional volatile organic compounds (VOC) threshold is no longer exceeded. Additionally, this alternative, in place of the proposed West of Devers, would reduce the annual NOx emission to below the General Conformity *de minimis* threshold.

Environmental Disadvantages

Biological Resources. The habitat, especially within the National Monument and National Forest, the numerous riparian areas, and in the Lakeview Mountains, is of higher quality due to its more undisturbed nature than in the area proposed for the West of Devers upgrades. The mountains within the Santa Rosa and San Jacinto Mountains National Monument and SBNF include highly valuable bighorn sheep habitat through which the new line would pass. Noise from helicopter construction would affect bighorn sheep if there were present. Therefore, the potential to impact sensitive vegetation and habitat would be much greater under this alternative.

²¹ 98 Stat. 1619, Section 101(a)(24), states: "certain lands in the San Bernardino National Forest, California, which comprise approximately ten thousand nine hundred acres, as generally depicted on a map entitled *San Jacinto Wilderness Additions-Proposed*, and which are hereby incorporated in, and which shall be deemed to be a part of the San Jacinto Wilderness as designated by Public Law 88-577: Provided, however, that the Secretary of Agriculture may pursuant to an application filed within 10 years of the date of enactment of this title, grant a ROW for, and authorize construction of, a transmission line or lines within the area depicted as 'potential powerline corridor' on the map entitled *San Jacinto Wilderness Additions-Proposed*: Provided further, that if a power transmission line is constructed within such corridor, the corridor shall cease to be a part of the San Jacinto Wilderness and the Secretary of Agriculture shall publish notice thereof in the Federal Register.

Land Use. Generally, impacts to development and land uses would be similar to those of the proposed West of Devers segment, since this alternative traverses newly developed areas, or areas slated for mixed-use development. Construction of a new 500 kV transmission line would have a longer duration and thus would expose sensitive land uses to short-term construction impacts for a longer period of time.

Cultural Resources. Even though the route would be in an existing corridor, by placing the line in the less disturbed areas, there would most likely be a greater chance of encountering cultural resources along this alternative due to the topographic relief and number of stream crossings.

Recreation and Wilderness. This alternative would travel within the Santa Rosa and San Jacinto Mountains National Monument for approximately 4.7 miles, in which it would cross the PCT at MP 7.6. The PCT was designated as one of the first scenic trails in the National Trails System, and is limited to non-mechanized means of travel. The alternative would also traverse the SBNF and the San Jacinto WA for approximately 1.9 miles, and the Potrero ACEC for approximately 1.1 miles.

Visual Resources. Potential visual impacts would arise with the construction of a second transmission 500 kV transmission line, especially though the SBNF where the SBNF has designated the area as one with “Very High Scenic Integrity.”

Geologic Resources. Construction within the Santa Rosa and San Jacinto Mountains National Monument and the SBNF, as well as the Lakeview Mountains would occur on steep slopes, which would increase the potential for soil erosion.

Construction Challenges. Approximately 16 towers located in the steep area within the Santa Rosa and San Jacinto Mountains National Monument and the SBNF would need to be constructed by helicopter. There are no access roads through this area and as described above, landing pads would be required to be constructed in addition to the pads for tower foundations.

Hydrology. The alternative would traverse several rivers and washes, such as Garnet Creek, Whitewater River, San Gorgonio River, Smith Creek, Potrero Creek, Lamb Canyon, Laborde Canyon, and San Jacinto River, and thus would be in an area subject to flooding. Several of the towers within and south of the City of Banning (between Towers DV-72 and DV-83) would actually be located within Smith Creek and could be subject to erosion around tower footings, which could create tower instability.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative would meet the project objectives and is feasible. Even though the route would require technically challenging construction through the steep biologically sensitive areas within the Santa Rosa and San Jacinto Mountains National Monument and the SBNF, the Devers-Valley No. 2 Alternative would avoid impacts associated with traversing high-density residential areas and tribal lands. Due to the potential legal feasibility challenges of the West of Devers segment over Morongo tribal lands and because the impacts of all West of Devers upgrades would be eliminated, this alternative was retained for full evaluation in the EIS/EIR.

4.3.2 North of Existing Morongo Corridor Alternative

Alternative Description

This 8.9-mile alternative would diverge from the proposed route approximately 0.25 miles east of the eastern edge of the Morongo Indian Reservation. From there the route would head to the northwest for approximately 3 miles before heading west to parallel the proposed route for 4 miles, approximately 2 miles to the north of the existing corridor. The route would then turn to the southwest for 1.5 miles before rejoining the Proposed Project at the City of Banning. The Proposed Project would be approximately 7.5 miles long in this segment. If requirements resulting from the tribal negotiation would require implementation of this alternative, the four existing lines would also be removed from the existing corridor and rebuilt in this corridor. This alternative is illustrated in Figure Ap.1-10.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The North of Existing Morongo Corridor Alternative would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

Legal Feasibility. This alternative would proceed only if it were recommended and approved by the Morongo Band of Mission Indians and a new lease would need to be issued in order for it to move forward. The tribe indicated that this alternative was originally suggested because it would remove the existing 230 kV lines from the center portion of the tribal lands, making those lands available for other development options.

Technical Feasibility. Due to the rugged terrain of the San Bernardino Mountains, there could be technical feasibility issues with siting all four circuits in a corridor to the north.

Environmental Advantages

Land Use. This alternative would be farther from the sensitive receptors in the developed areas as well as from the higher-value commercial and residential lands near I-10.

Visual Resources. This alternative would reduce visual impacts by moving all of the existing lines farther from developed areas on the Morongo Reservation and travelers on I-10

Environmental Disadvantages

Ground Disturbance and Removal Activities. Removing and reconstructing four transmission circuits would result in greater impacts and longer construction time than required for the Proposed Project's WOD components. This alternative would require removal and disposal of the existing towers, hardware, and conductors, and this additional construction and excavation could result in increased ground disturbance and impacts affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination (especially in the more developed area closer to I-10), water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

Figure Ap.1-10. North of Existing Morongo Corridor Alternative

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Biological Resources. While surveys of this route have not been completed, the habitat farther from I-10 and closer to the San Bernardino Mountains (just south of San Bernardino National Forest) is expected to be of higher quality due to its more undisturbed nature. Therefore, the potential to impact sensitive vegetation and habitat would be much greater under this alternative.

Cultural Resources. In a report by Mooney/Hayes Associates (prepared for SCE), entitled *Cultural Resources Inventory of the Proposed Vista to Devers Transmission Line, Riverside and San Bernardino Counties* (February 2005), it is stated on page iv: “Some consideration has been given to the possibility of relocating a portion of the transmission line to higher elevations where the corridor crosses the Morongo Indian Reservation. This alternative route is conceptual only and while it was subject to limited levels of field reconnaissance, no effort has been made to include this acreage in the APE for the current cultural resource inventory.” Although no survey data is presently available, by placing the line in the less disturbed areas farther north on the Morongo Reservation, there would most likely be a greater chance of encountering cultural resources due to the topographic relief and number of stream crossings. The new lines would also cut across entrance to canyons, which may hold a special importance to the tribe. On the other hand, the existing corridor is in an alluvial setting and the only potentially NRHP-eligible site is a historic water conduit that could be easily avoided.

Alternative Conclusion

ELIMINATED. The North of Existing Morongo Corridor Alternative would meet project objectives. The feasibility of this alternative would hinge on approval by the Morongo Tribe of the removal and rebuilding of the lines within the Morongo Indian Reservation. There could also be technical feasibility issues with siting the four circuits in or at the base of the San Bernardino Mountains, north of the existing corridor. Moving the corridor farther north into a less developed area away from I-10 would be beneficial to visual resources and land use, but it would create far greater impacts to biological and cultural resources, as well as much greater construction time and ground disturbance. Due to feasibility concerns, the Morongo Tribe’s consultation statements during the scoping period, and biological and cultural resources impacts, this alternative was eliminated from full consideration in this EIR/EIS.

4.3.3 Composite Conductor Alternative

Alternative Description

This alternative would include the replacement of existing conductors in the West of Devers 230 kV system with Aluminum Conductor Composite Reinforced (ACCR) or Aluminum Conductor Composite Core (ACCC) wires. Composite conductors have recently been developed and are being tested to provide roughly two-to-three times the transmission capability (ampacity) of the standard proposed Aluminum Conductor Steel Reinforced (ACSR) conductors, at somewhat higher but undisclosed costs.

The composite conductors could be used to re-conductor all or portions of the West of Devers 230 kV system. In contrast to the Proposed Project, which would involve removing 40 miles of a single-circuit wood H-frame 230 kV line and a single-circuit lattice steel 230 kV line, this alternative would make use of existing structures in the corridor. Avoiding the proposed removal of single-circuit wood H-frame and lattice steel structures in the Devers–San Bernardino Junction segment would eliminate the environmental impacts of removing the existing wood and steel structures and building 40 miles of new double-circuit steel towers in the corridor. This alternative could also involve re-conductoring the existing 40-mile double-circuit 230 kV steel tower line with ACCR to increase the capability of these circuits.

This alternative is presented in response to a comment letter filed in the CPUC's General Proceeding (A.05-04-015) prior to the EIR/EIS public scoping period (filed: May 16, 2005 by 3M Composite Conductor Program). Reconductoring under this alternative could involve investment in 3M Brand Aluminum Matrix Composite Conductors or similar ACCC wires from Composite Technology Corp. These products are being tested by some utilities around the nation, and the first commercial installation of the 3M ACCR was initiated late 2004 in Minnesota.

SCE in its response to the comment letter stated that it believes that the 3M ACCR design for the West of Devers upgrades would result in a higher installed cost, higher life cycle cost, and higher transmission line losses than the Proposed Project (filed: May 25, 2005 by SCE).

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

This alternative would utilize the existing single-circuit 230 kV towers for the conductor conversion. This poses a risk to SCE achieving its system capacity goals for West of Devers because of the age of the existing structures and their outmoded design. Since reconductoring would make use of the existing structures, there would be uncertainty regarding the expected life of the newly reconducted corridor, in particular along portions on aged wood structures. The proposed steel tower double-circuit arrangement would provide a new system that would have a normal life expectancy. The proposed West of Devers upgrades would also provide a uniform capacity to each circuit in the corridor, which provides system stability in the case of an outage of one of the circuits. This would not be achieved under this alternative because of the different types of structures and the variety of conductor sizes across the corridor. An outage would therefore be more likely to overload the remaining circuits. Additionally, tower replacement would likely be necessary in some areas, and costs of this alternative would be notably higher than the proposed West of Devers upgrades, which would diminish the likelihood of achieving the economic objectives of the Proposed Project. Use of the outmoded existing structures under this alternative would leave the West of Devers corridor incapable of meeting the basic project objective of adding 1,200 MW of transmission import capability.

Feasibility

Reconductoring the existing WOD 230 kV system with composite conductors appears to be legally, technically, and regulatorily feasible. However, by depending on existing older towers for the conversion, SCE's system capacity goals for West of Devers may not be achieved, which would fail to satisfy the objectives of the Proposed Project.

Environmental Advantages

This alternative is presented because reconductoring the existing towers within the West of Devers 230 kV corridor could eliminate the need to remove the existing single-circuit wood H-frame and lattice steel structures in the Devers–San Bernardino Junction segment. Construction of the proposed 40 miles of new double-circuit steel towers in the corridor would also be avoided. This would eliminate nearly all construction-related disturbances and nuisances and permanent impacts to visual resources related to the new double-circuit steel towers.

Environmental Disadvantages

Because reconductoring the existing towers would not remove the existing single-circuit wood H-frame and lattice steel structures in the Devers–San Bernardino Junction segment, the existing towers would remain. The visual benefit of reducing the number of tower lines in the corridor would not be achieved. Also, these structures are aged and could require slightly more frequent maintenance than the new towers that would be installed under the Proposed Project.

Alternative Conclusion

ELIMINATED. This alternative may be feasible, but it would not meet the project objectives because of its dependence on aged structures. Use of the outmoded existing structures under this alternative would leave the West of Devers corridor incapable of meeting the basic project objective of adding 1,200 MW of transmission import capability. Higher costs would make the economic objectives of the Proposed Project less likely to be achieved. Therefore, this alternative has been eliminated from analysis in this EIR/EIS.

4.4 Other Project Alternatives

4.4.1 Desert Southwest Transmission Project Alternative

Alternative Description

The Desert Southwest Transmission Line Project (DSWTP) Final EIS/EIR, published by the Imperial Irrigation District (IID) and BLM in October 2005, analyzes a proposed new 118-mile 500 kV line between Blythe and SCE's Devers Substation. The line would originate at a new 25-acre Keim Substation/Switching Station on the south side of Hobsonway east of the center of Blythe near the Blythe Energy Project (BEP) power plant. In addition, the DSWTP would include a new Midpoint Substation/Switching Station, located at the eastern intersection of the proposed line with the existing DPV1 line.²² The new line from the new Keim Substation/Switching Station to the new Midpoint Substation/Switching station would be constructed as a double-circuit line or two parallel lines.²³ Also, in the future, a new substation could be built near Indio west of Dillon Road, adjacent to the existing transmission line facilities, to connect the proposed transmission line to IID's existing Coachella Substation.

The Final EIS/EIR for DSWTP has been completed so permitting could be completed earlier than equivalent DPV2 segment. Much of this alternative route would be in the same corridor as SCE's DPV1 transmission line, the proposed DPV2 line, and the proposed Blythe Energy Project Transmission Line Modifications (BEPTL). This alternative is illustrated in Figure Ap.1-11. Because the proponents of the California DSWTP are proposing to construct a 500 kV transmission line from Blythe to Devers adjacent to the proposed DPV2 Devers-Harquahala 500 kV transmission line for the majority of the alignment, SCE is exploring a joint project proposal with DSWTP, where only one instead of two 500 kV transmission lines would be constructed since the parties would share a single 500 kV transmission

²² A proposed new substation in the Blythe area is referred to as "Midpoint" by both DSWTP (see Section 4.4.1 above) and SCE in their respective applications; however, the actual locations of their respective Midpoint Substations differ, as is shown in Figure Ap.1-10 (DSWTP's Midpoint Substation would be approximately 5 miles northwest of SCE's proposed Midpoint Substation location).

²³ Figure B-8 in the Project Description illustrates the design and dimensions of a double-circuit 500 kV line; two parallel lines would require a ROW of at least 300 feet.

line in the proposed DPV2 ROW. The joint project would include the construction of a 500 kV substation (see Substation Alternatives in Section 4.2.11). Even if the projects were joined, the Harquahala-Midpoint 500 kV segment and the WOD upgrades would still be necessary as part of the DPV2 project.

The DSWTP transmission line would originate at the new Keim Substation/Switching Station and would traverse southwest along existing transmission line ROWs in western Blythe for approximately 1.8 miles. At this point it would turn west and proceed approximately 7 miles to the point where it would meet the corridor of SCE's existing 500 kV DPV1 and proposed DPV2 ROWs. A proposed new 25- to 50-acre Midpoint Substation/Switching Station would be developed at this location, which would provide a connection point for DSWTP, DPV1, DPV2, and the 230 kV BEPTL. The proposed line would be built as a double-circuit or two parallel 500 kV lines between Keim and Midpoint Substations.

From Midpoint, the line would parallel DPV1 until approximately 3 miles southeast of Desert Center. At this point, the line would shift to the north to minimize impacts to the Alligator Rock ACEC near I-10 (following the same alignment as the Alligator Rock–South of I-10 Frontage Alternative; see Section 4.2.9.3). After passing the north end of Alligator Rock, the line would again shift back to the south to return to its parallel alignment adjacent to the existing DPV1 transmission line and DPV2 ROW. If the projects were to be joined, then the DSWTP alignment would follow the proposed DPV2 route through Alligator Rock ACEC.

The proposed DSWTP transmission line would cross to the north side of Interstate 10 (I-10), approximately 2.5 miles east of the Cactus City rest area, and continue west adjacent to the existing DPV1 transmission line and DPV2 ROW to the termination point at Devers Substation.

Analysis of the DSWTP is presented in the Final EIS/EIR for that project. The impacts from construction of the 500 kV transmission line would be similar to those of the Proposed Project. For the purposes of this alternatives analysis, the DSWTP differs from the Proposed Project in the following respects:

- DSWTP includes the construction of three new substation/switching stations (Keim, Midpoint, and on Dillon Road) that would not be required with the DPV2 Proposed Project (although DPV2 includes an option to construct the Midpoint Substation).
- DSWTP requires construction of one double-circuit 500 kV line or two parallel 500 kV transmission lines for 8.8 miles from Keim Substation to Midpoint Substation.
- DSWTP would diverge from the DPV1 corridor to the north (closer to I-10) in the vicinity of Alligator Rock for approximately 9.5 miles.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The DSWTP Alternative, as a component of the entire DPV2 project, would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Figure Ap.1-11. Desert Southwest Transmission Project Alternative
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Feasibility

Legal, Regulatory, and Technical Feasibility. The DSWTP Alternative is the subject of a separate EIR/EIS that has been certified by the Imperial Irrigation District. That document found the project not to have any legal, technical, or regulatory feasibility concerns.

Environmental Advantages

Biological Resources. As described in Section 4.2.9.3, the habitat along the south side of I-10 near Alligator Rock is more disturbed than the habitat that lies farther south, because of mortality from automobiles and traffic and from flood control devices by Caltrans. Since DSWTP would diverge from the DPV2 corridor and would be closer to I-10, it would most likely be located in an area with less potential for desert tortoise impacts around Alligator Rock.

Cultural Resources. This DSWTP alternative would avoid a central portion of Alligator Rock ACEC (7,726-acre area of archaeological significance) by diverging north from the proposed DPV2 corridor and closer to I-10 where it is more disturbed. The proposed route would be more sensitive, with two National Register Districts and several other potentially NRHP-eligible sites, whereas the DSWTP alternative would cross one National Register District and only a few other potentially NRHP-eligible sites in this area.

Environmental Disadvantages

Ground Disturbance. The DSWTP Alternative would require the construction of three new approximately 25- to 50-acre substations (Keim, Midpoint, and on Dillon Road). The Keim and Dillon Road Substations would not be required for the DPV2 project, so their construction and operation would increase the amount of permanent impacts in comparison to the DPV2 project. It would also create more short-term construction impacts and ground disturbance, affecting air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, water use for dust suppression, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with greater ground disturbance.

New Transmission Corridor. This alternative would create a new transmission corridor outside of the existing DPV1 corridor for approximately 7 miles between Blythe and the DSWTP Midpoint Substation, and around Alligator Rock. In general, consolidating transmission lines within common utility corridors, as proposed with DPV2, is desirable because it minimizes land disturbance, barriers to wildlife movement, and additional visual impacts that typically result from separate transmission line corridors.

Biological Resources. In addition to short-term construction disturbance, there would be approximately 75 to 100 total acres of permanent habitat loss associated with the construction of two additional substations under DSWTP.

Visual Resources. The DSWTP would not eliminate any significant visual impacts of the Proposed Project. The DSWTP preferred route would result in greater visual impacts on views from I-10 because of the route's close proximity to the freeway in the area west of Blythe and in the vicinity of Alligator Rock. In addition, the project would result in the construction of two additional 500 kV substations. The DSWTP Midpoint Substation site would be slightly to the west-northwest of the Mesa Verde Substation site (see Section 4.2.11.1) and would be visible to travelers on I-10 and residences in the Mesa Verde area.

Alternative Conclusion

RETAINED FOR ANALYSIS. This alternative project would meet project objectives and would be feasible. Overall, the impacts would be very similar to those of the proposed DPV2 Project. Although the DSWTP would require construction of two additional 25-acre substations in addition to a double-circuit or two parallel 8.8-mile 500 kV lines from Keim to Midpoint Substations, creating greater temporary and permanent impacts to all issue areas, the DSWTP route would reduce impacts to biological and cultural resources in the vicinity of Alligator Rock ACEC. Therefore, the DSWTP Alternative has been retained for full consideration in this EIR/EIS.

4.4.2 Convert DPV1 from AC to HVDC Transmission Line

Alternative Description

This alternative was included in SCE's 2005 PEA (Section 2.2.4.2). This alternative would modify the existing DPV1 500 kV transmission line to convert DPV1 from an AC line to a high-voltage direct-current (HVDC) line. SCE performed a scoping study in 2002 to evaluate converting the existing DPV1 AC line to 3,000 MW, +/- 500 kV HVDC line. SCE selected a 3,000 MW rating based on an assumption that DPV1 and DPV2 would be allocated approximately 3,000 MW of the total Path 49 rating after DPV2 becomes operational (SCE Response 16, 10/21/05). It was assumed that the existing AC line could be converted for HVDC operation with two of the three phases operating as the direct-current positive-negative poles for the HVDC operation and the remaining phase acting as the ground return.

Based on the preliminary power flow and stability studies, the project scope of the HVDC Alternative was identified as follows:

- Palo Verde Substation: Install a converter and associated filters for 3,000 MW
- Devers Substation: Install a converter and associated filters for 3,000 MW HVDC operation
- Build a new Devers-Valley #2 500 kV transmission line
- Build a new Valley-Serrano # 2 500 kV transmission line
- Drop load at eight SCE A bank stations
- Drop generation in Arizona for the loss of HVDC line

SCE did not study the feasibility of converting DPV1 to HVDC with a rating less than 3,000 MW, nor did SCE study the possibility of combining the proposed West of Devers Upgrades with the conversion of DPV1 to HVDC in an effort to avoid the need for an additional Devers-Valley-Serrano 500 kV line. The current DPV1 rating without DPV2 would become about 1,718 MW after completion of Path 49 Upgrades; therefore, adding 1,200 MW would bring the allocation of the Devers–Palo Verde path to 2,918 MW (PEA, Appendix G-2, Cost Effectiveness Report). Because the Proposed Project would be rated to bring 2,918 MW to Devers, converting DPV1 to HVDC with a rating of 2,918 MW should avoid the need for an additional Devers-Valley-Serrano 500 kV line.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

Converting DPV1 from AC to HVDC would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. The conversion to HVDC would add transmission import capability sufficient to satisfy Proposed Project objectives,

but the cost of this alternative would exceed the cost of the Proposed Project. Estimated costs for the HVDC line include: \$450 million for the two 500 kV HVDC converter stations with approximately 3,000 MW capacity (\$225 million at each end); other Devers-Harquahala upgrades (minor); cost of the proposed WOD 230 kV upgrades; and a delay in the project schedule to restart planning.

Increased costs associated with construction of the converter stations and other upgrades would need to be passed on from the transmission owner to the customers of transmission service. This would diminish the economic performance of the line and reduce the likelihood of achieving the economic objectives of the Proposed Project.

Combining the capacity of DPV1 and DPV2 into a single HVDC line, as would occur under this alternative, would decrease the reliability and flexibility of the transmission network. The HVDC line would operate in a manner similar to a new point load at the Palo Verde hub and a new source of power at Devers, and it would place the entire transmission capability of the Devers–Palo Verde corridor onto the single set of existing towers, which would increase the likelihood of large power outages. To address this, operation of the HVDC line would require the grid operator (CAISO) to establish special protection systems (SPS) or remedial action schemes (RAS) such as load shedding in the case of a line outage. Developing SPS and RAS requires planning-level coordination through WECC. The WECC planning process is in its third phase for the Proposed Project, and commencing the planning process for this alternative would delay the ultimate in-service date to beyond 2009. Further, imposing SPS and RAS measures would conflict with the Proposed Project objective of providing increased reliability, insurance value against extreme events, and flexibility in operating the grid. Because an outage of this HVDC line would force SCE to drop load at a number of substations and there would be reduced likelihood of achieving the economic objectives, this alternative would not meet all of the stated objectives of the Proposed Project. Therefore, converting DPV1 from AC to HVDC would increase California's transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest, but it would not meet the objectives of providing increased reliability, insurance value against extreme events, and flexibility in operating the grid.

Feasibility

This alternative, as it was defined in SCE's 2005 PEA (Section 2.2.4.2), with the Devers-Valley-Serrano No. 2 500 kV, was eliminated from further study by SCE due to its higher cost when compared to DPV2. Technical feasibility was not examined by SCE in detail because of the economic cost of the alternative. Although the alternative appears to be technically feasible, it would place the entire transmission capability of the Devers–Palo Verde corridor onto the single set of existing towers, which would increase the likelihood of large power outages. As noted above, the alternative warrants dropping load at certain 230/66 kV substations in the event of a double-line outage of DPV1 and DPV2. This limits flexibility in operating the grid.

Environmental Advantages

The existing Devers-Harquahala ROW would be used with the existing towers to accomplish the conversion of DPV1 to HVDC. This would eliminate environmental impacts associated with construction and operation of the proposed new towers and access roads in the Devers-Harquahala segment of the Proposed Project. The WOD portion of the project would not be affected by the conversion of DPV1 to HVDC.

Environmental Disadvantages

Land Use and Visual Resources. Converter stations at Harquahala and Devers would require additional land disturbance beyond that of the Proposed Project. Construction of the converter stations would require

permanent disruption of large new land areas, approximately 20 to 40 acres each, near Devers and the eastern termination point. 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 two endpoints.

Additional Transmission Lines. There would be less flexibility for interconnections with other existing or proposed AC transmission lines in the CAISO system, which could lead to construction of additional AC facilities parallel to the HVDC line. Converting DPV1 to HVDC would eliminate the availability of an optional interconnection at the Midpoint Substation in the Blythe area, or at any other location along the Devers–Palo Verde corridor, because the HVDC circuit would not be compatible with the surrounding AC system. The limited access nature of the HVDC circuit means that construction of the BEPTL or DSWTP, which might be avoided with an interconnection to DPV2, would become more likely.

As this alternative is defined in the PEA, it would create additional environmental impacts due to construction of a second Devers-Valley-Serrano 500 kV line; however, this aspect of the alternative may be avoidable with a HVDC line rating of 2,918 MW.

Alternative Conclusion

ELIMINATED. The alternative appears to be technically feasible, but it would not meet all project objectives (except increasing California’s transmission import capability from the Southwest and enhancing and supporting the competitive energy market in the Southwest). As illustrated above, an outage of this HVDC line would force SCE to drop load at a number of substations, which would require imposing SPS or RAS measures, which would conflict with Project Objectives of increased reliability, insurance value against extreme events, and flexibility in operating the grid. There would also be reduced likelihood of achieving the economic objectives. Because this alternative would be unable to satisfy most of the project objectives, it was eliminated from further analysis in this EIR/EIS.

4.4.3 Underground Alternative

Alternative Description

In order to construct an underground 500 kV transmission line, insulated power cables would be placed underground along specific high-impact segments or the entire transmission line alignment from Harquahala Substation to Devers Substation. There are four underground technologies for 500 kV that are commercially available: High-Pressure Fluid (HPFF) Cables; Self-Contained Fluid-Filled (SCFF); Solid Dielectric (XLPE) Transmission Cables; and Compressed Gas Insulated Transmission Lines (CGTL).

The choice of insulation, and essentially cable system type, is essentially a compromise as with few exceptions no proven insulation material/cable type is superior to all others in a cost-effective way for every application. The very existence in many cases of several different cable types on the same utility’s network attests to this. Insulation type is most often the determining factor in the definition of operating limits of cable types.

Regardless of the underground technology used, a transition structure would be required at the ends of the underground segment, as well as two transition structures at each substation, to support the underground cable terminations and to connect the underground cable to the overhead bus within the substations. This transition structure would take the place of the substation dead-end structure required for overhead line terminations. It is anticipated that the transition structure would be shorter than the typical overhead

line “dead end” structure and would be approximately 80 feet high and with a footprint of approximately 2 to 3 acres. For the HPFF cable option, additional space would be required at the substation for the fluid pressurization equipment.

Undergrounding a 230 kV line for the West of Devers segment would be feasible and has been completed by SCE and Pacific Gas and Electric (PG&E); however, each circuit would require a 3-foot continuous trench creating much greater construction and habitat disturbance impacts than with the overhead Proposed Project.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Underground Alternative would increase California’s transmission import capability from the Southwest and would enhance and support the competitive energy market in the Southwest. In addition, in order to be comparable to the Proposed Project, underground construction options must meet the requirement for operation at 500 kV. Therefore, this alternative would meet all of the stated objectives of the Proposed Project.

Feasibility

Viability of Underground Transmission System Options

SCFF underground transmission systems and HPFF systems are considered mature and well developed at lower voltages. However, application of the SCFF cable type within the United States has largely been limited to the 115/138 kV range, with only a few miles at 230 kV installed commercially. While this type of cable has been used extensively outside of the United States, it currently makes up less than 5 percent of the transmission cable in this country. This cable has been manufactured for system voltages from 69 kV up to 500 kV. The only installation of this cable type at 500 kV within the United States is a short section of cable at Grand Coulee Hydroelectric Plant in Washington, where approximately four miles of cable was used for each of the six generators for a total of 24 miles. As a three-phase line this would be approximately 7,000 feet of circuit length. The cable runs through the galleries in the dam and then a tunnel to reach the switchyard. Long submarine cable circuits are one application where this type of cable has definite advantages over the other types of cables. This is due to the fact that there are overseas submarine cable factories that have the capability of manufacturing this type of cable in lengths exceeding five miles in length — thus avoiding the necessity of having field- or factory-installed joints. These systems typically use DC technology due to the lengths involved. An example is the 130 km (80-mile) 350 kV DC submarine link between Denmark and Norway.

HPFF underground transmission system cable systems with system voltages ranging from 69 kV up to 345 kV have been in commercial operation for over 35 years. HPFF cable systems with rated system voltages up to and including 765 kV are commercially available and have passed long-term qualification tests.

XLPE underground transmission system cable has been available for system voltages up to 138 kV since the early 1970s; however, there was a lack of widespread acceptance in this country because of reliability problems with the first generation cable and accessories for some of the initial installations. As the newest technology, XLPE systems have begun to have installations with long enough service life to increase utility confidence in their reliability. Recent years have seen substantial improvement in XLPE systems and acceptance and adoption for higher transmission voltages. Currently, the number of

220 kV to 230 kV solid dielectric cable installations in the United States is also increasing with approximately 50 circuit miles in service.

Utility acceptance in the United States has grown relatively rapidly (last 5 years) for use at 230 kV and 345 kV. For example, a California utility proposed a project using over 12 miles of 230 XLPE underground transmission in September 2002 and a New England utility is presently constructing a 345 kV line which includes 2.1 miles of XLPE underground transmission cable with a second phase of the project proposed with a 5.5-mile XLPE alternative segment. Internationally, a number of XLPE systems up to 420 kV have been installed including a 13.75-mile and 6.25-mile direct buried loop in Copenhagen, Denmark, which was completed in 1997. The first long-distance 500 kV XLPE lines were installed in Tokyo, Japan, in 2000. This XLPE system is two circuits (with a third planned) and was installed in a cable tunnel and in ducts beneath bridges for 25 miles.

CGTL underground transmission system technology has primarily been used in applications where high power transfer is required over short distances, such as short dips in overhead lines or relatively short substation connections (get-aways) to overhead lines. Relatively short lengths (i.e., less than 1,000 feet) of the 100 percent SF₆ compressed-gas underground transmission lines have been installed in the United States, Japan, and European countries for several decades.

One 275 kV CGTL system, installed in a tunnel with other utilities in Nagoya, Japan, is two miles long. The system voltages for these installations have been from 138 kV up to 765 kV. The first commercial application of the second generation CGTL technology was the construction of a “dip” in an existing 400 kV overhead transmission line in Geneva, Switzerland, in 2000. Because it is not proven for more than two miles, CGTL technology would have significant technical feasibility issues for the distance required for the DPV2 transmission line. Another particularly challenging issue for assembly of CGTL would be creating a dust-controlled environment to avoid particle pollution of the insulating gas. The lack of installation and operation information for buried CGTL transmission over any significant distance is as much a practicality issue as a feasibility issue that would eliminate the use of CGTL as a feasible alternative.

Installation Concerns for All Underground Technology Options

Crossing of Active Faults. The underground transmission line route would cross the Banning Fault and the Mission Creek fault, which are known to be active, as well as the Mecca Hills Fault, which is potentially active. A seismic event could expose the cable to potential fault rupture, local ground cracking, and groundshaking, which could damage the underground cable and result in it not being able to transmit power. This would present a significant reliability concern. There are mitigation options that could be implemented, such as installation of oversized cable vaults on either side of the fault, leaving slack in the cables (ideally enough slack to allow for historic offset), installing the cable in the shortest feasible segments with splice vaults located as close as possible outside of the fault zone in order to minimize the area where post-earthquake repairs may be required, and storage of spare cable sections for rapid repair after an earthquake-caused failure. Such measures may reduce the magnitude of impact by reducing the likelihood of an outage and decreasing the length of time of an outage. Regardless, serious reliability concerns would still exist, which would challenge the feasibility of undergrounding across the fault zone.

Slope Considerations. Placing cables on a slope for any significant distance is of concern as there is a risk of movement of the cable downslope due to either gravity or contraction and expansion effects. While there are no hard and fast specific guidelines on slope limitations and free-laying, cables have been placed on slopes that range from 5 percent to 8 percent for relatively short distances less than 500 feet, cable grappling or retention systems would need to be considered if the cable slope is in excess of 5 percent

for distances greater than 500 feet. Significant cable slopes with cable retention systems are rarely used due to the potential for the attachments to introduce physical, electrical, and thermal stress points that can result in cable failures. Therefore, underground installations are straightforward in relatively flat terrain.

Cost. As a result of the considerable construction activities associated with undergrounding the transmission line, the associated costs are substantially greater than the cost of installing overhead transmission lines. The cost of undergrounding along the entire Proposed Project route (25.6 miles) could be cost prohibitive.

Feasibility Conclusion

All of the technologies would be legally and regulatorily feasible. Three of the four technologies would be technically feasible for the Underground Alternative (SCFF, HPFF, and XLPE) in specific circumstances and lengths. For distances less than approximately 1,000 feet, CGTL technology would be feasible as well. However, none of the technologies 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 only been limited implementation in other countries. Therefore, the reliability of underground 500 kV technologies for use in the Underground Alternative has not been fully demonstrated.

Additionally, there are serious reliability concerns associated with slope construction and underground crossings of active fault zones, which question the feasibility of the Underground Alternative. Finally, the cost of undergrounding along the part of or the entire proposed route would be cost prohibitive.

Environmental Advantages

In the Proposed Project, overhead transmission lines would be placed on new 500 kV structures, creating potentially significant visual impacts and degradation of recreational experiences. An underground transmission line would eliminate the permanent loss of habitat at each tower footings that would result from the construction of the overhead line. In addition, underground transmission lines would reduce the potential for raptor tower/line collision.

Environmental Disadvantages

Ground Disturbance. Construction of the Underground Alternative (230 kV or 500 kV) would require substantially more construction activity and ground disturbance due to the continuous trenching required. Overhead transmission line construction would result in construction disturbance primarily at individual structure sites, located approximately every 1,100 feet (assumes 784 towers over 230 miles) along the alignment. Underground construction and trenching would involve much greater ground disturbance and construction-related impacts (traffic, air quality and dust, and noise). There is also a greater potential to encounter contaminated soils and cultural resources, and to impact biological resources due to the greater ground disturbance.

Installation of an underground transmission line requires grading and clearing of trees and vegetation along the entire length of the corridor prior to trenching (i.e., similar to pipeline construction) rather than only at tower sites. Such construction is much more difficult and results in much more land disturbance than overhead lines especially in hilly, rugged terrain where overhead lines can typically span between ridge tops (e.g., in the area around Alligator Rock) or in sensitive biological areas, such as San Timoteo Canyon west of Devers Substation.

Access Roads and Transition Stations. Whenever possible, existing roads along the DPV1 corridor would be utilized to minimize new access road construction. Access roads must be created or improved to handle large construction vehicles and trucks hauling reels of cable. Scarring along the alignment would result from the installation of all-weather access roads, splice vaults, and potential aboveground cooling equipment resulting in substantial visual impacts. Construction of the transition stations would each require a footprint of 1 to 1.25 acres, resulting in temporary and permanent biological, cultural, and visual resources impacts as well.

Construction and Repair Time. The installation of an underground transmission line would require more time than construction of an equivalent length of overhead line because of the time required for excavating trenches, constructing the duct banks, fluid reservoirs, and/or stop joints. Construction could be substantially extended due to restrictions on the times of the year available for construction, required to limit the impacts on the environment. In addition, maintenance and restoration time in the event of an outage would also be more difficult and could result in longer outages and repair times. Although electric fields are reduced with increasing burial depth, magnetic fields above underground conductors are generally higher than from overhead lines due to closer proximity to the conductors to the ground.

Alternative Conclusion

ELIMINATED. The Underground Alternative would meet the project objectives and three of the four technologies would be feasible. Although the ranking of the four technologies is subjective, based on cost and system simplicity, the initial ranking of the technologies would be as follows: XLPE, SCFF, HPPF, and CGTL. Note that SCFF and HPPF technologies may be largely similar depending on the specifics for a given alternative; however, HPPF requires a more intensive construction/development process.

If a short underground segment were considered (e.g., to avoid a specific high impact area), these technologies may not be cost prohibitive to construct. However, all underground construction of transmission lines requires a continuous trench in which to install duct banks that would carry the electrical cables. This amount of trenching would create significant impacts to soils/erosion, cultural resources, biological resources as well as a longer construction time and the need for transition structures. Operational impacts would also be greater associated with maintenance and access to the lines. Repair times would be much longer as well. With the exception of permanent visual resource impacts that would be eliminated, underground construction would cause much greater impacts to most issue areas than the Proposed Project. Therefore, given the potential for increased significant environmental impacts associated with the construction, operation and maintenance of an underground 230 kV or 500 kV transmission line, the unproven reliability for long-distance underground 500 kV transmission lines, the reliability concerns associated with the steep slopes and the active fault crossing, and the high cost of these technologies, undergrounding the transmission line has been eliminated from further analysis.

4.5 Non-Transmission Alternatives

SCE considered several supply-side and demand-side alternatives to DPV2. Supply-side alternatives include new generation, both conventional and renewable. Demand-side alternatives include additional demand response and energy efficiency. Distributed generation was also considered, as well as the no-project alternative.

SCE concurs with the CAISO (2005) that both generation and transmission options need to be pursued to meet future customer demand. SCE does not rely entirely on one or the other, but rather a portfolio

that integrates both. Generation and transmission options have differing attributes that help meet the needs of a load-serving entity. For example, generation provides local-area reliability such as voltage support and black/quick-start, whereas transmission provides access to multiple generators and enhances liquidity in the market and market competition.²⁴ Both options are necessary, and DPV2 is the specific transmission project that is being considered here.

Some of the alternatives discussed below are resource options SCE is aggressively pursuing²⁵ to meet the demands of its customers and southern California in general. As shown by the “in-out” analysis,²⁶ these resources are complimentary to the future benefits of DPV2 and therefore, SCE does not consider them to be substitutes or alternatives. Nevertheless, all of the non-transmission alternatives were eliminated from consideration because they do not meet the project’s objectives of (1) increasing access to low-cost, surplus generation in the Southwest by adding 1,200 MW of transmission import capability into California and reducing energy costs in California; (2) enhancing competition among generating companies supplying energy to California; (3) providing additional transmission infrastructure to support and provide an incentive for the development of future energy suppliers selling energy into California; and (4) providing increased reliability of supply, insurance value against extreme events, and flexibility in operating California’s transmission grid.

4.5.1 New Conventional Generation

Alternative Description

New power generation facilities could be developed in southern California as an alternative to the Proposed Project. The specific configuration of new generation would vary depending on a number of uncontrollable factors (e.g., need, market forces), but the new facilities would likely be installed in a location with convenient and economical access to fuel supplies, existing transmission facilities, major existing substations, and load centers. Construction and operation of new generation facilities would be subject to separate permitting processes that would need to be completed in advance of construction. At this point, it is assumed that SCE would need to take an integrated approach to procure 1,200 MW of power for its customers before 2009 under this alternative.

For the New Conventional Generation Alternative, it is assumed that the most likely method of providing new power generation would be through the construction of combined cycle natural gas-fired turbine power plants. This, however, does not preclude the potential use of alternative energy technologies such as renewable resources, which are discussed in a separate section below.

Possible locations for new power generation facilities are illustrated on Figure Ap.1-12. For the purposes of this analysis, new generation facilities are assumed to be the following:

- **Near the Devers Substation.** A new power plant could be developed similar to the 456 MW Ocotillo Energy Project, which was proposed by InterGen in May 2001 but never approved for construction, or an expanded generation facility could be installed at the 135 MW Indigo Energy Facility operated by Wildflower LLP near to the Devers Substation.

²⁴ DPV2 does not preclude the development of new generation.

²⁵ SCE prioritizes its resource considerations consistent with the Energy Action Plan's “loading order.”

²⁶ A more detailed discussion may be found in Appendix G of SCE’s PEA.

- **Near the Etiwanda Substation.** Etiwanda is northwest of the Vista Substation. New facilities could be installed at or near the 770 MW Etiwanda Generating Station (currently owned by Reliant Energy) or that facility could be repowered to create a state-of-the-art facility.
- **Near the Valley Substation.** New or expanded generation could occur at the Inland Empire Energy Center, now under construction. The Inland Empire Energy Center was originally proposed by Calpine Corporation in August 2001 and approved for 810 MW in June 2005.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The New Conventional Generation Alternative would enhance competition among generating companies supplying energy to California and the power supply within California would be increased. However, new conventional generation would not increase California's transmission import capability from the Southwest, and it would not provide additional transmission infrastructure for energy suppliers selling energy into California energy markets. Therefore, this alternative would not meet all of the stated objectives of the Proposed Project.

Building new generation would not provide the transmission upgrades of the Proposed Project, and as such, building new generation, either conventional or renewable, would not be comparable to an economic transmission line such as Proposed Project. Economic transmission lines provide access to many generators and facilitate a robust transmission system. SCE anticipates that DPV2 would not only allow for interconnection of new generation resources to the transmission grid but also provide for flexible delivery alternatives and increase access to a greater number of power generators. DPV2 also would provide load-serving entities, such as SCE, to procure short-, medium-, and long-term contracts with existing generation. Such flexibility in contracting would probably not be realized under the New Conventional Generation Alternative because new generating plants in southern California would likely require long-term contracts to meet financing requirements to be built and would likely have their full output secured through the contracts. Under this alternative, these generating plants would not be as likely to participate in short-term energy markets and produce the enhanced competition that SCE expects to facilitate with DPV2.

The economics of building new generation outside of California, and especially in the Palo Verde area, have historically been lower relative to new generation in southern California due to the following factors:

- Lower cost of delivered natural gas
- Lower labor rates
- Lower cost for bulk materials purchased locally (including State taxes)
- Lower costs for emissions offsets/credits
- Lower land costs.

These trends will likely continue into the future providing a continued economic incentive for developers of new generation outside of California.

Feasibility

Technical and Legal Feasibility. Developing new conventional generation in southern California is feasible from a technical standpoint. This has been demonstrated by merchant power plant developers and other public utilities in the region that have successfully developed power plants recently to achieve economic gains.

Figure Ap.1-12. New Conventional Generation Alternative
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Investor-owned utilities such as SCE have not recently pursued development of new conventional power plant facilities because of the capital requirements and the financial risk involved. SCE believes it is not in a position to make long-term financial commitments in generation due to uncertainty surrounding the SCE customer base, which could be diminished by direct access and municipalization trends, and the creditworthiness and financial condition of SCE, which were severely damaged in 2000 and 2001 (PEA Appendix G-2, Section III(A)(2); SCE, 2005). In addition, SCE could not develop a power plant without first getting CPUC approval on ratemaking, which would create project uncertainty. As such, this alternative is considered to be feasible, but not economically viable with SCE as a developer.²⁷

Regulatory Feasibility. The development of gas-fired power plants in southern California requires compliance with strict air quality regulations, governed by the South Coast AQMD. Mitigation requirements are extensive, requiring purchase of emission offsets and other requirements. However, these requirements have been met by several power plants, so compliance is considered to be feasible.

Environmental Advantages

The construction and operation of major power plants in southern California could eliminate the impacts associated with construction of the DPV2 transmission project. These impacts, detailed in Section D of this EIR/EIS, include visual impacts, loss of biological habitat or cultural resources, and a wide range of construction impacts along the nearly 300-mile length of the transmission project.

Environmental Disadvantages

Major power plants require permanent loss of 20 or 30 acres of land, construction of varying length of transmission lines to connect with existing facilities, and construction of pipeline connections for natural gas and water. Construction impacts are generally contained near the plant itself, but operational impacts can be more regional. Air emissions from burning of fossil fuels to generate power occur during the life of the plant, and the plant facilities can be visible from large distances. Depending on technologies used, power plants can consume large amounts of water.

Alternative Conclusion

ELIMINATED. The New Conventional Generation Alternative would not satisfy the following project objectives: adding transmission import capability into California and providing access to low-cost energy, providing additional transmission infrastructure, and improving the reliability and flexibility of the region's transmission system. The long-term operational environmental impacts of power plants (i.e., air emissions, water usage) can be balanced against the impacts of long transmission lines. Because the new generation alternative does not meet the project's objectives, it is eliminated from further evaluation.

²⁷ There is a power facility currently proposed and under consideration by the California Energy Commission near the Valley Substation: the Sun Valley Power Project. This plant was proposed by a subsidiary of Edison International: Edison Mission Energy. Edison International is a parent company of both SCE and EME.

4.5.2 Renewable Generation Resources

Background

Aggressive efforts are now being made to increase the renewable resource component of California's generation supply. In the year 2002, California had over 7,000 MW of renewable energy capacity, including solid-fuel biomass, geothermal, wind, small hydroelectric plants (30 MW or less), concentrating solar power (CSP), photovoltaic systems (PV), landfill gas, digester gas, and municipal solid waste (MSW) facilities.

In 2004, SCE procured more than 13,000 gigawatt-hours of renewable energy, more than any U.S. utility and enough to power almost 2 million homes for an entire year. In 2004, more than 18 percent of the power SCE delivered to the 13 million Californians it serves came from renewable energy sources. SCE's current renewable portfolio can deliver 2,588 MW of electricity, including: 1,021 MW from wind; 892 MW from geothermal; 354 MW from solar; 226 MW from biomass; and 95 MW from small hydroelectric power (Stirling Energy, 2005).

Senate Bill 1038 (SB 1038). SB 1038 took effect January 1, 2003, and is codified in the Public Utilities Code (PUC). This bill required the California Energy Commission (CEC) to submit a comprehensive renewable electricity generation resource plan to the State Legislature, describing the potential renewable resources available in California. Additionally, SB 1038 required the CEC to develop a plan to increase the annual amount of electricity generated from renewable resources. The transmission plan (Plan) for renewable electricity generation facilities to meet California's renewable energy goals was submitted to the CPUC on December 1, 2003, pursuant to Public Utilities Code Section 383.6. The Plan has two sections: a policy text that describes key issues emerging from the development of the Plan, and a Transmission Plan detailing the transmission line and substation additions and modifications necessary to attain the legislative target of 20 percent renewable power generation by 2017 (see SB 1078, below).

Senate Bill 1078 (SB 1078): California Renewables Portfolio Standard Program. The Renewables Portfolio Standard (RPS) was established in 2002 by SB 1078. Pursuant to SB 1038, the RPS requires investor-owned utilities, including retail sellers of electricity such as SCE, to increase their sale of electricity produced by renewable energy sources (such as wind) by at least 1 percent per year, achieving 20 percent by 2017, at the latest. Subsequent to the RPS, the Energy Action Plan was adopted by the CPUC, CEC, and the Consumer Power and Conservation Financing Authority (CPA — which is now defunct). The Energy Action Plan established a target of 20 percent renewables by 2010 (CEC, 2003), which is a more aggressive goal than the previous SB 1038 goal of 20 percent by 2017. The RPS legislation requires that the CPUC and CEC work collaboratively to implement the RPS and assigns specific roles to each agency. Pursuant to SB 1078, the CEC's responsibilities include:

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

The CPUC is addressing its responsibilities in implementing the RPS through a separate proceeding titled, Order Instituting Rulemaking to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development (R. 01-10-24). The CPUC's responsibilities include:

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

The CPUC and the CEC have developed a schedule for addressing RPS issues, and have established guidelines for how the two agencies work collaboratively on the RPS. The schedule and collaborative process are described in the CEC's Committee Order on RPS Proceeding and CPUC's Collaborative Guidelines. The Order also describes administrative procedures for interested parties who wish to participate in the CEC's RPS proceeding.

Energy Action Plan. In 2003, the three key energy agencies in California, the CEC, the California Power Authority (CPA), and the CPUC, came together in a spirit of unprecedented cooperation to adopt an "Energy Action Plan" (EAP)²⁸ that listed joint goals for California's energy future and set forth a commitment to achieve these goals through specific actions.

The EAP was a living document meant to change with time, experience, and need. The CPUC and the CEC have jointly prepared the Energy Action Plan II (EAP II) to identify the further actions necessary to meet California's future energy needs.²⁹ Other active participants in the process include: the Business, Transportation, and Housing Agency; the Resources Agency; the State and Consumer Services Agency; the California Independent System Operator (CAISO); the California Environmental Protection Agency (Cal EPA); and other agencies with energy-related responsibilities.

EAP II describes a coordinated implementation plan for State energy policies that have been articulated through the Governor's Executive Orders, instructions to agencies, public positions, and appointees' statements; the CEC's Integrated Energy Policy Report (IEPR); CPUC and CEC processes; the

²⁸ The Energy Action Plan (EAP) I can be viewed at the CPUC's website at <http://www.cpuc.ca.gov/PUBLISHED/REPORT/28715.htm> or at the CEC's website at http://www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.PDF.

²⁹ The Consumer Power and Conservation Financing Authority was a co-agency in EAP I. Funding for the agency was eliminated in SB 1113 (Chesbro) Chapter 208, the 2004-2005 budget. No additional funding is proposed in the Governor's 2005-2006 budget.

agencies' policy forums; and legislative direction. This document also is intended to be consistent with the energy policies embodied in the Governor's August 23, 2005, response to the 2003 and 2004 IEPRs.³⁰ The agencies expect to update or revise this action plan to reflect any changes needed to further implement the Governor's 2004 IEPR response, future energy policies, and decisions related to the forthcoming 2005 IEPR, as well as other relevant events that may arise in the future.

The EAP II's overarching goal is for California's energy to be adequate, affordable, technologically advanced, and environmentally sound. The State will achieve these goals by taking specific and measurable actions throughout California's energy sector. The three energy sectors include: fuels used in the transportation of California's goods and population, electricity, and natural gas. EAP II further expands the scope of the original EAP to describe research, development and demonstration activities that are critical to realizing California's energy goals. In addition, EAP II highlights the importance of taking actions in the near term to mitigate California's contributions to climate change from the electricity, natural gas and transportation sectors.

EAP II continues the strong support for the loading order — endorsed by Governor Schwarzenegger — that describes the priority sequence for actions to address increasing energy needs. The loading order identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. After cost-effective efficiency and demand response, renewable sources of power and distributed generation, such as combined heat and power applications, are next. To the extent efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, the EAP II supports clean and efficient fossil-fired generation. Concurrently, the bulk electricity transmission grid and distribution facility infrastructure must be improved to support growing demand centers and the interconnection of new generation, both on the utility and customer side of the meter. The EAP II pledges to remove the remaining barriers to transparency in the electricity resource procurement processes in the State and to increase outreach to consumers by providing improved education and services regarding energy efficiency, demand response, rates, climate change, and opportunities to reduce the environmental impacts of energy use. The EAP II is intended as an implementation roadmap for the entire State. The next step will be to prepare a workplan that ascribes responsibility for each of these key action items, determines the specific roles that will be played by each agency, and develops a timeline that ensures the agencies' prompt attention.

Integrated Energy Policy Report (IEPR). Senate Bill 1389 (SB 1389, Bowen and Sher, Chapter 568, Statutes of 2002) requires the CEC to adopt an IEPR every two years. Despite improvements in power plant licensing, enormously successful energy efficiency programs, and continued technological advances, development of new energy supplies is not keeping pace with the State's increasing demand. Construction of new power plants has lagged and the number of new plant permit applications has decreased. In addition, the development of new renewable resources has been slower than anticipated, due in part to the State's complex and cumbersome Renewable Portfolio Standard process. In the transportation sector, California's refineries cannot keep up with the mounting need for petroleum fuels and consequently depend upon increasing levels of imports to meet the State's needs.

California's energy infrastructure may be unable to meet the State's energy delivery needs in the near future. The most critical infrastructure issue is the State's electricity transmission system, which has become progressively stressed in recent years. The systematic under-investment in transmission infrastructure is reducing system reliability and increasing operational costs. Last year, transmission

³⁰ Governor Schwarzenegger's "Review of Major Integrated Energy Policy Report Recommendations" in his August 23, 2005, letter to Senator Don Perata, President pro tempore of the California State Senate.

congestion and related reliability services cost California consumers over \$1 billion. The State also experienced price spikes and several local outages over the past summer. California's petroleum import and refinery infrastructure also faces challenges including the inherent conflict between the need to expand import, refining, and storage facilities to meet transportation fuel demands and the environmental and social concerns of local communities affected by these needed expansions. In the natural gas sector, California has made infrastructure improvements that will increase the reliability and operational flexibility of the natural gas system, but must still address the need for additional pipeline capacity to meet peak demand.

In the 2003 IEPR and the 2004 IEPR Update, the CEC recommended a broad range of strategies to reduce energy demand, secure additional energy supplies, move toward more sustainable technologies and fuel types, and build the necessary infrastructure to protect California from future supply disruptions and high prices. The EAP II, adopted earlier this year by the CEC and the CPUC, sets out a series of concrete actions for the State to undertake to meet these challenges. The State must reinforce its commitment to these efforts and take immediate action to address problems in the energy sector to meet the State's policy goal of ensuring adequate, affordable, reliable, and environmentally sound energy services for its citizens.

The CEC's 2003 IEPR recommended accelerating the goal of 20 percent by 2017 to 2010, and the 2004 IEPR Update further recommended increasing the target to 33 percent by 2020. However, the IEPR stated that the current process for procuring renewable resources is overly complex and cumbersome, hobbling the State's ability to achieve its renewable goals (CEC, 2005b).

SCE Renewable Conceptual Transmission Plan. SCE developed the first version of its "Renewable Conceptual Transmission Plan" (RCTP) in accordance with the "Scope of Work" described by the CPUC in a March 27, 2003, ruling. The plan describes all SCE conceptual transmission upgrades and their estimated costs that are needed to connect all renewable energy resources in the SCE and Imperial Irrigation District (IID) territories. The identified upgrades would generate 470 MW of renewable resources in 2005, 1,755 MW of renewable resources by 2008, 4,220 MW of renewable resources by 2017, and 6,270 MW of renewable resources under "remaining potential."

Alternative Description

The 2005 IEPR published by the CEC stated that in 2004, 10.2 percent of the State's electricity came from renewable sources, excluding large hydroelectric power (CEC, 2005b). The CEC estimates in the 2005 IEPR that the State has near-term economic potential for an additional 6,000 MW of renewables which, if developed, would nearly double California's renewable generating capacity. The principal renewable electricity generation technologies that could serve as alternatives to the Proposed Project and do not burn fossil fuels are geothermal, solar, hydroelectric, wind, and biomass.

Geothermal. Geothermal technologies use steam or high-temperature water (HTW) obtained from naturally occurring geothermal reservoirs to drive steam turbine/generators. Geothermal plants must be built at a geothermal reservoir site and typically require about 0.5 acres/MW (600 acres for 1,200 MW). The technology relies on either a vapor dominated resource (dry, super-heated steam) or a liquid-dominated resource to extract energy from the HTW. Geothermal is a commercially available technology, but it is limited to areas where geologic conditions result in high subsurface temperatures. There are no geothermal resources in the project vicinity, making this technology an infeasible alternative without substantial transmission infrastructure.

California's Imperial Valley contains 1,950 MW of geothermal power reserves; however, very little transmission capacity is currently available to export such additional generation to the San Diego or Los Angeles areas, as would be required under the Proposed Project. The Imperial Valley Study Group (IVSG) was a voluntary planning collaborative made up of regional stakeholders, such as the CPUC, CEC, and SCE, among others. Its mission was to evaluate and recommend regional transmission solutions that meet threshold requirements for reliability, least cost development and for minimizing environmental impact. The IVSG has recommended a three-phased plan for the development of the transmission necessary to export 2,200 MW of renewable generation (both geothermal and solar) from the region. These solutions cross control area boundaries and require coordination among several transmission owners, Load Serving Entities, regulatory and government agencies and other interests (IVSG, 2005).

Biomass. Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. California has approximately 1,000 MW of biomass-generated electricity, including some 600 MW from solid-fuel biomass (residues from forestry and agriculture) and about 400 MW from other sources such as landfill gas, biogas from wastewater treatment, direct burning of municipal solid waste, and anaerobic digestion of livestock manure (CEC, 2005b). Biomass facilities generate substantially greater quantities of air pollutant emissions than natural gas burning facilities, though these emissions may be partially offset by the reduction in emissions from open-field burning of these fields. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the capacity of the 1,200 MW.

Solar. Currently, there are two types of solar generation available: solar thermal power and photovoltaic (PV) power generation. Solar thermal power generation uses high temperature solar collectors to convert the sun's radiation into heat energy, which is then used to run steam power systems. Solar thermal is suitable for distributed or centralized generation, but requires far more land than conventional natural gas power plants. Solar parabolic trough systems, for instance, use approximately five acres to generate one megawatt.

Photovoltaic (PV) power generation uses special semiconductor panels to directly convert sunlight into electricity. Arrays built from the panels can be mounted on the ground or on buildings, where they can also serve as roofing material. Unless PV systems are constructed as integral parts of buildings, the most efficient PV systems require about four acres of ground area per megawatt of generation.

California is a leader in the installation of solar photovoltaic (PV) systems, with more than 130 MW of rooftop PV systems installed since 1981. Since taking office in 2003, Governor Schwarzenegger has indicated strong support for solar energy development, initially by proposing to make half of all new homes built in the State solar-powered and then by proposing a goal of 1 million solar roofs in California by 2018 (CEC, 2005b). In his response to the CEC's 2003 IEPR and 2004 IEPR Update, the Governor reinforced the goal of a million solar roofs by outlining principles to be used to achieve that goal. As a further indication of his commitment to solar energy, the Governor recently signed a law that would promote the installation of PV generation in open spaces above and along 660 miles of open canals and pipelines on the State Water Project.

The CEC and the CPUC are working together to develop a unified PV program and a draft decision from the CPUC was released on November 15, 2005 (Rulemaking 04-03-017). An Interim Order was released by the CPUC under Commissioner Michael Peevey and ALJ Kim Malcolm on December 13, 2005 and the CPUC approved the "California Solar Initiative" (CSI) on January 12, 2006. In recognition of the benefits of solar technologies as a viable energy resource alternative to traditional energy technologies, program increases funding by \$300 million in 2006 for solar PV technologies that are currently

part of the Self-Generation Incentive Program (SGIP). The Rulemaking states that it intends to adopt at the earliest opportunity a separate and more elaborate program to provide incentives for the installation of solar energy technologies in California. The CSI responds to a policy proclamation by the Governor favoring solar development and strong interest by the State Legislature in an expanded solar incentives program in California. The California Solar Initiative includes the following provisions (CPUC, 2006):

- \$2.9 billion over a 10-year period in rebates that will decline steadily over that same timeframe.
- The CEC will oversee one component of the program to focus on builders and developers of new housing, to encourage solar installations in the residential new construction market. The CPUC will oversee the remainder and majority of the CSI, which will cover existing residential housing, as well as existing and new commercial and industrial properties.
- 10 percent of program funding will be set aside for low-income customers and affordable housing installations.
- Up to an additional 5 percent of the annual budget for potential research, development, and demonstration activities, with emphasis on the demonstration of solar and solar-related technologies.
- Requires that solar incentive payments be made not just for installed capacity, but also with emphasis on the performance and output of the solar systems installed, to ensure that these solar investments are delivering clean energy as promised.
- Requires all facilities that receive an incentive to undergo an energy efficiency audit (at a minimum) to identify more cost-effective energy efficiency investment options at the building.
- Hold workshops to determine incentives for newly constructed buildings that participate in utility energy efficiency new construction programs and exceed the existing building standards by a certain threshold.

Solar resources would require large land areas in order to meet the project objective to supply 1,200 MW of electricity. For example, assuming that a parabolic trough system was located in a maximum solar exposure area, such as in a desert region, generation of 1,200 MW would require 6,000 acres. For a PV plant, generation of 1,200 MW would require 4,800 acres.

While solar generation facilities do not generate problematic air emissions and have relatively low water requirements, there are other potential impacts associated with their use. Construction of solar thermal plants can lead to habitat destruction and visual impacts. PV systems can also have negative visual impacts, especially if ground-mounted. Furthermore, PV installations are highly capital intensive and manufacturing of the panels generates some hazardous wastes.

Both solar thermal and PV facilities generate power during peak usage periods since they collect the sun's radiation during daylight hours. However, even though the use of solar technology may be appropriate for some peaker plants, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of solar resources.

Stirling Solar Dish. On October 27, 2005, the CPUC approved a solar renewable energy contract (power purchase agreement) for SCE with Stirling Energy Systems, Inc. on the first commercial application of the "Stirling Solar Dish" (Stirling Energy, 2005a). As a different technology from the more familiar solar panel, the dish concentrates solar energy by the use of reflective surfaces and by the use of the Stirling heat engine to convert the heat into electricity.

This 4,500-acre solar generating station would be the world's largest solar facility, capable of producing more electricity than all other U.S. solar projects combined. The 20-year power purchase agreement calls for development of a 500 MW solar project 70 miles northeast of Los Angeles using innovative Stirling dish technology. The agreement includes an option to expand the project to 850 MW. Initially, Stirling would build a one-MW test facility using 40 of the company's 37-foot-diameter dish assemblies. Subsequently, a 20,000-dish array would be constructed near Victorville, CA during a four-year period. Although Stirling dish technology has been successfully tested for 20 years, the SCE-Stirling project represents its first major application in the commercial electricity generation field. Experimental models of the Stirling dish technology have undergone more than 26,000 hours of successful solar operation. A six-dish model Stirling power project is currently operating at the Sandia National Laboratories in Albuquerque, New Mexico (Stirling Energy, 2005b).

The Stirling dish technology converts thermal energy to electricity by using a mirror array to focus the sun's rays on the receiver end of a Stirling engine. The internal side of the receiver then heats hydrogen gas, which expands. The pressure created by the expanding gas drives a piston, crank shaft, and drive shaft assembly much like those found in internal combustion engines but without igniting the gas. The drive shaft turns a small electricity generator. The entire energy conversion process takes place within a canister the size of an oil barrel. The process requires no water and the engine is emission-free.

Tests conducted by SCE and the Sandia National Laboratories have shown that the Stirling dish technology is almost twice as efficient as other solar technologies. These include parabolic troughs which use the sun's heat to create steam that drives turbines similar to those found in conventional power plants, and photovoltaic cells which convert sunlight directly into electricity by means of semi-conducting materials like those found in computer chips (Stirling Energy, 2005b).

Wind. Wind carries kinetic energy that can be utilized to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current (AC) into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. A single 1.5 MW turbine operating at a 40 percent capacity factor generates 2,100 MWh annually. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. Wind turbines being manufactured now have power ratings ranging from 250 watts to 1.8 MW, and units larger than 4 MW in capacity are now under development (AWEA, 2004). The average capacity of wind turbines today is 750 kW.

As a result of the regional geography, tax incentives, and favorable legislation in the wake of the 1970s energy crisis, California became the first state to develop large wind farms in the early 1980s. California was the first U.S. state in which large wind farms were developed, beginning in the early 1980s, and the State still leads the nation in wind power generation. However, 16 other states are considered to have greater overall wind generation potential. California currently has an installed capacity of 2,051 MW, and an additional over 300 MW are planned (AWEA, 2004). The San Geronio Pass and Tehachapi area are two likely sources of wind energy within SCE's territory.

In open, flat terrain, a utility-scale wind plant would require about 60 acres per MW of installed capacity. However, only 5 percent (3 acres) or less of this area would actually be occupied by turbines, access roads, and other equipment. The remainder could be used for other compatible uses such as farming or ranching. A wind plant located on a ridgeline in hilly terrain will require much less space, as little as two acres per MW (AWEA, 2004).

San Gorgonio Pass. The San Gorgonio Pass near Palm Springs hosts the third largest concentration of wind turbines in California. There are more than 3,500 wind turbines located in the pass, many massed on the floor of the Whitewater Wash (an ephemeral stream) cutting a wide gap through the San Bernardino Mountains to the north and the San Jacinto Mountains to the south. The San Gorgonio wind turbines produce approximately 600 million kilowatt-hours (kWh) every year. This amount of electricity is enough to meet the needs of 100,000 typical homes or about 250,000 people; however, the available land for new wind turbines in the area is nearing capacity and thus the future capacity potential is low.

Tehachapi. The Tehachapi area is one of the State's most productive and historic wind energy resource areas with roughly 600 MW of installed capacity. Only the San Gorgonio and Altamont Pass areas rival Tehachapi for productivity. Many of the installed systems at Tehachapi have their origins in the early 1980s. Over the years, at least 30 separate wind development projects have led to installation of more than 4,600 turbines in the Tehachapi area, and a new development boom is just beginning. In the upcoming decades, the CEC forecasts the potential for 4,400 MW of new wind generation in the area, and the CAISO currently anticipates about 1,100 MW worth of new wind projects. As of January 27, 2006, applications for more than 2,100 MW of new wind capacity in Los Angeles and Kern Counties had been filed with the CAISO (CAISO, 2006). All of this energy would need to be carried to CAISO customers by the major investor-owned utilities (either PG&E or SCE). However, the utilities do not have adequate transmission facilities to deliver this energy. In addition to the development foreseeable by CAISO, northwest of Mojave, the Los Angeles Department of Water and Power is currently developing a major wind system for its customers (the 120 MW Pine Tree Wind Project).

Hydroelectric Power. In order to locate a hydropower project with peaking capability of 100 MW, a significant area of land is required, typically on the order of 1,400 acres, with construction of a storage reservoir constituting the primary land use. While hydropower does not require burning fossil fuels and may be available (e.g., on the Colorado River or a local water resource), this power source can cause significant environmental impacts primarily due to the inundation of many acres of potentially valuable habitat and the interference with fish movements during their life cycles. As a result of these impacts, it is extremely unlikely that new hydropower facilities could be developed and permitted in California within the next several years.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

Renewable resources, in particular, tend to rely on dedicated, long-term, full-requirement contracts. SCE has stated that it is not aware of any renewable generation projects in southern California in which only a portion of its full capacity is secured by contract, and the remaining capacity is sold on a merchant basis. Therefore, use of renewable resources would be inconsistent with the objectives of the Proposed Project, which are focused on creating the ability for DPV2 to increase California's transmission import capability from the Southwest and enhance and support the competitive energy market in the Southwest.

SCE stated in the PEA that it specifically considered the solar and wind renewable generation as alternatives to this project. Generation from either technology is categorically "as available" and therefore does not provide the dispatch flexibility that resources delivered via DPV2 can potentially provide. Nevertheless, SCE's evaluation of DPV2 assumes full compliance with California's Renewable Portfolio Standard, in which SCE plans to meet the statutory requirement that 20 percent of its retail energy load be

met by renewable generation and a significant portion of this goal is expected to be met through wind and solar generation. Moreover, SCE's future procurement activities will consider additional cost-effective renewable resources that go beyond the 20 percent statutory requirement.

Feasibility

As described below, each of the renewable technologies below would not be able to produce 1,200 MW as is required for the DPV2 Project. If several different technologies were combined together, such as development of wind technology in the Tehachapi area, the Stirling Solar Dish and/or the Imperial Valley geothermal reserves, it would be possible to generate more than 1,200 MW of power. However, the permitting and construction of the various projects within the project timeline would be unlikely and each of the projects would still require the construction of transmission lines to bring the power into the Los Angeles area.

Environmental Advantages

Renewable technologies would not require the burning of fossil fuels and the environmental and resource impacts associated with natural gas-fired or nuclear power. The visual and construction impacts of the Proposed Project would not occur if a feasible source of renewable power were available near the locations where energy is consumed.

Environmental Disadvantages

Renewable technology facilities do not generate air emissions like conventional power plants, and they generally have relatively low water requirements. However, there are other potential impacts associated with their use. Construction of solar and geothermal plants and wind turbines can lead to habitat destruction and visual impacts. In addition, all forms of renewable energy would also require the construction of transmission of the point of generation to the load served, which would create similar types of impacts as the Proposed Project.

Geothermal. While geothermal plants produce far fewer emissions than combined-cycle gas plants, geothermal reservoirs contain varying levels of hydrogen sulfide gas (H₂S), which smells like rotten eggs and can be toxic at high concentrations. The odor can be a nuisance even at very low concentrations during drilling and plant start-up, but is not an issue during normal plant operations. Geothermal plants also emit very low levels of carbon dioxide (CO₂) and sulfur oxides. Reservoirs with high concentrations of boron have the potential to harm nearby plant life. In addition, mercury and arsenic from a geothermal reservoir can accumulate in scale in plant piping systems in concentrations high enough to require monitoring, special handling and regulated disposal as hazardous wastes. Binary plants, which have closed cycles, avoid many pollution problems because they have virtually no emissions.

Biomass. Biomass facilities generate substantially greater quantities of air pollutant emissions than natural-gas burning facilities. These emissions vary depending upon the precise fuel and technology used. The collection of biomass fuels can have significant environmental impacts. Harvesting timber and growing agricultural products for fuel requires large volumes to be collected, transported, processed and stored. Biomass fuels may be obtained from supplies of clean, uncontaminated wood that otherwise would be landfilled or from sustainable harvests. On the other hand, the collection, processing and combustion of biomass fuels may cause environmental problems if, for example, the fuel source contains toxic contaminants, agricultural waste handling pollutes local water resources, or burning biomass deprives local ecosystems of nutrients that forest or agricultural waste may otherwise provide.

Solar. While solar generation facilities do not generate air emissions and have relatively low water requirements, there are other potential impacts associated with their use. Construction of solar thermal plants can lead to habitat destruction and visual impacts. PV systems can also have negative visual impacts, especially if ground-mounted. Furthermore, PV installations are highly capital intensive, and manufacturing of the panels generates some hazardous wastes.

Wind. In addition, to the land and transmission lines that would be required for renewable technologies, wind turbines can create other environmental impacts, as summarized below (AWEA, 2004):

- Erosion can be a concern in certain habitats such as the desert or on mountain ridgelines. Standard engineering practices can be used to reduce erosion potential.
- Birds collide with wind turbines. Avian deaths have become a concern at Altamont Pass in California, which is an area of extensive wind development and also high year-round raptor use.
- Wind energy can negatively impact birds and other wildlife by fragmenting habitat, both through installation and operation of wind turbines themselves and through the roads and power lines that may be needed.
- Bat collisions at wind plants generally tend to be low in number and to involve common species, which are quite numerous. A high number of bat kills at a new wind plant in West Virginia in the fall of 2003 has raised concerns, and the problem of bat mortality at that site is currently under investigation.
- Visual impacts of wind power fields can be significant, and installation in scenic and high traffic areas often results in strong local opposition.
- Noise was an issue with some early wind turbine designs, but it has been largely eliminated as a problem through improved engineering and through appropriate use of setbacks from nearby residences. Aerodynamic noise has been reduced by changing the thickness of the blades' trailing edges and by making machines “upwind” rather than “downwind” so that the wind hits the rotor blades first, then the tower (on downwind designs where the wind hits the tower first, its “shadow” can cause a thumping noise each time a blade passes behind the tower). A small amount of noise is generated by the mechanical components of the turbine.

Hydroelectric. Negative aspects of hydroelectric development primarily center around inundation to reaches of stream and riparian lands as a result of dam and reservoir development, that result in permanent changes to the environment. These include creating barriers for fish passage, displacing native plant and animal species, and eliminating whitewater recreation areas. Hydroelectric developments with large water storage components can create the potential for flooding downstream from high releases during storm events or due to catastrophic dam failures. Construction of new dams and maintenance of old structures must undergo rigorous design analyses that demonstrate the ability to perform safely under the most adverse seismic and flood conditions.

Alternative Conclusion

ELIMINATED. Each of these technologies could be attractive from an environmental perspective because of the absence or reduced level of air pollutant emissions. However, these technologies also would cause environmental impacts and have feasibility problems. Use of renewable generation technologies would avoid the specific impacts associated with the construction and operation of the proposed DPV2 project, but new transmission would still be required from the renewable generation locations, creating impacts similar to those of the Proposed Project, which is proposed to transmit power from an already

existing generation source. In addition to the reliability and feasibility issues discussed above, use of renewable resources would be inconsistent with the objectives of the proposed DPV2, which are focused on creating the ability for DPV2 to increase California's transmission import capability from the Southwest and enhance and support the competitive energy market in the Southwest. Therefore, renewable technologies have been eliminated from detailed consideration in this EIR/EIS.

4.5.3 Conservation and Demand-Side Management

Alternative Description

For the past 30 years, while per capita electricity consumption in the United States has increased by nearly 50 percent, California electricity use per capita has been relatively flat. This achievement is the result of continued progress in cost-effective building and appliance standards and ongoing enhancements to efficiency programs implemented by investor-owned utilities (IOUs), customer-owned utilities, and other entities. Since the mid-1970s, California has regularly increased the energy efficiency requirements for new appliances sold and new buildings constructed here. In addition, in a creative and precedent-setting move, the CPUC in the 1980s de-coupled the utilities' financial results from their direct energy sales, facilitating utility support for efficiency programs. These efforts have reduced peak capacity needs by more than 12,000 MW and continue to save about 40,000 gigawatt hours (GWh) per year of electricity (CPUC & CEC, 2005).

In the 2003 IEPR, the CEC concluded that California could save an additional 30,000 GWh of energy from energy efficiency programs over the coming decade (CEC, 2005b). In September 2004, the CPUC adopted the nation's most aggressive energy savings goals for both electricity and natural gas by establishing aggressive energy savings goals and authorizing a significant increase in energy efficiency funding. In achieving these targets will reduce the utilities' need for additional electricity supplies between 2004 and 2013 by more than half (CEC, 2005b) and the IOUs will save an additional 5,000 MW and 23,000 GWh per year of electricity, and 450 million therms per year of natural gas by 2013 (CPUC & CEC, 2005).

The recent passage of SB 1037 (Kehoe) Chapter 366, Statutes of 2005, further reinforces the State's energy efficiency policies by requiring all utilities to meet their unmet resource needs first with energy efficiency and demand reduction resources that are cost-effective, reliable, and feasible.

Flex Your Power – Energy Efficiency is a statewide consumer marketing campaign that focuses exclusively on energy efficiency. The goal is to capitalize on the “Flex Your Power” campaign through newspaper, radio and television media targeting English and Asian-speaking communities. SCE facilitated the statewide coordination between the IOUs and Flex Your Power as the administrator of this statewide program. SCE fulfilled the same role as statewide administrator of the Univision Television Energy Efficiency Marketing (U-TEEM) and Runyon Saltzman & Einhorn's (RS&E) “Reach for the Stars” marketing campaigns. U-TEEM is a consumer marketing and outreach program that targets Spanish speaking customers. RS&E's campaign is focused on moderate income customers in rural areas within the State of California. At the end of December 2004, all three campaigns achieved their goal of raising general awareness of energy efficiency (SCE, 2005b).

SCE collected funding for its 2004 energy efficiency programs pursuant to California Public Utilities Code sections 381 and 399 et seq., and as directed by the CPUC in Decision 03-12-062. The CPUC approved the 2004 energy efficiency program activities in Decisions 03-12-060 and 04-02-059. The overall energy efficiency program includes a host of information, services, and incentives under the following

program areas: Residential, Non-Residential, New Construction, Crosscutting, Market Assessment and Evaluation (MA&E) and Regulatory Oversight, Shareholder Performance Incentives, IOU Partnerships, and Non-IOU Programs. SCE's 2005 Energy Efficiency Annual Report states that the 2004 results from all of SCE's 2004-2005 energy efficiency programs provided nearly 950 million kilowatt-hours (kWh) of net annualized energy savings, 175 megawatts (MW) of net peak demand reduction, and over \$570 million of resource benefits (SCE, 2005b).

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

The Conservation and Demand-Side Management Alternative would not increase California's transmission import capability from the Southwest and nor would it enhance and support the competitive energy market in the Southwest. Therefore, this alternative would not meet most of the stated objectives of the Proposed Project.

Feasibility

Demand response programs are the most promising and cost-effective options for reducing peak demand on California's electricity system. Although the CPUC adopted demand reduction targets for investor-owned utilities in 2003, such as SCE, demand response programs have failed to deliver their savings targets for each of the last three years and appear unlikely to meet their targets for next year (CEC, 2005b).

Environmental Advantages

This alternative would reduce energy consumption, thus would reduce the need for power generation and new transmission lines. All effects of the Proposed Project would be avoided.

Environmental Disadvantages

There would be no environmental disadvantages because there would be no construction and no new impacts would be created.

Alternative Conclusion

Demand-Side Management. *ELIMINATED.* Demand response represents a small fraction of the total capacity requirement needed to meet SCE's import and supply reliability objectives. As a stand-alone alternative to DPV2, these programs cannot meet the growing electricity demands of California for two main reasons. First, SCE's 2004 Long Term Procurement Plan (LTPP) already includes the maximum amount of approved demand response investments over the next ten years, amounting to approximately 1,400 MW of peak load reduction by 2014. Even with the amount of demand response SCE is planning to implement, SCE has stated that the economic analysis on purpose and need has shown that DPV2 is still a cost-effective project in addition to approved and projected demand-side management investments (SCE, 2005a). Second, demand response programs are resources that are designed to primarily provide capacity benefits and not low-cost energy benefits such as DPV2. While SCE supports the CPUC's "loading order" and is aggressively pursuing demand-side programs before other resource alternatives, implementation of additional demand response over-and-above what is currently planned in SCE's service territory that match the size and scale of DPV2 is unlikely. Instead, new supply resources and/or increased access to new supply resources via transmission are needed in addition to demand response

investments. For these reasons, the demand response alternative does not meet the project's objectives and was excluded from further evaluation.

Conservation. *ELIMINATED.* SCE's 2004 LTPP already includes the maximum reliably achievable amount of cost effective energy efficiency, amounting to nearly 6 billion kWh reduction in sales over and above what is currently implemented over the next ten years and therefore is not an alternative to DPV2. In fact, SCE has stated that based on the economic analysis regarding purpose and need of the Proposed Project, DPV2 would still be cost effective even with the amount of energy efficiency SCE is planning to implement. Finally, for similar reasons as the DSM alternative discussed above, the energy efficiency alternative does not meet the project's objectives and was excluded from further evaluation.

4.5.4 Distributed Generation

Alternative Description

Distributed Generation (DG) is generally considered to be generation, storage, or demand-side management devices, measures, and/or technologies connected to the distribution level of the transportation and distribution grid, usually located at or near the intended place of use. There are many DG technologies, including microturbines, internal combustion engines, combined heat and power (CHP) applications, fuel cells, photovoltaics and other solar energy systems, wind, landfill gas, digester gas and geothermal power generation technologies. Distributed power units may be owned by electric or gas utilities, by industrial, commercial, institutional or residential energy consumers, or by independent energy producers. To the extent that it is established, DG acts to either reduce the load on the SCE system or be applied as additional system generation. In either case, it would help to support SCE's ability to meet the applicable reliability criteria.

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

There are several incentive programs designed to provide financial assistance to those interested in operating Distributed Generation systems in California. Senate Bill 1345 (Statutes of 2000, Chapter 537, Peace, signed by Governor Davis in September 2000) directs the Energy Commission to develop and administer a grant program to support the purchase and installation of solar energy and small distributed generation systems. Solar energy systems include solar energy conversion to produce hot water, swimming pool heating, and electricity, as well as battery backup for PV applications. Small distributed generation systems include micro-cogeneration, gas turbines, fuel cells, electricity storage technologies (in systems other than PV), and reciprocating internal combustion engines.

Consideration of CEQA/NEPA Criteria

Project Objectives, Purpose, and Need

While DG technologies are recognized as important resources to the region's ability to meet its long-term energy needs, DG does not provide a means for SCE to meet its objectives for the project because of the comparatively small capacity of DG systems and the relatively high cost.

In addition, since it is usually located at or near the intended place of use, the DG Alternative would not increase California's transmission import capability from the Southwest and nor would it enhance and support the competitive energy market in the Southwest. Therefore, this alternative would not meet most of the stated objectives of the Proposed Project.

Feasibility

Consideration of DG as an alternative to the Proposed Project is not feasible because no single entity has proposed implementing a substantial DG program. Also, a number of serious barriers, including technical issues, business practices, and regulatory policies, make interconnection to the electrical grid in the United States difficult. Broad use of distributed resources would likely require regulatory support and technological improvements. There could be regulatory feasibility issues with the lengthy permitting process. Air permits are generally the first permits sought for DG facilities because air district requirements influence equipment selection. Once the DG equipment has been selected, the land use approval process can begin. Local governments must know what makes and models of equipment will be installed to evaluate potential significant environmental impacts (e.g., noise and aesthetics) and to specify mitigation measures. Building permits are sought last because construction plans must incorporate all project changes required by the local government planning authority to mitigate environmental impacts. This lengthy permitting process would make it impossible to construct this technology within the timeframe of the Proposed Project.

In a January 2002 report on DG the CEC concluded that "DG is capable of providing several Transmission and Distribution (T&D) services, but the extent to which DG can be successfully deployed to effectively supply them are limited by (1) the technical capabilities of various DG technologies; (2) technical requirements imposed by the grid and grid operators; (3) business practices by T&D companies; and (4) regulatory rules and requirements . . . some technical barriers resulting from key characteristics of the prime mover will prevent some DG technologies from providing certain T&D services." Some problems of specific types of distributed generation include the following:

- **Renewable Energy Sources.** As discussed above, the high cost and limited dispatchability of small-scale renewable energy sources such as solar and wind power essentially inhibit their market penetration. In addition, biomass and wind facilities require specific circumstances for siting (i.e., near sources of bio-fuel or in high wind areas), and have their own environmental consequences (e.g., requiring large land areas or resulting in large quantities of air emissions).
- **Fuel Cells.** The present high cost of and small generation capacity of fuel cells precludes their widespread use.
- **Other Fossil-Fueled Systems.** Microturbines and various types of engines can also be used for distributed generation; these technologies are advancing quickly, becoming more flexible, and impacts are being reduced. However, they are still fossil-fueled technologies with the potential for significant environmental impacts, including noise. Such systems also have the potential for significant cumulative air quality impacts because individually they are typically small enough to avoid the regulatory requirements for air pollution control. Therefore, use of enough of these systems to constitute an alternative to the Proposed Project would potentially cause significant unmitigated air quality impacts.

Environmental Advantages

Linear construction impacts of transmission lines would be less because the source of energy generation would be in close proximity to the location of demand. Other lessening of environmental effects would depend on the type of generation that would be used (see individual discussions).

Environmental Disadvantages

Potential new impacts created by DG would depend on the type of generation that would be used. Impacts of solar and wind facilities are addressed above. Other types of DG have air quality and noise impacts.

Alternative Conclusion

ELIMINATED. As stated in SCE's 2004 LTPP,³¹ SCE supports the integration of cost-effective distributed generation as both a demand-side and grid-side resource. SCE's 2004 LTPP forecasts a 6 percent annual growth in distributed generation resources³² exceeding the Energy Action Plan goal of 1 percent growth per year. However, most DG facilities are very small, averaging less than 0.1 MW per facility. It does not appear to be feasible to construct and operate a distributed generation alternative in quantity sufficient to meet projected demand growth that can be served by the large-scale generation in the Palo Verde area. For these reasons, the distributed generation alternative does not meet the project's objectives and was excluded from further evaluation.

³¹ See, R.04-04-003 Volume 1 at 81.

³² SCE has over 3,500 distributed generation sites with a combined capacity of about 255 MW, which have been approved/authorized since 2001.

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